

**REGULAR MEETING OF CITY COUNCIL
JULY 13, 2017 – 5:30 PM
MUNICIPAL COURTROOM
GEORGETOWN, SC**



Notice of this meeting has been made in accordance with the 1976 Code of Laws of South Carolina Freedom of Information Act.

1. **CALL TO ORDER**
2. **ANNOUNCEMENT CONCERNING ELECTRONIC DEVICES**
3. **INVOCATION & PLEDGE OF ALLEGIANCE**
4. **PUBLIC COMMENTS**
5. **INTRODUCTION OF NEW EMPLOYEES/EMPLOYEE RECOGNITION**

PRESENTATIONS

- A. **Certificate to City from Muscular Dystrophy Association**
- B. **Richard C. Campbell Award**

6. **MARTY TENNANT - AZAR OPINION**

7. **FINANCE**

- A. **Motion to Approve a Resolution Authorizing the Imposition of a Transfer Policy of Funds from the Enterprise Funds to the General Fund.**

Attachments:

- 1 Resolution - Authorizing Transfer Policy (PDF)
 - 2 Transfer Policy - Exhibit A (PDF)

- B. **Motion to Approve the Accommodations & Hospitality Tax Committee Funding Distributions to eight (8) applicants totaling \$92,169.**

Attachments:

- 1 AGENDA ITEM Allocation of ATAX HTAX Funds 6.20.17 Meeting (PDF)
 - 2 ATAX HTAX Minutes 6.20.17 (PDF)

8. **HOUSING AND COMMUNITY DEVELOPMENT**

- A. **Motion to approve first reading of an ordinance rezoning approximately 2.42 acres located on North Fraser Street, owned by Magnolia Commons LLC, from Planned Development (PD) to General Commercial (GC).**

Attachments:

- 1 Magnolia Commons PD Rezoning Ord (PDF)
 - 2 June 27 2017 PC Minutes (PDF)

- 3 Rezoning Application Mag Com (PDF)
- 4 Current Zoning (PDF)
- 5 Proposed Zoning (PDF)
- 6 GC Use Chart (PDF)

B. Motion to approve second reading of an ordinance annexing 2.61 acres of land into the corporate limits of the City of Georgetown, South Carolina.

Attachments:

- 1 WFV Annexation Ordinance (PDF)
- 2 Petition for Annexation (PDF)
- 3 May PC Minutes Annex 2.61 (PDF)
- 4 711 Partners Plat (PDF)
- 5 Quit Claim Deed for County 2.61 ac (PDF)

C. Motion to approve second reading of an ordinance to rezone approximately 10.47 acres owned by 711 Partners LLC, located on Hwy 17 North adjacent to the Black River Bridge, from General Commercial (GC) to Planned Development (PD).

Attachments:

- 1 WFV Rezoning Ord (PDF)
- 2 May PC Minutes Rezone 10.47 (PDF)

D. Motion to adopt the multi-jurisdictional Program for Public Information (PPI) document as part of the City of Georgetown's floodplain management Credit Rating System (CRS), derived by the Insurance Services Office (ISO) and Federal Emergency Management Agency (FEMA).

Attachments:

- 1 PPI 2017 (PDF)
- 2 Minutes 5_11_16 (PDF)
- 3 Minutes 6_22_16 (PDF)
- 4 Minutes 3_15_17 (PDF)

9. POLICE

A. Motion to approve service agreement and payment to the Saint Frances Animal Center in the amount of \$75,000.00 for fiscal year 2017-2018.

Attachments:

- 1 SAINT FRANCES ANIMAL CENTER (PDF)

10. ELECTRIC UTILITIES

A. Motion to Approve Contract With Coastal Structures for Construction of Peak Shaving Plant and Payment in the Amount of \$1,756,000.

Attachments:

- 1 constutecrec (PDF)
- 2 constuteceval (PDF)
- 3 coastalbidmatch (PDF)

4 Preliminary Conformed Georgetown Gen Building Constr Spec
7_3_2017 (PDF)

- B. Motion to Approve Purchase Order and Payment to Sumter Utilities in the Amount of \$360,000 for Distribution Construction Services.**

Attachments:

1 SKMBT_C22416110912080 (PDF)

11. WATER UTILITIES

- A. Motion to Approve Purchase and Payment to Christopher Trucks for a Freightliner Dump Truck in the Amount of \$103,472.**

Attachments:

1 Quote 2nd Georgetown.TA 14ft Dump 6.22.17 (PDF)

12. ENGINEERING

- A. Motion to engage AECOM as the engineer of record to provide engineering services for the Historic District Water System Improvements and approve payment in the amount of \$63,200. The project consists in the replacement of approximately 8,700 linear feet of 6-in. and 10-in. water mains in the City's Historic District.**

Attachments:

1 Proposal Historic District Water System Improvements - City of Georgetown (PDF)

- B. Motion to engage AECOM as the engineer of record to provide professional engineering services for the rehabilitation of the West End Sewer System and approve payment for a not to exceed amount of \$210,500. System consists of approximately 40,000 feet of sewer mains which will be under study to identify deficiencies and prepare recommendations for sewer system rehabilitation.**

Attachments:

1 City of Georgetown West End Sewer SSES Proposal 5-5-17 (PDF)

- C. Motion to approve bid for construction of boat trailer parking lot at East Bay Park and to make payment to Gaster's Grading Co. Inc. for a not to exceed amount of \$593,250.**

Attachments:

1 Bid Tabulation Form - Project #1205-B (PDF)

2 Bid Tabulation Summary - Project #1205-B (PDF)

3 GASTERS GRADING BID (PDF)

4 Gaster Contractor Subcontractor Qualifications (PDF)

13. ADMINISTRATION

- A. Motion to Approve Location of Gazebo to be donated by the Georgetown Lions Club in Honor of its Centennial Year as an Organization Serving the Community.**

- B. Motion to approve Second Semi-Annual Payment to SCMIRF in the amount of \$308,772.00 For Property, Liability and Vehicle Insurance and Two Quarterly**

Attachments:

1 June 2017 Report (PDF)

J. Economic Development Monthly Report

Attachments:

1 Economic Development June Report.submittal (PDF)

K. June 2017 Finance & IT Departmental Reports

Attachments:

1 June 2017 Finance & IT Report (PDF)

2 Grants-Monthly Rpts FY 16.17 (PDF)

3 GovDeals-Monthly Rpts FY 16.17 (PDF)

4 Budget Performance Report - June 2017 (PDF)

19. EXECUTIVE SESSION

A. Motion to enter Executive Session pursuant to Section 30-4-70(a)(1) and (2) to discuss employment, compensation, and an employment contract of an existing employee.

B. Motion to adjourn Executive Session and return to Regular Session.

C. NO FORMAL ACTION WAS TAKEN IN EXECUTIVE SESSION.

20. COUNCIL MAY TAKE ACTION ON ITEMS DISCUSSED IN EXECUTIVE SESSION

21. ADJOURNMENT

A. Motion to adjourn the Regular Meeting of City Council



120 North Fraser Street • Georgetown, SC 29440 • (843) 545-4000

ACTION ITEM

DOC ID: 2334

Council Meeting Date:	13 July 2017
Department:	Finance
Issue Under Consideration:	Motion to Approve a Resolution Authorizing the Imposition of a Transfer Policy of Funds from the Enterprise Funds to the General Fund.
Amount Requested:	NA
Is Item in Current Budget?	NA
If no, please explain:	
Financial Impact:	Recognize and identify the cost incurred by the General Fund to support the Enterprise Fund, as well as revenues foregone by the General Fund as a result of the City's ownership and operation of the Combined Public Utility System.
Points to Consider:	The City has historically transferred certain amounts from the Enterprise Funds to the General Fund.
Options:	Approve, Amend or Disapprove Policy
Staff Recommendation:	Approve Policy.

Reviews:

Debra Bivens Completed 07/03/2017 2:36 PM
 City Attorney Completed 07/03/2017 5:39 PM
 Paul Gardner Completed 07/05/2017 1:35 PM
 Ann U. Mercer Completed 07/06/2017 12:15 PM
 Georgetown City Council Pending 07/13/2017 5:30 PM

Attachments:

1. 1 Resolution - Authorizing Transfer Policy (PDF)
2. 2 Transfer Policy - Exhibit A (PDF)

**RESOLUTION AUTHORIZING THE IMPOSITION OF A TRANSFER POLICY
FOR THE CITY OF GEORGETOWN, SOUTH CAROLINA;
AND OTHER MATTERS RELATING THERETO**

WHEREAS, the City of Georgetown, South Carolina (the “City”) is a municipal corporation organized and existing under South Carolina; and

WHEREAS, pursuant to the provisions of Section 5-7-30 of the Code of Laws of South Carolina, 1976, as amended, the City is authorized to “enact regulations;” and

WHEREAS, the City has historically transferred certain amounts from its Enterprise Fund to its General Fund; and

WHEREAS, such transfers were and are based on costs incurred by the General Fund to support the Enterprise Fund as well as revenues foregone by the General Fund as a result of the City’s ownership and operation of the Combined Public Utility System; and

WHEREAS, the City now intends to memorialize the historic justification of the transfer of funds from the Enterprise Fund to the General Fund.

NOW, THEREFORE, BE IT RESOLVED by the Mayor and Council of the City of Georgetown, in Council duly assembled, as follows:

Recitals. Each finding or statement of fact set forth in the recitals hereto has been examined and has been found to be in all respects true and correct.

1. **Implementation.** The City shall implement the Transfer Policy in the form attached hereto as **Exhibit A**.

2. **Modification.** Any modification to the transfer policy shall be undertaken by and through subsequent amendatory actions of the City.

ADOPTED this 13th day of July, 2017.

**CITY OF GEORGETOWN,
SOUTH CAROLINA**

Mayor

ATTEST:

City Clerk

Attachment: Resolution - Authorizing Transfer Policy (2334 : Motion to Approve Resolution Authorizing a Transfer Policy)

EXHIBIT A**Transfer Policy****Policy:**

It is the policy of the City of Georgetown (the “**City**”) to allocate funds to and otherwise reimburse its General Fund for costs attributable to the Enterprise Funds (Electric, Water, and Wastewater) established for the City’s Combined Public Utility System (the “**System**”). To the extent any transfer from the Enterprise Fund to the General Fund is made under the methodology established herein, all transfer amounts are considered an expense of the Enterprise Fund, but shall only be made from those revenues which constitute surplus funds under the provisions of the Bond Ordinance of the City dated August 20, 2015.

Scope:

It is the intent of City to establish an arrangement that provides for a predictable, reliable and mutually acceptable distribution of costs owed to the General Fund from the Enterprise Funds.

Guidelines:

As a part of its annual budget process (or as a budget amendment), the City shall determine the annual transfer from the Enterprise Funds to the General Fund based upon its omnibus allocation methodology, the components of which consist of one or all of the following (as further described below): (1) Cost of Service, (2) Operations Fee, and (3) Payment in Lieu of Tax.

I. Cost of Service Allocation.

The City shall budget annually, based on the City’s review of the costs incurred by the General Fund to support the operations of the Enterprise Fund, a cost of services allocation for the benefit of the Enterprise Fund. This allocation is based on cost from the following General Fund Departments: Administration, Finance, IT and General Government. The cost of services allocation assumes that the System is an outside, third-party contractor, which is independent of the City and its General Fund operations. The methodology used to determine cost of services shall be based on personnel time of City staff, building usage, actual material costs and services provided.

II. Operations Fees.

The City shall budget annually a service fee that equals the fee that would have been paid by the Enterprise Funds had services of the System been provided by a private, investor-owned utility. The operations fee shall be calculated by multiplying all Revenues of the System made within the City’s corporate boundaries by five percent (5%).

III. Payment in Lieu of Taxes.

The City shall budget annually a payment in lieu of taxes that approximates the amount of *ad valorem* taxes that would have been paid had services of the System been provided by a private, investor-owned utility. The payment in lieu of taxes shall be calculated by multiplying the total capital assets of the System (as reported in the City's most recent audited financial statements) by 10.5% (or any other appropriate assessment ratio) and then by the then-applicable the City-wide tax rate. The resulting product shall be multiplied by the estimated percentage of fixed assets of the System that are located within the City's corporate boundaries.



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ACTION ITEM

DOC ID: 2333

Council Meeting Date:	13 July 2017
Department:	Finance
Issue Under Consideration:	Motion to Approve the Accommodations & Hospitality Tax Committee Funding Distributions to eight (8) applicants totaling \$92,169.
Amount Requested:	\$92,169 (See Attached List)
Is Item in Current Budget?	Yes.
If no, please explain:	
Financial Impact:	Awards will promote tourism in the City, therefore increasing revenue.
Points to Consider:	ATAX funds must be distributed timely to meet State regulations and remain compliant.
Options:	Approve, Amend or Deny awards as presented.
Staff Recommendation:	Approve as presented.

Reviews:

Debra Bivens Completed 07/03/2017 1:31 PM
 Paul Gardner Completed 07/05/2017 7:43 AM
 Ann U. Mercer Completed 07/06/2017 12:07 PM
 Georgetown City Council Pending 07/13/2017 5:30 PM

Attachments:

1. 1 AGENDA ITEM Allocation of ATAX HTAX Funds 6.20.17 Meeting (PDF)
2. 2 ATAX HTAX Minutes 6.20.17 (PDF)



AGENDA ITEM REQUEST FORM

	Insert N/A if a line is not relevant to the request. Each line must be completed.
Council Meeting Date:	July 13, 2017
Department:	Finance
Issue under Consideration:	Motion to Approve the Accommodations & Hospitality Tax Committee Disbursement Recommendation of FY 2017/2018 Accommodations & Hospitality Tax Funds to Eight (8) Applicants.
Amount Recommended:	\$92,169 1. Atlantis Design -HistoricGeorgetown.com Website \$3,162 HTAX 2. Friends of the Kaminski House -Wedding Destination and Showcase \$10,225 ATAX 3. Georgetown Bridge2Bridge Run Committee/Friendship Place -Historic Georgetown Bridge2Bridge Run (October 2017) \$16,838 HTAX 4. Georgetown Bulldog Booster Club -International Paper Baseball Classic (March 2018) \$5,830 ATAX 5. Georgetown Business Association -More Music In The Park \$12,775 ATAX -The Great Eclipses of 2017 \$3,323 ATAX 6. Georgetown County Museum -Promotional Campaign \$4,280 ATAX 7. Harbor Historical Association - 28 th Annual Wooden Boat Show (October 2017) \$15,966 ATAX - SC Maritime Museum Website, Promotions, and Exhibits \$13,270 ATAX - Waterfront Park Deck(700 Block) \$5,000 ATAX 8. Winyah Auditorium - Website \$1,500 ATAX
If no, please explain:	
Financial Impact:	Awards will promote tourism in the City, therefore increasing revenue.
Points to Consider:	ATAX funds must be distributed timely to meet State compliance regulations.
Options:	Approve, Amend or Deny awards as presented.
Staff Recommendations:	N/A
Date submitted	June 29, 2017
List Attachments:	Minutes of Accommodations & Hospitality Tax Committee meeting held June 20, 2017

**CITY OF GEORGETOWN
ACCOMMODATIONS & HOSPITALITY TAX ADVISORY COMMITTEE**

**MINUTES
TUESDAY June 20, 2017**

Members Present: Brandy Rogerson, Keith Wilcox, Adele Rowell, Ginger Gray and Wendy Carraway

Members Absent: Teri Britt, Rodney Long

Staff Present: Eliza Jagger, Susan Prescott, Nick Ard

1. Call to order

Eliza Jagger, Accountant, called the meeting to order at 4:01 PM.

2. Welcome new Committee Members and Reappointment

- a. Keith Wilcox, City Resident: Member at Large
- b. Reappointment-Brandy Rogerson, General Manager, Quality Inn: Hospitality-Lodging
- c. Reappointment-Teri Britt, General Manager, Hampton Inn: Hospitality-Lodging
- d. Reappointment-Wendy Carraway, Owner The Studio Center for Performing Arts: Cultural

3. Review and Approve Minutes (Attachments A)

- a. Minutes from the meeting held May 25, 2016 were reviewed. Motion to approve minutes made by Ginger Gray and seconded by Brandy Rogerson. Motion passed unanimously.

4. Review Accommodations Tax Revenue Schedule (Attachment B)

Eliza Jagger reviewed the Accommodations Tax Revenue report which shows revenue by quarter from FY 2011/2012 through FY 2016/2017. Accommodations and Hospitality tax funds available for awards calculated as follows:

FY 2015/2016 Allocation for Tourism	\$30,741
FY 2015/2016 Balance Forfeited	\$ 2,378
FY 2016/2017 Balance Forfeited	\$ 2,417
FY 2016/2017 Allocation for Tourism	<u>\$36,633</u>
Total ATAX funds available	\$72,169
Total HTAX funds available	<u>\$20,000</u>
<u>Total funds available for allocation</u>	<u>\$92,169</u>

5. Presentations by the Applicants:

a. *Atlantis Design-HistoricGeorgetown.com Website \$4,850*

Suzanne Doyle presented the request of funds for website hosting and domain name, maintenance, expansion and improvements, and promotional efforts to fund HistoricGeorgetownSC.com website. The website was created in 2009 to promote Georgetown as a tourist destination. Between May 2016 and May 2017 there were over seventy-eight thousand visitors to site which is a 19% increase since the previous year. The website features an event calendar, mutual links to local businesses, and boater services to attract tourist.

b. *Friends of the Kaminski House- Kaminski House Museum Wedding Destination Site and Wedding Showcase \$20,695*

Friends of the Kaminski House request was presented by Kim Leatherwood. Ms. Leatherwood requested funds to promote the Kaminski House Museum as a Wedding Destination through two popular wedding websites, the Knot and Wedding Wire, and Wedding Magazines, Charleston Weddings and Grand Strand Weddings. She requested funding to host a Wedding Showcase on the Kaminski House Lawn that spotlights the venue and local services. The staff is planning a new marketing strategy to focus on their outdoor venues, including the Museum Lawn and the Kossove Garden Terrace.

c. *Georgetown Bridge2Bridge Run Committee/Friendship Place-6th Annual Historic Georgetown Bridge2Bridge Run (Oct 2017) \$22,246*

The 7th Annual Bridge2Bridge Run will be held in October 2017 and will include a half marathon, 12K, 5K, and Kids Fun Run. The run will start at the Rice Museum Clock and the route will include several historical landmarks and Georgetown's scenic areas like East Bay Park. Mr. Hutto noted that even though the 2016 annual race was rescheduled due to Hurricane Matthew there were still 654 runners. The Georgetown Bridge2Bridge Run Committee is requesting funds for billboards, print/social media/radio ads, and porta johns.

d. *Georgetown Bulldog Booster Club*

i. *International Paper Baseball Classic (March 2018) \$5,830*

Alicia Johnson, Tournament Director, requested funds for the 28th Annual International Paper Baseball Classic that will be held in March 2018 at the Historic Mike Johnson Park. The Tournament lasts four days and consists of sixteen games, which bring approximately 1,750 tourist to Georgetown. Funds requested include national and regional advertising, website app, local advertising, grounds and field maintenance, and portable toilet rental and tents.

e. *The Georgetown Business Association*

i. *More Music In the Park \$12,775*

The Georgetown Business Association, represented by Michele Overton and Pam Timmons, requested funding for the More Music in the Park project for the performers, stage, lights, and sound, and portable toilets. The concerts will be held at Francis Marion Park from August to December. The lineup will include a Christmas Special with The Embers on December 2nd. Surveys of the audience found people visiting from all over the United States and a vast amount from Northern South Carolina.

ii. *The Great Eclipse \$7,200*

Ms. Overton and Ms. Timmons also requested funds for eclipse viewing glasses and items for "Solvital Kits" during the Great Eclipse of 2017. The view glasses and "Solvital Kits", which will hold the glasses, water, gum, moon pies, and visitor information, will be distributed by local museums, hotels, and businesses. This event will take place on August 21st and is estimated to attract 8,000-10,000 people and the hotels in Georgetown are booked for this event.

f. *Georgetown County Museum – Georgetown County Museum Promotional Campaign \$10,360*

The Georgetown County Museum's project focuses on promoting visitation through Internet, print, and radio ads. The presentation was given by Mary Boyd and the new Director, Elizabeth McKee. Ms. Boyd stated that during 2016 the Museum had over 2,000 visitors which came from 47 different states and 7 countries. They plan to increase visitorship by marketing in Charleston and along the coast up to North Carolina.

g. Harbor Historical Association

i. 28th Annual Wooden Boat Show Promotion-Tents-Portolets \$15,966

The Annual Wooden Boat Show is always held on the third weekend in October, which falls on the 21st and 22nd this year. Funds for the Boat Show were requested by Johnnie Weaver and comprise of magazine, web, email, and print promotion of the event, tents, portolets, and billboards. Some of the activities held during the weekend are model boat building, boat building competition, maritime arts and crafts, knot tying and more. Aerial photos taken during the 2014 event on Saturday estimate 10,000-12,000 attended.

ii. SC Maritime Museum Website, Promotions, and Exhibits \$13,270

Sally Swineford requested funds for website maintenance, web and social media promotion, and shipwreck exhibits for the SC Maritime Museum. The exhibits are scheduled to be displayed in the fall 2017 and will show ships that sank from storms and during wars off the coast and in rivers of SC. It is the only Museum in South Carolina that focuses on maritime history and culture. Due to its uniqueness, the Museum has drawn at least 15,000 visitors in 2017.

iii. Waterfront Park Deck (700 block burn lots)

The Harbor Historical Association also requested funding for promotion and construction of a 48 X118 square foot wooden deck that will be located on the vacant 700 block lots, owned by Steve Timmons. This waterfront space can be used for weddings, and cultural or civic events. The Association expects this Park to host such events as the Wooden Boat Show, Burning of the Socks, Art in the Park, and similar events.

h. Winyah Auditorium – Website \$1,500

Jerry Crosby, presenter for the Winyah Auditorium, explained that they want to reach more people out of this area to increase visitation and rental opportunities of the facility. The maintenance and updates to the website will provide access to regional national and international audience. This year the Auditorium hosted the Long Bay Symphony, Shakespeare players, and have five upcoming pageants booked. During 2016 there were 55 events with 11,000 in attendance.

6. **Discuss Applications and Allocate Accommodations Tax Funds (Attachment C)**

The Committee discussed the applications for Accommodations and Hospitality Tax funding and recommends the following awards:

Applicant	Request	ATAX Funds	HTAX Funds	Project/Event
Atlantis Design	\$4,850	-	\$3,162	HistoricGeorgetownSC.com Website
Friends of the Kaminski House	\$20,695	\$10,225	-	Wedding Destination & Showcase
Gtn Bridge2Bridge Committee/Friendship Place	\$22,246	-	\$16,838	7 th Annual Historic Gtn Bridge2Bridge Run
Gtn Bulldog Booster Club	\$5,830	\$5,830	-	International Paper Baseball Classic (March 20
Gtn Business Association	\$12,775 \$ 7,200	\$12,775 \$ 3,323	-	More Music In The Park The Great Eclipse of 2017
Gtn County Museum	\$10,360	\$4,280	-	Gtn County Museum Promotional Campaign
Harbor Historical Association	\$15,966	\$15,966	-	28 th Annual Wooden Boat Show Promotions-Tents-Portolets
	\$13,270	\$13,270	-	SC Maritime Museum Website, Promotions, and Exhibits
	\$11,000	\$ 5,000	-	Waterfront Park Deck (700 Block)
Winyah Auditorium	\$ 1,500	\$1,500	-	Website
Total	\$125,692	\$72,169	\$20,000	

Motion to recommend Council approved award of Accommodations and Hospitality Tax funds as listed made by Ginger Gray and seconded by Brandy Rogerson. Motion passed unanimously.

7. **Accommodation & Hospitality Committee (Attachment D)**

a. Eliza Jagger listed the members of the Committee whose terms would end June 30, 2018:

- i. Adele Rowell: Hospitality-Other
- ii. Ginger Gray : Hospitality-Other
- iii. Rodney Long : Member at Large

Ms. Rowell and Ms. Gray were asked to serve another two year term through June 30, 2020. Ms. Rowell declined and Ms. Gray agreed.

b. Eliza Jagger will make plans to fill the positions that are open closer to the end of the term. The Hospitality-Other and Member at Large positions.

The reappointment will be sent to Council for approval at a later date.

8. **The Meeting adjourned at 6:34PM**

Respectfully submitted,

Eliza Jagger
Accountant

Attachment: ATAX HTAX Minutes 6.20.17 (2333 : Motion to Approve A-Tax and H-Tax Committee Funding Distributions)



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ORDINANCE

DOC ID: 2327

Council Meeting Date:	13 July 2017
Department:	Housing and Community Development
Issue Under Consideration:	Motion to approve an ordinance rezoning approximately 2.42 acres located on North Fraser Street, owned by Magnolia Commons LLC, from Planned Development (PD) to General Commercial (GC)
Amount Requested:	N/A
Is Item in Current Budget?	N/A
If no, please explain:	N/A
Financial Impact:	N/A
Points to Consider:	• Dr. Miller heard the complaints from County Club Estates neighborhood during the May 2017 Planning Commission meeting and decided not to try and rezone the 100 ft buffer area of Conservation Preservation (CP) that he purchased from Dept Natural Resources in 2016. He only requests to rezone the 2.42 acres known a Magnolia Commons. • The rezoning is compatible to the Future Land Use Map which is derived from the Comprehensive Plan. • The rezoning meets Article V, Section 513 for Minimum Area of Zoning District. • A Public Hearing was held during the regularly scheduled Planning Commission meeting on Tuesday, June 27, 2017 at 6:00 PM. • A motion was made by Mr. Smith to deny the rezoning request. Votes came in 3-No and 2-Yes. This means that the motion failed. • Another motion was then made by Mr. Moore to approve the rezoning request. Votes came in 3-No and 2-Yes. That means this motion also failed. • So, the legal requirements for Planning Commission to hear the request and take action have been met. • Therefore, the Planning Commission has no affirmative vote of recommendation on this rezoning request for Magnolia Commons PD to be rezoned to General Commercial.
Options:	Approve or deny the rezoning request for Magnolia Commons.
Staff Recommendations:	Staff does not have a recommendation on this rezoning request.

Reviews:

Rick Martin Completed 07/05/2017 10:57 AM
Paul Gardner Completed 07/05/2017 1:43 PM
Ann U. Mercer Completed 07/06/2017 11:59 AM
Georgetown City Council Pending 07/13/2017 5:30 PM

Attachments:

1. 1 Magnolia Commons PD Rezoning Ord (PDF)
2. 2 June 27 2017 PC Minutes (PDF)
3. 3 Rezoning Application Mag Com (PDF)
4. 4 Current Zoning(PDF)
5. 5 Proposed Zoning (PDF)
6. 6 GC Use Chart (PDF)

**MOTION TO APPROVE AN ORDINANCE REZONING APPROXIMATELY 2.42 ACRES
LOCATED ON NORTH FRASER STREET, OWNED BY MAGNOLIA COMMONS LLC, FROM
PLANNED DEVELOPMENT (PD) TO GENERAL COMMERCIAL (GC)**

AN ORDINANCE REZONING APPROXIMATELY 2.42 ACRES, LOCATED ON NORTH FRASER STREET, OWNED BY MAGNOLIA COMMONS LLC, FROM PLANNED DEVELOPMENT (PD) TO GENERAL COMMERCIAL (GC)

WHEREAS, pursuant to Title 6, Chapter 29 of the Code of Laws of South Carolina, the City of Georgetown enacted the Zoning Ordinance of the City of Georgetown, South Carolina; and

WHEREAS, Article XVIII, Section 1800 of the Zoning Ordinance of the City of Georgetown provides that the Zoning Ordinance may be amended from time to time by the Mayor and City Council; and

WHEREAS, the Planning Commission of the City of Georgetown, South Carolina held a public hearing to receive public input regarding the rezoning request; and

WHEREAS, following the public hearing on June 27, 2017, the Planning Commission heard a motion to deny rezoning, which failed 3-2, and a motion to approve rezoning, which also failed 3-2; and

WHEREAS, the Mayor and City Council of the City of Georgetown have determined that the zoning boundaries as shown on the Official Zoning Map be revised and amended as follows:

Rezoning from Planned Development (PD) to General Commercial (GC), property totaling approximately 2.42 acres located on North Fraser Street, identified by the Georgetown County Tax Map as TMS# (05-0004-002-00-00).

For a more specific description of said property, please see attached map.

NOW, THEREFORE, BE IT ORDAINED by the Mayor and City Council of the City of Georgetown, in Council duly assembled, that the Official Zoning Map of the City of Georgetown be amended by revising and amending the zoning boundaries of the Official Zoning Map, together with all explanatory matter herein as follows:

Rezoning from Planned Development (PD) to General Commercial (GC), property totaling approximately 2.42 acres located on North Fraser Street, identified by the Georgetown County Tax Map as TMS# (05-0004-002-00-00).

BE IT FURTHER ORDAINED, that such changes shall be made on the Official Zoning Map. All ordinances or parts of ordinances inconsistent with this Ordinance are hereby repealed to the extent of such inconsistency.

ATTEST:

Ann U. Mercer, City Clerk

First Reading: _____

Second Reading: _____

Jack M. Scoville, Jr., Mayor

Approved as to Form:

Elise F. Crosby, City Attorney

Attachment: Magnolia Commons PD Rezoning Ord (2327 : Rezone 2.42 acres from PD to GC for Magnolia Commons)

Planning Commission
MINUTES
June 27, 2017

MEMBERS PRESENT: Chris Moore, Gerald Williams, Winfred Pieterse, Bernard Jones, & Paul Smith

MEMBERS ABSENT: Brittany Johnson & Joan Schmid

OTHERS PRESENT: Matt Millwood, Rick Martin, & Cindy Thompson

- I. **Call to Order**
- II. **Public Hearing** (*limited to 3 minutes*) **Mr. Chris Moore** made a motion to open the Public Hearing, seconded by Mr. Pieterse.
 - **Ms. Carol Jayroe** said she was present to represent her children and to ask that the rezoning not be granted.
 - **Mr. Jim Moody** said he is in opposition to the request to rezone, the rezoning would allow many uses that are incompatible to a residential neighborhood. The ordinance as it was written allows for limited general commercial and that should remain the case. In 2003 when the ordinance was written Dr. Miller and the residents of the Country Club Estates made an agreement concerning the zoning of the property and it seems that Dr. Miller is going back on his agreement. Mr. Moody asked that the zoning remain Planned Development, which will allow Dr. Miller plenty of commercial opportunities.
 - **Mr. Bob Martin** said he has been a resident in this neighborhood for 34 years and it is a quiet and nice neighborhood. The area was zoned PD when Dr. Miller bought it in 2001 and he knew that, he tried to rezone it at that time and it did not pass, and asked that it not be approved now. The traffic has already increased and more commercial uses would add to that.
 - **Mr. Mike Phillips** said he is opposition to the rezoning request, and there are many vacant lots and buildings that can be used if needed.
 - **Mr. Nolan Lundy** resident of 716 Huger Dr. and opposes the request and wanted to know what Dr. Miller plans to do with the property if rezoned, Mr. Lundy said that should be answered before the rezoning is even considered.
 - **Ms. Mae McKnight** said she is a native of Georgetown and has moved back here since retiring and looked for a quiet area to live, and has lived there for 17 years and has concerns not knowing what will be put in the rear of her property, she asked that the rezoning not be allowed.
 - **Glen Paul** said he opposes the rezoning request.
 - **Ann Sturns** said she opposes the rezoning and asked that the neighborhood remains peaceful and quiet for the elderly and children that live there.
 - **Melissa Timmerman** said she is opposed to the rezoning of the property to General Commercial.
- III. **Regular Meeting** (*Public Hearing was adjourned and the regular meeting was called to order*)
- IV. **Public Input: None**
- V. **Approval of Minutes:** Minutes for May 23, 2017; Mr. Paul Smith made a motion to approve the minutes, seconded by Mr. Chris Moore, the motion carried unanimously.
- VI. **Considerations:**

Attachment: June 27 2017 PC Minutes (2327 : Rezone 2.42 acres from PD to GC for Magnolia Commons)

1. **Review and recommend for adoption a rezoning request, for approximately 2.42 acres, from the property owner at 1040 N. Fraser Street (TMS #05-0004-002-00-00) to rezone from Planned Development (PD) to General Commercial (GC).**

Matt Millwood/City Staff told the Commissioners that he had a short presentation for the request of rezoning 2.42 acres, from Planned Development to General Commercial. This request is for the rezoning of the Magnolia Commons PD, which was rezoned in 2003 to a Planned Development (PD). Dr. Miller bought the 100 ft. buffer in 2016 and after hearing the input and concerns of the neighboring community he has no request to rezone the buffer, which is the Conservation Preservation. Letters went out to everyone within 200 ft. of the property. The current zoning is Planned Development and the proposed rezoning is for the General Commercial (GC) and the Conservation Preservation (buffer) will remain. The intent of the General Commercial is *"to establish business areas that encourage the grouping of compatible business activities in which parking and traffic congestion can be reduced to a minimum..."* Section 513 of the Zoning Ordinance states that you must have at least 2.0 acres to rezone and Dr. Miller meets this requirement, and Section 510 is concerning screening states, *"When a commercial or industrial use abuts or is contiguous to a residential use located in any residential district, such commercial or industrial use shall, in addition to meeting the minimum yard requirements of this Ordinance, provide or otherwise establish and maintain an evergreen buffer or screening strip eight (8) feet in width and running the length of the boundary line separating the two uses,...."* If Dr. Miller keeps the CP buffer area he will meet the requirement by 12 times. The uses allowed by the PD are: **Professional Offices (medical, dental, and laboratories), Business Offices (real estate, insurance, etc.), and Government Offices.** There are many more allowed uses for General Commercial, as well as conditional uses that must be approved by the Zoning Office. In looking back to other Planned Development such as the Richmond Place PD, they went through and deleted the list of uses from their plat and used all the current uses from the City Zoning Ordinance (Art. VII, Sec. 703). Matt also read the definition of "Infill Development" which is the development within the existing urban sector of the town. This request is compatible with the 2016 Future Land Use (LUM-6) Map. **Mr. Gerald Williams** asked what would be the primary use of the property if it is rezoned. **Matt Millwood** said he did not know, the question would have to be addressed to the applicant. **Mr. Chris Moore** asked if the owner could possibly go in and clear out trees in the Conservation Preservation area if he wanted. **Matt Millwood** said there are a few things that can be done in the Conservation Preservation, such as water towers or energy windmills, but not the clearing of all the trees, however the owner can clean up his property if he wanted. **Mr. Chris Moore** asked about the density of the property if it is approved for rezoning. **Matt Millwood** said it would depend on the uses of the property. **Mr. Moore** asked if the owner would have to do a traffic study for new businesses coming in the area. **Matt Millwood** said he would have to go back to the original study to determine if a new one would be required.

Mr. Dan Stacy/Representative of the owner said the owner is back after hearing the concerns of the neighboring property owners and have agreed to leave the CP in place. The PD was put in place 14 years ago and things have evolved and changed. Mr. Stacy asked that the Commissioners consider the request for approval. Traffic studies will be done through GSATS and Waccamaw Council of Governments.

Dr. Miller/Owner introduced himself as a Georgetown native and he would not do anything to have a negative effect or hurt this area. He has a practice that he has established to take care of the people of this area, as well as his wife that is a nurse practitioner at St. James/ Santee. A lot of the concerns given by the neighbors would be addressed by the Building & Zoning department of the City. The buffer strip was purchased from the DNR and could have very well

been purchased by anyone, as it was up for sale, this area is over 3 acres that is being abandoned to protect the neighborhood. Mr. Miller said it is his intention to help the town to grow and prosper, and have somewhere for his kids to come back to instead of going to a larger city. **Mr. Pieterse** asked if Dr. Miller had any plans when he bought the property 14 years ago. **Dr. Miller** said it was considered to be a medical building, but that did not make sense since if there was no interested parties. With no more questions from the commission, **Mr. Pieterse** asked for a motion.

Motion: Mr. Paul Smith made a motion that the request be denied, seconded by Mr. Jones, the vote was 3 (NO) to 2 (YES) by a roll call vote. (Mr. Moore, Mr. Williams, & Mr. Jones cast the downward vote). The motion on the floor was to deny the request to rezone; there were 3 votes to deny the motion and 2 votes to support the motion. After much discussion and opposition from the audience a second motion was given. **The motion was denied, to not allow the rezoning of the property from PD to GC.**

Motion: Mr. Paul Smith made a motion to deny the request for rezoning of the property, the vote was 3 (NO) to 2 (YES) by a roll call vote. (Mr. Moore, Mr. Williams, & Mr. Jones cast the downward votes). Again the motion to deny the rezoning was 3 votes to deny the motion and 2 votes to support the motion. There was confusion on the motion and another motion was given.

Motion: Mr. Chris Moore made a motion to approve the rezoning request as submitted; allowing the changing of the Planned Development (PD) to General Commercial (GC), the vote was 3 (NO) to 2 (YES) by a roll call vote. (Mr. Pieterse, Mr. Smith, and Mr. Jones cast the downward votes) The motion to approve the request as submitted was 3 votes to deny the motion and 2 votes to support the motion. **The motion was denied, to allow the rezoning of the property from PD to GC.**

VII. Board Discussion:

- **Matt/City Staff** said he did not have any updates of the West End Redevelopment project.
- **Mr. Williams** said the committee is working on a recommendation to City Council to extend the site area, they also discussed housing, and financing between the City and County; there is a need for the County to become more involved.
- **Mr. Pieterse** said that sidewalks and security cameras were also discussed.
- **Councilman Sheldon Butts** was present and the last meeting was one of the better meetings the committee has had, and feels there are more tangible things in the work.
- **Matt/City Staff** said the committee for updating the Comprehensive Plan has decided to take a "summer break" because of the uncertainty of the Steele Mill property it does not make sense to continue to write out the industrial uses of the property until something is finalized with the property, this is the recommendation of the City Administration.

VIII. **Adjournment:** With there being no further business the meeting was adjourned.

Submitted By,

*Cindy Thompson
Acting Secretary*



Rezoning Application

Tax Map Number TMS 65-0004-002-00-00
 Area (sq. ft. or acres) 2.42
 Physical Address of Property 1040 N. Fraser St
Georgetown, SC 29440
 Existing Use of Property vacant
 Location of Property 1040 N. Fraser St
 Existing Zoning District PD Requested Zoning District GC

Ownership Information:

Name: Magnolia Commons LLC
 Address: 71 Blue Heron Dr
 City: Georgetown State: SC Zip: 29440 Phone: 843-450-2273

Agent Information:

Name: Dan Stacy
 Address: 90 Wall Street
 City: Pawleys Island State: SC Zip: 29585 Phone: (843) 235-6747

What road will provide access to the site: 701 - N. Fraser St.

Is the access road a paved or unpaved road: Paved

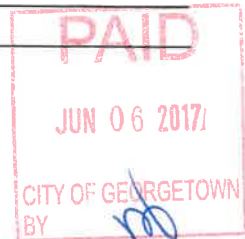
Approximately how many acres of the site is considered wetlands: 0

Is any of the site considered a floodplain or floodway: Yes ☒ No

Are high traffic patterns a concern in your area: Yes ☒ No

Important Notes:

- A plat of the property to be rezoned shall be submitted with this application.
- **An application fee of \$150.00 must accompany application. GL# (0010.00.323.024)**
- Notice to Adjacent Property Owners: The person requesting the Zoning Map Amendment must submit to the Building & Planning Department stamped envelopes with the following return address on the envelope: "Georgetown City Zoning" 120 N Fraser St, Georgetown, South Carolina 29440. Building & Planning staff will comprise a letter and a map and send them to the residents or businesses within two hundred (200) feet of the proposed rezoned property to notify them.
- It is understood by the undersigned that while this application will be carefully reviewed and considered the burden of proving the need for the proposed rezoning rest with the applicant.



Attachment: Rezoning Application Mag Com (2327 : Rezone 2.42 acres from PD to GC for Magnolia Commons)

**Signature Page**

Applicant/Agent hereby certifies that the information provided in this application is correct.

Owners:

Print Name	Signature	Date
Print Name	Signature	Date

Corporation/Partnership

Magnolia Commons, LLC

Print Corporation/Partnership Name (if in LLC or Corp. name please, provide authorization to sign)

<i>John A Miller</i>	<i>[Signature]</i>	<i>6/5/2017</i>
Print Name	Signature	Date

OWNER John A Miller

Print Title and Name

Designation of Agent:

I (we) hereby appoint the person named as applicant as my (our) agent to represent me (us) and act on my (our) behalf in this request for rezoning, as he/she deems necessary and proper.

Daniel W. Stacy Jr

Print Agents Name

DASTYL

Signature of Agent

John A Miller

Signature of Owner

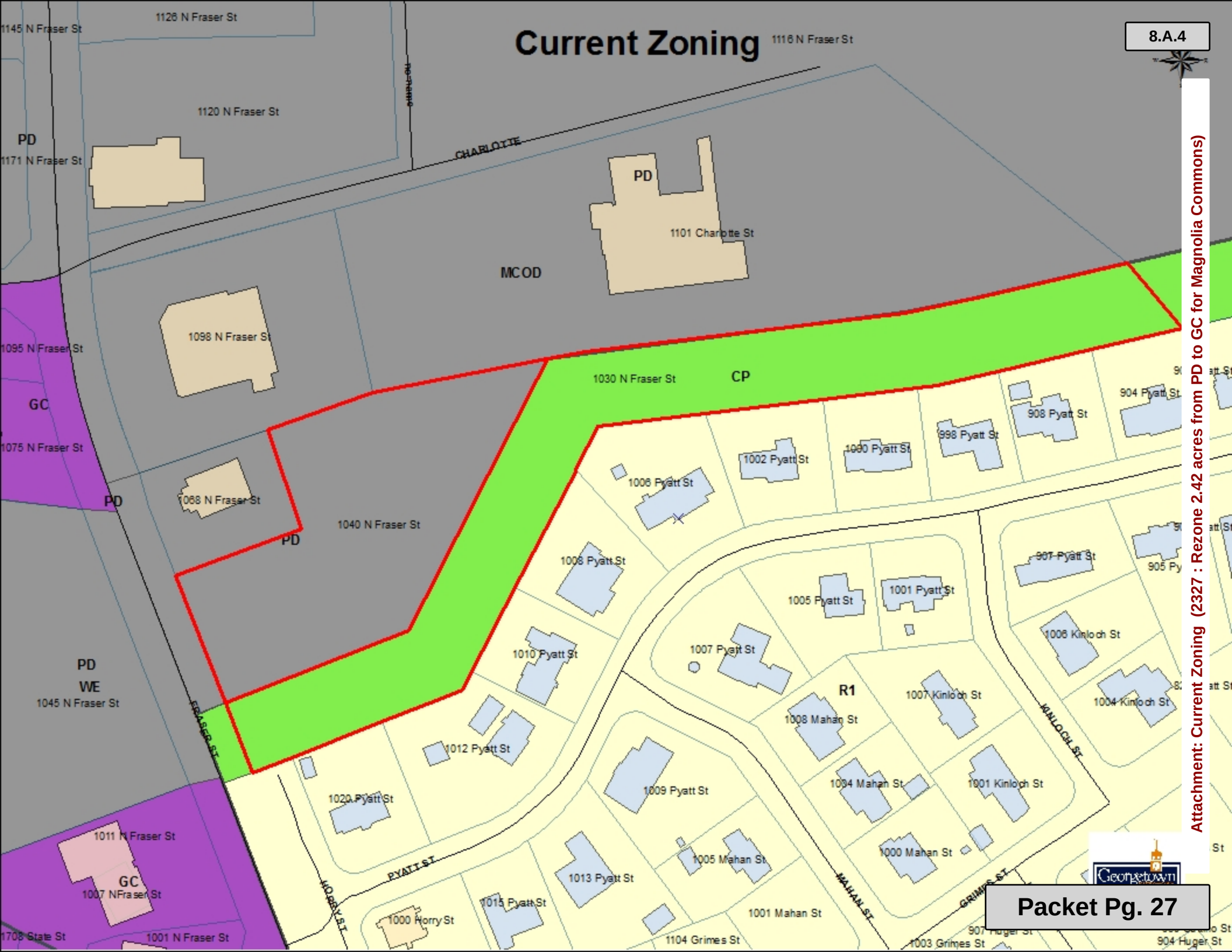
Cameron Steele

Witness Signature



Current Zoning

8.A.4

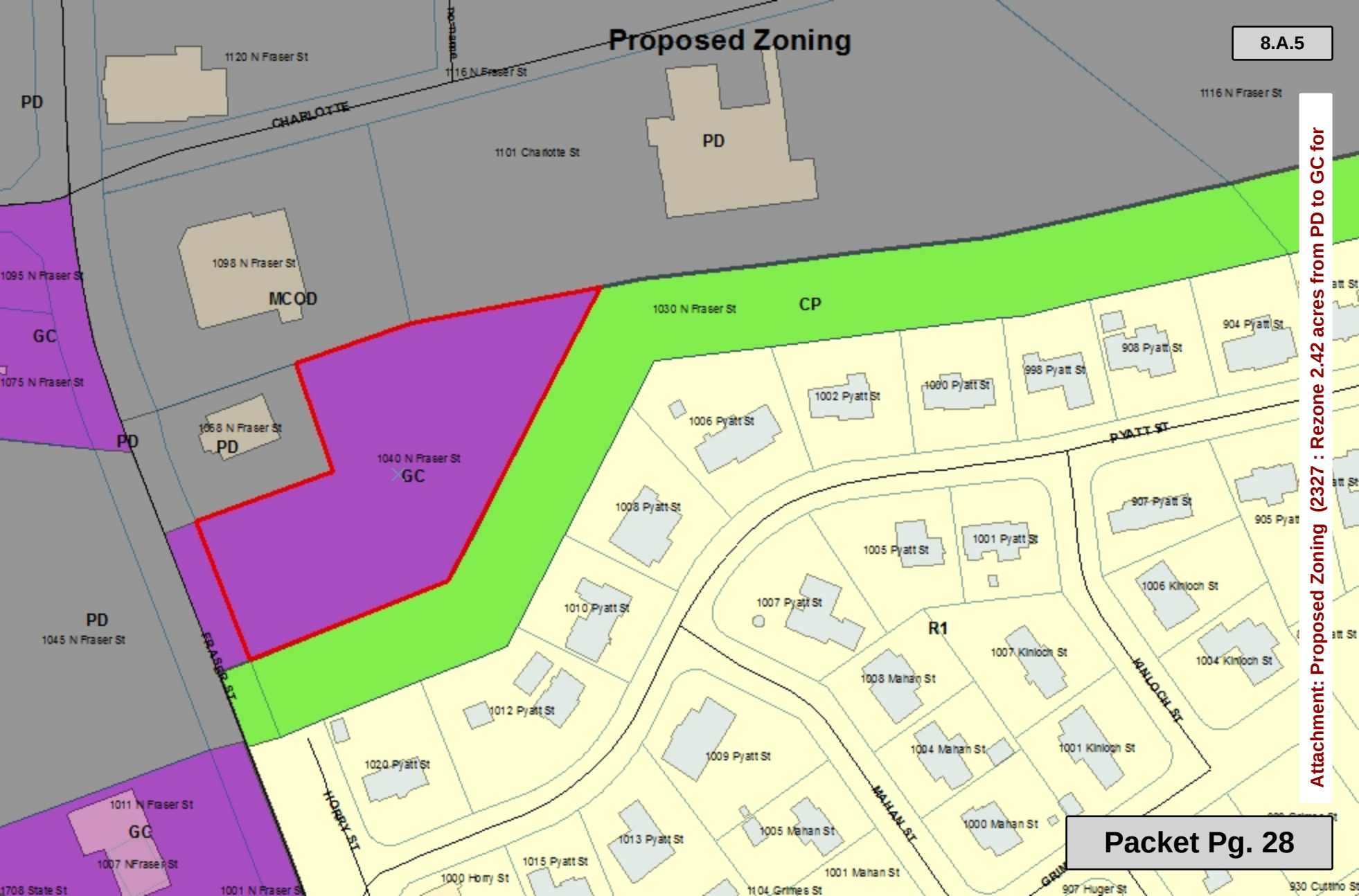


Attachment: Current Zoning (2327 : Rezone 2.42 acres from PD to GC for Magnolia Commons)



Proposed Zoning

8.A.5



Attachment: Proposed Zoning (2327 : Rezone 2.42 acres from PD to GC for

Residential Use Classification	R1	R2	R3	R4	R5	MR	Conditions
Non-commercial Accessory Building	P						
Not for Profit Clubs				C			Article 4, Section 421
Nursing Home	C	C	C	C	C		Article 4, Section 413
Offices				C			Article 4, Section 421
Park	C	C	C	C	C		Article 4, Section 418
Post Office				C			Article 4, Section 418
Public Assembly Hall				C			Article 4, Section 418
School for General Education	C	C	C	C	C		Article 4, Section 414
Single Family Home	P	P	P	P	P	P	
Substation	C	C	C	C	C		Article 4, Section 412
Taxi Stand			C	C			Article 4, Section 418
Two Family Dwelling		P	P	P	P		
Water Tower	C	C	C	C	C		Article 4, Section 411
Commercial Use Classifications	IC	CC	WC	NC	GC		Conditions
Adult Day Care Center					C		
Animal Hospitals and Veterinary Clinics	C	C			P		Article 4, Section 438
Armory	P				P		Article 4, Section 438
Assembly Halls, Coliseums, Gymnasiums, and Similar Uses	C				P		Article 4, Section 438
Automotive Repair Shop	P				P		
Automotive Sales and Service (excluding automotive junk yard)	C				P		Article 4, Section 438
Automated Teller Machine (free standing)	C				C		Article 4, Section 418
Automotive Washing Establishment	C				P		Article 4, Section 438
Bakery		C		C			Article 4, Section 425
Bank	C	P			P		Article 4, Section 438
Bank Teller Machine				P			
Barber shop	P	P		P	P		

Commercial Use Classifications	IC	CC	WC	NC	GC		Conditions
Beauty Shop	P	P		P	P		
Bed and Breakfast		C		C			Article 4, Section 408
Billiard Parlor	C	P			P		Article 4, Section 438
Bingo Parlor	C				P		Article 4, Section 438
Boat Sales, Service, and Supplies	C				P		Article 4, Section 438
Bowling Alley	C				P		Article 4, Section 438
Building Supply/Equipment Sales	C				P		Article 4, Section 438
Bus Station	C				P		Article 4, Section 438
Cemetery	C				P		Article 4, Section 438
Church	C	P		P	P		Article 4, Section 438
Club	C	P			P		Article 4, Section 438
Cold Storage/Freezer Locker	P				P		
Communication Tower					C		Article 4, Section 428
Convenience Commercial Establishment				C			Article 4, Section 426
Courthouse	P	P			P		
Day Care Center				P	P		Article 4, Section 416
Dock, Pier and Warf	C		P		P		Article 4, Section 441
Dog Pound					C		Article 4, Section 429
Drive-in Theater					C		Article 4, Section 430
Electrical Appliance/Equipment Sales and Repair	C				P		Article 4, Section 438
Small Fabricating Shop (including Cabinet, upholstery, and sheet metal)	P				P		
Family Day Care Home				P	P		
Farm Equipment Sales/Service	C				P		Article 4, Section 438
Other Financial Institutions	C	P			P		Article 4, Section 438
Fire Station	P	P		C	P		Article 4, Section 418
Fraternal Organization	C	P			P		Article 4, Section 438
Funeral Home	C			P	P		Article 4, Section 438
Gas Service Station					C		Article 4, Section 436
Golf Driving Range and Par 3 Course	C				P		Article 4, Section 438
Greenhouse/Horticulture Nursery	C				P		Article 4, Section 438
Group Dwelling		C					Article 4, Section 422
Horse Drawn Carriage		C					Article 4, Section 407
Hospital	C				P		Article 4, Section 418
Hotel	C	P			P		Article 4, Section 438

Attachment: GC Use Chart (2327 : Rezone 2.42 acres from PD to GC for Magnolia Commons)

Commercial Use Classifications	IC	CC	WC	NC	GC	Conditions
Ice Processing and Storage	C	P			P	Article 4, Section 438
Jail	P				P	
Laundromat	C	P		P	P	Article 4, Section 438
Library	P	P			P	
Lodge	C	P		P	P	Article 4, Section 438
Maintenance Shop	C				P	Article 4, Section 438
Marina (wet or dry)	C		P		P	Article 4, Section 438
Marine-related Storage Yard			C		C	Article 4, Section 424
Miniature Golf and Similar Outdoor Recreational Facilities	C				P	Article 4, Section 438
Mini-day Care Center	C			P	P	Article 4, Section 438
Manufactured Home Sales Lot/Office					C	Article 4, Section 437
Mortuary	C				P	Article 4, Section 438
Multi-Family Dwelling		C				Article 4, Section 422
Museum	P	P			P	
Mini-shopping Center	P	P			P	
News Stand				P		
Nursing Home	C				P	Article 4, Section 438
Office (Business, professional, government)	P	P		P	P	
Park	C	C		C	C	Article 4, Section 418
Parking Lot	P	P			P	
Plumbing Shop					P	
Police Station	P	P		C	P	Article 4, Section 418
Post Office	C	P			P	Article 4, Section 418
Printing Establishment	P	P			P	
Produce Stand and Market (excluding flea market)	C				P	Article 4, Section 438
Public Assembly Hall	C	p			P	Article 4, Section 438
Publicly Owned and Operated Buildings, Facilities, and Land				C		Article 4, Section 427
Recycling Material Recovery Centers					C	Article 4, Section 418
Repair Shop (excluding automotive)	P	P			P	
Restaurant (excluding drive-in)	C	P			P	Article 4, Section 438
Restaurant	C				P	Article 4, Section 438
Retail Store	P	P			P	

Commercial Use Classifications	IC	CC	WC	NC	GC		Conditions
Schools	C				P		Article 4, Section 438
Seafood Establishment (wholesale/retail)			P				
Sign Painting and Fabrication Shop	P				P		
Single Family Dwelling	C			P	P		Article 4, Section 438
Skating Rink	C				P		Article 4, Section 438
Substation	C	P	C	C	P		Article 4, Section 417
Taxi Stand				P			
Theater (Indoor only)	C	P			P		Article 4, Section 438
Trucking Terminal/Transfer Co	C				P		Article 4, Section 438
Union Hall				P			
Uses Located Over Water		C					Article 4, Section 423
Utility Installation			C		C		Article 4, Section 418
Watchmen/Caretaker Dwelling			P		P		
Water Tower	C				C		Article 4, Section 411
Wholesale and warehouse in enclosed building	P				P		
Uses customarily accessory to permitted uses, but not to include open air storage		P		P			
Other Use Classifications	HI	LI	CP	PS			Conditions
Accessory Structure (Detached)				P			
Animal Hospitals and Veterinary Clinics		P					
Animal Shelter, including crematorium	P						
Armory	P	P		P			
Automotive Repair Shop							
Automotive Sales and Service (excluding automotive junk yard)		P					
Automotive Washing Establishment		P					
Bank		P					
Barber shop		P					
Beauty Shop		P					
Billiard Parlor		P					



120 North Fraser Street • Georgetown, SC 29440 • (843) 545-4000

ORDINANCE

DOC ID: 2310

Council Meeting Date:	13 July 2017
Department:	Housing and Community Development
Issue Under Consideration:	Motion to approve first reading of an ordinance annexing 2.61 acres of land into the corporate limits of the City of Georgetown, South Carolina.
Amount Requested:	N/A
Is Item in Current Budget?	N/A
If no, please explain:	N/A
Financial Impact:	N/A
Points to Consider:	• 711 Partners, LLC has purchased an additional 2.61 acres of land, adjacent to their property, from Georgetown County. • This property is located adjacent to the Black River off Pier Road. • The parking lot for the public fishing pier and oyster recycling area was retained by the County. • When combined with the other 7.86 acres, 711 Partners now has 10.47 acres fronting the Black River just north of the bridge.
Options:	Approve or deny the annexation request.
Staff Recommendations:	Staff recommends approving this annexation request.

Reviews:

Rick Martin Completed 06/05/2017 9:56 AM
 Paul Gardner Completed 06/05/2017 11:37 AM
 Ann U. Mercer Completed 06/05/2017 1:13 PM
 Georgetown City Council Completed 06/15/2017 5:30 PM

Attachments:

1. 1 WFV Annexation Ordinance (PDF)
2. 2 Petition for Annexation (PDF)
3. 3 May PC Minutes Annex 2.61 (PDF)
4. 4 711 Partners Plat (PDF)
5. 5 Quit Claim Deed for County 2.61 ac (PDF)

**MOTION TO APPROVE FIRST READING OF AN ORDINANCE ANNEXING 2.61 ACRES OF
LAND INTO THE CORPORATE LIMITS OF THE CITY OF GEORGETOWN, SOUTH
CAROLINA.**

AN ORDINANCE ANNEXING 2.61 ACRES OF LAND INTO THE CORPORATE LIMITS OF THE CITY OF GEORGETOWN, SOUTH CAROLINA

NOW, THEREFORE, BE IT ORDAINED BY THE MAYOR AND CITY COUNCIL OF
THE CITY OF GEORGETOWN, SOUTH CAROLINA:

SECTION 1. FINDINGS

South Carolina Code § 5-3-100 allows for property owned by a municipality and adjacent thereto; to be annexed by resolution of the council and passage of an ordinance to that effect. A petition for annexation executed by 711 Partners, LLC and being the freeholder owning one hundred (100%) percent of the real property to be annexed into the City of Georgetown, having been filed with the City of Georgetown, and the same having been considered and approved by the Mayor and City Council of the City of Georgetown. The property is approximately 2.61 acres just off Hwy 17 North (Church Street), with contiguity to parcel TMS# 05-0056-001-05-00, and described below and shown and represented on a map or maps described below to be incorporated herein. The Mayor and the City Council of the City of Georgetown have considered and approved the Petition for Annexation, and accept the property and its applicable zoning into the corporate limits of the City of Georgetown, South Carolina.

SECTION 2. APPLICATION OF ZONING ORDINANCE

The property is admitted as Low Density Residential (R-1) area under the zoning laws of the municipality as stated in Article V, Section 508 of the City of Georgetown Zoning Ordinance.

SECTION 3. EFFECTIVE DATE

The annexation is effective as of the date of the final reading of this Ordinance.

WHEREAS, the Planning Commission of the City of Georgetown, South Carolina held a public hearing regarding the proposed petition for annexation, and following the public hearing on May 23, 2017, the Planning Commission voted 6-1 in favor of the rezoning;

IT IS NOW HEREBY DECLARED, pursuant to Section 5-3-150(3) of the Code of Laws of South Carolina, 1976 as amended, that the following real property is made part and parcel of the corporate limits of the City of Georgetown:

Said property is described as follows:

All that certain piece, parcel or tract of land situate, lying and being in City and County of Georgetown, South Carolina, designated as **Parcel 1 Residual, Tax #02-1010-005-00-00, 113,807 Sq Ft, 2.61 Acres**, as shown and delineated on that certain "Combination/Subdivision Plat showing New Tract B & Lot C along US Hwy 17 Church Street), Tax District 2, City of Georgetown, Georgetown County, South Carolina for 711 Partners, LLC" dated March 2, 2017, prepared by Harry F. Bruton & Associates, Professional Land Surveying & Design, PLS, and recorded in the Office of the Register of Deeds for Georgetown County, South Carolina, in Plat Slide Book 781 at Page 7. Said

Attachment: WFV Annexation Ordinance (2310 : Petition to annex 2.61 acres off Pier Road into the city)

property having such metes, bounds, courses, marks and distances as will more fully appear by reference to the aforesaid plat which is hereby made, pro tanto, a part and parcel hereof.

LESS AND EXCEPT: All that certain piece, parcel or tract of land situate, lying and being in City and County of Georgetown, South Carolina, designated as **Lot C containing 8,656 Sq Ft., 0.19 Acre**, as shown and delineated on that certain "Combination/Subdivision Plat showing New Tract B & Lot C along US Hwy 17 (Church Street), Tax District 2, City of Georgetown, South Carolina for 711 Partners, LLC" dated March 2, 2017, prepared by Harry F. Bruton & Associates, Professional Land Surveying & design, PLS, and recorded in the Office of the Register of Deeds for Georgetown County, South Carolina, in Plat Slide Book 781 at Page 7. Said property having such metes, bounds, courses, marks and distances as will more fully appear by reference to the aforesaid plat which is hereby made, pro tanto, a part and parcel hereof.

This conveyance is subject to any and all applicable restrictive covenants, restrictions and easements of record.

Entire 2.61 acres parcel to be annexed is part of Georgetown County Tax Parcel 02-1010-005-00-00.

DONE AND RATIFIED BY THE CITY COUNCIL duly assembled this 12th day of July 2017.

ATTEST:

Ann U. Mercer, City Clerk

Jack M. Scoville, Jr., Mayor

First Reading: _____

Approved as to Form:

Second Reading: _____

Elise F. Crosby, City Attorney

Attachment: WFV Annexation Ordinance (2310 : Petition to annex 2.61 acres off Pier Road into the city)



STATE OF SOUTH CAROLINA)
)
 COUNTY OF GEORGETOWN)

PETITION OF ANNEXATION

TO THE HONORABLE MAYOR AND CITY COUNCIL OF GEORGETOWN

WHEREAS, § 5-3-150 (3) of the Code of Laws of South Carolina provides for the annexation of an area or property which is contiguous to a City by filing with the municipal governing body a petition signed by all persons owning real estate in the area requesting annexation; and

WHEREAS, the undersigned are all persons owning real estate in the area requesting annexation; and

WHEREAS, the area requesting annexation is described as follows, to wit:

NOW, THEREFORE, the undersigned petition the City Council of Georgetown to annex the below described area into the municipal limits of the City of Georgetown.

PROPERTY LOCATION/SUBDIVISION: Church Street - Winyah Fishing U. 11A

TMS#: part of 02-1010-005-000 ACREAGE: approx. 2.61 ac ±

PROPERTY ADDRESS: Pier Road

PROPERTY OWNERS:

711 Partners

(Print)

BDM, member

(Signature)

DATE: 5/15/17

(Print)

(Signature)

DATE: _____

The information requested below is being gathered for statistical purposes:

Number of persons residing at the address to be annexed _____

RACE: White ☒ Black _____ Other _____

Attachment: Petition for Annexation (2310 : Petition to annex 2.61 acres off Pier Road into the city)

2. Review and recommend a **Petition for Annexation** by 711 Partners (TMS #02-1010-005-00-00), located along Pier Road just outside the city limits, to annex approximately 2.61 acres into the corporate limits of the City of Georgetown.

Matt Millwood/City Staff told the Board that since the agenda was done the 711 Partners has bought the property and it no longer belongs to Georgetown County. This property is adjacent to the City limits and it can be annexed into the City. This property was purchased so that the owners would have the required 10 acres needed for a Planned Development. The owners now have a total of 10.48 acres.

Mr. Steve Strickland/Earthworks, representing 711 Partners introduced himself and offered to answer any questions the Board might have (*the Board did not have any questions*).

Public: None

Motion: Mr. Moore made a motion to approve the petition for annexation into the City, seconded by Ms. Johnson, the motion carried 7 to 0 by a roll call vote.

3. Review and recommend for adoption a rezoning request, for approximately 10.47 acres, from 711 Partners, LLC, to rezone from General Commercial (GC) to Planned Development (PD).

Matt Millwood/City Staff told the Board that the applicant had all the necessary information in their packet that includes all Army Corp. and SCDOT approvals. This application was brought before this Board previously and they also went before the Board of Zoning & Appeals to try and get a variance from the required 10 acres, which was denied. At this time they have over 10 acres and they are back to try and get the property rezoned to Planned Development. They are proposing residential as well as commercial on the property. There is approximately 9 ½ acres of wetlands on this property, so the structures will be put on pilings, and docks will be in the rear. **Mr. Pieterse** asked about the traffic entrance to the property. **Matt** said he would defer that question to Mr. Strickland. **Mr. Williams** asked if the Fishing Village would be accessible to the public. **Matt** said they will be sold as private residents, but there are a couple of different uses listed just in case the sales don't go well. **Ms. Johnson** asked is the access to the public fishing pier through the proposed development. **Matt** said no there is still access on Pier Road that was retained by the County.

Mr. Steve Strickland/Representing 711 Partners said the access will be off the Jameson Inn entrance at the traffic light, there will be a drop off and pick up for coolers and other items. There is an easement in place for all utilities. **Mr. Strickland** said this area will be great for those people that want to come and fish and enjoy the Marsh. **Ms. Schmid** ask what is the advantage of rezoning this area Planned Development. **Mr. Strickland** said because of the setbacks and how the units will have to be placed on the lot this property it would be hard to work with a straight zoning. **Ms. Schmid** said this proposal is for a single use and a Planned Development is not for a single use. **Mr. Strickland** said they will have residential components as well as commercial on the property. **Ms. Schmid** read into the record the definition of a Fish Camp to clarify any confusion, although **Ms. Schmid** said she did not oppose the plan she felt like it would be a better fit for General Commercial rather than Planned Development. **Mr. Strickland** said again that the development will have residential and commercial. **Ms. Schmid** asked if it was assumed that someone would be living in the units year round. **Mr. Strickland** said because of the size of the units he doesn't believe

I hereby certify that the (development depicted) shown herein has been found to comply with the land development regulations of the City of Georgetown, South Carolina, and that the same are in accordance with the minimum standards manual for the practice of land surveying in South Carolina, and made or caused the requirements for a Class "A" Survey to be met. I am a duly Licensed Professional Land Surveyor in the State of South Carolina, License No. 24275, and I am not providing this information or projections other than those shown on this plat. I am not responsible for any errors or omissions in this plat, and I am not responsible for any consequences of any action taken on the basis of this plat. I am not responsible for any errors or omissions in this plat, and I am not responsible for any consequences of any action taken on the basis of this plat.

DATE: DECEMBER 5, 2016

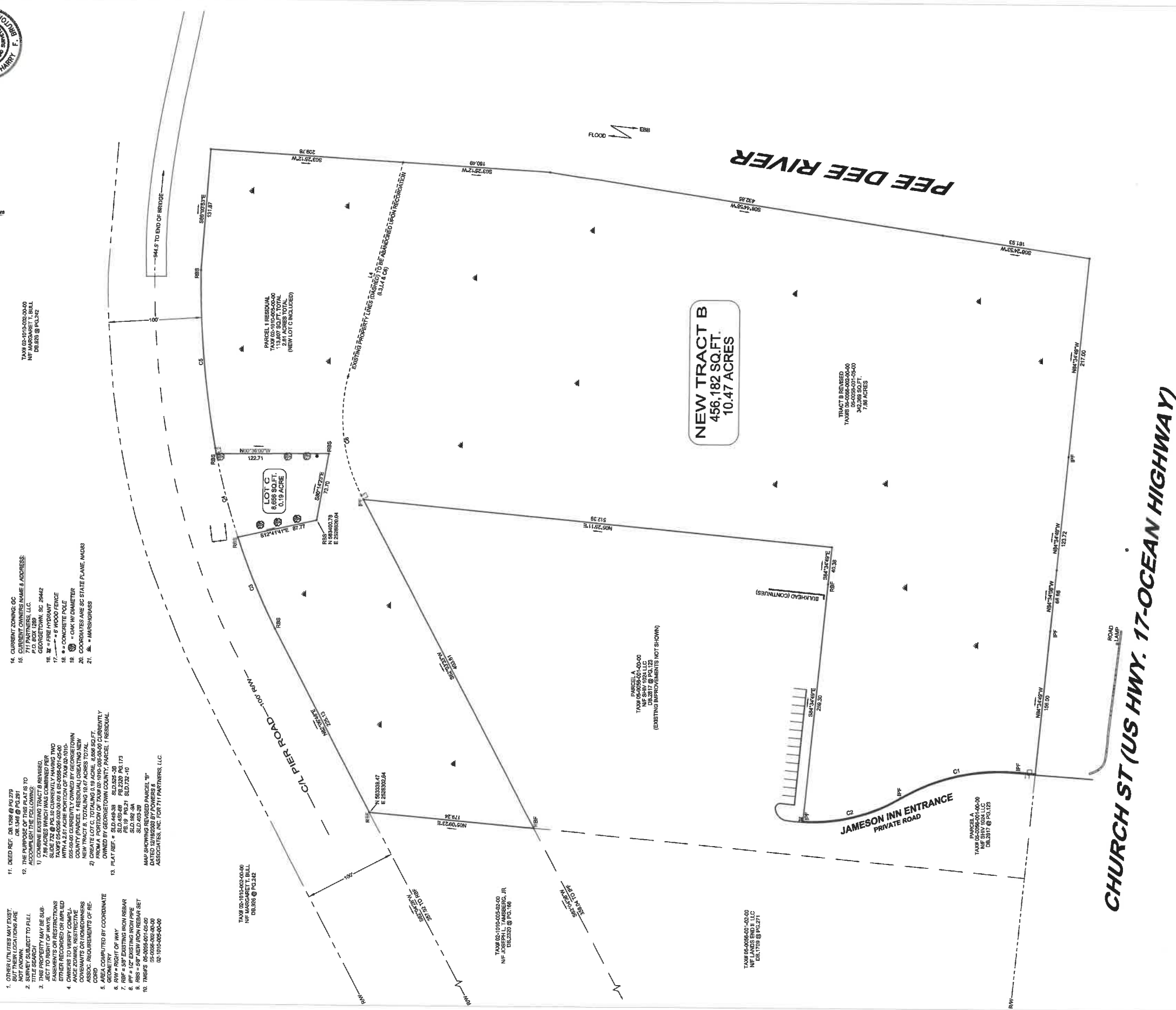
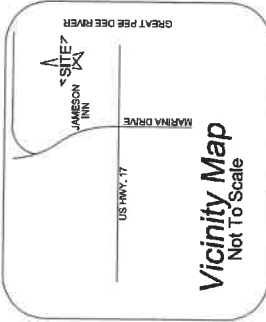
STAMPED
PROFESSIONAL LAND SURVEYOR
HARRY F. BRUTON, FLS 24275



REVIEW COPY 12-05-2016

I hereby certify that the (development depicted) shown herein has been found to comply with the land development regulations of the City of Georgetown, South Carolina, and that the same are in accordance with the minimum standards manual for the practice of land surveying in South Carolina, and made or caused the requirements for a Class "A" Survey to be met. I am a duly Licensed Professional Land Surveyor in the State of South Carolina, License No. 24275, and I am not providing this information or projections other than those shown on this plat. I am not responsible for any errors or omissions in this plat, and I am not responsible for any consequences of any action taken on the basis of this plat.

DATE: DECEMBER 5, 2016

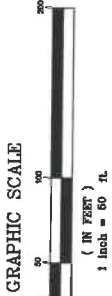


LINE TABLE		
LINE	LENGTH	BEARING
L1	17.00	N85°28'11"E
L2	6.30	N78°55'27"E
L3	5.00	N62°02'11"E
L4	240.00	S76°18'45"E

CURVE TABLE		
CURVE	LENGTH	RADIUS
C1	134.99	254.00
C2	107.61	209.35
C3	107.61	209.35
C4	93.97	739.35
C5	194.35	1043.52
C6	133.08	183.07

CERTIFICATE OF OWNERSHIP & DEDICATION
THE UNDERSIGNED HEREBY ACKNOWLEDGE THAT I AM ONE OF THE OWNERS OF THE PROPERTY SHOWN AND DESCRIBED HEREON AND THAT I (WE) HEREBY ADOPT THIS PLAN OF DEVELOPMENT WITH MY (OUR) FREE CONSENT AND THAT I (WE) HEREBY DEDICATE ALL ITEMS AS SPECIFICALLY SHOWN OR INDICATED ON SAID PLAN.

NAME _____ DATE _____



Harry F. Bruton & Associates
Professional Land Surveying & Design

NEW TRACT B & LOT C
ALONG US HWY. 17 (CHURCH STREET), TAX DISTRICT 12
CITY OF GEORGETOWN, GEORGETOWN COUNTY, SOUTH CAROLINA
SCALE: 1"=50'
THE BENEFIT OF **711 PARTNERS, LLC.**
MAP REFERENCE IN BOOK 13881348 PAGE 27326L
DEED REFERENCE IN BOOK 13881348 PAGE 27326L
JOB NO. 98258 ACCT. 711 COMBINATION 12-05-16 GEORGETOWN

A COMBINATION / SUBDIVISION PLAT
SHOWING
NEW TRACT B & LOT C
ALONG US HWY. 17 (CHURCH STREET), TAX DISTRICT 12
CITY OF GEORGETOWN, GEORGETOWN COUNTY, SOUTH CAROLINA
SCALE: 1"=50'
THE BENEFIT OF **711 PARTNERS, LLC.**
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DEED REFERENCE IN BOOK 13881348 PAGE 27326L
JOB NO. 98258 ACCT. 711 COMBINATION 12-05-16 GEORGETOWN

RESIDENTIAL & COMMERCIAL IN S.C.
905-2 Sea Mountain Hwy.
North Myrtle Beach, SC 29582
OFFICE (843) 251-6822
FAX (843) 251-6822
hbruton@gmail.com

Attachment: 711 Partners Plat (2310 : Petition to annex 2.61 acres off Pier Road into the city)

STATE OF SOUTH CAROLINA)
)
 COUNTY OF GEORGETOWN)

QUIT CLAIM DEED

201700004337
 Filed for Record in
 GEORGETOWN SC
 WANDA PREVATTE, REGISTER OF DE
 05-03-2017 At 08:48:21 am.
 DEED 12.00
 STATE TAX 10.40
 COUNTY TAX 4.40
 Book 3023 Page 289 - 294

KNOW ALL MEN BY THESE PRESENTS, THAT, **Georgetown County**, a body politic organized under the laws of South Carolina for and in consideration of the sum of Three Thousand Six Hundred Thirty and 00/100 (\$3,630.00) Dollars and other good and valuable consideration, to it in hand paid at and before the sealing of these Presents by **711 Partners, LLC, a South Carolina Limited Liability Company**, the receipt whereof is hereby acknowledged, have remised, released, and forever quit claimed and by these presents does remise, release and forever quit-claim, without warranty and subject to all matters of record, unto the said **711 Partners, LLC, a South Carolina Limited Liability Company**, its Successors and/or Assigns, forever, the following described real property, to wit:

All that certain piece, parcel or tract of land situate, lying and being in City and County of Georgetown, South Carolina, designated as **Parcel 1 Residual, Tax #02-0101-005-00-00, 113,807 Sq Ft 2.61 Acres**, as shown and delineated on that certain "Combination/Subdivision Plat showing New Tract B & Lot C along US Hwy 17 (Church Street), Tax District 2, City of Georgetown, Georgetown County, South Carolina for 711 Partners, LLC" dated March 2, 2017, prepared by Harry F. Bruton & Associates, Professional Land Surveying & Design, PLS, and recorded in the Office of the Register of Deeds for Georgetown County, South Carolina, in Plat Slide/Record Book 781 at Page 7. Said property having such metes, bounds, courses, marks and distances as will more fully appear by reference to the aforesaid plat which is hereby made, pro tanto, a part and parcel hereof.

LESS AND EXCEPT: All that certain piece, parcel or tract of land situate, lying and being in City and County of Georgetown, South Carolina, designated as **Lot C containing 8,656 Sq Ft., 0.19 Acre**, as shown and delineated on that certain "Combination/Subdivision Plat showing New Tract B & Lot C along US Hwy 17 (Church Street), Tax District 2, City of Georgetown, Georgetown County, South Carolina for 711 Partners, LLC" dated March 2, 2017, prepared by Harry F. Bruton & Associates, Professional Land Surveying & Design, PLS, and recorded in the Office of the Register of Deeds for Georgetown County, South Carolina, in Plat Slide/Record Book 781 at Page 7. Said property having such

Deed Prep Only - Title Not Examined by Elliott & Phelan, LLC

metes, bounds, courses, marks and distances as will more fully appear by reference to the aforesaid plat which is hereby made, pro tanto, a part and parcel hereof.

This conveyance is subject to any and all applicable restrictive covenants, restrictions and easements of record.

This being a portion of the same property conveyed to Georgetown County by Deed of the South Carolina State Highway Department dated May 22, 1968 and recorded *June 20, 1968* in the Office of the Clerk of Court, now Register of Deeds for Georgetown County on in Deed Book 82 at Page 325.

TMS# Portion of 02-0101-005-00-00

* * * * *

GRANTEE(S) ADDRESS:

P O Box 1289

Georgetown, SC 29442

* * * * *

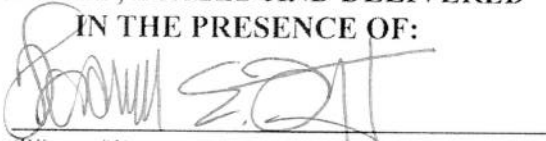
TOGETHER with all and singular, the Rights, Members, Hereditaments and Appurtenances to the said Premises belonging, or in anywise incident or appertaining.

TO HAVE AND TO HOLD, all and singular, the said Premises before mentioned, without warranty and subject to all matters of record, unto the said 711 Partners, LLC, a South Carolina Limited Liability Company, its Successors and/or Assigns, forever.

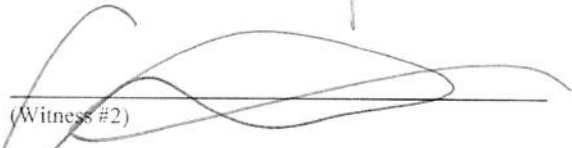
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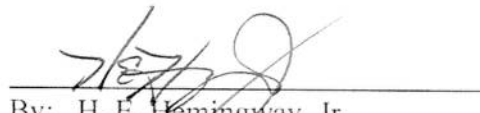
WITNESS its Officer(s) Hand(s) and Seal(s) this 2nd day of May in the year of our Lord two thousand seventeen and in the two hundred and forty first year of the Sovereignty and Independence of the United States of America.

**SIGNED, SEALED AND DELIVERED
IN THE PRESENCE OF:**


(Witness #1)

Georgetown County, a body politic
organized under the laws of South
Carolina


(Witness #2)


By: H. E. Hemingway, Jr.
Its: County Administrator

* * * * *

STATE OF SOUTH CAROLINA)
)
COUNTY OF GEORGETOWN)

ACKNOWLEDGMENT

I, Wesley P. Bryant, a notary public, for the State of South Carolina, do hereby certify that, Georgetown County, a body politic organized under the laws of South Carolina, by and through its County Administrator, H. E. Hemingway, Jr. (The Grantor herein), personally appeared before me this day and acknowledged the due execution of the foregoing instrument.

Witness my hand and official seal this the 2nd day of May, 2017.


(L.S.)
Notary Public
My Commission Expires: October 10, 2017

Deed Prep Only - Title Not Examined by Elliott & Phelan, LLC

STATE OF SOUTH CAROLINA)
)
 COUNTY OF GEORGETOWN) AFFIDAVIT

PERSONALLY appeared before me the undersigned, who being duly sworn, deposes and says:

1. I have read the information on this affidavit and I understand such information.
2. The property being transferred is located at Portion of Parcel 1 Residual, TMS 02-0101-005-00-00 containing 2.61 Acres Less and Excepting Lot C containing 0.19 Acres, Georgetown, SC, was transferred by Georgetown County, a body politic organized under the laws of South Carolina to 711 Partners, LLC, TMS# Portion of 02-0101-005-00-00.
3. Check one of the following: The deed is:
 - (a) ☒ subject to the deed recording fee as a transfer for consideration paid or to be paid in money or money's worth.
 - (b) ☐ subject to the deed recording fee as a transfer between a corporation, a partnership, or other entity and a stockholder, partner, or owner of the entity, or is a transfer to a trust or as a distribution to a trust beneficiary.
 - (c) ☐ exempt from the deed recording fee because (See Information section of affidavit);

(If exempt, please skip items 4 – 7, and go to item 8 of this affidavit.

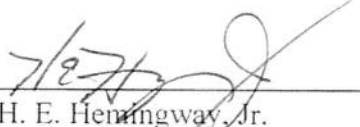
If exempt under exemption #14 as described in the information section of this affidavit, did the agent and principal relationship exist at the time of the original sale and was the purpose of this relationship to purchase the realty? Check Yes ☐ or No ☐

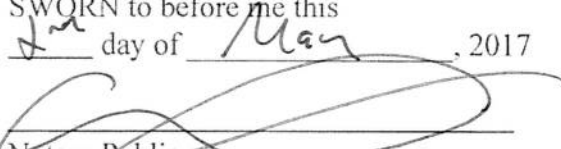
4. Check one of the following if either item 3(a) or item 3(b) above has been checked (See Information section of this affidavit):
 - (a) ☒ The fee is computed on the consideration paid or to be paid in money or money's worth in the amount of \$ \$3,630.00
 - (b) ☐ The fee is computed on the fair market value of the realty which is _____.
 - (c) ☐ The fee is computed on the fair market value of the realty as established for property tax purposes which is \$0.
5. Check Yes ☐ or No ☒ to the following: A lien or encumbrance existed on the land, tenement, or realty before the transfer and remained on the land, tenement, or realty after the transfer. If "Yes," the amount of the outstanding balance of this lien or encumbrance is: .

Deed Prep Only - Title Not Examined by Elliott & Phelan, LLC

6. The deed recording fee is computed as follows:
 - (a) Place the amount listed in item 4 above here: \$3,630.00
 - (b) Place the amount listed in item 5 above here: \$0.00
(If no amount is listed, place zero here.) _____
 - (c) Subtract line 6(b) from Line 6(a) and place result here: \$3,630.00
7. The deed recording fee due is based on the amount listed on Line 6 (c) above and the deed recording fee due is: \$14.80
8. As required by Code Section 12-24-70, I state that I am a responsible person who was connected with the transaction as the grantor
9. I understand that a person required to furnish this affidavit who willfully furnishes a false or fraudulent affidavit is guilty of a misdemeanor and, upon conviction, must be fined not more than one thousand dollars or imprisoned not more than one year, or both.

Georgetown County, a body politic
organized under the laws of South Carolina


By: H. E. Hemmingway, Jr.
Its: County Administrator

SWORN to before me this
 day of May, 2017

Notary Public
My Commission Expires: October 10, 2017



120 North Fraser Street • Georgetown, SC 29440 • (843) 545-4000

ORDINANCE

DOC ID: 2311

Council Meeting Date:	13 July 2017
Department:	Housing and Community Development
Issue Under Consideration:	Motion to approve first reading of an ordinance to rezone approximately 10.47 acres owned by 711 Partners LLC, located on Hwy 17 North adjacent to the Black River bridge, from General Commercial (GC) to Planned Development (PD).
Amount Requested:	N/A
Is Item in Current Budget?	N/A
If no, please explain:	N/A
Financial Impact:	N/A
Points to Consider:	• This Winyah Fishing Village development has been a concept for about 10 years now. • 711 Partners has purchase an additional 2.61 acres from Georgetown County to combine with their 7.86 acres to form this Planned Development (PD). • The 2.61 acres needs to be annexed into the City. • Planning Commission held a Public Hearing on May 23, 2017 on this rezoning request. • Planning Commission then voted 6-1 in favor of the rezoning request from GC to PD.
Options:	Approve or deny rezoning recommendation.
Staff Recommendation:	Staff recommends approving the rezoning along with the Planning Commission.

Reviews:

Rick Martin Completed 06/05/2017 9:57 AM
 Paul Gardner Completed 06/05/2017 11:40 AM
 Ann U. Mercer Completed 06/05/2017 1:14 PM
 Georgetown City Council Completed 06/15/2017 5:30 PM

Attachments:

Updated: 6/9/2017 2:04 PM by Ann U. Mercer

Page 1

Packet Pg. 45

1. 1 WFV Rezoning Ord (PDF)
2. 2 May PC Minutes Rezone 10.47 (PDF)

**MOTION TO APPROVE FIRST READING OF AN ORDINANCE TO REZONE
APPROXIMATELY 10.47 ACRES OWNED BY 711 PARTNERS LLC, LOCATED ON HWY 17
NORTH ADJACENT TO THE BLACK RIVER BRIDGE, FROM GENERAL COMMERCIAL
(GC) TO PLANNED DEVELOPMENT (PD).**

AN ORDINANCE REZONING APPROXIMATELY 10.47 ACRES OWNED BY 711 PARTNERS, LLC, LOCATED ON HWY 17 NORTH ADJACENT TO THE BLACK RIVER BRIDGE, FROM GENERAL COMMERCIAL (GC) TO PLANDED DEVELOPMENT (PD)

WHEREAS, pursuant to Title 6, Chapter 29 of the Code of Laws of South Carolina, the City of Georgetown enacted the Zoning Ordinance of the City of Georgetown, South Carolina; and

WHEREAS, Article XVIII, Section 1800 of the Zoning Ordinance of the City of Georgetown provides that the Zoning Ordinance may be amended from time to time by the Mayor and City Council; and

WHEREAS, the Planning Commission of the City of Georgetown, South Carolina held a public hearing to receive public input regarding the rezoning request; and

WHEREAS, following the public hearing on May 23, 2017 and the 6-1 vote in favor of rezoning by the Planning Commission, the Mayor and City Council of the City of Georgetown have determined that the zoning boundaries as shown on the Official Zoning Map be revised and amended as follows:

Rezoning from General Commercial (GC) to Planned Development (PD), property totaling approximately 10.47 acres located on Hwy 17 North, identified by the Georgetown County Tax Map as TMS# (05-0056-01-05-00).

For a more specific description of said property, please see attached map.

NOW, THEREFORE, BE IT ORDAINED by the Mayor and City Council of the City of Georgetown, in Council duly assembled, that the Future Land Use Map and Official Zoning Map of the City of Georgetown be amended by revising and amending the zoning boundaries of the Official Zoning Map, together with all explanatory matter herein as follows:

Rezoning from General Commercial (GC) to Planned Development (PD), property totaling approximately 10.47 acres located on Hwy 17 North, identified by the Georgetown County Tax Map as TMS# (05-0056-001-05-00).

BE IT FURTHER ORDAINED, that such changes shall be made on the Official Zoning Map and Future Land Use Map. All ordinances or parts of ordinances inconsistent with this Ordinance are hereby repealed to the extent of such inconsistency.

ATTEST:

Ann U. Mercer, City Clerk

Jack M. Scoville, Jr., Mayor

First Reading: _____

Approved as to Form:

Second Reading: _____

Elise F. Crosby, City Attorney

Attachment: WFV Rezoning Ord (2311 : Rezone 10.47 acres from GC to PD)

2. Review and recommend a Petition for Annexation by 711 Partners (TMS #02-1010-005-00-00), located along Pier Road just outside the city limits, to annex approximately 2.61 acres into the corporate limits of the City of Georgetown.

Matt Millwood/City Staff told the Board that since the agenda was done the 711 Partners has bought the property and it no longer belongs to Georgetown County. This property is adjacent to the City limits and it can be annexed into the City. This property was purchased so that the owners would have the required 10 acres needed for a Planned Development. The owners now have a total of 10.48 acres.

Mr. Steve Strickland/Earthworks, representing 711 Partners introduced himself and offered to answer any questions the Board might have (*the Board did not have any questions*).

Public: None

Motion: Mr. Moore made a motion to approve the petition for annexation into the City, seconded by Ms. Johnson, the motion carried 7 to 0 by a roll call vote.

3. Review and recommend for adoption a rezoning request, for approximately 10.47 acres, from 711 Partners, LLC, to rezone from General Commercial (GC) to Planned Development (PD).

Matt Millwood/City Staff told the Board that the applicant had all the necessary information in their packet that includes all Army Corp. and SCDOT approvals. This application was brought before this Board previously and they also went before the Board of Zoning & Appeals to try and get a variance from the required 10 acres, which was denied. At this time they have over 10 acres and they are back to try and get the property rezoned to Planned Development. They are proposing residential as well as commercial on the property. There is approximately 9 ½ acres of wetlands on this property, so the structures will be put on pilings, and docks will be in the rear. **Mr. Pieterse** asked about the traffic entrance to the property. Matt said he would defer that question to Mr. Strickland. **Mr. Williams** asked if the Fishing Village would be accessible to the public. Matt said they will be sold as private residents, but there are a couple of different uses listed just in case the sales don't go well. **Ms. Johnson** asked is the access to the public fishing pier through the proposed development. Matt said no there is still access on Pier Road that was retained by the County.

Mr. Steve Strickland/Representing 711 Partners said the access will be off the Jameson Inn entrance at the traffic light, there will be a drop off and pick up for coolers and other items. There is an easement in place for all utilities. Mr. Strickland said this area will be great for those people that want to come and fish and enjoy the Marsh. **Ms. Schmid** ask what is the advantage of rezoning this area Planned Development. **Mr. Strickland** said because of the setbacks and how the units will have to be placed on the lot this property it would be hard to work with a straight zoning. **Ms. Schmid** said this proposal is for a single use and a Planned Development is not for a single use. **Mr. Strickland** said they will have residential components as well as commercial on the property. **Ms. Schmid** read into the record the definition of a Fish Camp to clarify any confusion, although Ms. Schmid said she did not oppose the plan she felt like it would be a better fit for General Commercial rather than Planned Development. **Mr. Strickland** said again that the development will have residential and commercial. **Ms. Schmid** asked if it was assumed that someone would be living in the units year round. **Mr. Strickland** said because of the size of the units he doesn't believe

someone would live in these "fishing village" units full time, but is unsure. It could be done as rentals or leased units. **Ms. Schmid** said the units are substandard houses, because of the size of the second bedroom. **Mr. Strickland** said the design of the units are not in question at this time, the land use is the only thing being discussed. **Ms. Schmid** said she just does not want it to turn into a residential development that has nothing to do with a fish camp. **Ms. Schmid** asked about the parking for the boat-trailers. **Mr. Strickland** said there is no area on the property but there are two boat landing within 2 miles, and there is no trailer parking on any local rental property. **Mr. Moore** asked if the construction of the docks were in phase I or phase II. **Mr. Strickland** said they really don't have a timeline for the construction of the docks, because they will come as the residents come.

Public Input: None

Motion: Mr. Moore made a motion to approve the rezoning request, seconded by Mr. Williams, the motion carried 6 to 1 (Ms. Schmid cast the downward vote).

V. Board Discussion:

Matt told the Board that there has been 2 West End Development meetings since the last Planning Commission meeting, and Ms. Gloria Tinubu has decided to add more meetings to move things along. Matt offered the minutes of the meetings to anyone that was interested. Mr. Pieterse said sidewalks were discussed, and cameras being installed. Mr. Williams said he feels the discussion of the mobile homes will be brought back up again.

VII. Adjournment: With there being no further business the meeting was adjourned.

Submitted By,

*Debra Grant
Board Secretary*

Attachment: May PC Minutes Rezoning 10.47 (2311 : Rezoning 10.47 acres from GC to PD)



120 North Fraser Street • Georgetown, SC 29440 • (843) 545-4000

ACTION ITEM

DOC ID: 2312

Council Meeting Date:	13 July 2017
Department:	Housing and Community Development
Issue Under Consideration:	Motion to adopt the multi-jurisdictional Program for Public Information (PPI) document as part of the City of Georgetown's floodplain management Credit Rating System (CRS), derived by the Insurance Services Office (ISO) and Federal Emergency Management Agency (FEMA)
Amount Requested:	N/A
Is Item in Current Budget?	N/A
If no, please explain:	N/A
Financial Impact:	N/A
Points to Consider:	• This multi-jurisdictional PPI document was produced over the past year between the City, County, and Pawleys Island. • There were also three (3) PPI Committee meetings held for input from the PPI Committee members and the public (see minutes). • This document will guide us in extra activities that the floodplain manager and CRS Coordinator must complete in order to retain our flood insurance credit rating for the City. • We currently have a CRS credit rating of 7, and we hope this document along with other mitigation activities and public outreach projects will help get us down to a 6 rating. • Each CRS rating point the City goes down saves the citizens 5% on their flood insurance. So where they are getting a 15% deduction now for a class 7 rating, we hope to get this to a 20% insurance rate deduction at a class 6 after our next cycle visit on September 28th. • Adoption of this document is required in the 7-step process for "Developing a PPI Document" in the CRS Coordinators Manual.
Options:	Approve or deny the action item to adopt the PPI document for CRS.
Staff Recommendation:	Staff recommends approving this action item.

Reviews:

Rick Martin Completed 06/28/2017 4:56 PM

Paul Gardner Completed 06/30/2017 1:30 PM

Updated: 6/28/2017 4:56 PM by Rick Martin (Page 1)

Ann U. Mercer Completed 07/06/2017 11:47 AM
Georgetown City Council Pending 07/13/2017 5:30 PM

Attachments:

1. 1 PPI 2017 (PDF)
2. 2 Minutes 5_11_16 (PDF)
3. 3 Minutes 6_22_16 (PDF)
4. 4 Minutes 3_15_17 (PDF)

GEORGETOWN, SOUTH CAROLINA
MULTI-JURISDICTIONAL
PROGRAM FOR PUBLIC INFORMATION (PPI)

May 15, 2017

Attachment: PPI 2017 (2312 : Adopt the CRS PPI document)

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Georgetown's Multi-Jurisdictional Floodplain & Stormwater Program for Public Information

History and Background

Few other areas in America contain more history or charm than Georgetown, South Carolina. From its earliest beginnings as the probable site of the first European settlement in North America in 1526, to its present status as a vibrant and gracious county of approximately 60,572, Georgetown has long been known for its warm hospitality and Southern charm. Located on the coast of South Carolina, Georgetown is home to a wealth of history and culture, and some of the state's most beautiful beaches, marshes, and rivers. Whether your thing is lazing on the beach, enjoying an ocean breeze from a porch rocking chair, or something a bit more active, Georgetown County has something to appeal to everyone. Georgetown's long history combined with its diversity of cultures, linkage to the sea, triumphs, defeats, and revitalizations have all contributed to create an area known for its charm and beauty.

Georgetown County and its municipalities (the City of Georgetown & Pawleys Island) have been actively participating in the Community Rating System (CRS) since the early 2000's. The Community Rating System (CRS) is part of the National Flood Insurance Program (NFIP), which is sponsored by FEMA, the Federal Emergency Management Agency. It provides a reduction to flood insurance premiums in the participating communities. These reductions are based on community floodplain management programs, including the public information activities. For a community to retain those discounts on their flood insurance premiums, they must continue to implement the programs and provide status reports to the NFIP each year.

The following are the credit ratings for Georgetown:

Georgetown County	7
City of Georgetown	7
Pawleys Island	6

The program gives property owners a 5% reduction to their flood insurance premium for every point they go down. Georgetown County currently receives a 15% discount, City of Georgetown a 15% discount, and Pawleys Island a 20% discount off their flood insurance premiums. This discount applies for any property owner that has flood insurance within these jurisdictions, and is inside a regulated floodzone. Properties outside the flood zones may still purchase flood insurance, but because of special prorated rates for X Zones, they do not receive this discount.

In an effort to reduce insurance cost to the residents and business owners and to reach more people through a more aggressive outreach program, Georgetown County has now formed a multi-jurisdictional Program for Public Information (PPI). The community has produced outreach materials on the hazards of flooding since the beginning of the CRS program. Special efforts were made for areas having repetitive losses, yet areas needing specific information were not targeted. By developing the PPI committee, these areas will now receive the outreach

information that will benefit them and offer additional information when needed. Areas prone to flooding, new property owners needing information on flood risk, areas having insufficient insurance as well as other target areas can now be given information that pertain directly to them through the PPI.

Georgetown County, the City of Georgetown, & Pawleys Island consider this program vital to the entire community for all the positive benefits it produces. From flood hazard information and mitigation techniques to floodplain protection and benefits, the PPI will help our community achieve ideal success in all areas of public outreach.

PPI Committee

The community set out to get a dozen volunteer members that could provide knowledgeable input as a PPI committee member. These stakeholders represent insurance agents, real estate agents, banking/lending agencies, surveyors, and residents that live in the floodplain. By having the following members on the committee, Georgetown receives valuable insight and advice from their collective expertise.

- **Tony Jordan** - Owner, Allstate Insurance, Georgetown
- **Wendell C Powers, PLS** - Surveyor, Powers Land Surveying
- **Chuck Richardson Sr.** - Senior Associate, Coldwell Banker Chicora Real Estate
- **Tom Britton**, CFM, AICP - Planning Director, Waccamaw Regional COG
- **Daniel Newquist**, AICP - Planner, Waccamaw Regional Council of Governments
- **Cindy Grace** - Coordinator, Emergency Management Division, Gtown County
- **Kenny McConnell** - Retired, Citizen of Georgetown County
- **Mackie Altman** - Realtor, Altman Realty
- **Diane Allen** - Town Clerk, Pawleys Island
- **Walter McElveen** - Broker in Charge, Pawleys Island Realty
- **Leda McIntyre Hall** - Pawleys Island Resident
- **Alex Boyer** - Pawleys Island Resident
- **Greg Badgett** - Lender, The Citizen's Bank
- **Shane Bowen** - Realtor, The Litchfield Company
- **Ryan Fabbri**, CFM - Town Administrator, Town of Pawleys Island
- **Mike Young** - Building Official, Georgetown County
- **Murray Presley** - Plan Reviewer, Georgetown County
- **Matthew Millwood**, CFM - Comm Planner/GIS Technician, City of Georgetown
- **Rick Martin**, CBO, CFM - Building & Zoning Administrator, City of Georgetown

The role of the committee has been to assist in developing the PPI by providing feedback on areas of the community that should be targeted for outreach projects, the types of messages should be delivered, and by whom and how often. The group members were also asked to share information on any efforts related to this work that have occurred or are occurring within the community as well.

The municipal staff developed the agendas and facilitated the meetings. Prior to setting each meeting date, staff surveyed the committee members for their availability to ensure that the group met the attendance requirements outlined in the new CRS manual (Developing A Program for Public Information, Step 1). It was decided that meetings around lunch time worked best for the group, so staff scheduled the meetings at 12 noon and supplied lunch for all committee members.

The initial PPI Committee meeting was held on May 11, 2016 in the City of Georgetown H&CD conference room. After lunch and some roundtable floodplain discussion, the committee followed steps one (1) and two (2) of the seven step plan outlined in the 2013 CRS Manual, pages 330-12 through 330-14. During the meeting, the committee expressed the needs of the community and the different needs for individual areas/targets within the local municipalities as well as the county as a whole. The committee members discussed the need for a combative campaign to get flood information out to the entire public and discussed target areas around Georgetown that needed special attention. Some of these targets included ocean front, river front, and X Zones that were flooded during the historic October 2015 flood event.

The second meeting was held on June 22, 2016 in the Council Chambers at City Hall. The agenda followed steps three through five (3-5) of the seven step plan. During this meeting, committee members reviewed the six messages of the CRS Table 330-1 and matched topics to the six target audiences that they felt were compatible, and started developing the specific messages. This work is detailed under the "Target Audiences" section of this document. The committee informally inventoried related efforts that were already taking place in the community. Each community representative filled in the Committee with the projects that they were already doing. They discussed how those programs and activities fit in the PPI plan as they are being presented now, and how they can be modified to serve the jurisdiction's overall effort in a better way.

Based on information gathered during the second meeting, municipal staff assembled the first rough draft of the Program for Public Information. The draft was then reviewed by the committee members for revisions and amendments based on the discussion from the previous two meetings. Then, a final draft of the PPI was prepared by staff and approved by the entire committee on March 15, 2017. Final draft of PPI was then sent to Janice Mitchell of FEMA Region IV to request any comments or corrections that she may have on the draft document. Finally, the document was then presented to all municipal councils for their final approval and adoption (see adoption dates for each jurisdiction on page 17 of this document).

Goals

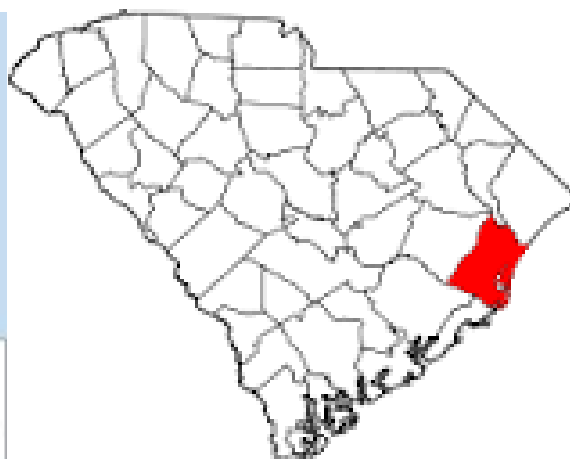
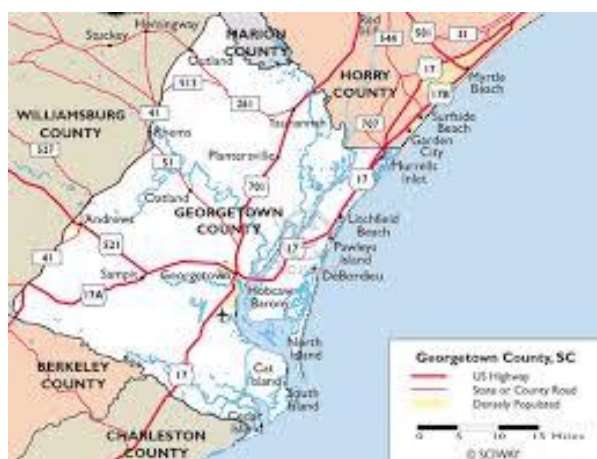
All members of the PPI Committee share a common vision for a better informed public in which they are educated about the flood risks, what they can do to decrease future damage, and the multitude of benefits of having flood insurance. The PPI plan is a great tool to help achieve that vision. The following are the overall goals and objectives recommended by the PPI Committee:

1. Utilize the many outreach projects and materials to educate residents and business owners of the importance of floodplain management.
2. Encourage citizens of Georgetown County, the City of Georgetown, & Pawleys Island to purchase flood insurance, even if they are not located in a regulated floodzone (SFHA).
3. Encourage municipal governments to fund floodplain management programs and staff to support the community.
4. Adopt stricter regulations than the FEMA standards in the CRS Coordinators Manuel to help reduce the risk of flooding to both residential and commercial structures.
5. Continue to work together as a multi-jurisdictional body, sharing information and material, to help lower the credit rating and save citizens money on their insurance premiums.
6. Get the Coastal Association of Realtors to mandate training and disclosure on floodzones for all licensed realtors in the county.
7. Use Coastal Association of Realtors relationship to springboard the first floodplain management user group in South Carolina.

Community Needs Assessments

The Georgetown County area along the South Carolina coast is a great place to do business, visit, and live. Located 40 miles south of Myrtle Beach and 60 miles north of Charleston, Georgetown and Pawleys Island are unique coastal communities offering a diverse mixture of opportunities for fun and enjoyment. All three jurisdictions have flooding issues, mainly because of the topography of the land in the so-called "Low Country". Let's take a look at each community's self-assessments.

Georgetown County



Georgetown County is a little more than 800 square miles of beautiful oak trees, marshes, and rivers. With a population over 60,500, many of the county's residents live or work in or near a floodzone. The great South Carolina flood in October 2015 affected many of the residents of

Georgetown County, especially along the five rivers that meander through this area. The PPI Committee concluded that County needs include: better floodplain mapping, community flood hazard & insurance education, and tougher flood related building regulations.

Flood Hazards

Georgetown County is exposed to many flood related hazards like hurricanes, tropical storms, storm surge, severe thunderstorms, and riverine flooding. Many residences that were located outside the 1% annual floodzones experienced major flooding during the "1,000 year" rainfall event along the Black and Santee Rivers in October 2015. This event displaced thousands of people and called for mandates to look into the current flood maps.

Flood Insurance Data

The best source for flood hazard information for Georgetown County is the insurance data. The County has 7,751 active flood insurance policies in effect as of the date of this document. Flood insurance is required for all jurisdictions as a condition of federal aid on a mortgage or loan that is federally insured for a building located in a SFHA. (See tables 1-1 thru 1-3)

Table 1-1:

Percentage of Buildings Insured - Georgetown County			
Flood Zone	Policies	Properties	Percentage
X	3,484	32,370	10.8%
AE	3,695	11,048	33.4%
VE	572	5,876	9.7%

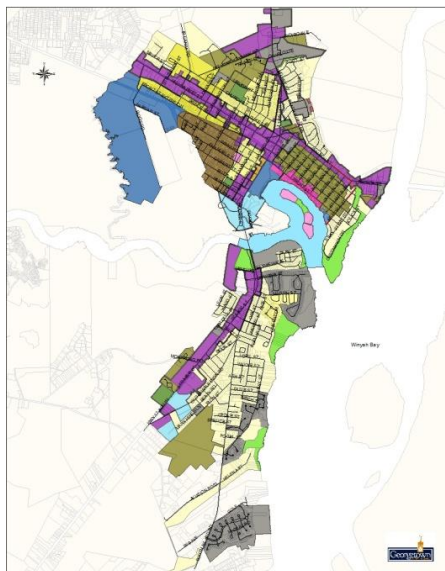
Table 1-2:

Pre-FIRM Policies in Force			
Flood Zone	Pre-FIRM	Premium	Insurance in Force
X	481	\$ 247,288	\$ 135,501,100
AE	1,565	\$ 2,118,445	\$ 309,216,900
VE	259	\$ 1,145,855	\$ 57,119,500
Total:	2,305	\$ 3,511,588	\$ 501,837,500

Table 1-3:

Post-FIRM Policies in Force			
Flood Zone	Post-FIRM	Premium	Insurance in Force
X	3,003	\$ 1,286,622	\$ 947,833,800
AE	2,130	\$ 1,045,792	\$ 581,113,000
VE	313	\$ 1,633,626	\$ 96,399,700
Total:	5,446	\$ 3,966,040	\$ 1,625,346,500

City of Georgetown



Founded in 1734, the City of Georgetown boasts 7.2 square miles of rich history. Located mainly on the Winyah Bay and Sampit River, the City of Georgetown has many issues with flooding and flood hazards. These hazards include hurricane surge, riverine flooding, tidal flooding, and drainage systems that are overwhelmed during even moderate rainfall events. Roughly one third of the city limits is located within a Special Flood Hazard Area (SFHA). This includes mostly residential homes but also the historic Front Street business district, steel mill, and port. The committee concluded that City needs include: improved stormwater infrastructure, more detailed flood mapping, citizen flood hazard & insurance education, increased floodzone building regulations, and hazard mitigation grants.

Flood Hazards

The City of Georgetown is exposed to multiple flood related hazards like hurricanes, tropical storms, storm surge, severe thunderstorms, and extreme high tides. Even a pop up rain shower can sometimes overload the aging storm drainage systems in the older areas, causing sporadic flooding to low lying streets and property. A few drainage projects with joint efforts by the City and South Carolina Department of Transportation (SCDOT) have helped the situation in the high traffic areas, but many other problematic residential areas still need to be addressed.

Flood Insurance Data

Flood insurance data for the City has increased in the past several years. The city has 521 active flood insurance policies in effect as of the date of this document. (See tables 2-1thru 2-3)

Table 2-1:

Percentage of Buildings Insured - City of Georgetown			
Flood Zone	Policies	Properties	Percentage
X	195	838	23.3%
AE	322	1,018	31.6%
VE	4	77	5.2%

Table 2-2:

Pre-FIRM Policies in Force			
Flood Zone	Pre-FIRM	Premium	Insurance in Force
X	109	\$ 52,777	\$ 31,932,700
AE	236	\$ 328,906	\$ 54,071,700
VE	1	\$ 1,236	\$ 74,300
Total:	346	\$ 382,919	\$ 86,078,700

Table 2-3:

Post-FIRM Policies in Force			
Flood Zone	Post-FIRM	Premium	Insurance in Force
X	86	\$ 45,518	\$ 25,028,500
AE	86	\$ 58,666	\$ 26,738,900
VE	3	\$ 6,575	\$ 741,500
Total:	175	\$ 110,759	\$ 52,508,900

Pawleys Island



Pawleys Island is a small residential community that sits on a barrier island adjacent to the Atlantic Ocean. Only about 1 square mile in size and 115 permanent residents, this community mainly caters to its summer tourist season. Totally surrounded by marsh on one side and the ocean on the other, Pawleys Island is susceptible to many flooding issues. Most common are the monthly high tides and the storm surge potential from any category hurricane. The committee concluded that Pawleys Island's needs include: dune and shoreline protection, flood hazard & insurance education, and stricter building codes in V zone areas.

Flood Hazards

Pawleys Island is exposed to many of the same flood related hazards as the other communities like hurricanes, tropical storms, storm surge, severe thunderstorms, and high tides. But Pawleys Island also has a major problem with beach erosion. Like many beach front

communities, even less severe tropical storms can dramatically erode Pawleys Island's beaches and dunes, threatening beach front structures in the process.

Flood Insurance Data

Flood insurance is a very important issue for an island community. The insurance data for Pawleys Island can be found in tables (3-1 thru 3-3) below.

Table 3-1:

Percentage of Buildings Insured - Pawleys Island			
Flood Zone	Policies	Properties	Percentage
X	N/A	N/A	N/A
AE	184	189	97%
VE	260	332	78%

Table 3-2:

Pre-FIRM Policies in Force			
Flood Zone	Pre-FIRM	Premium	Insurance in Force
X	N/A	N/A	N/A
AE	95	\$ 183,055	\$ 25,741,800
VE	171	\$ 557,433	\$ 47,886,000
Total:	266	\$740,488	\$ 73,627,800

Table 3-3:

Post-FIRM Policies in Force			
Flood Zone	Post-FIRM	Premium	Insurance in Force
X	N/A	N/A	N/A
AE	89	\$ 52,870	\$ 28,365,000
VE	89	\$ 488,584	\$ 28,057,600
Total:	178	\$ 541,454	\$ 56,422,600

Flood Insurance Assessment

The PPI Committee decided that a Flood Insurance Assessment of the insurance information was needed in order to evaluate the areas that may need to purchase flood insurance and/or gain additional insurance. The committee reviewed the flood insurance tables (Tables 1-3), which provide information on flood zone classification, insurance policies, insurance premiums, etc. The tables seem to show small percentages of property owners have coverage in our communities (other than the AE zones in Pawleys Island). The overall consensus was that everyone in the community needed to be aware of flood insurance, its cost, and the risk of not carrying it. We then made a combination table (Table 4 below) to show the overall average coverage for the separate communities.

Table 4:

Community	Policies in Force	Premium	Insurance in Force	Avg. Coverage
County	7,741	\$ 7,477,628	\$ 2,127,184,000	\$ 274,794
City	521	\$ 493,678	\$ 138,587,600	\$ 266,003
Pawleys Island	447	\$ 1,284,871	\$ 130,885,500	\$ 292,809
Total:	8,709	\$ 9,256,177	\$ 2,396,657,100	\$ 275,193

In review of Table 4, the committee felt that the average coverage for our communities was adequate compared to the housing stock in those respective flood zone areas. It seems to follow the pattern that properties on Pawleys Island need the most coverage, followed by the County, and then the City. The committee concluded that these numbers and percentages should go up in the next few years considering the following factors:

- recent increase in home values
- back to back years with a 1% annual flood (October 2015 & 2016)
- new FEMA Flood Insurance Rate Maps (FIRMs) coming out later this year

During the annual sub-committee evaluation and update meeting, staff will reassess the flood coverage and update the tables with new the new data every year.

Repetitive Loss Properties

The amount of Repetitive Loss (RL) properties seems to be related to the percentage of a community's property that lies within a flood zone. The City of Georgetown has 11 repetitive loss properties. This is down from 13 in the last ISO cycle visit, eliminating two in the past few years by demolition. Pawleys Island has 36 repetitive loss properties, which is a very low amount considering it is an island and beach front community. Georgetown County, on the other hand, has 94 RL properties, which is down from 120 when they first entered the CRS program. The vast expanse of unincorporated land in the County, and having multiple types of flooding hazards, means that more RL properties are inevitable. With new drainage projects in the works and strong CRS programs on the rise, all three jurisdictions hope to reduce, or at least minimize, their number of repetitive loss properties in the coming years.

Social and Economic Needs

The Georgetown area along South Carolina's coast is a diverse community. The City has a predominant African-American population, the County has an extensive retirement age population, and Pawleys Island is a seasonal based, family beach. The committee recommended that using communicational tools like the internet and social media are taking precedence in reaching these diverse groups, but retirees, vacationers, and second home owners would still be better reached by mail.

Target Audiences

After much discussion in the first and second meetings for the PPI Committee, the following key target audiences were selected:

Target Audience #1 - All properties located within a Special Flood Hazard Area (SFHA). The committee realizes that this is the target audience most at risk for flood hazards. After a community meeting with FEMA personnel on new flood maps in the area, we noticed that most residents didn't know what floodzone they were in or how to read a Flood Insurance Rate Map (FIRM). Increased awareness and flood insurance education could help mitigate flooding in these high risk areas.

Target Audience #2 - Real Estate Agents. One of the major careers that the committee discussed in needing education and awareness is in the licensed real estate community. These agents are the first line in communication when buying, selling, or even talking about a property, and the issues that revolve around flooding needs to be disclosed by them immediately. The downside to this flood hazard disclosure is the fact that this information could omit the sell. The committee agreed that something should be done on a regulation level by the Coastal Carolina Association of Realtors (CCAR).

Target Audience #3 - All Residents and Business Owners. When you live in the "low country" the threat from one of many flooding sources is inevitable. The jurisdictions cover all forms of flood hazards from riverine to storm surge. After an October 2015 major flooding event in our area, many people living outside the regulated flood zones suffered total losses from flooding. This spurred the government to push out the new flood maps that have been in the works for the past several years. The committee feels that outreach projects should be reaching everyone, even the people that are not currently located in a floodzone.

Target Audience #4 - Repetitive Loss Properties. Structures that flood frequently strain the National Flood Insurance Fund. The RL properties are the biggest draw on the Fund. FEMA has paid almost \$3.6 billion in claims for RL properties. RL properties not only increase the NFIP's annual losses and the need for borrowing, but they drain the funds needed to prepare for catastrophic events. The committee concluded that these properties needed to be educated in mitigation techniques, and in some cases even helped, to find ways to protect their property.

Target Audience #5 - Insurance Agents and Financial Lenders. The Committee felt that another target audience is all the insurance agents and lenders around the community. We grouped these together because they have to work hand in hand. These professionals play a major role in flood premiums, insurance claims, home loans, etc. They need to know flood hazards and the effects of flooding in certain areas just as much as anyone. The local jurisdictions provide these agencies with abundant information on flooding and mitigation.

Target Audience #6 - Ocean Front Properties. If a tropical storm or hurricane ever hits the Georgetown area again, the ocean front properties will be directly affected the most due to storm surge. Any property on eastern side of the Limited to Moderate Wave Action (LiMWA)

line can, and will, be directly affected by these increases in tides and wave heights from storm surge. The addition of stricter building regulations, and extra protection like freeboards in the ordinance, can help these homeowners in the ocean front areas of Pawleys Island and Georgetown County by providing that extra protection for these structures.

Existing Public Information Efforts

All municipalities in this multi-jurisdictional plan have existing public information outreach projects that they work on annually. They mail out flood information on a yearly basis to insurance and real estate companies, as well also to repetitive loss areas. They also display flyers and flood mitigation material in multiple public places such as the county library, city hall, and the court house. The County, along with the City of Georgetown & Pawleys Island, have put on several workshops to inform the public about the new Flood Insurance Rate Maps (FIRMs) and how to mitigate their structures for future flooding events. The City of Georgetown even has its own radio station for information and emergency broadcasts in which the city records flood related messages. Other public information efforts are included in Table 5 below.

Table 5 Existing Public Information Outreach Projects

Community	Project	Subject Matter	Frequency
City of Georgetown Housing & Community Development Department	-City website	-Multiple flood related topics and mitigation information. Weekly news feeds in Facebook.	Year-round
	-Flood letters to property owners	-Letter includes flood related topics such as flood protection, mitigation, and insurance. Done once a year for both SFHA and X zones.	Semi-annually
	-Flyers & handouts	-FEMA and local flood related flyers.	Year-round
	-Electric & water bills	-Small one-liner info reminders on hurricanes and flood related issues.	Quarterly
	-Newspaper articles	-Article on floods in the local circulation.	Semi-annually
	-Public Outreach meetings	-Local public forums for new flood maps or flooding issues/flood insurance.	Semi-annually
	-Map inquiry service	-Answer questions on flood zones, hazards, insurance, and protection.	Year-round
City Public Works Dept	-WCOG radio ads	-Local radio messages read over radio to inform citizens on the hazards of flooding.	Quarterly
	-Stormwater & drainage cleaning	-Constant cleaning, repairs, and improvements to our stormwater drainage system and ditches.	Year-round
Keep GT Beautiful	-Riversweep	-Group event to remove trash and debris from the Sampit River and Winyah Bay area.	September
Georgetown County Building & Planning Department	-County Website	-Pre-firm and post firm flood maps available. Flood information on how to mitigate your home/property.	Year-round
	-Mailers to property owners	-Info on flood insurance, info on how to prepare for flood events goes out every year to property owners in SFHA.	Semi-annually
	-County news letter	-Flood related articles are posted several times a year.	Quarterly
	-County library	-They supply the library with all types of FEMA	Year-round

	-Public Outreach	info and handouts. -Public forums for new Flood Maps and how it will affect your home/property.	Annually
Pawleys Island Town Hall	-Town Website -Facebook & Twitter -Flood brochures -Mayor's Newsletter -Map inquiry service -Letter to property owners -Beach/Creek Sweep	-Various flood-related topics. -Various flood-related topics. -Available at Town Hall and mailed annually to every property owner. Supply copies to local realtors, insurance agents, and banks. -Flood insurance and mitigate flood damage. -Flood zone determination, flood insurance, flood protection, flood hazard mitigation. -Entire island considered an area of repetitive loss, flood insurance. -Volunteer event to clean up trash and debris from the beach tidal creeks.	Year-round Year-round Year-round Semi-annually Year-round Annually September
Georgetown County Library	-FIRM maps -Flood hazard information -Computer access (www)	-Flood Insurance Rate Maps for whole county. -Multiple books and guidelines on flooding hazards, mitigation, and insurance. -Gives anyone access to the endless information of flood related topics on web.	Year-round Year-round Year-round
Georgetown Chamber of Commerce	-Chamber website -Social Media -Disaster Planning Education workshop -Recovery from Disaster workshop	-Links to the community websites, hurricane information, and evacuation guide. -E-blasts to local businesses and the tourism market on status of event. -How businesses prepare for a weather disaster like flooding. -Class teaching businesses how to recover from a disaster like flooding.	Year-round Year-round Annually Annually
Red Cross Georgetown	-Blood drives	-Hold blood drives for local hospitals and shelters.	Year-round
Insurance Agencies	-Handouts & flyers	-Flood insurance including its benefits and protection.	Year-round
Local TV News Channels	-Website -Social Media -Mobile devices	-Multiple links and information on flood related topics and hurricanes. -Live messaging on flood warnings, river levels, hurricanes, and evacuation information. -Mobile alerts directly to phone when weather related event watches or warning occur.	Year-round Year-round Year-round

Flood Insurance Rate Map (FIRM)

Flood Insurance Rate Maps are the official maps of a community on which FEMA has delineated both special hazard areas and the risk premium zones applicable to the community.

Georgetown County has FIRMs dated October 16, 1992. The City of Georgetown has been using the same FIRM's since March 16, 1989. All these FIRMs are extremely outdated considering it has been about 25 years since the last update. Add in several hurricanes, including Hugo and Matthew, and multiple flood events, like October 2015, and it can really change the topography of the Georgetown area. A new preliminary FIRM was released in January of 2016 but will not become effective until sometime in late 2017. These maps are much more accurate because they were developed using LiDAR technology. The new maps seem to be including more and more properties in the regulated flood zones.

Projects and Initiatives

The purpose of this Program for Public Information Plan is to educate the communities of Georgetown County and prepare them for flooding related events. The committee acknowledges the following key target audiences:

- Property owners located within a SFHA
- Real Estate agents
- All residents and business owners
- Repetitive Loss properties owners
- Insurance agents and financial lenders
- Ocean front property owners

With the target audiences in mind, the committee then came up with key messages that needed to be dispersed to the key audiences. The first six are the priority topics that must be covered, followed by additional messages the committee came up with. These messages are:

1. Know your flood hazard
2. Insure your property for your flood hazard
3. Protect people from the hazard
4. Protect your property from the hazard
5. Build responsibly
6. Protect natural floodplain functions
7. Know if you need flood insurance
8. What zone do you live in (AE or VE)
9. Flood insurance will cover up to \$250,000
10. Home owners insurance does not cover losses from flooding

The strategy of the previous messages are to make citizens aware of flood hazards, flood mitigation techniques, and flood insurance in our communities. The target audiences are just a start in notifying the whole community about the hazards of flooding. The ongoing efforts that the local governments take to help increase the awareness of flooding should eventually reach all audiences throughout the entire County. Table 5 of this document provides a comprehensive list of the program elements, which includes various public information pieces, website information, public meetings on flooding, and more. Overall, including Georgetown County, City of Georgetown, and Pawleys Island, there are about 34 outreach projects and initiatives that will be implemented during the next year.

In addition to the existing outreach projects, the committee proposed new projects for the communities to work on that will help citizen awareness of flood related information. These projects can seen in Table 6, and are summarized by the committee below:

- While people in the SFHAs are receiving letters from their municipality, many of the people throughout the County that still have a danger from flooding do not. The community should put together a county-wide citizen email list that can send flood information out quickly and effectively.
- Elevation Certificates (ECs) are very important and homeowners should have and retain this documentation. This document helps the community know the elevation of their

land compared to the flood zones and helps insurance adjusters quote a premium for their flood insurance. The committee wanted to see a goal for the communities to get 20% of the flood zone properties to obtain ECs.

- Flood elevation signage is also a good tool in determining where the flood zones are located and what the high water mark for an area is. Although most think signage seems to be helpful, others, especially the real estate market, view this signage as a deterrent when it comes to buying or selling a property.
- Home owners insurance does not include losses from flooding. This is information that everyone needs to know, but only a few do. This message needs to be pushed on citizens both inside the flood zones and out.
- Many citizens throughout the County don't seem to know what flood zone they even live in. This information along with the mandatory purchase of flood insurance should be disclosed up front, starting with the real estate agent when buying or selling a home.
- Develop a better partnership with all jurisdictions to make communication between the County and its municipalities and its citizens more functional.

Flood Response Preparations

In addition to the projects that are implemented every year, the PPI committee recommends projects that will be implemented during and after a flood event. These projects are drafted and made ready for production and dissemination to all property owners and Spanish speaking citizens after a flood warning has been issued. Such projects are listed in Table 7 of this document. Use the following alphanumeric key for flood messages:

- A. Homeowners insurance does not cover floods.
- B. Turn around, don't drown!
- C. Elevation is the only true way to mitigate from the hazard of flooding.
- D. Know your zone.
- E. Build back safer and stronger.

Annual Evaluation

The PPI Committee will meet at least once per year to evaluate the Plan and incorporate any needed revisions. The evaluation and review will cover:

- A review of the projects that were completed
- Progress towards the desired outcomes
- Recommendations for new projects to be added to the program
- Changes in target audiences and/or committee members

One of the multi-jurisdictional communities' staff members will draft the updates as changes are made by the committee. The revisions will be included in communities' annual recertification for the CRS.

Plan Adoption

This document will not be in effect until it is approved and adopted by Georgetown County Council, the City of Georgetown Council, and the Town of Pawleys Island Council.

Council Approval Dates:

Georgetown County	Date: 6/?/17
City of Georgetown	Date: 6/?/17
Town of Pawleys Island	Date: 6/?/17

Acronyms

FEMA: Federal Emergency Management Agency

AE Zone: 100 – year floodplain mapping by FEMA with base flood elevations

VE Zone: Coastal high hazard 100-year floodplain mapped by FEMA

X Shaded Zone: Areas of 500 year flood; areas of 100 year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile

X Zone: Areas determined to be outside of the 500 year floodplain

EC: Elevation Certificate

CFM: Certified Floodplain Manager

CRS: Community Rating System

SFHA: Special Flood Hazard Area

NFIP: National Flood Insurance Program

OP: Outreach Projects

PPI: Program for Public Information

OCRM: Office of Ocean and Coastal Resource Management

FRP: Flood Response Preparation Projects

RL: Repetitive Loss

LiMWA: Limited to Moderate Wave Action

GTC: Georgetown County

CGT: City of Georgetown

PI: Pawleys Island

Contacts

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City of Georgetown - *Matthew Millwood* - 843.545.4016

Town of Pawleys Island - *Ryan Fabbri* - 843.237.1698

PPI Projects and Initiatives							
Tabel 6: Outreach Projects (OP)							
Target Audience	Message(s)	Outcome	Project(s) Proposed	Assignment	Community	Proposed Schedule	Stakeholder
1. Property Owners located within a SFHA	Topic #1: Know your flood hazard	Help citizen awareness of where the flood zones are located and which flood zone their property is in (AE or VE).	Community websites	Building & Planning Office	GTC, CGT, PI	At least seven links to local and regional flood related sites.	N/A
			Flood information letters	Building & Planning Office	GTC, CGT, PI	At least annually to all property owners.	N/A
			Newspaper articles	Building & Planning Office	GTC, CGT, PI	Send articles bi-annually to newspaper for meetings and events.	N/A
			Radio ads	Building & Planning Office	CGT	Distribute handouts to various stakeholder locations for their displays	N/A Chamber of Commerce Insurance agencies
			Flyers and handouts	Building & Planning Office, County Library	GTC, CGT, PI	FEMA flyers located at City Hall	N/A
						Flyers in annual flood mailer	N/A
						Hand outs for financial institutions	Local banks
						Handouts for insurance agents	Local insurance agencies
						Flyers and maps available for viewing at the library	N/A
						Handouts at school career day	Georgetown School District
			Map inquiry service	GIS, Building & Planning Office	GTC, CGT, PI	Year-round, continuous	N/A
			Floodplain meetings and forums	Building & Planning Office	GTC, CGT, PI	At least annually	Engineered flood vent companies
	Topic #2: Insure your property for your flood hazard	Know your zone After you know your zone, get flood insurance.	Website	Building & Planning	GTC, CGT, PI	Year-round, continuous	N/A
			Contact local insurance agents for quotes	Insurance agencies	GTC, CGT, PI		Insurance agencies
	Topic #4: Protect your property from the hazard	Flood mitigation techniques	Add flood vents to your structure	Building & Planning Office Engineered floodvents	GTC, CGT, PI GTC, CGT, PI	Annual forums for contractors & homeowners with flood vent	All local contractors
			Dry floodproofing, elevate	Building & Planning Office	GTC, CGT, PI		
	Topic #5: Build responsibly	Stricter building codes	Adopt strict new building codes that help reduce flooding loss	Local building officials	GTC, CGT	Year-round, continuous	Local jurisdictions
	Topic #6: Protect natural floodplain functions	Building codes and zoning ordinances	Preserve open space and floodplains	Building & Planning Office	GTC, CGT, PI	Year-round, continuous	EPA, Army Corp, OCRM, local jurisdictions
2. Real Estate Agents	Topic #1: Know you flood hazard	Educate real estate agents on the hazards of flooding	Work with Coastal Carolina Assoc of Realtors to mandate flood zone disclosure on MLS	Building & planning department	GTC, CGT, PI	Year-round, continuous	Local real estate agencies
	Topic #8: What flood zone do you live in (AE or VE)	Train agents on using GIS to find flood zone.	Have flood maps readily available for everyone to use	Building & planning department	GTC, CGT	Year-round, continuous	Locas real estate agencies
3. All Residents and Business Owners	Topics #1 thru #7	Everyone that resides in a floodzone needs to be educated on flood hazards,	Tax bills	County tax assessor	GTC	At least annually on flood related messages on tax bills	N/A
			Mass email and text message sent out via Emergency Management	Georgetown Emergency Management & E911	GTC	Per emergency	Georgetown County Emergency Management Division
			Flood letters with information on all the flood related Topics	Building & planning department	GTC, CGT, PI	At least annually	N/A

Owners		zones, & mitigation	Local radio emergency station	WGEO Georgetown Fire Department	CGT	Quarterly messages on flood topics	N/A	
			Bilingual flyers and handouts	Building & planning department	GTC, CGT	Bi-annual flyers and handouts	N/A	
4. Repetitive Loss Properties	Topics #4: Protect you property from the hazard Topic #5: Build responsibly	RL properties should use mitigation techniques to elevate or flood-proof structures	RL area flood info packets	Building & planning department	GTC, CGT, PI	Annual Repetitive Loss area information packets and RL invites to all public flood forums	RL property owners	
			Add flood vents to your structure	Local contractors	GTC, CGT, PI	Per structure at owner expense	RL property owners	
			Work with local community stormwater department on drainage	Local jurisdiction stormwater dept	GTC, CGT, PI	Per structure or recommendation	N/A	
			Elevation is the only true way to mitigate from the hazard of flooding	Local contractors	GTC, CGT, PI	Per structure or by recommendation	N/A	
5. Insurance Agents and Financial Lenders	Topic #9: Flood insurance will cover up to \$250,000 Topic #10: Home insurance doesn't cover floods	Insurance agents should disclose coverage maximums & explain flood insurance	Info packets for insurance agents to give to property owners	Building & planning department	GTC, CGT, PI	Year-round, continuous	Insurance agents and financial lenders	
			Work with Coastal Carolina Assoc of Realtors to mandate flood zone disclosure on MLS					
		Banks need to disclose financial info on home loans and insurance requirements in a flood zone	Educate financial lenders on flood zones and flood insurance coverages	Building & planning department	GTC, CGT, PI			
			Work with financial lenders so they understand how to look up flood zones					
6. Ocean Front Properties	Topic #1: Know your flood hazard	Understand the velocity zones and their elevations	Make sure flood maps are available to property owners	Building & planning department	GTC, CGT, PI	At least annually in flood letter	Ocean-front property owners	
	Topic #3: Protect people from the hazard	Properties along the ocean front should evacuate during any major storms	Include hurricane tracking charts and evacuation routes with annual flood mailers	Building & planning department	GTC, CGT, PI	At least annually in flood letter	Ocean-front property owners	
	Topic #5: Build responsibly	Use newest building codes to safeguard from flooding	Publicize building code info for architects, engineers, and contractors	Building & planning department	GTC, CGT, PI	As new building code come out	N/A	
Table 7: Flood Response Projects (FRP)								
All properties in the entire County	A, B, C, D	1, 2, 3, 4, 6, 7, 8, 9, 10	Press Release (TV, Radio, Newspaper, Website, Social Media)	Building & planning department, media	GTC, CGT, PI	Release at first flood warning notice	N/A	
			Flyer: "Your Homeowners Insurance does not Cover Floods!"	Building & planning department	GTC, CGT, PI	Release year-round	N/A	
			Flyer: "Homeowners Guide to Retrofitting"	Building & planning department	GTC, CGT, PI	Release year-round	N/A	
			Train officials and citizens on how to find their flood zone	Building & planning department	GTC, CGT, PI	Year-round, continuous	N/A	
	E	3, 5	Flyer: "Build Back Safer and Stronger"	Building & planning department	GTC, CGT, PI	Distribute as new codes become effective	N/A	
Spanish speakers	A, B, D	1, 2, 4, 7, 8, 9, 10	Flyers translated into Spanish	Building & planning department	GTC, CGT	Release year-round	Hispanic church bulletin	
	E	3, 5	Handouts translated into Spanish	Building & planning department	GTC, CGT	Distribute to contractors as new codes become effective	Hispanic contractors	

Minutes from 5/11/16 PPI Committee Meeting

Introductions - **Matthew Millwood** started off with welcoming everyone and thanking them for participating in the Program for Public Information (PPI) and being a part of the committee. He then asked if everyone would introduce themselves in case there were people that didn't know each other. One by one they quickly went around the conference table stating their name, occupation, location, business, etc (see sign in sheet). **Matt** then explained why they were doing this PPI program, which is part of the Credit Rating System (CRS) issued through FEMA and the National Flood Insurance Program (NFIP).

CRS - The PPI helps the municipalities gain extra credit points under the 2013 CRS Manual, which in turn can help lower their overall credit rating. **Mike Young** of Georgetown County and **Ryan Fabbri** of Pawleys Island also spoke about this and gave examples of the outreach projects that we already do for the CRS program. They went on to explain that a municipality starts out in the CRS Program at a Class 10 rating, and with the efforts of the staff they can gain enough points to drop to a Class 9 or 8 and so on. For every point that they drop in Class, there is a 5% reduction to that municipalities flood insurance premiums. Currently the City of Georgetown is a Class 7, Pawleys Island a Class 6, and Georgetown County a Class 8 (but **Mike** said they just went through their cycle visit and think they will be going down another point). **Ryan** went on to explain that there are about 13,000 communities that participate in the CRS program. Only one community is a Class 1, and only fourteen communities are a Class 4 or better. Charleston County is one of those communities but they have a full time staff of three or four people that run their CRS program. **Tony Jordan** mentioned that tax dollars should to be spend wisely by the governing body, and that the CRS program directly helps everyone with their flood insurance, so why is this underfunded? He went on to say that we are a serious flood risk here in Georgetown. **Ryan** replied that if a local government truly wants to maximize the benefits available through CRS it requires a financial investment by local decision makers. The problem is this investment shows up as an expenditure on the budget but the savings it creates doesn't. The work done through a successful CRS program will show up as a discount in the flood insurance premiums of individual property owners. Persuading a council to adequately fund a CRS program is an uphill battle without the ability to display the direct cost/benefit ratio in the budget document.

Murray Presley mentioned that one of the biggest issues with the floodzones and the new flood maps is that the public doesn't know whether their home is in or outside one of these regulated floodzones. He feels that the flood hazard disclosure needs to start with the real estate agents because they are the first line of communication when people are buying, selling, or even talking about a property. If the real estate agents would tell their clients about the floodzones and how to obtain an Elevation Certificate (EC), then the public would be better informed about their situation regarding flood risks and insurance. **Mackie Altman** responded that they should get with the Coastal Carolina Association of Realtors (CCAR) in Myrtle Beach and start pushing the importance of educating all real estate agents in the area and that it needs to be made clear to the buyer or seller at the real estate closing.

Flood Insurance Rate Maps (FIRM) - **Matt**, moving forward, wanted to discuss the newly proposed 2015 Preliminary Flood Insurance Rate Maps. He then described that even though these new maps are not part of the local jurisdiction's ordinance yet, they are the "best available data", which floodplain managers are suppose to use. If there is a new construction or a substantial renovation, the municipality would inform the property owners of the new maps & floodzones, but can't require them to meet those regulations because it has not been adopted as local law yet. These maps are still in the review and appeals process and will not become effective until sometime late next year(2017). The local floodplain administrators, **Ryan, Mike, and Matt** all agreed that they would push people to use the more stringent regulation and inform them that it would affect their flood insurance premiums if they used the older floodzone maps to build. **Chuck Richardson Sr.** and **Mr. Altman**, both real estate agents, voiced their concern on how these new floodzones could really affect the housing market and possibly make some property unsellable.

Flood Hazards - Trying to move the meeting forward again, **Matt** asked the committee for some input on the types of flood hazards that we have in our area. In particular he asked for the committee to address specific *targets* in the communities, the *messages* that should be sent, and *how often* these messages should address the targets.

The committee, as a round table discussion, expressed the following flood hazards: rain events, high tides like a King Tide, riverine flooding, storm surge, overflow of aging stormwater infrastructure, & sea level rise. Then when asked about who to target on this flooding information, the committee included groups like real estate agents, flood plain residents, ocean front properties, financial institutions, repetitive loss properties, insurance agents, & even vacationers. **Mr. Jordan** stressed that not only should information be sent to the flood prone properties, but everyone needs to get this information. He goes on to say that many of the people that were flooded during the October 2015, 100 year storm, were not even listed within a floodzone. **Mr. Jordan** says, they were in a zone X. As far as the messages that the PPI committee decided to disperse to the public, there was a few suggestions. These included the type of hazard, flood insurance information, and mitigation techniques. Mr. Jordan said that we don't want to scare people so we need to be careful of the information that we put out there. Telling someone that their flood insurance rate will quadruple in the next couple of years could frighten homeowners or potential buyers. With the frequency of sending these messages to the target audience, the committee said that we need to do it more often. They agreed that this information needs to go out to the public at least three times a year. **Mr. Jordan** also wanted to stress that we should use more social media as an outreach. He thinks that this will get to more people than a local newspaper or the municipality's website.

Meeting Conclusion - **Matt** concluded the 1 hour meeting with asking if the lunch hour was a good time to have these PPI Committee meeting and if he scheduled the next meeting in about a month, would everyone be able to attend. The committee agreed that the time & location was good. **Mr. Jordan** asked if the meeting could be 1.5 hours next time since they still were discussing things. The committee went on to talk about a couple more issues.

Mike brought up a situation that he said the County is working on to be able to fund the floodplain management position and the CRS program. He said that they are thinking about

adding a fifty dollar (\$50) annual tax to all houses in the floodplain, since this program is saving them the money on their flood insurance. This would help fund a new position to run the program full time and in turn, lowering the CRS rating and saving the home owners lots of money. **Matt** said that he mentioned this to the city administrator and finance director and they thought it was a good idea. **Mr. Jordan** said that some insurance agencies were now requiring flood insurance on mortgages in zone X too. This was because what happened to all the flooded house in an X zone during the October 2015 South Carolina floods. When talking about the insurance, **Daniel Newquist** asked if the residents even knew they were getting a 15%-20% deduction on their flood insurance. Maybe the insurance companies should make the citizens aware of that so these people know that the government is doing things to help save them money and protect their property from flooding.

Small talk continued for several more minutes before everyone departed the meeting.

Minutes taken by Matthew Millwood, City of Georgetown

Minutes from 6/22/16 PPI Committee Meeting

Welcome - **Matthew Millwood** (City of Georgetown) started off at 12:05 pm with welcoming everyone and thanking them for participating in the Program for Public Information (PPI) and being a part of the committee. He then said that there was going to be a brief presentation from SmartVent and gave the floor to Zach.

SmartVent - **Zach** breezed through a little PowerPoint presentation showing a real life story of a house that was being retrofitted on a river. He went on to say that SmartVent does a seminar for communities now that will give us CRS credit under FRE Outreach (Sec. 330). These seminars welcome the public and can help them find ways to save on their flood insurance and/or mitigate their property from the hazard of flooding.

Introductions - **Ryan Fabbri** (Pawleys Island) asked if we could briefly go around the room and tell who you are since some of the people were not here for the first meeting.

Step 3, **Matt** then described the process of the meeting and told the committee that there were certain steps that we needed to take to accomplish Step 3-5 of the PPI. With that being said, and using a PowerPoint slide for reference, Matt continued to describe the tasks that were at hand and the goals for this meeting. "We need to pinpoint the target audience and areas, and determine what public information messages are needed to go with those targets." Matt described the six priority topics of Step 3 which include:

1. Know your flood hazard.
2. Insure your property for your flood hazard.
3. Protect people from the hazard.
4. Protect your property from the hazard.
5. Build responsibly.
6. Protect natural floodplain functions.

It was then opened up to the round table discussion for anyone to give ideas on target areas and messages that we need to transfer to the public. Suggestions for topics included messages about "knowing if you need flood insurance or not", "what zone do you live in AE or VE", "how much flood insurance will cover - \$250,000", "that flood insurance is separate from wind and hail", etc. **Joe** asked why there wasn't anyone on the committee from Andrews. **Mike Young** (Georgetown County) explained that the Town of Andrews is not part of the CRS program at this time, so they do not receive these flood insurance discount benefits, but they are suppose to be getting it started soon. **Dan** asked what types of outreach are the communities currently doing for CRS? **Matt** replied that they do annual letters to SFHA residents, brochures, put messages on bills, radio ads, and City website information. **Ryan** chimed in that they also put info in public places like the library and sent newsletters to residents of the Island.

Tom Britton asked "what about signage" notifying public of floodzones and high water marks. Matt then replied that there use to be a sign on end Cannon Street marking the floodzone. **Mr. Altman** stated that although signage may be informative, in my business (realtor) it could have

negative impacts for the buyer or seller. "Nobody wants to buy a house that has a big floodzone sign right in front of it."

Talk then started about the need for Elevation Certificates (ECs). **Mr. Altman** said "everyone needs to get an EC" and that could be a new message focused on the target group for new home owners. "Is there some way to have the entire floodzone surveyed for EC's." He also said that the municipalities should try to get a county-wide email list so all information would be sent to anyone and everyone with the click of a button. **Ryan** expressed that it would be nice for the public to be able to go somewhere or call somebody and they can tell them how to save money on their flood insurance. **Zack** of SmartVent said that is exactly what they are doing with these seminars.

Matt, trying to move the process forward, then asked for any outcomes that these messages hope to meet. Outcomes that were talked about included saving money, lowering insurance rates because of CRS, mitigating flooding on homes, etc. **Ms. Hall** said that she would like to see an outcome or goal of increasing the number of ECs across the board to 20% in the next year or two. She also wanted to know why there wasn't a surveyor on the committee, but he was absent for this meeting.

Step 4 involves identifying outreach projects to convey the messages. **Matt** asked the committee to talk about which media outlets could best convey these messages to the certain target audiences. We discussed that the different municipalities have different flood issues, such as Pawleys Island being beach front and Georgetown County having major inland riverine flooding. Talking to the crowd, **Ryan** asked about getting flood hazard disclosure as a mandatory thing on the MLS for buying and selling a property. **Mr. Altman** said he agreed with the request but right now with the new flood maps coming out, you don't know which flood zone, if any, you should disclose because that could affect the sale, both good and bad. **Ms. Hall** asked about the Property Tax bills. She thought everyone in the entire county got one of those, so that would be a great place to send a message to residents. Someone informed her that is correct unless it is sent to their mortgage lender because of an escrow account. **Mike** mentioned that in the County most people have Santee Cooper and we could get them to add something to their bills, or maybe even get an article printed in the "Letter to the Editor" section of their Santee Cooper annual magazine. The overall committee conclusion to Step 3 was that we should notify everyone possible of the problems with flooding and flood insurance no matter what flood hazards they face. Let's work as one to get the word out and repeat it numerous times so it is embedded in their brain.

Matt, Ryan, and Mike went on to talk about the communities budgets and the fact that it was hard to convince the Council to fund a floodplain manager/CRS position so we can take this program to the next level. (see minutes from 5/11/16 PPI meeting for further explanation)

Step 5 asks the committee to examine other public information initiatives. There are eight other sections of the CRS program that involves Program for Public Information type outreach. While this step is sort of repetitive of the process, it is focused towards these other activities throughout CRS. The committee discussed using the messages and outreach techniques that were talked about earlier to satisfy the outreach in these other sections. In turn that should get us the extra credit for having a PPI in these sections. One extra idea that came up from **Dan** was using the stream gauges to do a study on the flooding event from October 2015, but **Cindy** informed him that there were only two (2) active gauges in our rivers

throughout Georgetown County. **Mike** asked if everyone would do a little homework for the next meeting and come up with a short, but catchy phrase that we could add to bills, notifications, etc. Thanking everyone, **Matt** concluded the 2nd PPI meeting and telling everyone that the next and final meeting this year would be in late July 2016.

Minutes taken by Matthew Millwood, City of Georgetown

Minutes from 3/15/17 PPI Committee Meeting

Welcome - **Matthew Millwood** (City of Georgetown) started off at 12:08 pm with welcoming everyone and thanking them for participating in the Program for Public Information (PPI) and being a part of the committee. **Matt** then expressed that we will go through the agenda and talk about the different sections of the PPI document, and their purpose.

Step 6 - The committee went over and discussed the outline for the PPI document and its tables. Matt started with the first item in the outline which is a list of the committee members on page 4. The committee decided that Mr. Cox should be removed and **Kenny McConnell** should be added in his place since he has attended all three committee meetings.

Then we looked at the local flood hazards, community's natural floodplains, and other public information activities. This was sectioned in the PPI document by the jurisdiction: Georgetown County, City of Georgetown, and Pawleys Island. **Ryan** told everyone that he is researching the figures in their chart (Table 3-1) for the amount of policies in the AE and VE zones because he knows that the FEMA figures are not correct. **Matt** said that we will make this change before we send the PPI document off for review. Next section in the outline that we discussed was the target audiences. Once again the committee brought up the fact that real estate agents need to play a bigger role in the flood plain/ flood zone disclosure to property buyers and sellers. **Mr. Jordan** said that realtors are a crucial step in helping the flood disclosure process. **Matt** explained that the #1 Target Audience listed in the PPI document is "everyone in the entire County". But #2, is Real Estate Agents, because they are the first contact in the sell or purchase of a home, whether in a flood zone or not. **Matt** said that we put in this section that we will continue to work with the Coastal Carolina Association of Realtors (CCAR) because that would help the flood zone disclosure become more available. **Ryan** said we want to try to get them to make it mandatory to put the flood zones on the MLS. **Mr. Jordan** went on to talk about the flood zone disclosure that the banks currently require. **Mr. Badgett** said that his bank requires them to sign the home disclosure statement, which has the flood zone on it, ten (10) days before closing on a house. **Mr. Jordan** said that flood Zone X is indeed a flood zone, and that most people don't feel that it is and mortgage lenders don't recognize this Zone X or disclose this to a borrower. **Mr. Badgett** said that since the mortgage doesn't require flood insurance in a Zone X, they don't stress this information on the client. **Mr. Jordan** said that he can see in the near future that banks start requiring flood insurance in a Zone X, which will stop a lot of the problems that people are having. **Ryan** commented that he believes most of the claims from flood losses are in an X zone. Mr. Jordan said that the other day he had a gentleman looking for insurance on a house that he wanted to buy up the Black River and the maps show it going from a Zone X to and AE 22'. This house is at an elevation of 15' so that puts it 7' below that BFE on the new maps, which means his flood insurance would be through the roof, thousands of dollars per year. The committee agreed that these new maps increasing the flood zones across the County could cause major issues. When the new maps become effective and the bank sends this guy a letter and says you are now in a flood zone, he will not be able to afford the insurance and then foreclose on the house, and therefore

the bank will be losing money. The banks and insurance companies need to do their due diligence on the flood zones so people don't get into trouble.

The next section on the outline is the descriptions of projects and activities, who does it, and when it will be done. This refers to the Projects and Initiatives section on page 15 & 16 of the PPI document, as well as the comprehensive Table 6 at the end of the document. **Matt** said this basically the "go to" chart to see the who, what, when, & where for the outreach projects. The chart shows which target audience the project is to, what messages are being conveyed, what is the outcomes we want to see, what the proposed project is, who it is assigned to, the schedule for when it takes place, and the stakeholders involve in the project. **Mike** and **Matt** said jointly that then now make new homes that are built in the Special Flood Hazard Area (SFHA) sign a disclosure statement that the new homeowners were told that the flood zones in that area will probably increase and that they know the flood risks and flood insurance responsibility involved. **Mr. Jordan** recommended that anywhere we could add a disclaimer to the maps or in the acronyms section to show that Zone X is indeed a flood zone, we should. **Mike** suggested that **Matt** discuss what he found out about flood maps and the SCAHM conference. **Matt** said that a good presentation was done by a gentleman that helped with the mapping process from Department of Natural Resources (DNR) for Georgetown County, and he said that with the recent floods in October of 2015 & 2016 that they are remapping the areas around the Black River. So when we thought that we would have the new Flood Insurance Rate Maps (FIRMs) becoming official in late 2017, they now believe it will be sometime in late 2018. **Mike** said that after talking with Maria from DNR, the reason that our maps are being pushed back is because Horry County is appealing the accuracy of the new maps. Since most of the river systems in Horry County cross the border and flow into Georgetown County, it will also affect our maps, therefore taking longer to become official. **Ryan** said that the biggest misconception by homeowners is that their homeowners insurance cover floods.

The section on Flood Response Preparations (FRP) was next on the outline. We decided to add this optional section into the PPI document, along with Table 7, because it helped show other projects that we could do to reach other citizens, including the large Spanish speaking population. **Mr. Jordan** suggested that any projects or programs that the municipality could add to get more Community Rating System (CRS) points and help lower the community's flood insurance rates, should be done.

Other Activities credited on pages 15 & 16 and Table 5 are the next sections that the **Matt** talked about. This section was individually filled out, in chart form, by each of the three jurisdictions on what outreach projects they are already completing and getting credit for.

The last thing that we need to look at as a Committee is the process for public information projects described on pages 15 & 16 of the PPI document. **Matt** said this is where we need to talk about how we are going to move forward with this PPI program as a committee and for updating the document. The committee agreed that we should meet at least once per year, maybe in January after hurricane season, to make edits and updates to the PPI. **Matt** will coordinate this via email. The next step after final edit (which **Ms. Grace** gave **Matt** her edits) is to send this document off to FEMA for review, and then each jurisdiction will have to take it to their elected officials for adoption. **Mike** then adjourned the meeting at 12:12.

Minutes taken and drafted by Matthew Millwood, City of Georgetown

Attachment: Minutes 3_15_17 (2312 : Adopt the CRS PPI document)



120 North Fraser Street • Georgetown, SC 29440 • (843) 545-4000

ACTION ITEM

DOC ID: 2343

Council Meeting Date:	13 July 2017
Department:	Police Department
Issue Under Consideration:	Motion to approve service agreement and payment to the Saint Frances Animal Center in the amount of \$75,000.00 for fiscal year 2017-2018.
Amount Requested:	\$75,000.00
Is Item in Current Budget?	Yes (Account No. 0010.05.05.686.194)
If no, please explain:	
Financial Impact:	Payment to Saint Frances Animal Center is a budgeted item.
Points to Consider:	The City must have animal shelter services.
Options:	N/A
Staff Recommendation:	Approve service agreement

Reviews:

Kelvin Waites Completed 07/06/2017 9:54 AM

kw

Finance Completed 07/06/2017 10:27 AM

City Attorney Completed 07/06/2017 10:48 AM

contract approved, not related to amount

Paul Gardner Completed 07/06/2017 5:02 PM

Ann U. Mercer Completed 07/07/2017 8:46 AM

Georgetown City Council Pending 07/13/2017 5:30 PM

Attachments:

1. 1 SAINT FRANCES ANIMAL CENTER (PDF)

STATE OF SOUTH CAROLINA)
) SERVICE AGREEMENT
 CITY OF GEORGETOWN)

This service and funding agreement (the "Agreement") is entered into by and between the City of Georgetown, South Carolina (the "City") and Saint Frances Animal Center, a 501(c)3 organization (the "Animal Center") to provide for the care and disposition of dogs and cats transported to the Animal Center by the City of Georgetown Police Department, hereinafter the "Animals." The City and Animal Center shall collectively be referred to herein as "the Parties."

WITNESSETH

WHEREAS, the City is desirous that the Animal Center provide the services described herein in order to ensure a safe environment for animals transported to the Center, pursuant to response calls and concerned citizens; and

WHEREAS, it is the goal of the City to provide residents and visitors with an environment free from roaming animals that may be considered a nuisance or danger to the general public health and welfare; and

WHEREAS, the Animal Center is desirous of promoting its goal of providing a safe environment for such animals within the city and agrees to provide the services as described herein; and

WHEREAS, it is acknowledged by both parties that this is a mutual agreement among the parties whereby the Center is compensated for services it provides to the City and the City compensates the Center, according to the terms of this agreement, for the animals it transports to the Center and for which the Center continuously cares for said animals.

NOW, THEREFORE, in consideration of the above recitals and the clauses contained herein, the City and Animal Center expressly agree as follows:

1. The Animal Center expressly agrees it shall provide housing and care for all Animals, as defined above, delivered to the Animal Center by the City of Georgetown Police Department. The Animal Center will be solely responsible for the shelter, board, medical care, and disposition of such animals subject, however, to paragraph 3 hereof. The Animal Center will endeavor to arrange for adoption of Animals which it deems to be candidates for adoption.
2. It is acknowledged by both parties that the City does not respond to all calls about free-roaming cats or kittens. The city does agree to respond to any call where a cat or kitten is identified as being ill, injured, or in peril; or if the cat poses a threat to a person, and will transfer those cats to the Animal Center. The city will refer calls about cats or kittens to the Animal Center as appropriate, with the express notice to the concerned caller that the Animal Center does not provide animal control services, including transport of animals to the Animal Center.
3. Animals that are the specific subject of legal proceedings will be housed and cared for by the Animal Center until such time as all legal matters are finally resolved and the Animals are legally released to the Animal Center. The City cannot guarantee speedy disposition of such cases, however the City agrees to use its best efforts to expedite all such cases. Animals involved in legal proceedings may or may not be vicious or present

some degree of danger to other animals and employees of the Animal Center. The Animal Center expressly recognizes that these animals may or may not be a danger and agrees it has the professional capability to house and handle such animals. Consequently, it may be necessary that the Animal Center keep such Animals individually segregated and, if such is the case, the City and Animal Center agree to negotiate terms for in-kind services, as described in Paragraph 8(b), which may include the construction of a segregated dog run for those animals described in this paragraph. Any such in-kind service shall be agreed upon in a separate document that memorializes the intentions of both parties outside the scope of this Agreement.

4. Animals that have been involved in a bite case, and are subject to quarantine under the South Carolina Department of Health And Environmental Control (DHEC), will not be housed at the Animal Center for the quarantine period. The animal's owner will be responsible for arranging for housing during the quarantine of the animal, and for communicating with DHEC directly. The Animal Center will only quarantine Animals involved in bite cases if the Animal is a stray and no owner can be determined.
5. Upon request of the City of Georgetown Police Department, Animal Center personnel will assist in the investigation of animal cruelty reports and discoveries within the City.
6. All Animals legally released to the Animal Center will become the sole responsibility and property of the Animal Center. The Animal Center will be responsible for making all decisions and carrying out the decisions made regarding the care, treatment, and disposition of all Animals delivered to the Animal Center pursuant to this Agreement.
7. The Animal Center will maintain records of all animal admissions and dispositions with respect to all Animals delivered to the Animal Center by the City, which records shall be maintained for the duration of this Agreement or as otherwise legally required.
8. The Animal Center shall interact with the public utilizing the Animal Center's services in a polite, respectful manner in order to foster positive public relations.
9. The Animal Center shall carry and maintain, in full force and effect, at all times during the term of this Agreement, the following insurance coverage:
 - (a) Comprehensive General Liability in the minimum amount of Three Hundred Thousand Dollars and No/100 (\$300,000) per occurrence for Bodily Injury and Property Damage and Six Hundred Thousand and No/100 (\$600,000) for combination or multiple injury accident. The Animal Center shall maintain and provide proof of the required insurance coverage by furnishing a certificate of insurance to the City of Georgetown upon request.
 - (b) Workers' Compensation and Employer's Liability Insurance that meets the statutory requirements maintained by the State of South Carolina. The Animal Center shall maintain and provide proof of the required insurance coverage by furnishing a certificate of insurance to the City upon request.
 - (c) With respect to any animal in which the Animal Center assumes responsibility pursuant to this Agreement, the Animal Center will indemnify and hold harmless the City and their agents and employees from and against all claims, whether it be in tort or contract, damages, losses, and expenses, including attorney's fees, arising out of or

resulting from acts or omissions in performance of the work by the Animal Center, and anyone directly or indirectly employed by the Animal Center or anyone for whose acts the Animal Center may be liable.

- (d) The Animal Center warrants that it will perform all the tasks required of them under this Agreement with the same degree of skill and care other reputable members of the animal center profession do in the State of South Carolina. The Animal Center also warrants that it will comply with all Federal and State employment laws and will withhold all wages, commissions, salaries, and fees paid by the Animal Center to third parties, employees, agents, or sub-contractors of the Animal Center, said amounts shall include but not limited to all amounts required to be withheld on account of taxes, social security payments, or other withholdings mandated by law or regulation. The Animal Center shall comply with employment discrimination laws and immigration laws as required by Federal and State statutes. Also, the Animal Center recognizes and agrees that by its acceptance of public monies, that some records may be subject to the South Carolina Freedom of Information Act, §30-4-10, et seq., and the Animal Center agrees that it shall comply with all lawful demands to the best of its ability. The City agrees to consult with the Animal Center if such requests are made.

10. The Animal Center shall be compensated as follows:

- (a) The City agrees to compensate the Animal Center the sum of **Seventy Five Thousand and No/100 (\$75,000) Dollars** for the **Fiscal Year 17/18** agreement, said amount shall be divided into four equal parts to be paid in installments, in March, June, September, and December. Said payments shall be made no later than the thirtieth (30th) day of the month in which they are due. Time is of the essence with regard to such payments. It is acknowledged by both parties that said payment as enumerated above is equal to **Two Hundred Five and 48/100 (\$205.48) Dollars** per day for 365 days, being the entire duration of this agreement. It is expressly acknowledged by both parties that the City utilizes the Animal Control Center for the care and disposition of animals the City collects. It is also expressly acknowledged that the City relies on the Animal Center to harbor all animals collected, regardless of the animals' involvement in legal proceedings, and compensates the Center daily for these services at the amount stated above.
 - (b) The City will, in addition, provide in-kind support to the Animal Center, to wit: the city will provide public waste management service to the Animal Center (i.e. trash pick-up) for the term of this Agreement.
11. This agreement shall be for a period of one year beginning July 1, 2017, and ending on the 30th day of June, 2018, unless terminated sooner pursuant to the terms of this Agreement.
 12. Either party may terminate this Agreement at any time by providing six (6) months advance notice of termination. Compensation shall be prorated up to the actual date the agreement is terminated.
 13. It is understood and expressly agreed by both Parties that in the event funds are not appropriated or become non-appropriated in the current fiscal year by the local governing body, this Agreement will become null and void and the City will be under no obligation

to provide funding excepting payment for those services already rendered by the Animal Center up to the date of non-appropriation.

14. The Animal Center shall not, by entering into this Agreement, become a servant, agent or employee of the City, but shall remain at all times independent of the City. This Agreement shall not be deemed to create any joint venture, partnership, or common enterprise between the Animal Center and the City, and the rights and obligations of the Parties shall not be other than as expressly set forth herein.
15. This Agreement contains the complete understanding that the Parties and any representations, promises, discussions, comments, or negotiations not expressly contained herein are deemed abandoned by each Party. This agreement shall not be altered, amended, or modified by the Parties except in writing which shall be executed by both Parties.
16. Nothing herein is intended to be in conflict with State law or City ordinances and to the extent any part of this Agreement is deemed incompatible with same, State and City ordinances are controlling.

IN WITNESS THEREOF, the Parties do hereto their hands and seals this _____ day of _____, 2017, binding themselves, their successors, heirs and assigns forever.

WITNESSES

CITY OF GEORGETOWN

Mayor

City Administrator

SAINT FRANCES ANIMAL CENTER

Executive Director



120 North Fraser Street • Georgetown, SC 29440 • (843) 545-4000

ACTION ITEM

DOC ID: 2329

Council Meeting Date:	13 July 2017
Department:	Electric
Issue Under Consideration:	Motion to Approve Contract With Coastal Structures for Construction of Peak Shaving Plant and Payment in the Amount of \$1,756,000.00
Amount Requested:	\$1,756,000.00
Is Item in Current Budget?	Yes
If no, please explain:	
Financial Impact:	Operation of the peak shaving plant will save the City approximately \$650,000 annually at current demand rates. Savings will increase as demand rates increase.
Points to Consider:	This contract was advertised according to City procurement policy and seven proposals were received. The low bid was offered by FBi Construction of Florence, but Coastal Structures Corp. offered a bid of \$1,810,126.00 which was 3.08% higher than FBi. Though our engineering consultant (UTEC) recommended FBi based on their qualifications and their low bid, but because we knew that the City's local vendor preference policy would be a factor, we asked UTEC to evaluate both firms. UTEC determined both companies to be qualified to perform the work. Coastal Structures has exercised their option as a local vendor to match the low bid according to the City's local vendor preference ordinance, so we are recommending award of the project to them for \$1,756,000.00. The contract is still marked as draft because, though we had received Coastal Structures' written declaration of their decision to match the low bid within the 24 hour period required by the ordinance, we did not receive their revised bid page from the bid documents until moments before the agenda information was submitted. Prior to execution of the contract, the contract amount will be changed and we will ensure that the performance bond is submitted as required.
Options:	Approve/disapprove
Staff Recommendation:	Staff recommends approval of the contract with Coastal Structures

Reviews:

Alan Loveless Completed 07/06/2017 12:06 PM
 Debra Bivens Completed 07/06/2017 12:11 PM
 Elise Crosby Completed 07/06/2017 3:30 PM
 bid doc attached; contract not reviewed
 Paul Gardner Completed 07/06/2017 5:01 PM

Updated: 7/6/2017 12:23 PM by Ann U. Mercer (Page 1)

Ann U. Mercer Completed 07/07/2017 8:45 AM
Georgetown City Council Pending 07/13/2017 5:30 PM

Attachments:

1. 1 constutecrec (PDF)
2. 2 constuteceval (PDF)
3. 3 coastalbidmatch (PDF)
4. 4 Preliminary Conformed Georgetown Gen Building Constr Spec 7_3_2017 (PDF)



UTILITY TECHNOLOGY

Engineers-Consultants

City of Georgetown, SC
 Generation Plant Construction Bid #2017-009-30
 Contract Award Recommendation

Project #131101
 June 29, 2017

City of Georgetown, SC
 P.O. Box 1146
 Georgetown, SC 29442

Attention: Mr. Alan Loveless
 Director of Electric Utility

Gentlemen:

The City received bids for General Construction of the Diesel-Engine Generating Plant June 15, 2017. Seven bids were tendered with lump sum pricing as shown in the following table.

Bidder	Lump Sum	% Over Low
North American Construction Co.	\$2,784,500.00	58.57%
MC Dean Inc.	\$2,399,790.00	36.67%
High Voltage Specialists	\$2,066,488.00	17.68%
JL Malone	\$1,979,289.61	12.72%
Coastal Structures Corporation	\$1,810,126.00	3.08%
AME Inc.	\$1,799,163.00	2.46%
FBi Construction Inc.	\$1,756,000.00	Low Bid

The lowest bid was offered by FBi Construction Inc., Florence, SC. One of the companies that offered a bid, Coastal Structures Corp., is a local business. The bid from Coastal Structures Corp. is within 5% of the low bid and therefore meets the City Ordinance Local Vendor Preference criteria.

We have thoroughly vetted the low bid of FBi Construction Inc. and the bid of Coastal Structures Corp. including review of the proposed sub-contractors and past projects experience. It is our opinion that both of these companies are qualified to perform the project.

Based on pricing and qualifications, we recommend that FBi Construction Inc. be awarded the project.

Very truly yours,

J. Ted Orrell, P.E.
 Partner
 Utility Technology

147-B DUBLIN SQUARE ROAD
 PO BOX 2629
 ASHEBORO, NC 27204
 (336) 625-0917 FAX (336) 625-0919

2375 EAST MAIN STREET
 SUITE A 206
 SPARTANBURG, SC 29307
 (864) 579-1577 FAX (864) 579-1583

City of Georgetown, SC
 Generation Plant Construction Bid #2017-009-30
 Bid Evaluation Summary
 June 29, 2017

For both FBi Construction Inc. and Coastal Structures Corp., UTEC evaluated proposals based on Contractor and Subcontractor qualifications, past work quality, proposed schedule, and proposal completion. The AME Inc. proposal was incomplete and therefore was not considered further. Below is a summary of factors that support our recommendations.

Contractor Qualifications

- Both FBi and Coastal Structures have been incorporated for 25 years or more.
- Both FBi and Coastal Structures demonstrate extensive emphasis on scheduling, safety and overall project management.
- Both FBi and Coastal Structures have demonstrated substantial experience in construction prefabricated metal building systems of this project's scale and larger.
- FBi's experience is slightly more industrial than Coastal's. FBi has done several large projects for Duke / Progress Energy and CP&L over the last 30 years.
- Both have significant experience in commercial projects (restaurants, healthcare facilities, hotels, warehouses, etc.)
- Neither FBi or Coastal Structures have demonstrated direct experience in large scale diesel electric generation projects.

Based on the above, UTEC considers FBi and Coastal Structures to be qualified as a general contractor.

Subcontractor Qualifications

- Both FBi and Coastal Structures listed a total of 9 subcontractors to complete the project.
- With the exception of electrical, the subcontractors listed by each bidder appear to be equally qualified.
- Coastal Structures' electrical subcontractor is High Voltage Specialists, which has extensive experience with utility related projects and construction of diesel electric generation plants in both buildings and in generator enclosures. They are currently constructing a prime power, diesel engine plant in Arizona that includes (8) 1500 kW Caterpillar diesel generators, (8) GSU transformers, and a Caterpillar 4.16 kV switchgear lineup.
- High Voltage Specialists has extensive expertise in high and medium voltage electrical testing, relay testing and calibration, and startup/commissioning of generation facilities.
- FBi's electrical subcontractor is C&C Electrical, which appears to be sufficiently qualified but has less experience with utility scale/generation projects.

Past Work Quality

- UTEC recently requested that each Contractor provide demonstration of past projects similar to the generation plant or at least of a heavy electrical nature. Both FBi and Coastal Structures submitted documents demonstrating comparable experience.
- Both FBi and Coastal Structures have done past work for the City of Georgetown with no negative issues to report.
- FBi submitted several client references, including the Georgetown County School District and Duke Energy. UTEC contacted several of these and received very favorable opinions from all.
- Coastal Structures has completed numerous projects in the Georgetown area, including the Harborwalk Fire Protection System, hospital generator installations, and several medical facilities. They are currently constructing Fire Station #2 in Maryville. UTEC contacted references associated with these projects and received very favorable opinions.

Proposed Schedule

- Both FBi and Coastal Structures proposed to complete the project within the specified schedule.
- Coastal Structures proposed 217 days for both Generation Operation and Final Completion.
- FBi proposed 190 days to Generation Operation and 210 days to Final Completion.

Proposal Completion

Both FBi and Coastal Structures submitted proposals on time and provided the required documentation.

Exceptions

- FBi had specific exceptions regarding cost of diesel and removing/replacing unsuitable soil which could result in change orders, Coastal Structures had no such exceptions.
- Coastal Structures offered a deduction of \$35,000 if a refurbished fuel tank can be used.

Georgetown, SC
Generation Plant Construction Contract
General Construction - Project 1902
Bid Number #2017-009-30

Bid Opening Date / Time	6/15/17 2:00 PM		
Contractor Name/Address/License No.	FBI Construction Inc. 2240 North Douglas St. Florence, SC 29501 License No. G10270	A.M.E. Inc. PO Box 909 Fort Mill, SC License No. 11048	Coastal Structures Corporation 407 Church St, Unit J Georgetown, SC 29440 License: CLG15764
Contractor Bidding Representative/Phone Number	Kent Gunter, V.P. 843-665-0408	Michael Wylie, V.P. 803-548-7766	Brad Jenkins, Project Manager 843-546-4491
Total Bid Cost - Lump Sum	\$1,756,000.00	\$1,799,163.00	\$1,810,126.00
Qualifies for Local Vendor Preference Option	No	No	Yes
Construction Schedule	after notice to proceed: generation online-City operation/control-190 days work fully completed, fencing/site-210 days	after notice to proceed: generation online-City operation/control-180 days work fully completed, fencing/site-150 days	after notice to proceed: generation online-City operation/control-217 days work fully completed, fencing/site-217 days Proposed start date of 7/10/17
Subcontractors	Site Work-Ben Cox Co., Andrews SC Concrete-Keystone Concrete Finishing LLC, Pawley's Is. SC PEMB-Commercial&Industrial Contractor, Hartsville SC GWB&ACT-Absolute Wall & Ceiling Systems, Wilmington NC OH Door-Overhead Door Co. of Charleston, N. Charleston SC CO2 Fire Suppress.-Hiller Systems, N Charleston SC Fuel&DEF-Jones & Frank, Raleigh NC Mechanical-Moody's Mechanical, Georgetown SC Electrical-C&C Electrical Contractors, Johnsonville SC	none provided	Site Work-King Construction Services, Conway SC Concrete-Keystone Concrete Finishing, Pawleys Is SC PEMB-ACE Construction Co Inc. Florence SC HVAC-Hilburns Mechanical, Georgetown, SC Plumbing/Compressed Air-Craigs Plumbing Murrells Inlet SC Lightning Protection-High Voltage Specialties, Augusta Ga Fuel System-Jone&Frank, Raleigh NC Fire Protection-American Fire Technologies, Charlotte NC Electrical-High Voltage Specialties, Augusta Ga
Manufacturers			
Metal Building Systems	Nucor	none provided	MESCO
Fuel tank Systems	Convault	none provided	Convault
5 kV underground cable	Okonite	none provided	Okonite
Cable Terminations	Raychem	none provided	3M
Elbow Connectors	Raychem	none provided	3M
Grounding Connectors	Thomas&Betts	none provided	Erico Cadweld below grade; Burndy Mechanical above grade
Unit Adjustment Pricing (furnishing & installation)			
4/0 bare, copper ground cable (ft)	\$4.50	none provided	\$40.00
exothermic weld (ea)	\$45.00	none provided	\$50.00
3/4" x 10' ground rod (ea)	\$75.00	none provided	\$75.00
Stated Exceptions to Specification	Builders Risk Insurance not included per manual Diesel Priced at allowance of \$2.00/gal (6-15-17 prices) +\$100 split tanker charge included in bid. Require Adjustments up or down at time tank is filled. Milestone Dates for Owner Equipment must be met or schedule adjusted accordingly Unsuitable soil encountered: excavated and remove: \$25/CY- Replace with suitable \$35/CY	One CO2 system discharge test included All Concrete and Soil Testing excluded All Permits and City Licenses included 1000 Gallons of Diesel Included Can deduct \$34,402 if refurbished CO2 equipment allowed	Stated Construction Schedule Dependent on Substation Completion Under Separate Contract Can deduct \$35,000 is refurbished Fuel Tank Used
Acknowledge of Addenda	Acknowledge Addenda 1, 6/12/17	Acknowledge Addenda 1, 6/12/17	Acknowledge Addenda 1, 6/12/17 Acknowledge Exhibit 2, 6/2/17
Comments	5% Bid Bond - Westfield Insurance Thorough Proposal, Qualifications, Experience, Project Process, References, Resumes Provided. will manage project from Conway, SC office Provided projects completed: Cited Duke Energy Projects, references and website indicates emphasis on commercial experience	No Cover Letter or qualifications provided No Bid Bond, not a thorough proposal	5% Bid Bond - Western Surety Co. Thorough Proposal, Cover letter, Qualifications, Experience, Project Process, References, Resumes Listed Concrete, Light Carpentry, Finish Carpentry as work normally performed with own forces No previous project experience provided, website indicates commercial experience
Payment Terms	No Exceptions Taken to Specification Terms	No Exceptions Taken to Specification Terms	No Exceptions Taken to Specification Terms
Price above low bid	\$0.00	\$43,163.00	\$54,126.00
Percent above low bid	0.0%	2.46%	3.08%

Georgetown, SC
Generation Plant Construction Contract
General Construction - Project 1902
Bid Number #2017-009-30

Bid Opening Date / Time	6/15/17 2:00 PM			
Contractor Name/Address/License No.	JL Malone 1806 W Oakridge Dr Albany, Ga 31707 License No. M113054	High Voltage Specialist Inc. 1886 Gordon Hwy Augusta, Ga License No. M102131	M.C. Dean Inc. 1021 Bankton Circle Hanahan, SC 29410 License No. G115844	North American Construction Company, Inc. PO Box 15088, Quinby, SC 29506 124 W. McIver Road, Florence SC 29501 License No. G11257
Contractor Bidding Representative/Phone Number	John E Phillips, President 229-439-2351	James Fender, V.P. 706-854-8660	Brook Fairman, Operations Manager 843-718-3338, ext 5012	Louis E. Davis, V.P. 843-667-0244
Total Bid Cost - Lump Sum	\$1,979,289.61	\$2,066,488.00	\$2,399,790.00	\$2,784,500.00
Qualifies for Local Vendor Preference Option	No	No	No	No
Construction Schedule	after notice to proceed: generation online-City operation/control-259 days work fully completed, fencing/site-259 days	Beginning: August 7 2017, Completion: Mach 31, 2018 after notice to proceed: generation online-City operation/control-250 days work fully completed, fencing/site-250 days	Beginning: July 21, 2017, Completion: April 5, 2018 after notice to proceed: generation online-City operation/control-260 days work fully completed, fencing/site-260 days	generation online-City operation/control-410 days work fully completed, fencing/site-410 days Begin on/about 9/4/17, Substantially Complete 9/3/18 assuming notice to proceed in 7/20/17 or earlier
Subcontractors	Mechanical-Triad Mechanical Contractors, Johns Is SC Fence-Palmetto Fencing, Beaufort SC Lightning Protection-Quality Lightning Protection, Raleigh NC Foundation Site Work-K-Co Enterprises, Piedmont SC Building Contractor-Const. Services Group, Inc, Charleston SC	Butler Building-Hunter Buildings Inc. Sumter SC Fuel System-Spatco Inc. Columbia SC Fire Suppression-Hiller Systems Inc, North Charleston SC Grading/Clearing-Ben Cox Grading LLC, Andrews SC HVAC-Cayce Mechanical Inc. Florence SC	Civil-Alston Farrell Construction, North Charleston SC Mechanical-Triad Mechanical, Johns Is SC Structure-Homewood Metals Inc., Conway SC Fire Suppression-American Fire Technologies, Charlotte NC Framing&Ceilings-Drywall Specialties, Cowpens SC	Electric-Larymore Electric, Hartsville, SC Fuel-Vital Fuel Systems, Apex NC Fire Protection-Hiller Systems, North Charleston, SC Fencing-East Coast Fencing, Georgetown SC Building-Metal Building Inc. Spartanburg, SC
Manufacturers				
Metal Building Systems	Cesco	Butler	Whirlwind	Nucor Building Systems
Fuel tank Systems	Convault	Spatco	Convault	Convault
5 kV underground cable	Southwire	Okonite	Southwire	Southwire
Cable Terminations	Burndy	Raychem	3M	Harger
Elbow Connectors	Raychem	Elastimold	3M/Burndy	Burndy
Grounding Connectors	Burndy	Burndy	Burndy/NSI	Burndy
Unit Adjustment Pricing (furnishing & installation)				
4/0 bare, copper ground cable (ft)	\$1.02	\$40.00	\$13.00	\$22.00
exothermic weld (ea)	\$25.17	\$60.00	\$275.00	\$71.50
3/4" x 10' ground rod (ea)	\$52.10	\$75.00	\$127.50	\$126.50
Stated Exceptions to Specification	No Exceptions Taken	No Exceptions Taken	No Exceptions Taken	No Exceptions Taken
Acknowledge of Addenda	Acknowledge Addenda 1, 6/12/17	Acknowledge Addenda 1, 6/12/17 Acknowledge Exhibit 1, 5/25/17 Acknowledge Exhibit 2, 6/2/17	Acknowledge Addenda 1, 6/12/17	Acknowledge Addenda 1, 6/12/17
Comments	Bid Bond - Western Surety Co. - Amount not specified Thorough Proposal, Cover Letter, Qualification, Experience, Project Process, References Heavy Electrical	5% Bid Bond - The Ohio Casualty Insurance Company Good Proposal, Cover Letter, References, Qualifications/Experience Sheet, Credit References, Worker's Comp History Heavy Electrical, Did not quote Convault Fuel tank	5% Bid Bond - Liberty Mutual Insurance Company Good Proposal, Cover Letter, References, Qualifications/Experience Sheet, Project Process Heavy Electrical	5% Bid Bond - Employers Mutual Casualty Company Good Proposal, provided sub contractor proposals
Payment Terms	No Exceptions Taken to Specification Terms	No Exceptions Taken to Specification Terms	No Exceptions Taken to Specification Terms	No Exceptions Taken to Specification
Price above low bid	\$223,289.61	\$310,488.00	\$643,790.00	\$1,028,500.00
Percent above low bid	12.72%	17.66%	36.66%	58.57%



June 28, 2017

City of Georgetown
PO Box 1146
Georgetown, SC 29442
Attn: Alan Loveless, Director of Electric Utility

Mr. Loveless,

Coastal Structures does wish to exercise its option as a local vendor and will match the low bid of \$1,756,000.00 to complete the PEAK SHAVING GENERATING PLANT. Please use this as notification so that you may finalize the award on the agenda for July 13th City Council Meeting.

We are very pleased to be the General Contractor on this exciting and needed project!
Please let me know if you need any further information or have any questions.

Thank you,

A handwritten signature in blue ink, appearing to read 'Brad Jenkins', is written over the typed name.

Brad Jenkins, Project Manager
Coastal Structures Corporation

The undersigned bidder hereby proposes and agrees, if the Bid is accepted, to perform all Work, including the assumption of all obligations, duties, and responsibilities necessary to the successful completion of the work and the furnishing of all materials and equipment required to be incorporated in and form a permanent part of the Work; tools, equipment, supplies, transportation, facilities, labor, superintendence, and services required to perform the Work; all as indicated or specified in the Contract Documents to be performed or furnished by Contractor for the lump sum.

Project PEAK SHAVING PROJECT #1902

~~One Million Eight Hundred Ten Thousand~~
~~One hundred twenty six~~ Dollars (\$ 1,810,126.00) (M)
7-3-17

The undersigned Bidder agrees to fully complete the Work at the Peak Shaving Generation Plant for the generation to be on-line and available for the City's operation and control 217 days after receipt of a notice to proceed from the City. *Per our scope of work, cannot control substation project*

The undersigned Bidder agrees to fully complete the Work under this contract, including all site work and fencing, 217 days after receipt of a notice to proceed from the City.

The undersigned Bidder hereby certifies (a) that his Bid is genuine and is not made in the interest of, or in the behalf of, any undisclosed person, firm, or corporation, and is not submitted in conformity with any agreement or rules of any group, association, organization, or corporation; (b) that he has not directly or indirectly induced or solicited any other Bidder to put in a false or sham Bid; (c) that he has not solicited or induced any person, firm, or corporation to refrain from bidding; and (d) that he has not sought by collusion to obtain for himself any advantage over any other Bidder or over the City.

ALT- DEDUCT \$ 35,000 To use Refurbished fuel tanks.

*Bryt John, Project Manager
Coastal Structures Corp.*

Revised PRICE: 7-3-2017 (M)

\$1,756,000.00

One Million Seven hundred Fifty Six Thousand \$ⁿ

*Bryt John, Project Manager
Coastal Structures*

PEAK SHAVING PROJECT #1902
BID #2017-009-30
5/17/2017

11

Attachment: coastalbidmatch (2329 : Motion to Approve Contract With Coastal Structures for Peak Shaving Plant Construction)



CONFORMED
**PRELIMINARY
 DRAFT**
 REQUEST FOR PROPOSAL

REQUESTOR: City of Georgetown
 1134 North Fraser Street
 Georgetown, SC 29440
 Contact: Daniella Howard, Purchasing Agent
 Email: dhoward@cogsc.com
 Phone: 843.545.4043

PROJECT: City of Georgetown
 Peak Shaving Project #1902
 Generation Plant Construction
 Bid #2017-009-30

PREPARED BY:



UTILITY TECHNOLOGY
 ENGINEERS - CONSULTANTS
 147-B DUBLIN SQUARE ROAD
 ASHEBORO, NC 27203

DATE OF ISSUE: May 17, 2017
 DUE: On or before 2.00 pm EST, June 15, 2017
 REV DATE: July 3, 2017

Return to physical or mailing address:

Physical Address:

City of Georgetown

Attn: Purchasing – Bid Proposal

Peak Shaving Project #1902

1134 N Fraser Street

Georgetown, SC 29440

Mailing Address:

City of Georgetown

Attn: Purchasing – Bid Proposal

Peak Shaving Project #1902

PO Drawer 939

Georgetown, SC 29442

PEAK SHAVING PROJECT #1902
BID #2017-009-30
7/3/2017

CONFORMED

ii

Attachment: Preliminary Conformed Georgetown Gen Building Constr Spec 7_3_2017 (2329 : Motion to Approve Contract With Coastal

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INTRODUCTION

These instructions apply to the preparation of proposals for construction of the Georgetown Peak Shaving Generation Plant. The project includes but is not limited to construction of a generator building and outdoor substation foundations, installation of diesel electric system equipment, and associated site work for the City of Georgetown, South Carolina hereinafter referred to as the "Owner". Utility Technology Engineers-Consultants is hereinafter referred to as the "Engineer".

1 BID DOCUMENTS AND INSTRUCTIONS TO BIDDERS

1.1 PURPOSE

The City of Georgetown is accepting bids for construction of a peak shaving generation plant to be constructed on-site at their Wastewater Treatment Plant.

1.2 PROJECT DESCRIPTION

These instructions apply to the preparation of proposals for construction of the Georgetown Peak Shaving Generation Plant. The project includes but is not limited to construction of a generator building and outdoor substation foundations, installation of diesel electric system equipment, and associated site work for the City of Georgetown, South Carolina hereinafter referred to as the "Owner". Utility Technology Engineers-Consultants is hereinafter referred to as the "Engineer".

1.3 BACKGROUND

The City of Georgetown is located on the coast of South Carolina between Myrtle Beach and Charleston and has a population of approximately 10,000. Georgetown operates under the Mayor-Council form of government as set forth in the State of South Carolina Code Section 2-1. Additional information is available on our website at www.cogsc.com.

1.4 PROJECT SCHEDULE OF EVENTS

The following is the schedule of events listed in the order of occurrence, showing the major milestones from issuance of the RFP to the contract award:

MILESTONE EVENT	DATE
1. BID ADVERTISEMENT	WEDNESDAY, MAY 17, 2017
2. PRE BID CONFERENCE (MANDATORY) CITY OF GEORGETOWN FIRE DEPT, 1405 PRINCE ST	10.00 AM THURSDAY, MAY 25, 2017
2. DEADLINE FOR QUESTIONS	4.00 PM, THURSDAY, JUNE 8, 2017
3. DEADLINE FOR ADDENDA(S) TO BE POSTED TO CITY'S WEBSITE WWW.COGSC.COM UNDER "BIDS".	MONDAY, JUNE 12, 2017
4. BID DUE DATE	NO LATER THAN 2.00 PM EST, THURSDAY, JUNE 15, 2017
5. APPROVAL OF CONTRACT BY CITY COUNCIL (TENTATIVE)	THURSDAY, JULY 20, 2017
6. NOTICE TO PROCEED (TENTATIVE)	THURSDAY, JULY 20, 2017
7. COMPLETION DATE	THURSDAY, APRIL 5, 2018

The City of Georgetown reserves the right to change the project schedule as it deems necessary. In the event of a major date change, the City of Georgetown will notify known participants. The City of Georgetown reserves the right to issue addenda to this RFP up to three (3) days before the RFP due date as needed to clarify the City of Georgetown's desires, or to make corrections or changes to the RFP document or submittal process.

The City also reserves the right to cancel or reissue the RFP and/or revise the project schedule at any time.

The proposer will acknowledge receipt of all issued addenda in their submittals, if applicable. The City reserves the right to reject any or all bids as deemed to be in its best interest, and to accept all or part of the scope of work herein as its project timeline and/or budget allows. All information will be updated and posted on the City's website www.cogsc.com under "Bids". It is the proposer's responsibility to obtain the information directly from the City's website regarding this project.

PEAK SHAVING PROJECT #1902
 BID #2017-009-30
 7/3/2017

CONFORMED

To obtain electronic copies of the contract documents via electronic method (drop box), contact Daniella Howard, Purchasing Agent, at 843.545.4043.

The Contractor to whom a contract is awarded will be furnished, without cost, 5 copies of the specifications and 5 sets of drawings, and all specifications and drawings on a USB drive, together with all Addenda thereto. Additional drawings and specifications may be obtained from Engineer upon request on the following basis:

	<u>Charge</u>
Full sets of drawings:	\$70.00
Each book of specifications:	\$30.00
Drawings and specifications on USB drive	\$20.00

1.5 SCOPE OF SERVICES

The successful candidate must be able to provide materials and labor to perform work at the Georgetown Peak Shaving Generation Plant. The work will be performed for the City of Georgetown, South Carolina.

The work under this contract will consist of the construction of a pre-fabricated metal building with fuel storage and electrical switching and transformation facilities to house an Owner-furnished diesel electric generating system and switchgear. The project will include setting, installing, and providing fuel piping and electrical interconnection for the Owner-furnished equipment.

The General Construction will include:

- Site work.
- Foundations.
- Substation fencing.
- Transformer oil containment, including PVC valve, a hydrocarbon filter, and drainage piping to the slope outside of the substation.
- Providing and erecting the pre-fabricated metal building with accessories and finishing.
- Placement of Owner- furnished equipment inside the building.

The foundation for the metal building shall be a design provided by bidder and approved by engineer. The existing 12.47 kV overhead electrical distribution line will be relocated by others after the site clearing and grading is complete. Specifically at the substation location, the General Construction will include anchor bolts and all foundations for the substation structures, 12.47 kV breakers, GSU transformers, and station service transformer.

The Mechanical Construction will include:

- Installing Owner-furnished mechanical equipment.
- Providing and installing building HVAC.
- Mechanical interconnections, including fuel and exhaust, for all Owner-furnished equipment.

The Owner-furnished mechanical equipment includes the diesel engine generators, engine exhaust after-treatment system, engine exhaust silencers, and other equipment as noted on the drawings.

The Electrical Construction will include:

- Installing Owner-furnished electrical equipment.
- Providing and installing building wiring.
- Providing and installing the building lightning protection system.
- Providing and installing the complete ground grid system.
- Providing and installing electrical interconnections, 4.16 kV and below, including grounding, for all Owner-furnished equipment.

The Owner-furnished electrical equipment includes the 4.16 kV switchgear, 12.47 kV breakers, two GSU transformers, a plant station service transformer, and other equipment as noted on the drawings. Specifically at the substation location, the Electrical Construction will include:

- Offloading and installing the GSU transformers onto the foundations.
- Installing all stinger connections to the ground grid system.
- Providing and installing all below grade conduit.
- Providing and installing above grade conduit to equipment control panels.
- Providing and installing above grade conduit and switches to the substation lights.
- Providing and installing above grade conduit to the VT's (VT junction box to be provided by others).
- Providing, installing and connecting all control and power circuits from the substation to the generation plant building (this includes all conduit and conductor for the GSU 4.16 kV connection).

The Substation Construction, including offloading the substation structures/equipment, offloading and installing the 12.47 kV breakers onto the foundations, structure erection, assembly of all substation components, all 12.47 kV connections to the breakers and GSU transformer, grounding connections to the stingers for all substation components, steel conduit for the station service transformer 12.47 kV circuit and connection to the below grade conduit, VT junction box, and line connections to the 12.47 kV overhead system, are to be provided by others under separate contract.

1.6 PROPOSER'S CONFERENCE

A mandatory pre-bid proposer's conference will be held on Thursday, May 25, 2017 at 10:00 AM at the City of Georgetown Fire Department, 1405 Prince Street. The Owner and the Engineer will conduct the conference to review the project scope, specifications and drawings and also to address proposer's questions. A visit to the Wastewater Treatment Plant site, 126 Ridge Street, will follow the conference.

1.7 SUBMITTAL INSTRUCTIONS

The proposer shall follow the general conditions and format as indicated below:

1. To be considered, interested parties must submit one (1) original, five (5) copies, and one (1) electronic copy of their proposal no later than 2:00 PM, Thursday, June 15, 2017 (local time) to:

Physical Address:

City of Georgetown

Attn: Purchasing - Bid Proposal

Peak Shaving Project #1902

1134 N Fraser Street

Georgetown, SC 29440

Mailing Address:

City of Georgetown

Attn: Purchasing - Bid Proposal

Peak Shaving Project #1902

PO Drawer 939

Georgetown, SC 29442

2. Sealed bids must be received by the City's Purchasing Department at City Hall, 1134 North Fraser Street, Georgetown, SC 29440, no later than Thursday, June 15, 2017, at 2:00 PM, and at said office will be publicly opened and read aloud at that time. No bid proposal will be accepted after the due date and time specified above. Faxed or emailed bid proposals will not be accepted for any reason. The City reserves the right to waive any technicalities or informalities and to accept or reject any and/or all submissions as deemed by its sole judgement to be in its best interest. The City also reserves the right to terminate the selection process without notice, to waive any irregularities in any submittal, and to request additional information from any of the firms submitting a bid proposal.
3. All proposals should be clearly marked on the outside, "Peak Shaving Project #1902".
4. It is the sole responsibility of the proposer to have their proposals delivered to the City of Georgetown before the closing hour and dated. The City assumes no responsibility for delivery of proposals that are mailed. Late, faxed, or emailed proposals will not be accepted nor considered for any reason and will remain

unopened. The official clock shall be that of the City's Purchasing Agent, or designee. The City reserves the right to reject any or all bids and to waive any informalities and technicalities in the bid process.

5. All proposals must be valid for a period of sixty (60) days following the bid opening date.
6. Proposals must be submitted as specified herein and shall address all RFP requirements. Each bidder shall list in the space provided on the proposal form ALL EXCEPTIONS or conflicts between his proposal and this specification. If no exceptions are noted, it will be assumed the bidder is complying with all requirements. If more space is required for this listing, additional pages may be added. Proposals which do not comply with this requirement will be considered irregular and may be rejected at the discretion of the Owner.

All exceptions shall be specific in nature and referenced to the applicable article of these specifications. Conflict notations which make reference to the bidder's descriptive information as a whole will not be acceptable.

The bidder shall not alter any part of these specifications in any way, except by stating his exceptions in the space provided on the proposal form. Partial or incomplete bids may be rejected.

7. The proposer shall submit a lump sum cost for all services required, in an itemized format. All costs incurred in preparing the proposal, or costs incurred in any other manner by the proposer in responding to this RFP, will be wholly the responsibility of the proposer. All materials and documents submitted by the respondent in response to this RFP become the property of the City of Georgetown and will not be returned.
8. Any proprietary information contained in the proposal should be so indicated as follows:

Vendor Disclosure—Notice of SC Freedom of Information Act

"The parties acknowledge that all material submitted may be subject to release under the South Carolina Freedom of Information Act (FOIA) and will be released to the public unless exempt from disclosure under the FOIA. We discourage you from including any information you consider propriety or trade secret, as this material is subject to the FOIA once it's in the City's possession. If you must include any such information in your submission, please identify it by color, labeling, and/or bold font so that it can be readily recognized. In the event the City receives a request for this material, the City will notify those parties who have identified information they believe is proprietary or trade secret of the request. The City has a fifteen (15) day deadline to produce the material. This is your window to file an action challenging the release. Please be on notice that if the City is not served with such an action, the information will be released."

9. Proposals must be made in the official name of the company or individual under which business is conducted (showing official business address) and must be signed in ink by a person duly authorized to legally bind the person, partnership, company or corporation submitting the proposal. Proposals having any erasures or corrections must be initialed in ink by the proposer.
10. Letter of Interest – Must be no more than two (2) pages (one page is one side of an 8.5" x 11" paper) in length and include contact information and signature.
11. Summary of Qualifications, Experience, and Availability – Must be no more than five (5) pages. It should summarize qualifications, relevant experience, and availability to participate in the RFP process to provide requested services to the City. Key staff members participating should be identified.
12. Proposed Process Approach – Must be no more than three (3) pages summarizing the method and approach to providing services to the City.
13. List of Professional References – Must be no more than one (1) page listing most recent professional references for similar projects and their contact information.
14. Disqualification and Rejection of Proposal – The City of Georgetown reserves the right to reject any proposal of a proposer who has failed to perform satisfactorily, or complete on time, or in a manner consistent with the RFP documents, contract of similar nature, or to reject the proposal of a proposer who is not in a position to

perform such a contract satisfactorily. The City expressly reserves the right to award the contract to the proposer that best meets the requirements as set forth herein.

15. Assignment of Contract – Assignment by the selected proposer of any contract to be entered into in accordance with this RFP will not be recognized by the City of Georgetown unless such assignment has prior written approval of the City.
16. Insurance Provisions – The selected proposer will be required to provide and maintain proof of insurance throughout the contract term in the amount of \$1,000,000.00 and as required at point of contract negotiation by the City's Risk Manager as follows:
 - Comprehensive General Liability (per occurrence);
 - Comprehensive Auto Liability (per occurrence); and
 - Workers' Compensation Liability

The City of Georgetown is to be named as "Additional Insured" on the above insurance coverage as respect to the City's interest under the contract. Certificates showing proof of insurance shall be submitted to the City prior to commencement of services under the Agreement. Further, it shall be an affirmative obligation upon the proposer to advise the City's Risk Management Department at Fax No. 843.527.6173; email, lbell@cogsc.com, PO Box 939, Georgetown, SC 29442, within two (2) days of the cancellation herein, and failure to do so shall be construed to be a breach of the agreement.

17. Indemnification - The selected proposer agrees to indemnify, defend and hold harmless the City of Georgetown and their authorized officers, employees, agents, and volunteers from any and all claims, actions, losses damages, and/or liabilities arising from their acts, errors, or omissions and for any costs or expenses incurred by the City therefore under an agreement.
18. Compliance With Law – The selected proposer and its agents and employees shall be bound and comply with all federal, state and local laws, ordinance rules and regulations, as well as all other governing bodies having legal jurisdiction with respect to the area where such work is performed.
19. Business License and Permits - The selected proposer shall be required to obtain all applicable City of Georgetown permits and business licenses. Contact Jestin Gilliard, Revenues Manager, 843.545.4041. These expenses shall be included in the total bid unit price.
20. Bid and Performance Bonds – Bid and Performance Bonds or other securities may be requested for supply contracts and service contracts as the Risk Manager, Purchasing Agent, and/or Department Head deems advisable to protect the City's interest. Reference line item #21 under "General Contractual Requirements" for additional information.
21. Proposal Attachments - The proposer shall staple or otherwise bind, with each bound copy of these specifications and documents submitted, a signed copy of each addendum issued for these specifications during the bidding period. The proposer shall assemble all drawings, catalog data, and other supplementary information necessary to thoroughly describe materials and equipment covered by the proposal, and shall attach such supplemental information to the bound copy of these specifications submitted with the proposal.

1.8 SUBMITTAL EVALUATION

Submittals will be evaluated based on the following criteria:

- Contractor Qualifications
- Past work quality of Contractor

- Price
- Schedule
- Proposal Completion

1.9 GENERAL CONTRACTUAL REQUIREMENTS

1. Force Majeure - The bidder shall not be liable for any excess costs if the failure to perform the contract arises out of causes beyond the control and without the fault or negligence of the bidder. Such causes may include, but are not limited to acts of God or of the public enemy, acts of Governments in either its sovereign or contractual capacity, fires, floods, epidemics, quarantine restriction, strikes, freight embargoes, and unusually severe weather; but in every case the failure to perform must be beyond the control and without the fault or negligence of the bidder.
2. Governing Law - Except to the extent that this agreement may be governed by any federal law, including federal bankruptcy law, this Agreement shall be governed by, constructed and interpreted under, and enforced exclusively in accordance with the laws of the State of South Carolina, and the courts in the State of South Carolina shall have jurisdiction with respect to any dispute arising hereunder.
3. Proposer Qualifications - Proposer must, upon request of the City, furnish satisfactory evidence of its ability to furnish products and/or services in accordance with the terms and conditions of this RFP. The City of Georgetown reserves the right to make the final determination as to the proposer's ability to provide the services herein.
4. Proposer Responsibility – Each proposer shall fully acquaint him/herself with conditions relating to the scope and restrictions attending the execution of the work under the conditions of this RFP. It is expected that this will sometimes require on-site observation. The failure or omission of the proposer to acquaint him/herself with existing conditions shall in no way relieve him/her of any obligation with respect to this RFP or to a contract.
5. Affirmative Action - The proposer will take affirmative action in complying with all federal and state requirements concerning fair employment and employment of the handicapped, and concerning the treatment of all employees without regard or discrimination by reason of race, color, religion, sex, national origin or physical handicap.
6. WMBE Statement - It is the policy of the City of Georgetown to provide minorities, and women equal opportunity for participating in all aspects of the City's contracting and procurement programs, including but not limited to employment, construction projects, and lease agreements consistent with the laws of the State of South Carolina. It is further the policy of the City of Georgetown to prohibit discrimination against any person or business in pursuit of these opportunities on the basis of race, color, national origin, religion, sex, age, handicap, or veteran status. It is further the policy of the City of Georgetown to conduct its contracting and procurement programs so as to prevent such discrimination and to resolve any and all claims of such discrimination.
7. Termination - Subject to the following provisions, any contract resulting from this request for proposals may be terminated by the City provided a thirty (30) day advance notice in writing by the City Administrator, or his designee, is given to the proposer:
 - Non-Appropriations - Funds for this contract are payable from local appropriations. If the sufficient appropriations are not made to pay the charges under the contract it shall terminate without any obligation to the City.
 - Convenience - In the event that a contract is terminated or canceled upon request and for the convenience of the City without the required thirty (30) day advance written notice, then the City shall negotiate reasonable termination costs, if applicable.

- Cause - Termination by the City for the cause, default or negligence on part of the proposer, shall be excluded from the foregoing provisions; termination costs, if any shall not apply. The thirty (30) day advance notice requirement is waived and the default provision herein shall apply.
 - Default – In case of default by the proposer, the City reserves the right to purchase any and all items/services in default in open market, charging proposer with any excessive costs. SHOULD SUCH CHARGE BE ASSESSED, NO SUBSEQUENT PROPOSALS OF THE DEFAULTING PROPOSER WILL BE CONSIDERED UNTIL THE ASSESSED CHARGE HAS BEEN SATISFIED.
8. Prime Proposer Responsibilities - The proposer will be required to assume sole responsibility for the complete effort as required by this RFP. The City will consider the proposer to be the sole point of contact with regard to all contractual matters.
 9. Subcontracting - If any part of the work covered by this RFP is to be subcontracted, the proposer shall identify the subcontracting organization and the contractual arrangements made therewith at the time of the offer. All subcontractors must be approved by the City. The successful proposer will also furnish the corporate or company name and the names of the officers of any subcontractors engaged by the proposer.
 10. Ownership of Material – All materials and documents submitted by the proposer in response to this specification become the property of the City of Georgetown and will not be returned to the proposer.
 11. Compliance with State and Federal Requirements – State and Federal requirements that are more restrictive than these set forth herein shall be followed by the proposer.
 12. Contract Amendments - Amendments to any agreement between the City and the proposer must be reviewed and approved in writing by the City of Georgetown City Administrator or his designee.
 13. Assignment - No contract or its provisions may be assigned, sublet, or transferred without the written consent of the City of Georgetown Finance Department.
 14. Records Retention and Right to Audit – The City shall have the right to audit the books and records of the proposer as they pertain to this contract. Such books and records shall be maintained for a period of three (3) years from the date of final payment under contract.
 15. The City may conduct performance audits of the proposer, as determined necessary by the City. Pertaining to all audits, the proposer shall make available to the City, access to its computer files containing the history of the contract performance and all other documents related to the audit. Additionally, any software used by the proposer shall be made available for auditing purposes at no cost to the City.
 16. Independent Contractor Status - The parties hereby agree that the contractor is an independent contractor of the City and that nothing in an agreement with the City shall be deemed to place the parties in a relationship of employer/employee, partners, or joint ventures. Neither party shall have the right to obligate or bind the other in any manner. Each party agrees and acknowledges that it will not hold itself out as an authorized agent with the power to bind the other party in any manner. Each party shall only be responsible for any withholding taxes, payroll taxes, disability insurance payments, unemployment taxes, or other similar taxes or charges with respect to its activities in relation to performance of its obligations of an agreement.
 17. Representations of Proposer - Proposer represents, warrants, and covenants that:
 - In providing the services proposer shall utilize the care and skill used by members of proposer's profession practicing under similar circumstances at the same time and in the same locality.

- All employees provided by the proposer (employees) to the City shall have the qualifications, skills and experience necessary to perform his/her job in accordance with the requirements of the agreement. The City may request removal of any employee for good cause.
- Proposer is a business, validly existing and in good standing under the Laws of the State of South Carolina.

18. Indemnity Provisions - Proposer agrees to and shall indemnify and hold the City harmless from and against all liability, loss, damages or injury, and all costs and expenses (Including attorney fees and costs of any suit related thereto) suffered or incurred by the City, arising from or related to the terms of this project, or proposer's performance thereunder.

19. Insurance - The selected proposer will be required to provide and maintain proof of insurance throughout the project term in the amount of \$1,000,000.00, and as required at point of contract negotiation by the City's Risk Manager as follows:

- Comprehensive General Liability (per occurrence)
- Professional Liability
- Comprehensive Auto Liability (per occurrence)
- Workers' Compensation Liability (as required by State of South Carolina statutes)

The City of Georgetown is to be named as "Additional Insured" on the above insurance coverage as respect to the City's interest under the contract. Certificates showing proof of insurance shall be submitted to the City prior to commencement of services under an Agreement. Further, it shall be an affirmative obligation upon the proposer to advise the City's Risk Management Office at Fax No. 843.527.6173; email lbell@cogsc.com; PO Box 939; Georgetown, SC 29442, within two (2) days of the cancellation herein, and failure to do so shall be construed to be a breach of an agreement.

20. City Business License - The selected proposer shall be required to obtain all applicable City of Georgetown permits and business licenses. Contact Jestin Gilliard, Revenues Manager, 843.545.4041. The building and planning department may be reached at 843.545.4017. These expenses shall be included in the total proposal cost.

21. Bid and Performance Bonds – Bid and performance bonds or other securities may be requested for supply contracts and service contracts as the Risk Manager, Purchasing Agent, and/or Department Head deems advisable to protect the City's interest. Any such bonding requirement shall be set forth in the solicitation.

Bid Security: In an amount equal to or at least five percent (5%) of the amount of the bid shall be required for all competitive bidding for construction contracts exceeding one hundred thousand dollars (\$100,000). Bid security shall be a legitimate bid bond provided by a surety company authorized to do business in South Carolina, or the equivalent in cash, certified check, cashiers' check, or money order. The City, at its option, may require bid bonds on construction contracts under one hundred thousand dollars (\$100,000) when the circumstances warrant. Noncompliance with this provision mandates that the City reject the bid. Bid security will be returned to the unsuccessful bidders upon contract award by the Purchasing Agent. When a construction contract is awarded in excess of one hundred thousand dollars (\$100,000) the following bonds or security shall be delivered by the successful bidder to the City and shall become binding on the parties upon execution of the contract. Bid or performance bonds shall not be used in substitution for determination of bidder's responsibility.

- A performance bond shall be in an amount equal to one hundred and ten percent (110%) of the contract amount; and
- A payment bond for the protection of all persons supplying labor and material to the contractor or its subcontractors for the performance of the work shall be in an amount equal to one hundred percent (100%) of the contract amount.

The Purchasing Agent shall make the award of bid after obtaining the recommendation from City Council. The award letter shall be issued by the Purchasing Agent or designee to the lowest responsible and responsive bidder meeting the requirements set forth in the Invitation for Bids.

- The division/department head is responsible for obtaining the required insurance certificates and Business License verification for submittal to the Purchasing Agent and Risk Manager for approval.
- A bid may be canceled and/or all bids rejected upon written recommendation of the division/department manager, and approval of the Purchasing Agent.

1.10 PROPOSALS

Proposals which are not prepared in accordance with these instructions will imply that the Bidder does not intend to comply with all of the contract conditions and such proposals will be considered irregular.

Each proposal will include the following information and completed forms:

- Bid Form
- Bid Bond
- Mandatory Vendor Submittal Form – Local Vendor Preference
- Proposed date for beginning and completing work on this project.
- List of Subcontractors with name, address, and phone number. The Contractor shall not change Subcontractors without written permission of the Owner.
- Name of manufacturers selected to provide the following items:
 - Metal Building System
 - Fuel Storage Tank
 - 5 kV Underground Power Cable
 - Cable End Terminations
 - Elbow Connectors
 - Grounding Connectors

2 BID FORM

**CITY OF GEORGETOWN, SOUTH CAROLINA
PEAK SHAVING PROJECT #1902**

To **CITY OF GEORGETOWN
GEORGETOWN, SOUTH CAROLINA**

THE UNDERSIGNED BIDDER, having familiarized himself with the Work required by the Contract Documents, the site where the Work is to be performed, local labor conditions and all laws, regulations, and other factors affecting performance of the Work, and having satisfied himself of the expense and difficulties attending performance of the Work, does hereby propose to furnish the equipment and provide the services set forth in this Proposal.

The undersigned hereby declares that the following list states any and all variations from and exceptions to the requirements of the Specifications and Contract Documents and that, otherwise, it is the intent of this Proposal that the above, designated equipment and services will be furnished in strict accordance with these documents.

N/A

Brad Jenkins, Project Manager

The undersigned bidder hereby proposes and agrees, if the Bid is accepted, to perform all Work, including the assumption of all obligations, duties, and responsibilities necessary to the successful completion of the work and the furnishing of all materials and equipment required to be incorporated in and form a permanent part of the Work; tools, equipment, supplies, transportation, facilities, labor, superintendence, and services required to perform the Work; all as indicated or specified in the Contract Documents to be performed or furnished by Contractor for the lump sum.

Project PEAK SHAVING PROJECT #1902

One Million Eight Hundred Ten Thousand One Hundred Twenty Six

Dollars (\$ 1, 810, 126 .00)

The undersigned Bidder agrees to fully complete the Work at the Peak Shaving Generation Plant for the generation to be on-line and available for the City's operation and control 217 days after receipt of a notice to proceed from the City. (Per Scope of Work, completion time dependent on completion of substation under separate contract)

The undersigned Bidder agrees to fully complete the Work under this contract, including all site work and fencing, 217 days after receipt of a notice to proceed from the City.

The undersigned Bidder hereby certifies (a) that his Bid is genuine and is not made in the interest of, or in the behalf of, any undisclosed person, firm, or corporation, and is not submitted in conformity with any agreement or rules of any group, association, organization, or corporation; (b) that he has not directly or indirectly induced or solicited any other Bidder to put in a false or sham Bid; (c) that he has not solicited or induced any person, firm, or corporation to refrain from bidding; and (d) that he has not sought by collusion to obtain for himself any advantage over any other Bidder or over the City.

UNIT PRICES

Unit prices quoted and accepted shall apply throughout the life of the contract, except as otherwise specifically noted. Unit prices shall be applied, as appropriate, to compute the total value of changes in the scope of the work all in accordance with the contract documents.

The site for the peak shaving plant has been tested for soil resistivity. The grounding plan in the contract drawings is based on these values. After the site is graded, additional soil resistivity measurements will be conducted and the grounding plan revised if/as needed. The following unit prices are for the grounding system in variance from the contract plans due to variance in soil resistivity:

Additional/Reduced #4/0 bare copper grounding grid conductor installed (per foot):

Forty _____ Dollars (\$ 40.00 _____)

Additional/Reduced exothermic welds (per weld):

Fifty _____ Dollars (\$ 50.00 _____)

Additional/Reduced 3/4" x 10' copperweld ground rods installed (per rod):

Seventy Five _____ Dollars (\$ 75.00 _____)

RECEIPT OF ADDENDA

The undersigned Bidder acknowledges receipt of the following Addenda, which have been considered in preparation of this Bid:

No. <u>1</u>	Dated <u>June 6, 2017</u>
No. _____	Dated _____.
No. _____	Dated _____.

Dated in Georgetown, SC.
(Location)

this 15th day of June, 2017.

- - Also acknowledge receipt of Exhibit #2 dated June 2, 2017.

IDENTIFICATION OF BIDDER (Individual, Partnership, Corporation)

If an Individual: _____
(name)

Doing business as: _____
(name)

If a Partnership: _____
(name)

by: _____
Partner

If a Corporation: _____
Coastal Structures Corporation
(NAME)

(a _____ Corporation)
South Carolina
(STATE)

SIGNATURE OF BIDDER

By: _____
(Signature)

Bradley T. Jenkins
(Print name)

Project Manager
(Title)

Attest: _____
(Signature)

(SEAL)

Business Address of Bidder: _____
407 Church Street, Unit J

Georgetown, SC 29440

Telephone Number: _____
843-546-4491

South Carolina Contractor's

License No(s).: _____
CLG 15674

3 BID BOND

Date of Execution: June 15, 2017

Name of Principal:
(Contractor) Coastal Structures Corporation
Georgetown, SC

Name of Surety: Western Surety Company

Name of Contracting
Body: CITY OF GEORGETOWN
GEORGETOWN, SOUTH CAROLINA

Amount of Bond: An Amount Equal to Five Percent of Bid ----- (5% of Bid)

Project: PEAK SHAVING PROJECT #1902

KNOW ALL MEN BY THESE PRESENTS, That We, the Principal and Surety above named, are held and firmly bound unto the above named Contracting Body, hereinafter called the Contracting Body, in the penal sum of the amount stated above the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH that whereas the Principal entered into a certain Contract with the Contracting Body, identified as shown above and hereto attached.

NOW, THEREFORE, if the Principal shall well and truly perform and fulfill all the undertakings, covenants, terms, conditions, and agreements of said Contract during the original term of said Contract and any extensions there of that may be granted by the Contracting Body, with or without notice to the Surety, and during the life of any guaranty required under the Contract, and shall also well and truly perform and fulfill all the undertakings, covenants, terms, conditions, and agreements of any and all duly authorized modifications of said Contract that may hereafter be made, notice of which modifications to the Surety being hereby waived, then, this obligation to be void; otherwise to remain in full force and virtue.

IN WITNESS WHEREOF, the above bounded parties have executed this instrument under the several seals on the date indicated above, the name and corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

PEAK SHAVING PROJECT #1902
 BID #2017-009-30
 7/3/2017

CONFORMED

Executed in three (3) counterparts.

Witness: CONTRACTOR:
Coastal Structures Corporation
(Trade or Corporate Name)

(Proprietorship or Partnership)

By: _____

ATTEST: Title: President
(Owner, Partner, or Corporate
President or V-President, Only)

By: _____
Title: Secretary
(Corporate Secretary or
Assistant Secretary, Only)

(CORPORATE SEAL)

SURETY COMPANY:

Western Surety Company

Witness: By: _____

Title: _____

Attorney in Fact

Countersigned:

(SURETY CORPORATE SEAL)

S.C. Licensed Resident Agent
1441 Main Street, Suite 806

Columbia, SC 29201
(Name and Address - Surety Agent)

3420 Toringdon Way, Suite 230

Charlotte, NC 28277
Surety Company Name and NC
Regional or Branch Office Address

PEAK SHAVING PROJECT #1902
BID #2017-009-30
7/3/2017

CONFORMED

4 CONTRACT

City of Georgetown
Georgetown, South Carolina

THIS CONTRACT, made this _____ day of _____, 20 _____, by _____
Coastal Structures Corporation, hereinafter called Contractor, and the City of Georgetown,
Georgetown, South Carolina, hereinafter called the City.

WITNESSETH

THAT WHEREAS, a Contract for the construction of

CITY OF GEORGETOWN, SOUTH CAROLINA

PEAK SHAVING PROJECT #1902

HAS RECENTLY BEEN AWARDED TO Contractor by City at and for a total price of

One Million Eight Hundred Ten Thousand One Hundred Twenty Six Dollars

_____ Dollars (\$ 1, 810, 126 .00)

and as named in the Proposal attached hereto;

AND WHEREAS, it was provided in said award that a formal Contract would be executed by and between Contractor and City, evidencing the terms of said award, and that Contractor would commence the work to be performed under this agreement on a date to be specified in a written order of City.

NOW THEREFORE, Contractor doth hereby covenant and agree with City that it well and faithfully perform and execute such work and furnish such work and furnish such materials and equipment, in accordance with each and every one of the conditions, covenants, stipulations, terms, and provisions contained in said Specifications in accordance with the Plans, at the total price named therefore in the Proposal attached hereto, and will well and faithfully comply with and perform each and every obligation imposed upon it by said Plans and Specifications and the terms of said award.

Contractor shall promptly make payments to all laborers and others employed thereon.

Contractor shall be responsible for all damages to the property of the facility that may be consequent upon the normal procedure of its work or that may be caused by or result from the negligence of Contractor, its employees or agents, during the progress of or connected with the prosecution of the work, whether within the limits of the work or elsewhere. Contractor must restore all property so injured to a condition as good as it was when Contractor entered upon the work.

Contractor shall furthermore be responsible for and required to make good at its expense any and all damages of whatever nature to persons or property, arising during the period of the Contract, caused by carelessness, neglect, or want of due precaution on the part of Contractor, its agents, employees, or workmen.

Contractor shall also indemnify and save harmless the City, and the officers and agents thereof, and the officers and agents thereof from all claims, suits, and proceedings of every name and description which may be brought against the City, or the officers and agents thereof, for or on account of any injuries or damages to persons or property received or sustained by any person or persons, firm or corporation, or by or in consequence of any materials used in

PEAK SHAVING PROJECT #1902

BID #2017-009-30

7/3/2017

CONFORMED

said work or by or on account of any accident, or of any other act or omission of Contractor, its agents, employees, servants, or workmen.

It is agreed and understood that the Notice to Prospective Bidders, the Definitions, Instructions to Bidders, Plans and Specifications, the accepted Proposal, and the enumerated addenda are part and parcels of this Contract, to the same extent as if incorporation herein full.

And the City doth hereby covenant and agree with Contractor that it will pay to Contractor, when due and payable under the terms of said Specifications and said award, the above-mentioned sum, and that it will well and faithfully comply with and perform each and every obligation imposed upon it by said Specifications and the terms of said award.

Whenever used herein, the singular shall include the plural, the plural the singular, and the use of any gender shall be applicable to all gender as the context may require.

FURTHER AGREEMENTS

Contractor shall, upon completion of all work awarded under this Contract, furnish to City invoices or copies of invoices for all materials purchased for said work, and such invoices shall state the amount of South Carolina sales tax paid for said materials, and Contractor shall also furnish City an affidavit certifying the total costs of materials purchased for all work performed under the Contract and the total amount of South Carolina sales tax paid for said materials.

IN TESTIMONY WHEREOF, Contractor and City have duly signed and sealed this Contract.

(Imprint Corporate Seal below this line)

By _____

Title: _____

ATTEST:

(Secretary)

CITY OF GEORGETOWN
GEORGETOWN, SOUTH CAROLINA

By _____
City Administrator

ATTEST:

(Secretary)

5 PERFORMANCE BOND

Date of Execution: _____

Name of Principal:
(Contractor) _____

Name of Surety: _____

Name of Contracting
Body: _____
CITY OF GEORGETOWN

GEORGETOWN, SOUTH CAROLINA

Amount of Bond: _____

Project: _____
PEAK SHAVING PROJECT #1902

KNOW ALL MEN BY THESE PRESENTS, That We, the Principal and Surety above named, are held and firmly bound unto the above named Contracting Body, hereinafter called the Contracting Body, in the penal sum of the amount stated above the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH that whereas the Principal entered into a certain Contract with the Contracting Body, identified as shown above and hereto attached.

NOW, THEREFORE, if the Principal shall well and truly perform and fulfill all the undertakings, covenants, terms, conditions, and agreements of said Contract during the original term of said Contract and any extensions there of that may be granted by the Contracting Body, with or without notice to the Surety, and during the life of any guaranty required under the Contract, and shall also well and truly perform and fulfill all the undertakings, covenants, terms, conditions, and agreements of any and all duly authorized modifications of said Contract that may hereafter be made, notice of which modifications to the Surety being hereby waived, then, this obligation to be void; otherwise to remain in full force and virtue.

IN WITNESS WHEREOF, the above bounded parties have executed this instrument under the several seals on the date indicated above, the name and corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

PEAK SHAVING PROJECT #1902
BID #2017-009-30
7/3/2017

CONFORMED

Executed in three (3) counterparts.

Witness: _____

 (Proprietorship or Partnership)

CONTRACTOR:

 (Trade or Corporate Name)

By: _____

ATTEST: Title: _____
 (Owner, Partner, or Corporate
 President or V-President, Only)

By: _____
 Title: _____
 (Corporate Secretary or
 Assistant Secretary, Only)

(CORPORATE SEAL)

SURETY COMPANY:

Witness: _____

By: _____

Title: _____
 Attorney in Fact

Countersigned:

(SURETY CORPORATE SEAL)

 S.C. Licensed Resident Agent

 (Name and Address - Surety Agent)

 Surety Company Name and SC
 Regional or Branch Office Address

PEAK SHAVING PROJECT #1902
 BID #2017-009-30
 7/3/2017

CONFORMED

6 GENERAL CONDITIONS

6.1 DEFINITION OF TERMS

6.1.1 PURCHASER

The purchaser is the City of Georgetown, South Carolina, (hereinafter referred to as the City) acting through its manager. Correspondence for the City shall be sent to the following address:

City of Georgetown
Attention: Daniella Howard, Purchasing Agent
PO Box 939
Georgetown, South Carolina 29442

6.1.2 ENGINEER

These SPECIFICATIONS were prepared for the CITY by Utility Technology, Engineers-Consultants (hereinafter referred to as the ENGINEER). Correspondence for the ENGINEER shall be sent to the following address:

Utility Technology
147-B Dublin Square Road
Post Office Box 2629
Asheboro, North Carolina 27204

Attention: Mr. Charles Ferree

6.1.3 SPECIFICATIONS

The SPECIFICATIONS are the CITY's general and specific conditions, requirements, definitions, and specifications as contained in this document and in its appendices and addenda, if any.

6.1.4 WORK

The WORK includes all materials, documentation, apparatus, equipment, supplies, methods, algorithms, labor, services, installation, and transportation or, other facilities as may be required to furnish, install, and start-up to complete the CONTRACT and any change orders. The WORK includes all materials and services required for the completed project not specifically identified by these SPECIFICATIONS as existing, or provided by the CITY.

6.1.5 BIDDER

The BIDDER is a General Contractor, licensed in South Carolina, or his agent or representative, who submits a proposal for the WORK described in the SPECIFICATIONS.

6.1.6 CONTRACT

The CONTRACT consists of the CITY formal Purchase Order and all documents referenced in the Work Statement, such as the SPECIFICATIONS and any other document made a part of the Contract.

6.1.7 CONTRACTOR

The CONTRACTOR is the successful BIDDER with whom the CITY has entered into the CONTRACT. The CONTRACTOR shall be an independent contractor and not an agent or employee of CITY, and nothing contained in the CONTRACT shall be construed as inconsistent with that status.

6.2 INTERPRETATION OF CONTRACT

The ENGINEER shall act as Project Manager and is authorized on behalf of the CITY to interpret the CONTRACT. In the event that conflicts cannot be resolved between the CITY and the CONTRACTOR before final acceptance, then the dispute will be resolved by binding arbitration under the rules of the American Arbitration Association. All undisputed responsibilities on the part of both parties will continue during the arbitration proceedings.

6.3 FINAL ACCEPTANCE

Whenever, as determined by the ENGINEER, the CONTRACTOR has fulfilled all its obligations under the CONTRACT, the CITY will, in writing, so notify the CONTRACTOR. Such notice will constitute FINAL ACCEPTANCE.

6.4 REFERENCE

Any standard specifications referred to in the CONTRACT, in the successful BIDDER'S proposal, or in a manufacturer's specification subsequently approved by CITY will form a part of the CONTRACT.

6.5 MATERIALS AND WORKMANSHIP

Materials will be suitable for the WORK, new, unused, and the best of their respective kind; and manufactured, fabricated, assembled, and finished with workmanship of the highest quality and in accordance with the best recognized practice.

6.6 SHOP DRAWINGS

The CONTRACTOR shall submit complete manufacturer's data and drawings to the ENGINEER for review as specified herein. Drawings will be for the exact material or equipment to be supplied or installed and shall be clearly marked to show specific model and any options or modifications. Drawings shall be submitted within 30 days after receipt of Purchase Order.

The metal building drawings submitted for the peak shaving plant shall include a foundation design completed by the CONTRACTOR for the building design loads.

Drawings and data submitted shall be fully completed and certified by the CONTRACTOR to be in compliance with the requirements of these SPECIFICATIONS.

The ENGINEER'S review of drawings will cover only general conformity of the data to the requirements of this SPECIFICATION, external connections, interfaces with equipment and materials furnished under separate specifications, and dimensions. The ENGINEER'S review does not indicate a thorough review of all dimensions, quantities, and details of the equipment, material device, or item indicated or the accuracy of the information submitted; nor shall review by the ENGINEER be construed as relieving the CONTRACTOR from any responsibility for errors or deviations from the requirements of these SPECIFICATIONS. The ENGINEER will review submitted drawings in a timely fashion.

No material or equipment shall be ordered, shipped, or installed prior to submission and review of manufacturer's drawings. Any material or equipment installed prior to submission and review of drawing shall be removed, replaced, or reinstalled at the CITY's option.

Letters of transmittal shall accompany all submittals of Engineering data.

6.7 WARRANTY

The CONTRACTOR warrants that all of the WORK, furnished by it under the CONTRACT, will be of good workmanship and quality, free from defects in design, workmanship, and materials, and fit for the purpose for which it is intended.

The CONTRACTOR warrants that all of the WORK will fully meet any and all requirements prescribed in the CONTRACT, and in all design documents subsequently approved by the CITY, for a period of twelve (12) months from the date of Final Acceptance as defined in Section 6.3 herein, and agrees, promptly and at his own expense, to remedy or replace in conformity with the CONTRACT, any part of the WORK which during the period of twelve (12) months from Final Acceptance proves defective or otherwise unsuitable for the purposes contemplated by the CONTRACT.

6.8 TERMINATION

6.8.1 TERMINATION FOR CAUSE

The CITY reserves the right, without any liability to the CONTRACTOR, to terminate all or any part of the Contract in the event of any of the following:

- Insolvency of the CONTRACTOR, the filing of voluntary petition in bankruptcy by the CONTRACTOR, the filing of an involuntary petition to have the CONTRACTOR declared bankrupt, the appointment of a receiver or trustee for the CONTRACTOR, the execution by the CONTRACTOR of an assignment for the benefit of creditors;
- Breach by the CONTRACTOR of any of the terms or provisions of the Contract, including delays in completion and breach of any warranty of the CONTRACTOR. Upon any such termination, and for the purpose of completing the Work, CITY may (without limiting any rights which CITY may otherwise possess) take possession of the unfinished Work and may employ any other person, firm or corporation to finish or replace the Work in its entirety, or may relet the same by contract, or otherwise finish or replace the Work in its entirety by whatever method the CITY may deem expedient.

In case of any such termination of the Contract, the CONTRACTOR will not be entitled to receive any further payment until the Work is wholly finished or replaced, at which time if the unpaid balance of the amount agreed to be paid to the CONTRACTOR under the Contract exceeds all the expenses incurred by the CITY in finishing or replacing the Work, such excess will be paid by the CITY to the CONTRACTOR or its legal representatives.

6.8.2 TERMINATION WITHOUT CAUSE

In addition to the foregoing, the Contract is subject to termination without cause at any time at the election of the CITY upon written notice to the CONTRACTOR; and upon such termination the CONTRACTOR will forthwith discontinue all Work and the incurring of any additional expenses relating to the Contract, except as may be directed by the CITY in such termination notice. Title to all material for which the CITY has paid the CONTRACTOR hereunder will vest in the CITY and such material may be disposed of as directed by the CITY.

The CITY will pay the CONTRACTOR for his expenses and a responsible profit based on the percentage of the Work completed at the time of termination, but in no event will the total payment to the CONTRACTOR exceed the total contract price under the Contract. In the event the parties cannot agree on the compensation to be paid, the dispute will be resolved by binding arbitration under the rules of the American Arbitration Association.

6.9 SCHEDULE OF WORK

Within 30 days after award of Contract, the CONTRACTOR shall provide to the ENGINEER the proposed critical path construction schedules for completing the work at the site. Schedules shall provide for proper sequence of construction and include all subcontracts. Updated schedules are to be provided to the ENGINEER with monthly invoices.

The CONTRACTOR shall complete the Work by April 5, 2018.

6.10 DELAYS IN COMPLETION AND EXTENSION OF TIME

Upon receipt of CONTRACTOR's written request, the CITY may grant a request by the CONTRACTOR for additional time to complete the Work required under the Contract, if in the CITY's opinion, the requested extension of time arises from unavoidable delay. No such extension will be allowed unless a claim therefore is presented in writing to the CITY within fifteen (15) calendar days of the commencement of such unavoidable delay.

Reasonable loss of time resulting from the necessity of submitting documents to the CITY for approval or receiving drawings and information from the CITY will be taken into consideration by the BIDDER in determining his bid price for and completion date for the Work, and hence will not constitute unavoidable delays within the meaning of the Contract.

6.11 CHANGES IN PLANS AND EXTRA WORK

The CONTRACTOR will submit for approval a quotation covering any change made in the Work which affects the Contract price. Said quotation will be submitted promptly upon receipt of notification of the change. The CONTRACTOR must obtain from the CITY, or his authorized representative, written permission in advance, before performing any Work considered as extra and not included in the Contract price.

6.12 ASSIGNMENT OR SUBLEASE

The CONTRACTOR will not assign, or sublet the Work or any part thereof without first obtaining the CITY's written approval.

Such approval, if given, will not relieve the CONTRACTOR of the full responsibility for the fulfillment of all obligations under the Contract.

Nothing herein shall create any contract between any subcontractor and the CITY or any obligation on the part of the CITY to pay, or see to the payment of, any sums of any subcontractor of the CONTRACTOR.

6.13 SAFETY

The CONTRACTOR alone shall be solely and completely responsible for conditions of the job site in connection with its Work, including safety of all persons and property, preparatory to and during performance of the Work. This requirement shall apply continuously and not be limited to normal working hours.

The Construction Documents and the joint and several phases of construction hereby contemplated are to be governed, at all times, by applicable provisions of local and state laws and regulations and federal laws, including but not limited to the latest amendments of the following:

- Department of Labor, Bureau of Labor Standards, Safety and Health Regulations for Construction, and Williams and Steiger Occupational Safety and Health Act of 1970, including rules and regulations issued pursuant thereto, applicable to the Work and performance of the Contract (OSHA).

The duty of the Engineer to conduct construction review of the Contractor's performance is not intended to include review of the adequacy of the Contractor's safety measures in, on, or near to the construction site.

No explosives shall be permitted.

The CONTRACTOR shall submit its safety policies, the practices and guidelines of its safety program, and a record of its safety performance during the last three-year period.

6.14 INDEMNITY BY CONTRACTOR

The CONTRACTOR will defend and indemnify and save the CITY and the employees of the CITY harmless from any and all claims, losses, damages, demands, suits, actions, payments, judgments, costs and expenses, including attorney's fees, arising or alleged to arise from personal injuries, including death, or damage to property, including the loss of use thereof, and resulting from, arising out of or in connection with the Work or alleged to result from or arise out of or in connection with the Work except for loss or damage arising out of the sole active negligence of the CITY, including, without limitation, all liability imposed by virtue of any law designed to protect persons employed at the Work site.

6.15 PATENTS

The CONTRACTOR will pay all royalties and license fees which may be payable on account of the Work or any part thereof. He will at his own expense defend any claim brought by others against the CITY, his successors, assigns or those using the Work, because the sale or use of the Work infringes or is alleged to infringe directly or contributorily, rights in, to, or under patents, copyrights, proprietary rights or inventions and will save the CITY harmless from any liability or any nature of kind (including all costs or expenses) arising out of any such infringement or alleged infringement. The CONTRACTOR will reimburse the CITY for all costs and expenses including reasonable attorney's fees incurred by the CITY in defending any such suits or proceedings.

In addition to the foregoing, the CONTRACTOR will save the CITY harmless against, and will pay all awards of damages assessed and all costs of suit adjudged against the CITY in such suits or proceedings provided the CITY gives the CONTRACTOR reasonable notice in writing of the institution of any such proceeding, permits him to defend it, and gives him all such information, assistance, and authority as will be necessary to enable him to do so.

In case any part of the Work is held in any such suit to constitute infringement and its use is enjoined, the CONTRACTOR will within a reasonable time either; (1) secure the perpetual right to continue the use of such part of the Work, or (2) replace at CONTRACTOR's own expense such part of the Work with an adequate non-infringing part or modify it so that it becomes non-infringing.

6.16 COMPLIANCE

CONTRACTOR will at all times be solely responsible for complying with all applicable laws, ordinances and regulations in connection with the WORK, including those relating to safety of all persons and property together with all requests and regulations of the CITY and the CITY's insurance carriers.

Questions relative to the validity, construction, effect and enforcement of the Contract, and the obligations, rights and remedies of the parties thereunder will be governed by the Laws of the State of South Carolina.

6.17 SHIPMENT

The CONTRACTOR shall receive and off load all equipment and material to be stored at the job site.

SHIPPING ADDRESS:

City of Georgetown
Wastewater Treatment Plant
126 Ridge St
Georgetown, SC 29440
(843) 545-4800

6.18 TAXES

All applicable Federal, state, local net or gross income or gross receipts taxes, and similar taxes including sales or use taxes are deemed to be included in the Contract price, and the CITY will not reimburse the CONTRACTOR therefore, such taxes being the sole liability and obligation of the CONTRACTOR.

6.19 LIABILITY INSURANCE

Public Liability and Property Damage Liability Insurance: A Comprehensive General Liability Policy shall be required, in the amount of one million dollars (\$ 1,000,000). A Certificate of Insurance shall be provided by Contractor to the CITY, giving evidence of the following:

General Liability Limits.
Assumption of Contractual Liability for the Work.
A thirty day unconditional notice of cancellation to the CITY.
Certificate holder, named as follows:

City of Georgetown
PO Box 939
Georgetown, South Carolina 29442

The Certificate shall be attached to the executed Contract. This insurance is subject to approval by the CITY prior to any Work being performed.

6.20 BOND

The CONTRACTOR to whom the work is awarded shall furnish a performance bond to the CITY, in an amount equal to 110 percent of the contract amount. The cost of the bond shall be included in the lump sum bid price. The bond shall be executed on the forms provided, copies of which are attached hereto, signed by a surety company authorized to do business in the state of South Carolina and acceptable as surety to the CITY. With the bond shall be filed copies of *Power of Attorney*, certified to include the date of the bond.

6.21 PAYMENTS

No certifications given or payments made will be considered as conclusive evidence of the performance of the Contract, either wholly or in part, nor will any certificate or payment be construed as acceptance of any defective part of the Work.

CONTRACTOR shall submit monthly invoices, based on the percent completion of the WORK, to the ENGINEER, who will forward them to the CITY. The percent completion shall be based on the material and equipment installed, not on the value of material and equipment shipped to the job site. The ENGINEER will prepare monthly project summaries to determine the percent complete.

PEAK SHAVING PROJECT #1902
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7/3/2017

CONFORMED

The CITY will pay monthly invoices to the CONTRACTOR in a timely fashion less ten percent retainage. At the completion of the job and based on the ENGINEER's determination that the job is complete and all punch list items are resolved, the CITY shall pay retainage to the CONTRACTOR and refund the performance bond.

6.22 TIME OF COMMENCEMENT AND COMPLETION

The WORK shall commence, be executed, and completed in accordance with a schedule to be included in the SCHEDULE OF WORK Statement. Failure to comply with the schedule except as intended under Section 6.10 herein will constitute a breach of this agreement.

6.23 NONWAIVER OF RIGHTS

No delay or omission by the CITY to exercise any right hereunder will be construed as a waiver of such right unless such waiver is in writing. No waiver by the CITY of any breach of the CONTRACT on the part of the CONTRACTOR, will be construed as a waiver of any subsequent breach of this agreement.

6.24 EQUAL EMPLOYMENT OPPORTUNITY

Non-Discrimination in Employment: The CONTRACTOR will comply with applicable laws, executive orders and regulations, concerning nondiscrimination in employment, including the Equal Opportunity clause of Section 202, Executive Order 11246, as amended, which is hereby incorporated herein by reference.

6.25 CONDUCT OF FIELD PERSONNEL

The CONTRACTOR's field personnel will conduct themselves in a manner that does not disrupt the CITY's operations, violate its rules concerning conduct on the premises, or engage in unsafe practices. The conduct of the CONTRACTOR's field personnel shall be judged solely by the CITY. If the conduct of the field personnel is determined to be inappropriate, the person may be requested to leave the CITY's premises. CONTRACTOR will not be entitled to additional compensation but shall be entitled to an extension of time of one week to replace such personnel.

6.26 INSPECTIONS

The CITY and/or its agent must be allowed access to all of the CONTRACTOR's facilities to verify the reaching of milestones, the adherence to quality control practices, the performance of extra work (as with Change Orders), and the accuracy of progress reports. This access will be limited to working hours of weekdays. Inspections by the CITY's inspector will not relieve the CONTRACTOR from responsibility for furnishing materials, equipment and software to conform to the requirements of the Specification nor invalidate any claim which the CITY may make because of defective or unsatisfactory material or equipment.

6.27 OPERATION MANUALS

At the completion of the work, the Contractor shall provide five (5) sets of manufacturer's literature referencing specifications, operation, and maintenance for all equipment, combined in individual loose-leaf binders. Four (4) sets shall be provided to the CITY. One (1) set shall be provided to the Engineer.

7 LOCAL VENDOR PREFERENCE OPTION

Approved by council 1.19.2017

AN ORDINANCE TO AMEND CHAPTER 2 ADMINISTRATION – ARTICLE IV PROCUREMENT

SECTION 2-185 COMPETITIVE SEALED PROPOSALS LOCAL VENDOR PREFERENCE

WHEREAS, Council has determined that the existing Purchasing Regulations of the City of Georgetown should be revised and updated; and

WHEREAS, Council desires to further its support of local businesses when awarding contracts for the provision of supplies and construction services to the City through established procurement procedures.

NOW, THEREFORE, BE IT ORDAINED by the City Council of the City of Georgetown, South Carolina that the existing Chapter 2, Article IV, of the City Code of Ordinances.

ARTICLE IV. PROCUREMENT DIVISION 2. ETHICS IN CITY CONTRACTING

Section 2-185 Competitive Sealed Proposals (Bidding)

Local Vendor Preference Option

1. A vendor shall be deemed a Local Georgetown City/County vendor for the purposes of this Section if such vendor is an individual, partnership, association or corporation that is authorized to transact business within the State, maintains an office in Georgetown County, and maintains a representative inventory or commodities within the City/County on which the bid is submitted, and has paid all taxes and business license fees duly assessed.
2. This option allows the lowest local bidder whose bid is within five -percent (5%) of the lowest non-local Bidder to match the bid submitted by the non-local Bidder and thereby be awarded the contract. This preference shall apply only when (a) the total dollar purchase is \$10,000 or more; (b) the vendor has a physical business address located and operating within the limits of Georgetown County and has been doing business in the City/County for a period of twelve (12) months or more; and (c) the vendor provides proof of payment of all applicable Georgetown City/County taxes, business license and fees if so requested.
3. Should the lowest responsible and responsive Georgetown City/County bidder not exercise its right to match the bid as granted herein, the next lowest qualified Georgetown City/County bidder shall have that right and so on. The right to match the non-Georgetown City/County bidder's bid shall be exercised within 24 hours of notification.
4. In order to qualify for the local preference authorized by this Section, the vendor seeking same shall be required to submit with its bid a statement containing relevant information which demonstrates compliance with the provisions of this Section. This statement shall be on the "MANDATORY VENDOR SUBMITTAL" form included in this bid document. Failure to provide such affidavit at the time the bidder submits its bid shall constitute a waiver of any claim for preference.

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5. For all contracts for architecture, professional engineering, or other professional services governed by Section 2-187, Professional and Construction Services, the City shall include the local business status of a firm among the factors considered when selecting which firms are "most highly qualified." In determining which firm is the "most qualified" for purposes of negotiating a satisfactory contract, preference shall be given to a local business where all other relevant factors are equal.

6. Local preference shall not apply to the following categories of contracts:

- (a) Goods or services provided under a cooperative purchasing agreement or similar "piggyback" contract;
- (b) Contracts for professional services except as provided for in Section 2-187 above;
- (c) Purchases or contracts which are funded, in whole or in part, by a governmental or other funding entity, where the terms and conditions of receipt of the funds prohibit the preference;
- (d) Purchases or contracts made pursuant to a noncompetitive award process, unless otherwise provided by this section; or
- (e) Any bid announcement which specifically provides that the general local preference policies set forth in this section are suspended due to the unique nature of the goods or services sought, the existence of an emergency as found by either City Council or City Administrator, or where such suspension is, in the opinion of the City Attorney, required by law.



7.1 MANDATORY VENDOR SUBMITTAL FORM

AN ORDINANCE TO AMEND CHAPTER 2 ADMINISTRATION - ARTICLE IV PROCUREMENT – JANUARY 19, 2017

SECTION 2-185 COMPETITIVE SEALED PROPOSALS LOCAL VENDOR PREFERENCE

ARTICLE IV. PROCUREMENT DIVISION 2. ETHICS IN CITY CONTRACTING

☒ I certify that [Company Name] Coastal Structures Corp.
is a **Resident Bidder** of Georgetown City/County as defined in the City of Georgetown Ordinance Chapter 2 Administration, Article IV Procurement, Section 2-185, and our principal place of business is Georgetown, SC [City and State].

☐ I certify that [Company Name] _____ is a **Non-Resident Bidder** of Georgetown City/County as defined in the City of Georgetown Ordinance Chapter 2 Administration, Article IV Procurement, Section 2-185, and our principal place of business is _____ [City and State].

(X) _____
Signature of Company Officer

8 TECHNICAL SPECIFICATION

8.1 SECTION 01000 - SUMMARY OF THE WORK

The work in this contract consists of the construction of a one story pre-fabricated metal building and installation of generation equipment at the Wastewater treatment plant in Georgetown, SC.; including all its appurtenances, site work, and any off-site improvement required or necessary; shown on the drawings; all in accordance with the Bidding and Contract Requirements, Specifications and the accompanying Drawings, excepting only those items specifically shown, noted or specified as not in contract.

END OF SECTION

8.2 SECTION 01001 – INCORPORATION OF GENERAL CONDITIONS AND SUPPLEMENTARY GENERAL CONDITIONS

All requirements of the General Conditions and Supplementary General Conditions apply to all sections of the specifications and drawings for this project.

END OF SECTION

8.3 SECTION 01002 – PROJECT MANUAL

A project manual for the Georgetown Peak Shaving Plant shall be compiled by the contractor containing instructions, maintenance manuals, test reports and warranties for all material and equipment incorporated in the work. Five copies of the manuals, four copies for the owner and one copy for the engineer, shall be submitted with the contractors final request for payment.

END OF SECTION

8.4 SECTION 02110 - SITE CLEARING

8.4.1 GENERAL

8.4.2 RELATED DOCUMENTS

Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to this Section.

8.4.3 SUMMARY

This Section includes the following:

- Clearing the site
- Protection of trees
- Disposal of Undesirable Material Off-Site

Related Sections: The following Sections contain requirements that relate to this Section:

- Earthwork and Site Grading (02200)
- Building Excavation and Fill (02210)
- Soil Erosion (02220)

8.4.4 EXISTING CONDITIONS

Site Conditions:

- Contractor shall visit the site, familiarize himself with actual conditions and verify existing conditions in the field. Contractor shall notify the Designer immediately upon finding any discrepancies between the existing site conditions and information shown on the plans.
- Record Information: Existing conditions are shown on the Demolition plan and are incorporated into Construction Documents.

8.4.5 PROTECTION

Bench Marks: Maintain carefully all bench marks, monuments and other reference points. If disturbed or destroyed, replace as directed by the Designer.

Existing Utilities: Should any functioning underground utilities be uncovered during the work, the Contractor shall promptly notify the Designer immediately in writing. The Contractor shall be held responsible for any damage to underground or overhead utility services and shall immediately repair and restore services at no additional cost to the Owner.

Existing Trees and Vegetation: Protect existing trees and other vegetation indicated to remain in place, against unnecessary cutting, breaking or skinning of roots, skinning and bruising of bark, smothering of trees by stockpiling construction materials or excavated materials within drip line, excess foot or vehicular traffic, or parking of vehicles within drip line. Provide temporary guards to protect trees and vegetation to be left standing. Any vegetation designated to remain which is damaged by construction work shall be replaced with new vegetation of the same kind by the contractor responsible for such damage.

8.4.6 PRODUCTS (NOT USED)

8.4.7 EXECUTION

8.4.8 CLEARING AND GRUBBING

Disposition: Objects and materials to be removed shall be removed cleanly, completely, and legally disposed of offsite at the expense of the contractor responsible for grading. Salvageable topsoil to be reused on this project

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shall be stored at a location designated on site by Owner. Excess topsoil shall be disposed of off-site at the expense of the Contractor.

Limits of Work: Generally, all existing trees, whether shown on the Drawings or not, shall not be removed. Before proceeding with clearing operations, all trees specifically intended to be removed or preserved, shall be identified on the grounds by an appropriate representative of the Owner and clearly marked.

Coordination: All the work of clearing the site shall be complete before topsoil stripping operations are begun. Loose sticks, roots, branches, or other debris shall not be left on the site. The Contractor shall avoid the admixture of foreign matter to the topsoil.

8.4.9 PROTECTION OF EXISTING TREES TO REMAIN AND UNDISTURBED AREAS

Fencing: Trees to remain shall be protected by temporary fences constructed of wood, wire mesh, and metal as required, to provide complete protection. Erect fences at perimeter of spread of trees to protect feeding roots.

Cutting: Do not cut low-hanging branches on trees to be saved, unless approved by the Designer. Any such branches which must be cut to eliminate obstructions shall be pruned by experienced treemen. Any such cuts, or any accidental injuries to the bark or trunk shall be immediately and properly trimmed.

Grading: Grades surrounding trees to remain shall be warped up or down, where possible, between existing grades of root area and new finished grades. Where fills under 2' occur, the fill shall consist of broken stone or washed gravel, for a distance of 3' from the trunk in all directions, the remaining fill being of light, friable topsoil. Do not disturb root system.

Prohibited Work: Stripping of topsoil, cutting, filling, or dumping of materials, will not be permitted within the spread of branches of trees to remain. Burning of combustible material is not permitted on the Owner's property.

END OF SECTION 02110

8.5 SECTION 02200 - EARTHWORK AND SITE GRADING

8.5.1 GENERAL

8.5.2 RELATED DOCUMENTS

Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to this Section.

8.5.3 SUMMARY

This Section includes stripping, stockpiling, and redistribution of topsoil, rough grading, rock removal, and excavation and fill of the site.

Related Sections: The following Sections contain requirements that relate to this Section:

- Site Clearing (02110)
- Building Excavation and Fill (02210)
- Soil Erosion (02220)

8.5.4 EXISTING CONDITIONS

Site Information: The data as indicated on the Subsurface Exploration Report dated December 9, 2016, conditions are not intended as representations or warranties of the accuracy or continuity between soil borings. It is expressly understood that the Owner will not be responsible for interpretations or conclusions drawn therefrom by the Contractor. The data is made available for the convenience of the Contractor. Additional test borings and other exploratory operations may be made by the Contractor at no cost to the Owner.

Acceptance: Contractor is required to accept actual conditions at site and do work specified without additional compensation for possible variation from grades and conditions shown, whether surface or subsurface. All grading work shall be unclassified and the base bid shall cover the removal of all material including muck, rock, etc.

8.5.5 PROTECTION

Bench Marks: Maintain carefully all bench marks, monuments and other reference points. If disturbed or destroyed, replace as directed. If found at variance with the Drawings, notify the Designer before proceeding to lay out work. Contractor shall be responsible for all dimensions and elevations at the site.

Trees:

See Section 02110, Site Clearing

8.5.6 PRODUCTS

8.5.7 MATERIALS

Topsoil: Topsoil may or may not be required to be imported to the site. Topsoil shall come from stockpiles of topsoil excavated on site and stored in designated location by Owner or from an off-site borrow pit approved by the Designer.

Surplus Topsoil Material: Remove surplus excavated materials from the site and legally dispose of it.

Fill Material: Material for fill shall be free from roots, wood or other organic material. Earth used for fill under floor slabs and other surfaced areas shall be approved by laboratory tests. Stones larger than 4" maximum dimension shall not be used in the upper 6" of fill or embankment. Use suitable excavated material for required fills and backfills. All excavation and placement of fill material required to produce the indicated grades shall be included in the lump sum base bid. Should insufficient material be available on site, provide fill from an off-site source acceptable to the ITL. This material shall be of the classifications as defined by the Unified Soil Classification

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System designations as follows: SW, SP, SW-SM, SP-SM, SW-SC, SP-SC, SM and/or SC. The Independent Testing Laboratory (ITL) (see Testing requirements this Section) will determine the suitability of all materials to be used as fill. (See Section 02210, Building Excavation and Fill, for additional requirements of backfilling).

Composition: Material for fill shall be free from roots, wood or other organic material. Earth used for fill under floor slabs and other surface areas shall be approved by laboratory test paid for by the Owner. Stones larger than 4" maximum dimension shall not be used in the upper 6" of fill or embankment. Use suitable excavated material for required fills and backfills. The ITL will determine the suitability of all materials to be used as fill in accordance with ASTM D-698, and visual observation of the proposed fill material, and other approved laboratory methods.

8.5.8 EXECUTION

8.5.9 INSPECTION

Examine the areas and conditions under which earthwork and site grading is to be performed and notify the Designer in writing of conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions have been corrected in an acceptable manner. For additional information see the Subsurface Exploration Report included in this Document.

8.5.10 TESTING

Laboratory: The Owner shall employ services of an ITL to perform test required under this section.

Quality Control Testing During Construction

- Testing service must inspect and approve subgrades and fill layers before further construction work is performed thereon. Perform field density tests in accordance with ASTM D-698.
- Make at least one field density test of the subgrade for every 2500 sq. ft. of paved area, but in no case less than 3 tests.
- All subgrade to receive pavement shall be proof rolled by Contractor using a tandem axle dump truck fully loaded. All soil that ruts, pumps or deflects excessively as determined by the ITL shall be removed and replaced with appropriate material and compacted in accordance with these Specifications and the Subsurface Exploration Report's recommendations at Contractor's expense.
- In each compacted fill layer, make one field density test for every 2500 sq. ft. of overlaying paved area, but in no case less than 3 tests.

8.5.11 STRIPPING, STOCKPILING, AND DISTRIBUTING OF TOPSOIL

Conditions: This work shall be carried out when dry weather exists and the topsoil is reasonably loose and dry.

Extent: Remove topsoil to its entire depth from the areas within lines 10 feet outside of foundation walls of buildings and from areas to be occupied by walks, steps, paving, and from cut and filled areas.

Stockpiling: Pile topsoil in approved locations where it will not interfere with building or utility operations. Stockpiles shall be of such size and shape as will keep loss of topsoil by erosion and wind to a minimum.

8.5.12 SITE GRADING

Grades: Do all cutting, filling, compacting of fills and rough grading required to bring the entire area outside of building to sub-grades as follows:

- For surface areas (roadways, parking areas, steps and walks) to the underside of the respective surfacing or base course, as fixed by the finished grades therefore or as indicated on the plans.

- For lawn and planted areas, to 4" below finished grade.

Fills:

- Where fill is required to raise the existing grades outside of building areas to the new subgrade elevation indicated, such fill shall be of earth, placed compacted as specified.
- Proofroll all subgrade to receive fill with a fully loaded tandem axle dump truck prior to placing fill material. Proofroll shall be observed by the Owner's ITL. If soil ruts, pumps or deflects, remove unsuitable material and replace with suitable fill material as directed by the ITL.
- Subsurface material determined to be unsuitable for fill operations by the ITL shall be legally disposed of off-site.
- Remove all debris subject to termite attack, rot or corrosion, and all other deleterious materials from areas to be filled. Prior to placing fill material, the surface of the ground shall be scarified to a depth of 6" and the moisture content of the loosened material shall be such that it will readily bond with the first layer of fill material.
- Place the material in successive horizontal layers in loose depths as described in the Subsurface Exploration for the full width of the cross section. Deposit fill in layers no more than 8" thick. Against retaining walls, compact fills in 6" lifts for a distance of 8 feet outside of such walls. (See Section 02210, Building Excavation and Fill).
- Compact each layer of fill under walks, drives, terraces, parking areas, and against retaining walls by rolling or tamping to 98 percent density as defined by ASTM D-698 as described in the attached Subsurface Exploration. For fills to be within 2 feet of the subgrade, the upper 2 feet of the subgrade shall be compacted to 100% density as defined by ASTM D-698 as described in the attached Subsurface Exploration. Compaction shall be accomplished by the use of power rollers, machine tampers, or other approved mechanical equipment. If necessary, soil shall be moistened, or allowed to dry to the correct moisture content, before compaction. Do not deposit any fill on a subgrade that is muddy, frozen, or that contains frost.
- The ITL must inspect and approve all subgrades and fill layers before further construction work is performed thereon.

8.5.13 ROCK EXCAVATION (NOT USED)

8.5.14 FIELD QUALITY CONTROL

Rough Grading: Rough grading of all areas within the project, including excavated and filled sections and adjacent transition areas, shall be reasonably smooth, compacted, and free from irregular surface changes. Provide roundings at top and bottom of banks and at other breaks in grade. The degree of finish shall be that ordinarily obtainable from either blade-grader or scraper operations, except as otherwise specified.

Tolerances: The finished subgrade surface generally shall be not more than 0.5' above or below the established grade or approved cross section, with due allowance for topsoil, sod and pavement depth; the tolerance for areas within 10 feet of buildings and all areas to pave shall not exceed 0.10' above or below the established subgrades.

Drainage Slope: All ditches, swales and gutters shall be finished to drain readily. The subgrade shall be evenly sloped to provide drainage away from building walls in all directions at a grade not less than 1/4" per foot.

8.5.15 MAINTENANCE

Protection of Graded Areas: Protect newly graded areas from traffic and erosion. Keep free of trash and debris. Repair and re-establish grades in settled, eroded, and rutted areas to the specified tolerances. Remove all softness or disturbed material and replace in compacted areas.

Reconditioning Compacted Areas: Where completed compacted areas are disturbed by subsequent construction operations or adverse weather, scarify the surface, re-shape, and compact to the required density prior to further construction.

8.5.16 REDISTRIBUTION OF TOPSOIL

Spread stored topsoil to a depth of 4" over graded areas to be planted with grass.

After topsoil is spread, remove all hard lumps of clay, stones over 1" in diameter, roots, limbs and other deleterious matter which would be harmful, or prevent proper establishment and/or maintenance of lawn and planting area.

All topsoil not used will be disposed of offsite.

END OF SECTION 02200

8.6 SECTION 02210 - BUILDING EXCAVATION AND FILL

8.6.1 GENERAL

8.6.2 RELATED DOCUMENTS

Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to this Section.

8.6.3 SUMMARY

This Section includes the following:

- Excavation for buildings and structures
- Fill under floor slabs
- Backfilling for buildings and structures

Related Sections: The following Sections contain requirements that relate to this Section:

- Site Clearing (02110)
- Earthwork and Site Grading (02200)
- Soil Erosion (02220)

8.6.4 EXISTING CONDITIONS

Site Information: The data as indicated on the Subsurface Exploration Report (December 9, 2016) conditions are not intended as representations or warranties of the accuracy or continuity between soil borings. It is expressly understood that the Owner will not be responsible for interpretations or conclusions drawn therefrom by the Contractor. The data are made available for the convenience of the Contractor. Additional test borings and other exploratory operations may be made by the Contractor at no cost to the Owner.

Acceptance: Contractor is required to accept actual conditions at site and do work specified without additional compensation for possible variation from grades and conditions shown, whether surface or subsurface. All grading work shall be unclassified and the base bid shall cover the removal of all material including muck, rock, etc.

Bench Marks and Monuments: Maintain carefully all bench marks, monuments and other reference points. If disturbed or destroyed, replace as directed. If found at variance with the Drawings, notify the Designer before proceeding to lay out the work. Contractor shall be responsible for all dimensions and elevations at the site.

8.6.5 QUALITY ASSURANCE

Codes and Standards: Perform excavation work in compliance with applicable requirements of governing authorities having jurisdiction.

Testing and Inspection Service: The Owner will engage an Independent Testing Laboratory (ITL), to provide testing of soil materials proposed for use in the work and field testing facilities for quality control testing during excavation and fill operations.

Tests for Proposed Soil Materials:

- Test soil materials proposed for use in the work and promptly submit test result reports.

- Provide one optimum moisture-maximum density curve for each type of soil encountered in subgrade and fills under building slabs and foundations and paved areas. Determine maximum densities in accordance with ASTM D-698.
- For borrow materials, perform a mechanical analysis (AASHTO T88), plasticity index (AASHTO T91), and moisture-density curve (AASHTO T180) or ASTM D-698).

Field Density Determinations: Make at least one (1) field density test of the subgrade for each 2500 square feet of fill, but not less than three (3) tests for each 8" lift. All fill shall be compacted to a minimum of 98 percent of the Standard Proctor Maximum Dry Density for fills greater than 2' below the subgrade (ASTM Specification D-698) as described in the attached Subsurface Exploration Report. The upper 2' of the subgrade shall be compacted to 100 percent density as defined by ASTM D-698 as described in the attached Subsurface Exploration.

8.6.6 PRODUCTS

8.6.7 MATERIALS

Fill Material:

- Composition: Material for fill shall be free from roots, wood or other organic material. Earth used for fill under floor slabs and other surface areas shall be approved by laboratory test paid for by the Owner. Stones larger than 4" maximum dimension shall not be used in the upper 6" of fill or embankment. Use suitable excavated material for required fills and backfills.
- All excavation and placement of fill material required to produce the indicated grades shall be included in the lump sum base bid. Should insufficient material be available on site, provide fill from an on-site source acceptable to the ITL. This material shall be of the classifications as defined by the Unified Soil Classification System designations as follows: SW, SP, SW-SM, SP-SM, SW-SC, SP-SC, SM and/or SC. The Independent Testing Laboratory (ITL) (see Testing requirements this Section) will determine the suitability of all materials to be used as fill.

8.6.8 EXECUTION

8.6.9 INSPECTION

Examine the areas and conditions under which building excavation and fill is to be performed and notify the Designer in writing of conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions have been corrected in an acceptable manner.

8.6.10 PREPARATION

Site Preparation: Site preparation shall consist of the removal of all grass, vegetation, existing pavement and structures, and topsoil as indicated on the plans that are in the respective building areas. Stripping within the building areas shall extend outside the perimeter of the building a distance of 5' unless noted otherwise. Existing underground utilities shall be removed and/or relocated as called for on the contract documents. For additional information see Subsurface Exploration Report included in this Document.

Layout: See Division One.

Verification of Work: Where new grades tie into existing grades, existing grades shall be verified by the Contractor. If existing conditions are at variance with the Drawings, the Designer shall be notified before proceeding with the work and adjustments made only as directed by the Designer.

8.6.11 EXISTING UTILITIES

Locate existing underground utilities in the areas of work. If utilities are to remain in place, provide adequate means of protecting during excavation operations.

Should uncharted, or incorrectly charted, piping or other utilities be encountered during excavation, notify the Designer and consult the utility owner immediately for directions. Cooperate with the Owner, and public and private utility companies in keeping their respective services and facilities in operation. Repair damaged utilities to the satisfaction of the Owner and the utility owner.

Do not interrupt existing utilities servicing facilities occupied and used by the Owner or others, except when permitted in writing by the Designer and then only after acceptable temporary utility services have been provided.

Demolish and completely remove from the site existing underground utilities indicated to be removed. Coordinate with local utility companies and the Owner for shut-off of services if lines are active.

8.6.12 EXCAVATION FOR BUILDINGS AND STRUCTURES

Dimensions: Excavate to elevations and dimensions indicated. Allow additional space as required for construction operations and inspecting foundations.

Excavations:

- Slope sides of excavations to comply with local codes and ordinances having jurisdiction. Shore and brace where sloping is not possible because of space restriction or stability of material excavated (see Shoring and Bracing).
- All slopes shall be maintained in safe condition until completion of backfilling.

8.6.13 SUITABLE BEARINGS FOR FOUNDATIONS

If suitable bearing is not encountered at the depth indicated for foundations as determined by the ITL the Contractor shall immediately notify the Designer. Do not proceed further until instructions are given. If excavations for foundations are carried out by the Contractor below the indicated or specified levels, without proper authorization, they shall be refilled to the required levels with concrete of the class specified for footings, without extra cost to the Owner. Verification tests of design bearing pressure for all foundations will be performed by the ITL at the expense of the Owner. Where footings cannot be poured in excavations in the same day as excavations are opened, excavate an additional 3", and seal bottom of excavation for footing with 3" thickness of concrete of the same class as the footing. After concrete seal is in place, adequate care shall be taken to prevent water from accumulating in excavation. The ITL shall verify bearing capacity of material at bottom of excavation prior to placing concrete seal.

Footing Trenches: Where soil conditions permit, footing trenches may be excavated to the exact dimensions of the concrete and side forms omitted. Footings and foundations shall be placed upon undisturbed and firm bottoms. Excavate by hand to final grade just before concrete reinforcement is placed. Trim bottoms to required lines and grades to leave solid base to receive other work.

Frost Protection: When freezing temperatures are expected, do not excavate to the full depth indicated, unless the footings or slabs can be placed immediately after the excavation has been completed. Protect the bottoms excavated from frost if placing of concrete is delayed.

Dewatering:

- Prevent surface water and subsurface or ground water from flowing into the excavations and flooding the project site and surrounding area.
- Do not allow water to accumulate in excavations. Remove water from excavations to prevent softening of foundation bottoms, undercutting footings, and soil changes detrimental to the stability of subgrades and foundations. Provide and maintain pumps, well points, sumps, suction and discharge lines, and other dewatering system components necessary to convey the water away from excavations.

- Convey water removed from excavations and rain water to collecting or run-off areas. Establish and maintain temporary drainage ditches and other diversions outside the excavation limits for each structure. Do not use trench excavations for site utilities as temporary drainage ditches.
- Areas under future building slabs shall be graded to the elevations as indicated on plans. Area shall be rolled to seal off moisture penetration into the soil. Just prior to job completion, the areas under the building slab shall be proof-rolled by methods described in Section 02200, and observed by the ITL. Any material that is deemed unacceptable by the ITL, shall be removed and replaced with appropriate fill material and compacted in accordance with these specifications at the Contractor's expense.

8.6.14 FILL UNDER FLOOR SLABS ON GRADE

Material Type: Where fill is required to raise the subgrade for concrete floors to the elevations indicated, such fill shall be of earth, placed and compacted as specified. All fill material shall be reviewed and approved for suitability as fill material by the ITL employed by the Owner.

Surface Preparation: Before depositing fill, remove all loam, vegetation and other unsuitable material from areas to receive fill. In no case shall fill be placed on a subgrade that is muddy, frozen or contains frost.

Placement:

- Deposit fill material in horizontal layers not exceeding 8" in depth before compacting as described in Subsurface Explorations. Spread fill evenly and compact each layer by uniformly rolling, pneumatic tamping, or use of other approved equipment to specified percent densities. If necessary, soil shall be moistened, or allowed to dry to the correct moisture content before compaction.
- The moisture in the soil shall not vary more than 1-1/2 percent above or below the optimum moisture content when the soil is being installed. The finished compacted areas shall be brought to a reasonably true and even plane at the required elevations. Proofroll fill with a rubber-tired, heavy-loader vehicle at least every third lift and at the end of a day's work to bind lifts together and to seal the surface of the compacted area.

8.6.15 BACKFILLING FOR BUILDING AND STRUCTURES

Preparation: No backfill shall be placed against the walls until they are adequately braced by the floor systems at the top and bottom of the walls. Before placing backfill, remove all debris subject to termite attack, rot or corrosion, and all other deleterious materials from areas to be backfilled. All backfill material shall be reasonably free from roots, plaster, bats and unsuitable material. Stones larger than 4" maximum dimension shall not be permitted in the upper 8" of backfill. Place backfill material in successive horizontal layers, in loose depth for the full width of the cross section. Deposit backfill in layers not more than 6" thick. Thoroughly compact each layer by rolling or pneumatic tamping at optimum moisture content. Place all backfill so as not to produce any wedge loading or eccentric loading on the structural walls.

Finish: The finished subgrade shall be brought to elevations indicated and sloped to drain water away from the building walls. Fill to required elevations any areas where settlement occurs.

Compaction: All backfill shall be compacted to a minimum of 98 percent of the Standard Proctor Maximum Dry Density, ASTM D-698.

8.6.16 EXCAVATION AND BACKFILL FOR SITE UTILITIES

Excavations:

- Slope sides of excavations to comply with local codes and ordinances having jurisdiction. Shore and brace where sloping is not possible because of space restriction or stability of material excavated (see Shoring and Bracing). All slopes shall be maintained in safe condition until completion of backfilling.

Trench Excavation:

- Dig trenches to uniform width and depth as required by local ordinances, the Designer and authorities having jurisdiction.
- Grade bottoms of trenches uniformly to the slopes indicated on drawings. Notch under pipe bells to provide uniform bearing capacity.

Dimensions: Excavate to elevations and dimensions indicated. Allow additional space as required for construction operations.

Dewatering:

- Do not allow water to accumulate in excavations. Provide and maintain pumps, well points, sumps, suction and discharge lines, and other dewatering system components necessary to convey the water away from excavations.
- Convey water removed from excavations and rain water to collecting or run-off areas.

Fill Material:

- All fill material shall be reviewed and approved for suitability as fill material by the ITL employed by the Owner.
- Before depositing fill, remove all loam, vegetation and other unsuitable material from areas to receive fill. In no case shall fill be placed on a subgrade that is muddy, frozen or contains frost.
- Deposit fill material over utilities in horizontal layers not exceeding 6" in depth before compacting. Spread fill evenly and compact each layer by uniformly rolling, pneumatic tamping, or use of other approved equipment to 100 percent density as defined by ASTM D 698. If necessary, soil shall be moistened, or allowed to dry to the correct moisture content before compaction.
- The moisture in the soil shall not vary more than 1-1/2 percent above or below the optimum moisture content when the soil is being installed. The finished compacted areas shall be brought to a reasonably true and even plane at the required elevations.

8.6.17 MAINTENANCE

Protection of Graded Areas:

- Protect newly graded areas from traffic and erosion. Keep free of trash and debris.
- Repair and re-establish grades in settled, eroded, and rutted areas to the specified tolerances.

Reconditioning Compacted Areas: Where completed compacted areas are disturbed by subsequent construction operations or adverse weather, scarify the surface, re-shape, and compact to the required density prior to further construction. Use hand tamping for recompaction over underground utilities and underfloor subdrains, if any.

Redistribution of Topsoil: (See Section 02200, Earthwork and Site Grading.)

END OF SECTION 02210

8.7 SECTION 02220 - SOIL EROSION

8.7.1 GENERAL

8.7.2 RELATED DOCUMENTS

Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to this Section.

8.7.3 SUMMARY

This Section includes the following: Soil erosion and sedimentation control for all areas of the site that are graded or disturbed by any construction operations and elsewhere as indicated on the Drawings or specified herein. Soil Erosion and Sedimentation control shall be as specified herein and as may be required by actual conditions and governing authorities. The Contractor shall have full responsibility for the construction and maintenance of erosion control and sedimentation control facilities as shown on the Drawings and as specified herein. The Contractor shall provide permanent or temporary ground cover as soon as possible over disturbed areas of the site, and shall provide permanent or temporary ground cover in no more than 14 days after construction activities have permanently or temporarily ceased over the disturbed area.

Related Sections: The following Sections contain requirements that relate to this Section:

- Site Clearing
- Earthwork and Site Grading
- Building Excavation and Fill
- Lawn Seeding

8.7.4 PRODUCT HANDLING

Deliver seed, fertilizer and other packaged materials in unopened original packages with labels legible and intact. Seed packages shall bear a guaranteed analysis by a recognized authority.

On-site storage of materials shall be kept to a minimum. Wet or damaged seed or other material shall be removed from the project site immediately.

8.7.5 PRODUCTS

8.7.6 MATERIALS

Lime: Ground Dolomitic limestone not less than 85% total carbonates and magnesium, ground so that 50% passes 100 mesh sieve and 90% 20 mesh sieve. Coarser material will be acceptable provided the specified rates of application are increased proportionately on the basis of quantities passing No. 100 mesh sieve.

Commercial Fertilizer: A complete plant food containing nitrogen, phosphoric acid and potash in percentages as recommended by the State Department of Agriculture based on analysis of topsoil and soil required herein.

Conforming to applicable State fertilizer laws; with availability of plant nutrients conforming to standards of the A.O.A.C. uniform in composition, dry, free flowing.

Superphosphate: Granular, dry, free flowing normal superphosphate (18-20% P.O.); deliver in original bags.

Seed: Fresh seed guaranteed 95% pure with a minimum germination rate of 85% within one year of test.

$$\frac{\text{P.L.S. (Purity x Germination)}}{100}$$

- Tolerances shall be those tabulated in USDA Bulletin No. 480.

- Variety of grass for temporary grassing shall conform to requirements of Section 02900.

Mulch: Threshed straw of oats, wheat, or rye; free from seed or obnoxious weeds; or clean hay.

Matting: "Hold Gro" as manufactured by Gulf States Paper Corporation or heavy, twisted jute mesh or equivalent. Opening between strands shall be approximately 3/4" square.

Wire Staples: 16 gauge steel wire, with minimum of 3" top and 4" long legs.

Gravel for Stone Filters: Crushed stone so that all stone will pass a 1-1/2" mesh screen and be retained on 3/4" mesh screen.

Silt Filter: "Mirafi 140" as manufactured by Celanese Corporation or AMOCO LS 300 or equivalent.

Rip Rap: Provide rip rap of the size and quantity indicated on the Drawings and as approved by the Designer.

8.7.7 EXECUTION

8.7.8 GENERAL

Existing Structures and Facilities:

- Existing structures, facilities, and water courses shall be protected from sedimentation.
- The Contractor shall be responsible for the construction of necessary measures, and all costs shall be at the expense of the Contractor.
- Items to be protected from sedimentation deposits shall include, but are not limited to, all downstream property, natural waterways, streams, lakes and ponds, catch basins, drainage ditches, road gutters, and natural buffer zones.
- Control measures such as the erection of silt fences, barriers, dams, or other structures shall begin prior to any land disturbing activity. Additional measures shall be constructed as required during the construction.
- All facilities installed shall be maintained continuously during construction until the disturbed areas are stabilized.

8.7.9 PROTECTIVE MEASURES

Protective measures shall conform to all State and Local requirements.

The following measures are listed as a guide for the protection of existing structures and facilities, and shall be included in the Contractor's expense where applicable. Design and construction of the measures shall be in accordance with all applicable laws, codes, ordinances, rules and regulations.

1. Silt Check Fence: Hog wire or wire mesh fastened to posts as recommended by the Manufacturer, and covered with "AMOCO LS 300" or "Mirafi 140" or equivalent.
2. Berms and Diversion Ditches: These shall be graded channels with a supporting ridge on the lower side constructed across a sloping land surface. Diversion ditches and berms shall be planted in vegetative cover as soon as completed.
3. Mulching: Mulching shall be used to prevent erosion and to hold soil and seed in place during the establishment of vegetation. Matting shall be used also where seeding may be easily eroded or disturbed as indicated on plans.

4. Matting: Matting shall be used for temporary stabilization during the establishment of seeded cover on areas such as grassed ditches, channels, long slopes, and steep banks or as required on plans.
5. Build Berm, Pits and Gravel Filter as shown on Drawings. Maintain during construction to keep erosion and sedimentation to a minimum. When it is necessary to remove berm, pits, and gravel, return area to required profiles and condition.
6. Construction Entrances: Construct all entrances in accordance with plans. Maintain all ingress/egress points to prevent tracking of soil onto the Owner's or DOT's roads. Any soil that is tracked onto the roads shall be removed immediately.
7. Other Measures: Other methods of protecting existing structures and facilities, such as vegetative filter strips, diversions, rip-rap, baffle boards, and ditch checks used for reduction of sediment movement and erosion, may be used at the option of the Contractor when approved by the appropriate State or local authorities.

8.7.10 STABILIZATION

Permanently protect stabilized areas prior to the removal of protective devices.

After the final establishment of permanent stabilization, remove temporary sediment control measures. Respread accumulated sediments as specified.

Permanently stabilize all areas disturbed by the removal and resspreading operations immediately.

8.7.11 TEMPORARY SEEDING

Variety of seed, rate of application, and time for use of specific variety shall comply with requirements of Section 02900.

Prepare soil by light discing to establish approximate permanent grade.

Remove large roots, debris, and stones, 1-1/2" in diameter or larger. after rough grading has been completed, and before topsoil is spread, apply soil conditioning materials as follows:

<u>Material</u>	<u>Application Rate (lbs. per 1000 sq. ft.)</u>
Lime	100 (Apply from October through May)
Fertilizer	20 (10-10-10)
Superphosphate	15

Where required, apply topsoil. Rake topsoil to a uniform grade so that all areas will drain properly. Compact lightly with a cultipacker before distributing grass seed.

Sow seed evenly with a mechanical spreader at the rate required for the specific variety in Section 02900. Roll with a cultipacker to cover seed, and water with a fine spray. Method of seeding and rate may be varied at discretion of Contractor on his own responsibility to establish a smooth, uniformly grassed area.

8.7.12 MULCHING AND MATTING

Apply mulch or matting to retain soil and grass.

Mulch areas with slope greater than 5% by spreading a light cover of mulch over seeded area at the rate of not less than 85 lbs. per 1000 sq. ft.

On slopes greater than 20%, mulch with matting or "Hold Gro" or equivalent. Pin matting to the ground with wire staples at 5' intervals immediately after seeding.

END OF SECTION 02220

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8.8 SECTION 02282 - SOIL TREATMENT

8.8.1 GENERAL

8.8.2 RELATED DOCUMENTS

Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to this Section.

8.8.3 SUMMARY

This Section includes poisoning of soil under all areas around under slabs on grade, crawl space, and elsewhere as indicated.

8.8.4 QUALITY ASSURANCE

In addition to the requirements of these specifications, comply with manufacturer's instructions and recommendations for the work, including preparation of substrate and application.

Work shall be performed by a professional pest control operator licensed in accordance with regulations of governing authorities for application of soil treatment solution.

8.8.5 JOB CONDITIONS

Restrictions: Do not apply soil treatment solution until excavating, filling and grading operations are completed, except as otherwise required in construction operations.

To insure penetration, do not apply soil treatment to frozen or excessively wet soils or during inclement weather. Comply with other handling and application instructions of the soil toxicant manufacturer.

8.8.6 SUBMITTALS

Product Data: Soil Treatment for Termite Control: For information only, submit 2 copies of manufacturer's technical data and application instructions. Maintain one copy at the job-site at all times.

Guarantee: Furnish Owner and Designer each with copy of five year guarantee against infestation of termites with provision that Exterminator-Contractor shall return to apply further treatments within Guarantee period, if required, at no extra cost to Owner. Guarantee shall also include complete annual inspection by Exterminator-Contractor. Guarantee shall include repair/replacement cost of damage due to infestation.

8.8.7 PRODUCTS

8.8.8 MATERIALS

Soil Treatment Solution:

- Use an emulsible concentrate insecticide for dilution with water, specially formulated to prevent infestation by termites. Fuel oil will not be permitted as a diluent. Soil treatment shall be "Dursban TC" (chlorpyrifos) or equivalent equal with 1 percent concentration.
- Other solutions may be used as recommended by Applicator and if acceptable to local governing authorities. Use only soil treatment solutions which are not injurious to planting.

8.8.9 EXECUTION

8.8.10 INSPECTION

Applicator must examine the areas and conditions under which soil treatment for termite control is to be installed and notify the Designer in writing of conditions detrimental to the proper and timely completion of the work. Do

not proceed with the work until unsatisfactory conditions have been corrected in a manner acceptable to the Applicator.

Application:

- At time soil treatment is applied, soil shall be in friable condition with sufficiently low moisture content to allow uniform distribution of chemical throughout soil adjacent to walls and other structures. Areas to receive treatment are as follows:
- Areas under concrete floor slabs on grade and crawl space areas.
- Exterior areas, to a distance of 5' from building walls, shall be similarly treated when covered by exterior concrete slabs.
- Utility Lines: All soil and fill materials about the perimeter of, and adjacent to utility pipes, conduits, ducts and other such items extending through slabs on grade shall be treated.
- Chemical shall be applied in all areas in accordance with instructions and directions of chemical manufacturer and best practice of the trade. Chemicals shall not be applied when soil is excessively wet, or immediately after heavy rains.

END OF SECTION 02282

8.9 SECTION 02831 - CHAIN LINK FENCES AND GATES

8.9.1 GENERAL

8.9.2 RELATED DOCUMENTS

Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this section.

8.9.3 SUMMARY

Section includes furnishing all labor and materials for installation of the galvanized steel chain link fence and gates shown on the Drawings and as specified in this Section.

8.9.4 SUBMITTALS

Provide product data in the form of manufacturer's technical data, specifications, and installation instructions for fence and gate posts, fabric, gates, and accessories. Also, provide shop Drawings showing location of fence, gates, each post, and details of post installation, extension arms, gate swing, hardware, and accessories. Only information that has been checked by the manufacturer and the Contractor will be considered by the Designer.

8.9.5 QUALITY ASSURANCE

Single-Source Responsibility: Obtain chain link fences and gates as complete units, including necessary erection accessories, fittings, and fastenings from a single source or manufacturer.

Manufacturer: Company specializing in commercial quality chain link fencing with two years experience.

Installation: ANSI/ASTM F567.

8.9.6 REFERENCES

- ANSI/ASTM A123 - Zinc (Hot Galvanized) Coatings of Products Fabricated from Rolled, Pressed, and Forged Steel Shapes, Plates, Bars and Strips.
- ANSI/ASTM B429 - Aluminum-Alloy Extruded Structural Pipe and Tube.
- ANSI/ASTM F567 - Installation of Chain-Link Fence.
- ASTM A120 - Pipe, Steel, Black and Hot-dipped Zinc-coated (Galvanized) Welded and Seamless, for Ordinary Uses.
- ASTM A428 - Weight of Coating on Aluminum-coated Iron or Steel Articles.
- ASTM A585 - Aluminum Coated Steel Barbed Wire.
- ASTM C94 - Ready-mixed Concrete.
- FS RR-F191 - Fencing, Wire and Post, Metal.

8.9.7 PRODUCT

8.9.8 MANUFACTURERS

Available Manufacturers: Subject to compliance with requirements.

Standard Aluminum Gates: Approved manufacturers for this project are: (1) B&B, (2) Anchor, and (3) Tymetal Corporation.

8.9.9 MATERIALS

Selvage: Fabric selvage as indicated on the details on the Drawings.

Steel Fabric: Comply with Chain Link Fence Manufacturers Institute (CLFMI) Product Manual. Furnish one-piece fabric widths for fencing up to 12' high. Wire size includes zinc or aluminum coating.

Size: 2" mesh, 9-gage (0.148" diameter) wire.

Galvanized Steel Finish: ASTM A 392, Class 2, with not less than 1.2 oz. zinc per sq. ft. of uncoated wire surface.

8.9.10 FRAMING

Strength requirements for posts and rails conforming to ASTM F 669.

Pipe shall be straight, true to section, material, and sizes specified.

Steel Framework, General: Posts, rails, braces, and gate frames.

Type I Pipe: Hot-dipped galvanized steel pipe conforming to ASTM F 1083, plain ends, standard weight (schedule 40) with not less than 1.8 oz. zinc per sq. ft. of surface area coated.

Type II Pipe: Manufactured from steel conforming to ASTM A 569 or A 446, grade D, cold formed, electric welded with minimum yield strength of 50,000 psi and triple coated with minimum 0.9 oz. zinc per sq. ft. after welding, a chromate conversion coating and a clear polymer overcoat. Corrosion protection on inside surfaces shall protect the metal from corrosion when subjected to the salt spray test of ASTM B 117 for 300 hours with the end point of 5 percent Red Rust.

C Section: Rolled form steel shapes conforming to ASTM F 669, group II produced from steel conforming to A 446, grade D, or ASTM A 570, grade 45, cold formed, hot-dip galvanized with minimum 2.0 oz. zinc per sq. ft. of surface area conforming to ASTM A 123 or ASTM A 525; or 5 percent aluminum-mischmetal coated with minimum 1.0 oz. coating per sq. ft. of surface area each side conforming to ASTM A 875.

H Section: Hot-rolled steel H shape with minimum yield strength of 45,000 psi conforming to ASTM F 669, group III and hot-dip galvanized with minimum 2.0 oz. zinc per sq. ft. of surface area conforming to ASTM A 123.

Square Tubing: Fabricated from steel conforming to ASTM A 500, grade B and hot-dip galvanized with minimum 2.0 oz. zinc per sq. ft. of surface area conforming to ASTM A 123.

End, corner, and pull posts for following fabric heights: Up to 14': 3.0" OD Type I or II steel pipe; 4.64 lbs/ft.

Line or intermediate posts for following fabric heights: Up to 14': 2.5" OD Type I or II steel pipe; 3.65 lbs/ft.

Gate Posts: Furnish posts for supporting gate as recommended by manufacturer for gate installation. 4" minimum posts to be provided weighing 6.56 lbs/ft.

Top Rail: Furnish 1.625" OD schedule 40 pipe.

8.9.11 FITTINGS AND ACCESSORIES

Material: Comply with ASTM F 626. Mill-finished aluminum or galvanized iron or steel, to suit manufacturer's standards.

Zinc Coating: Unless specified otherwise, galvanize steel fence fittings and accessories in accordance with ASTM A 153, with zinc weights per Table I.

Tension Wire: #7 gage aluminum-coated steel marcelled tension wire with finish to match fabric.

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Tie Wires: 12-gage (0.106" diameter) galvanized steel with a minimum of 0.80 oz. per sq. ft. of zinc coating of surface area in accordance with ASTM A 641, Class 3 or 9-gage (0.106" diameter) aluminum wire alloy 1100-H14 or equal, to match fabric core material.

Post Brace Assembly: Manufacturer's standard adjustable brace at end and gate posts and at both sides of corner and pull posts, with horizontal brace located at midheight of fabric. Use same material as top rail for brace, and truss to line posts with 3/8" diameter rod and adjustable tightener. Provide manufacturers standard galvanized steel or cast iron or cast aluminum cap for each end.

Post and Line Caps: Provide weathertight closure cap for each post. Provide line post caps with loop to receive tension wire or top rail.

Tension or Stretcher Bars: Hot-dip galvanized steel with minimum length 2" less than full height of fabric, minimum cross-section of 3/16" by 3/4" and minimum 1.2 oz. zinc coating per sq. ft. of surface area. Provide one bar for each gate and end post, and two for each corner and pull post, except where fabric is integrally woven into post.

Tension and Brace Bands: Minimum 3/4" wide hot-dip galvanized steel with minimum 1.2 oz. zinc coating per sq. ft. of surface area.

Tension and Brace Bands: Minimum 12 gage (0.105") thick.

Extensive Arms: Cast steel, to accommodate 3 strands of barbed wire, double arm, sloped to 45 degrees both inward and outward.

Barbed Wire: 12 gage thick wire, 3 strands on each arm, 4 points at 3" oc zinc coated-steel.

8.9.12 GATES

Fabrication: Fabricate perimeter frames of gates from metal and finish to match fence framework. Assemble gate frames by welding. Provide horizontal and vertical members to ensure proper gate operation and attachment of fabric, hardware, and accessories. Space frame members maximum of 8' apart unless otherwise indicated.

Provide same fabric as for fence unless otherwise indicated. Install fabric with tension bars and bands at vertical edges and at top and bottom edges.

Install diagonal cross-bracing consisting of 3/8" diameter adjustable-length truss rods on gates to ensure frame rigidity without sag or twist.

Swing Gates: Comply with ASTM F 1184.

Provide swing gate as called for on plans. Gate to be fabricated as required by manufacturer's specifications. Provide gate and latch post suitable for a lock system per manufacturer's specifications.

Gate Hardware: Center gate stop and drop rod; two 180 degree gate hinges per leaf, and hardware for padlock.

8.9.13 EXECUTION

8.9.14 INSTALLATION

General: Install fence in compliance with ASTM F 567. Do not begin installation and erection before final grading is completed, unless otherwise permitted.

Excavation: Drill or hand-excavate (using post-hole digger) holes for posts to diameters and spacings indicated, in firm, undisturbed or compacted soil.

Center Rails: Provide center rails where indicated. Install in one piece between posts and flush with post on fabric side, using rail ends and special offset fittings where necessary.

Brace Assemblies: Install braces so posts are plumb when diagonal rod is under proper tension.

Bottom Tension Wire: Install tension wire within 6" of bottom of fabric before stretching fabric and tie to each post with not less than same gage and type of wire. Pull wire taut, without sags. Fasten fabric to tension wire with 11-gage hog rings of same material and finish as fabric wire, spaced maximum 24" o.c.

Top Rail: Install top rail through line post caps in accordance with manufacturers recommendations.

Fabric: Leave approximately 2" between finish grade and bottom selvage unless otherwise indicated. Pull fabric taut and tie to posts, rails, and tension wires. Install fabric on security side of fence, and anchor to framework so that fabric remains in tension after pulling force is released.

Tension or Stretcher Bars: Thread through or clamp to fabric 4" o.c., and secure to end, corner, pull, and gate posts with tension bands spaced not over 15" o.c.

Tie Wires: Use U-shaped wire of proper length to secure fabric firmly to posts and rails with ends twisted at least 2 full turns. Bend ends of wire to minimize hazard to persons or clothing.

Maximum Spacing: Tie fabric to line posts 12" o.c. and to rails and braces 24" o.c.

Fasteners: Install nuts for tension bands and hardware bolts on side of fence opposite fabric side. Peen ends of bolts or score threads to prevent removal of nuts.

Gates: Install gates plumb, level, and secure for full opening without interference. Install ground-set items in concrete for anchorage. Adjust hardware for smooth operation and lubricate where necessary. Install gates with fabric and barbed wire overhang to match fence.

Detector Loops: Install loops in 1/8" wide x 1" deep trench cut with a diamond tip saw. The loops shall be 14 gauge standard wire. The trench shall be sealed with a rubber silicon caulking in accordance with manufacturer's recommendations.

Barbed Wire: Install barbed wire support arms sloped both inward and outward, and attach barbed wire; tension and secure.

END OF SECTION 02831

8.10 SECTION 02900 - LAWN SEEDING

8.10.1 GENERAL

8.10.2 RELATED DOCUMENTS

Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to this Section.

8.10.3 SUMMARY

Provide all supervision, labor, materials, equipment, and services required to establish a healthy, vigorous, disease free and weed free lawn as shown on the Drawings and specified.

8.10.4 STORAGE OF MATERIALS

Store all materials in weather proof place with care to prevent loss of effectiveness or intrusion of foreign materials.

8.10.5 PRODUCTS

8.10.6 MATERIALS

Lime: Lime shall be ground limestone (Dolomite) containing not less than 85% total carbonates and shall be ground to such fineness that 50% will pass through a 100-mesh sieve and 90% will pass through a 20-mesh sieve.

Fertilizer: Commercial fertilizers shall be 16% Nitrogen, 4% Phosphate, 8% potash, and 0-20-0 Superphosphate, and shall conform to the applicable State of South Carolina Board of Agriculture fertilizer laws. It shall be uniform in composition, dry and free flowing, and shall be delivered to the site in the original unopened containers, each bearing the manufacturer's guaranteed analysis. Any fertilizer which becomes caked or otherwise damaged will not be acceptable.

Permanent Seed

Seed shall be a 50/50 blend of Rebel and Falcon fescues and shall have a minimum purity of 98%, minimum germination of 90%, and be free of noxious weed seeds. Seed shall be delivered to the site in sealed standard size containers, showing weight, analysis, name of vendor and germination test. Seed which has become wet, moldy, or otherwise damaged will not be accepted.

Temporary seed for erosion control shall comply with the following schedule:

Shoulders, Side Ditches, or Slopes (Max.3.1)

<u>DATE</u>	<u>Type</u>	<u>Planting Schedule</u>
Aug 15 - Nov 1	Tall Fescue	300 lbs./acre
Nov 1 - Mar 1	Tall Fescue	300 lbs./acre
	& Abruzzi Rye	2 5 lbs./acre
Mar 1 - Apr 15	Tall Fescue	300 lbs./acre
Apr 15 - Jun 30	Hulled Common	
	Bermudagrass	25 lbs./acre
Jul 1 - Aug 15	Tall Fescue <u>and</u>	125 lbs./acre
	*** Browntop Millet	35 lbs./acre
	*** <u>or</u> Sorghum-Sudan	.30 lbs./acre
	Hybrids	

Slopes (3:1 to 2:1)

Mar 1 - June 1	Sericea Lespedeza (scarified) and	50 lbs./acre
(Mar 1 - Apr 15)	<u>Add</u> Tall Fescue	120 lbs./acre
(Mar 1 - Jun 30)	<u>or Add</u> Weeping Lovegrass	10 lbs./acre
(Mar 1 - Jun 30)	<u>or Add</u> Hulled Common	
	Bermudagrass	25 lbs./acre
Jun 1 - Sep 1	*** Tall Fescue <u>and</u>	120 lbs./acre
	*** Browntop Millet	35 lbs./acre
	<u>or</u> Sorghum-Sudan	
	Hybrids	30 lbs./acre
Sep 1 - Mar 1	Sericea Lespedeza (unhulled-unscarified)	70 lbs./acre
	and Tall Fescue	120 lbs./acre
(Nov 1 - Mar 1)	<u>Add</u> Abruzzi Rye	25 lbs./acre

Topsoil: Topsoil shall be from project stockpile and shall be prepared by the contractor as to be free of sub-soil roots, branches, stones over 2" in diameter and other extraneous material. Waste shall be disposed of off site by the Contractor.

Water: Water shall be potable and will be provided by the Contractor.

Mulch: Mulch shall be clean threshed wheat or oat straw from the latest available harvest crop and shall be free of noxious weed seeds.

8.10.7 EXECUTION

8.10.8 SITE CONDITIONS

Unless otherwise approved by the Designer, all other site work required by this Contract shall be complete and in place before grassing operations are begun. Work may be completed in parts if so requested by the Contractor and approved by the Designer.

The Contractor shall locate, or have located, all public and private underground utilities which may affect work in this Section. Any utility damaged by work under this Section shall be repaired promptly by the Contractor. Repairs shall be done to the satisfaction of the respective utility owner and all costs shall be borne by the Contractor.

8.10.9 PREPARATION OF AREAS TO BE SEEDED AND DENUDED AREAS

Prior to redistribution of topsoil and seeding, verify that all denuded areas are at required subgrade and scarify to a 4" depth and pulverize until the surface is smooth, friable and of a uniformly fine texture.

Remove stones and foreign material over 2" in any direction and grade for positive drainage.

Prepared topsoil shall be redistributed to a 4" minimum depth, over denuded areas to be planted with grass, ground covers, shrubs and trees. Pulverize until the surface is smooth, friable and of a uniformly fine texture.

All equipment shall be of size and type required for specified preparation of all areas to be seeded and shall be approved by the Designer. Upon approval of the Designer, the method of preparation may be varied by the Contractor under his responsibility to provide optimum conditions for seeding.

8.10.10 SEEDING AND FERTILIZATION

All lawn seeding operations shall be completed between August 15 and October 1, unless otherwise approved by the Designer.

Prior to seeding operations for permanent lawn areas, the Contractor shall conduct sufficient soil tests utilizing the Department of Agriculture Extension Service to determine fertilization rates required for the maximum culture of the specified permanent lawn seed. The following recommended rates shall be adjusted in accordance with soil tests recommendations.

- Lime shall be applied to all areas at the rate of 90 pounds per 1000 sq. ft.
- 16-4-0 fertilizer shall be applied to all areas at the rate of 20 pounds per 1000 sq. ft.
- 0-20-0 superphosphate shall be evenly distributed in all areas at the rate of 12 lbs. per 1000 sq. ft.

Fescue seed shall be evenly distributed over the prepared seed bed of proposed lawn areas, at the rate of 6 pounds per 1000 sq. ft. of area. Apply annual rye grass at the rate of 2 lbs. per 1000 sq. ft. only if seeded between October 15 and February 15.

Mulch shall be evenly distributed, over the seeded areas, at the rate of 75 pounds per 1000 sq. ft. of area. Areas to receive other plant materials shall be fully covered and protected with a 2" thick mulch cover.

Asphalt tack-coat shall be applied in the method and quantity required to hold mulch together and prevent displacement by wind or surface drainage.

All areas shall be seeded, fertilized, and mulched evenly at the rate specified, rolled once with a roller weighing not less than 100 pounds per lineal foot, tack coated as required, and watered thoroughly with a fine spray.

8.10.11 LAWN MAINTENANCE

Maintenance shall begin immediately after seeding operations and continue until Final Acceptance.

Maintenance shall include all temporary fences, barriers, signs and all other work incidental to proper protection of work.

Maintenance of seeded areas shall consist of watering, weed and pest control, fertilization, erosion repair, reseeding and incidental operations as necessary to establish a vigorous, healthy and uniform stand of grass. All areas which fail to show a uniform stand of grass for any reason shall be treated repeatedly until a uniform stand of at least 90 percent coverage is attained with no bare areas greater than five sq. ft.

Weed and pest control operations shall be performed by the Contractor, and approved by the Designer as necessary to meet specification requirements. At least two weeks shall elapse after chemical control is applied before a request of inspection for acceptance is made to the Designer.

At least two weeks shall elapse after chemical control is applied before a request of inspection for acceptance is made to the Designer.

The Contractor shall furnish and operate a temporary irrigation system (hose and sprinklers) sufficient to maintain all grass areas with sufficient moisture as the Designer deems necessary to assure maximum survival of grass through date of acceptance. Equipment may be stored on site if so approved by the Owner. Conditions beyond the Owner's control which may make on site water unavailable will not preclude the Contractor's responsibility to maintain optimum moisture conditions for lawns.

Grass mowing operations shall be done by the Contractor until Final Acceptance of the work. Mowing shall be done, only when the grass is dry, with a rotary type mower having a blade height set not lower than 2-1/2" nor higher than 4". Mowing operations shall be conducted at intervals which insure grass height does not exceed 5" between mowings. The contractor shall complete at least one mowing operation before work will be considered for Final Acceptance.

8.10.12 ACCEPTANCE

The Designer shall be the sole judge as to whether or not the lawns are acceptable.

Lawns will be considered for Final Acceptance only in conjunction with Final Acceptance of all other work performed under this Contract.

The Designer shall inspect all work for acceptance upon written request of the Contractor. The request shall be received at least ten working days before the anticipated date of inspection. Upon completion, and reinspection of all repairs or renewals necessary in the judgement of the Designer, he shall certify in writing to the Owner as to the acceptance of the work.

GUARANTEE FOR PERMANENT GRASS: The Contractor shall guarantee a live and vigorous stand of permanent grass at the time of acceptance of the work consisting of 90 percent coverage minimum of seeded grass. (No bare spots greater than 5 square feet, the total of which shall not exceed 2% of the lawn area).

CLEANUP: Upon completion of initial seeding work in this Section, the Contractor shall remove all equipment and materials not required for maintenance. All debris and waste material resulting from work in this Section shall be removed from the site.

END OF SECTION 02900

8.11 SECTION 03100 - CONCRETE FORMWORK

8.11.1 GENERAL

8.11.2 RELATED DOCUMENTS

The general provisions of the Contract, including General and Supplementary Conditions and General Requirements, apply to the work specified in this Section.

8.11.3 DESCRIPTION OF WORK:

Work Included This Section:

Work shall consist of providing all concrete formwork, form coatings and plastic accessories required to complete the formwork as indicated by the concrete structures shown.

Related Work Specified Elsewhere:

- Concrete Reinforcement (03200)
- Cast-In-Place Concrete (03300)
- Concrete Finishes (03350)

8.11.4 QUALITY ASSURANCE

Codes and Standards:

Unless otherwise shown or specified, design, construct, erect, maintain, and remove forms and related structures for cast-in-place concrete work in compliance with the American Concrete Institute Standard ACI 347, "Recommended Practice for Concrete Formwork".

8.11.5 PRODUCTS

8.11.6 MATERIALS

Forms for Exposed Finish Concrete:

Unless otherwise shown or specified, construct formwork for exposed concrete surfaces with plywood, metal, metal-framed plywood-faced or other acceptable panel type materials to provide continuous straight, smooth exposed surfaces. Furnish in largest practicable sizes to minimize number of joints and conform to joint system shown on drawings. Provide form material with sufficient thickness to withstand pressure of newly placed concrete without bow or deflection.

Plywood for formwork for smooth exterior concrete shall be plywood complying with U. S. Products Standard PS-1 "B-B High Density Overlaid Concrete Form" Class I. Plywood for all other exposed concrete formwork shall not be less than 5/8", 5-ply Douglas fir plywood especially processed to resist moisture and conforming to Plyform Class I, B-B Ext-DFPA of U. S. Product Standard PS 1-66.

Forms for Unexposed Finish Concrete:

Form concrete surfaces which will be unexposed in the finished structure with plywood, boards, metal or other acceptable material. Provide lumber that is dressed on at least 2 edges and 1 side for tight fit.

8.11.7 ACCESSORIES

Form Ties: Shall be reviewed by the Designer. Spreaders or wire ties shall not be used. Snap ties will be permitted except on exposed exterior surfaces where pull ties will be required. Ties shall have a minimum working strength when fully assembled of at least 3,000 pounds and shall be so adjustable in length as to permit complete tightening of forms and of such type as to leave no metal closer than 1-1/2" to the surface. They shall

not be fitted with any lugs, cones, washers or other devices to act as a spreader within the forms or for any other purpose which will leave a hole or depression larger than 7/8" in diameter or a depression in excess of 1/8" back of the exposed surface. Furnish a sample of each exposed type.

Corner Formers: Corner formers shall be plastic with 3/4" radius equivalent to "Green Streak" corner formers, manufactured by:

- Grace Construcion Products
- EFCO Corp.
- Vinylex Corporation

Form Releasing Agent: Form releasing agent Commercial Formulation Compounds with a maximum VOC of 350 Mg/L shall be non-staining "Debond" as manufactured by L & M Construction Chemicals or "Nox-Crete" Form Coating by Non-Crete Chemical Co. or approved equivalent.

8.11.8 STORAGE OF MATERIALS:

All materials shall be properly stored and protected from damage during time of non-use.

8.11.9 EXECUTION

8.11.10 DESIGN FORMWORK:

Design, erect, support, brace and maintain formwork so that it will safely support all vertical and lateral loads that might be applied until such loads can be supported by the concrete structure. Carry vertical and lateral loads to the ground by the formwork system and by the in-place construction that has attained adequate strength for that purpose.

Design formwork to be readily removable without impact, shock or damage to the Cast-In-Place concrete surfaces and adjacent materials.

Side forms of footings may be omitted and concrete placed directly against the neat excavation only when requested by the Contractor and accepted by the Designer. When omission of forms is accepted, provide additional concrete required beyond the minimum design profiles and dimensions of the footings as detailed to maintain 3 inch cover at all sides of reinforcing steel. Earth forms shall be wetted (damp), but not muddy before concrete is placed.

8.11.11 FORM CONSTRUCTION

General Requirements for Form Construction:

Construct forms to the exact sizes, shapes, lines and dimensions shown, and as required to obtain accurate alignment, location, grades, level and plumb work in the finished structures. Provide for openings offsets, sink-ages, keyways, recesses, moldings, rustications, reglets, chamfers, blocking, screeds, bulkheads, anchorages and insets to obtain the required finishes. Formwork shall be constructed sufficiently tight to prevent leakage of concrete; to securely brace, shore and safely support construction loads and to prevent displacements.

Contractor shall be fully responsible for adequacy of formwork units. Contractor shall also be responsible for forms in conjunction with any structural steel work. Forms shall support loads that might be applied until concrete structure can support such loads and shall maintain their dimensional and surface correctness to produce members required by drawings.

Provide temporary openings where interior area of formwork is inaccessible for cleanout, for inspection before concrete placement and for placement of concrete. Securely brace temporary openings and set tightly to forms to prevent the loss of concrete mortar. Locate temporary openings on forms in as inconspicuous location as possible, consistent with the requirements of the work.

Provide openings in concrete formwork to accommodate work of other trades. Size and location of openings, recesses and chases are the responsibility of the trade requiring such items. Accurately place and securely support items to be built into forms.

Carefully form intersecting planes to provide true, clean-cut corners, with edge grain of plywood not exposed as form for concrete.

Form Ties:

Provide factory fabricated, adjustable-length, removable or snap-off metal form ties, designed to prevent form deflection and to prevent spalling concrete surfaces upon removal. Ties that are to be removed from the wall shall be coated with cup grease or other approved material to facilitate removal.

The rods that are to be entirely removed from the walls shall be loosened 24 hours after the concrete is poured. All but a sufficient number of ties to hold the forms in place may be removed at that time.

Provide shores and struts with positive means of adjustment capable of taking up form work settlement during concrete placing operations, using wedges or jacks or a combination thereof. Provide trussed supports when adequate foundations for shores and struts cannot be secured.

Preparation of Form Surfaces: Coat the contact surfaces of forms with a form-coating compound before reinforcement is placed. Provide commercial formulation form-coating compounds that will not bond with, stain, nor adversely affect concrete surfaces and will not impair subsequent treatment of concrete surfaces requiring bond or adhesion, or impede the wetting of surfaces to be cured with water or curing compounds. Thin form-coating compounds only with the thinning agent of the type and in amount and under the conditions of the form-coating compound manufacturer's directions. Do not allow excess form coating material to accumulate in the forms or to come into contact with concrete surfaces or reinforcing steel against which fresh concrete will be placed. Apply in compliance with manufacturer's instructions. In no case shall the reinforcing steel and inserts be coated with this material.

8.11.12 INSTALLATION:

Shall be in accordance with ACI 301 with particular attention being given to tolerances.

Inserts, Sleeves and Fastening Devices:

- See drawings, coordinate with all other trades and other Sections of the Specifications for extent, location, and details of materials to be embedded or placed in concrete.
- Sufficient time between erection of forms and placing of concrete shall be given to the various trades to permit the proper installation of their work. All devices installed in the forms shall be maintained in position and protected until the concrete pouring is completed.
- The installation of inserts, miscellaneous pipe sleeves, hangers, ties, angle supports, anchors, bolts, angle guards, dowels, thimbles, anchor slots, reglets blocking, nailers, and other materials for attachment of their work to concrete shall be under this Section under the supervision and at the location furnished by the trades requiring these devices. Do not install sleeves in any concrete footing, slab, or pier without Designer's approval.

Control Joints: See Section 03300 for treatment of control and construction joints, including wood screeds, metal keyways and sawcuts. Locate as indicated within the drawings and specifications.

Edge Forms and Screeds Strips For Slabs: Set edge forms or bulkheads and intermediate screed strips for slabs to obtain required elevations and contours in the finished slab surface. Provide and secure units to support types of screeds required.

REMOVAL OF FORMS: Forms shall be removed in accordance with requirements of ACI Manual of Concrete Practice without damage to concrete and in a manner to insure complete safety to the structure. Leave shoring in place until concrete member will safely support its own weight plus any live loads that may be placed upon it or until the concrete has obtained a strength acceptable to the Designer. Upon removal of forms, the Contractor shall notify the Designer in order that a review of the newly stripped surfaces may be made prior to patching. Should the forms be removed sooner than 7 days after pouring, the resulting exposed surfaced shall be sprayed with the curing compound specified in Section 03300.

8.11.13 RESHORING:

Reshoring for the purpose of early form removal, where permitted by the Designer, shall be performed so that at no time will large areas of new construction be required to support their own weight. When reshores are required, they shall be installed not later than the end of the working day in which stripping occurs.

While reshoring is underway, no live loads shall be permitted on the new construction. Reshores shall be tightened to carry their required loads but they shall not be over tightened so that the new construction is overstressed. Reshores shall remain in place until the concrete has reached its specified 28 day strength, unless otherwise specified or permitted.

8.11.14 RE-USE OF FORMS:

Clean and repair the surfaces of forms that are to be reused in the work, except that split, frayed, delaminated or otherwise damaged form facing material will not be acceptable. Apply new form coating compound material to all concrete contact form surfaces as specified for new formwork.

When forms are extended for successive concrete placement, thoroughly clean surfaces, remove fins and laitance and tighten forms to close all joints. Align and secure all joints to avoid offsets. Do not use "Patched" forms for exposed concrete surfaces, except as acceptable to the Designer. Any form works deemed unacceptable by Designer shall be rejected.

END OF SECTION 03100

8.12 SECTION 03200 - CONCRETE REINFORCEMENT

8.12.1 GENERAL

8.12.2 RELATED DOCUMENTS

The general provisions of the Contract, including General and Supplementary Conditions and General Requirements, apply to the work specified in this Section.

8.12.3 DESCRIPTION OF WORK

Work Included This Section: Work shall include providing the following and all other items related to concrete reinforcement:

- Metal Reinforcement
- Metal Accessories
- Plastic Accessories

Related Work Specified Elsewhere:

- Concrete Formwork (03100)
- Cast-In-Place Concrete (03300)
- Concrete Finishes (03350)

8.12.4 QUALITY ASSURANCE

Standard Reference:

The Standard Reference shall be the ACI 301, hereinafter called ACI; The American Welding Society Structural Welding Code and ASTM Specifications as listed.

The current edition of the following standard reference shall apply to the work of this Section. Contractor shall be responsible for obtaining latest edition.

1. ASTM A82: Specifications for Cold Drawn Steel Wire for Concrete Reinforcement.
2. ASTM A185: Specification for Welded Steel Wire Fabric For Concrete Reinforcement.
3. ASTM A615: Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement.
4. ACI 301: Specifications for Structural Concrete for Buildings
5. ACI 315: Manual for Standard Practice for Detailing Reinforced Concrete Structures.
6. ACI 318: Building Code Requirements for Reinforced Concrete
7. AWS D1.1: Structural Welding Code.

8.12.5 SUBMITTALS

Shop Drawings:

Drawings shall be prepared under supervision of a registered Professional Engineer in the State of South Carolina. Shop Drawings shall show for fabrication, bending, and placement of concrete reinforcement. Comply with ACI SP-66, "ACI Detailing Manual," showing bar schedules, stirrup spacing, diagrams of bent bars, bar lists, and arrangement of concrete reinforcement. placing plans, bending details, and bar lists. Wall reinforcing shall be shown in elevation. Location and arrangement of sleeves, inserts, accessories, etc. shall be clearly indicated.

Reinforcing bars shall not be erected or set in place before the approved shop drawings have been returned to the Contractor.

Only shop drawings completely checked by the Fabricator and General Contractor will be considered by the Designer. Approval of shop drawings is for design only. Contractor is responsible for dimensions, quantities, and coordination with other trades.

As specified and in accordance with Section 03300-1 "Cast-In-Place Concrete". Submit copies of Manufacturer's printed technical literature and performance data on the fiber reinforcing proposed for use in project.

Storage of Materials:

Reinforcing steel delivered to the job, and not immediately placed in forms, shall be stored under cover and protected from mud, rusting, oil, grease or distortion.

Cleaning:

At the time of placing concrete, reinforcing shall be free from rust, oil, corrosion, scale or other coatings that will destroy or reduce bond.

8.12.6 PRODUCTS

8.12.7 MATERIALS

Steel Reinforcement: Steel Reinforcement shall be deformed type bars conforming to ASTM A 615. Reinforcement shall be manufactured from new billet steel of American manufacture, and shall conform to ASTM A 615, Grade 60 with a yield strength of 60,000 psi.

Welded Wire Fabric: Welded Wire Fabric shall conform to the requirements of ASTM A 185. Size and gauge shall be as indicated on Drawings.

Steel Accessories: Include all spacers, ties, chairs, bolsters and other devices required to properly support and fasten reinforcing steel in place in accordance with the requirements of ACI 315. Chairs and other accessories shall have plastic-tipped feet. Location and types of supports shall be shown on shop drawings. Accessories and elements required by other trades shall be shown on shop drawings, furnished by those trades, and installed under this Section.

Shop Fabrication: Reinforcing steel shall be fabricated to shapes and dimensions indicated on the Drawings and in compliance with applicable provisions of ACI 315 and ACI 318. Bars shall be bent cold in the shop and no bars shall be bent in the field.

8.12.8 EXECUTION

8.12.9 INSPECTION

The Contractor must examine the conditions under which concrete reinforcement is to be placed, and notify the Designer in writing of unsatisfactory conditions. Do not proceed with the work until unsatisfactory conditions have been corrected in a manner acceptable to the Contractor.

8.12.10 INSTALLATION

Placement:

- Reinforcement shall be placed accurately in accordance with the Drawings and adequately secured in position with metal chairs, spacers with ties and other devices to properly support and fasten in accordance with ACI.

- Steel reinforcement, at the time concrete is placed, shall be free from rust, scale, mud or other coatings that will destroy or reduce bond. Bars with kinks or bends not shown on the plans shall not be used. Steel reinforcement shall be accurately placed in accordance with the plans. Secure in position with not less than 16-gauge annealed wire or suitable clips at intersections. Hold securely the required distance from the forms by concrete or metal chairs and spacers. Nails shall not be driven into outside forms or support reinforcement.

Concrete Cover:

- Where not shown on Drawings, the thickness of concrete over reinforcement shall be as follows:
 1. Walls - Surfaces not exposed to ground or weather 1"
 2. Walls - Surfaces which will be backfilled with earth 3".
 3. Slabs - 1" clear to interior surfaces
 4. Footings - 3" clear to sides and bottom
 5. Columns - 2" clear to column vertical bars

For items not listed refer to ACI 318.

Splicing: Splices and offsets of reinforcing shall be in accordance with ACI 318 and as shown and noted on the drawings. All reinforcing splices shall have a minimum lap of 36 bar diameters unless noted otherwise. All reinforcement shall be accurately placed in the forms and securely tied in position prior to placement of concrete.

Wire Fabric: Install as indicated on Drawings. Lap all joints 6" and wire securely. Extend mesh to within 2" of all sides and ends of slabs.

END OF SECTION 03200

8.13 SECTION 03300 - CAST-IN-PLACE CONCRETE

8.13.1 GENERAL

8.13.2 RELATED DOCUMENTS

The general provisions of the Contract, including General and Supplementary Conditions and General Requirements, apply to the work specified in this Section.

8.13.3 DESCRIPTION OF WORK

Work Included This Section:

Work of this Section shall include furnishing all labor and materials required to provide all cast-in-place concrete.

All structural concrete work shall be done in accordance with the applicable sections of ACI 301, Specifications for Structural Concrete for Buildings. The project superintendent and concrete foreman shall have a copy of the ACI Field Reference Manual, SP-15, on the Project site and shall be familiar with the contents thereof.

Related Work Specified Elsewhere:

- Concrete Paving (02520)
- Concrete Formwork (03100)
- Concrete Reinforcement (03200)
- Concrete Finish (03350)
- Sealants and Caulking (07900)

8.13.4 CODES AND STANDARDS

Standards and Specifications: All standards and specifications mentioned in this Section refer to the latest edition, unless otherwise noted, and shall be considered as a part of the specification except where otherwise specified herein.

ASTM Standards:

- C33 Specification for Concrete Aggregates.
- C94 Specification for Ready-Mixed Concrete.
- C150 Specification for Portland Cement.
- C233 Testing Air-Entraining Admixtures for Concrete.
- C260 Specification for Air-Entraining Admixture for Concrete.
- C309 Specification for Liquid Membrane Forming Compounds for Curing Concrete.
- C494 Standard Specification for Chemical Admixtures for Concrete.

8.13.5 QUALITY CONTROL

The Owner shall employ and pay for an Independent Testing Laboratory (ITL) to evaluate concrete delivered to and placed at the site. Contractor shall extend coordination and cooperation to expedite testing and evaluation.

ITL will be responsible to make, cure, and transport cylinders to the laboratory for testing.

The aggregate producer shall provide field service for initial placements and upon request shall provide such service to the Designer and ready-mix producer at no cost to the Owner.

Preinstallation Conference: Conduct conference at Project site to comply with requirements of the following:

- At least 35 days prior to submitting design mixes, conduct a meeting to review detailed requirements for preparing concrete design mixes and to determine procedures for satisfactory concrete operations. Review requirements for submittals, status of coordinating work, and availability of materials. Establish preliminary work progress schedule and procedures for materials inspection, testing, and certifications. Require representatives of each entity directly concerned with cast-in-place concrete to attend conference, including, but not limited to, the following:
 1. Contractor's superintendent.
 2. Agency responsible for concrete design mixes.
 3. Agency responsible for field quality control.
 4. Ready-mix concrete producer.
 5. Concrete subcontractor.
 6. Primary admixture manufacturers.
 7. Owner or Owner representative.
 8. Engineer.

8.13.6 DELIVERY AND PROTECTION OF MATERIALS

Deliver ready-mixed concrete in compliance with requirements set forth in ASTM C-94, except as otherwise indicated.

Severe Weather Provisions: Protect concrete from physical damage or reduced strength due to weather extremes. In cold weather, comply with ACI 306.

8.13.7 PRODUCTS

8.13.8 MATERIALS

Portland Cement: ASTM C150, Type 1. Use one brand of cement throughout project. No Fly Ash shall be used.

Aggregate: The maximum size of coarse aggregate for reinforced concrete shall be 3/4 the distance between bars, or 1/5 narrowest dimension between forms, or 1/3 the depth of slabs, whichever is the smallest. Provide aggregates from a single source for exposed concrete.

Normal Weight Aggregates: ASTM C33.

Water: Water shall be potable and free from deleterious amounts of oils, acids, alkalies, and organic matter. (Drinkable).

Ready-Mix Concrete: The concrete shall be mixed in accordance with the recommendations of the National Ready-Mix Concrete Association. Attention is called to Paragraph 14 of ASTM C94; the certification in its entirety, as called for by this paragraph shall be obtained by the Contractor and kept on file at the Project site.

8.13.9 ADMIXTURES

General: Provide concrete admixtures that contain not more than 0.1 percent chloride ions. Certification: Written conformance for all admixtures and the chloride ions content shall be required from the admixture manufacturer prior to mix design review by the Designer.

Water Reducing Admixture shall conform to ASTM C494, Type A, and not contain more chloride ions than are present in municipal drinking water.

Acceptable Compounds:

1. "Eucon WR-75," Euclid Chemical Company
2. "Pozzolith 200N," Master Builders

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3. "WRDA," W.R. Grace and Co.

Water-Reducing, Accelerating Admixture shall conform to ASTM C494, Type E, and not contain more chloride ions than are present in municipal drinking water. The admixture manufacturer must have long-term non-corrosive test data from an independent testing laboratory (of at least a year's duration) using an acceptable accelerated corrosion test method such as that using electrical potential measures.

Acceptable Compounds:

1. "Accelguard 80," Euclid Chemical Company
2. "Pozzutek 20," Master Builders, Inc.
3. "Daraset," W.R. Grace and Company

Air-Entraining Admixture shall conform to ASTM C260.

Acceptable Compounds:

1. "Air Mix," Euclid Chemical Company
2. "MB-VR," Master Builders, Inc.
3. "Darex," W. R. Grace & Company

High-Range Water-Reducing Admixture (Superplasticizer) shall conform to ASTM C494, Type F or G.

Acceptable Compounds:

1. "Rheobuicd," Master Builders, Inc.
2. "Eucon 37," Euclid Chemical Company
3. "Sikament, 300" Sika Chemical Corporation.

Concrete Inserts: Inserts shall be where required for the attachment or support of materials to be placed against, or upon, or to be supported by the concrete, and of the type as detailed and required by the Drawings.

Acceptable Compounds:

Hohmann and Barnard, Inc.

1. Meadow Steel Products
2. Cleveland Steel Specialty Co.

Bond Breaker: Shall be used where independent suspended slabs abut vertical wall surfaces and shall be 15# felt. The filler shall be full width and depth of concrete section.

Non-shrink Grout: Grout for bedding plates, anchors, etc., where shown on the Drawings shall be mixed and placed in strict accordance with the Manufacturer's instructions. Grout compressive strength shall be 6000 psi at 7 days when placed at a plastic to flowable consistency.

Acceptable Compounds:

1. Euclid Chemical Company - "Hi-Mod"
2. Master Builders - "Embeco 636"
3. Sonneborn - "Ferrolith GNC"
4. L & M Construction Chemical Co. - "Ferrogrouit"

Grout that is installed on the exterior and in moist areas, shall be non-corrosive, non-gaseous, non-staining, non-metallic grout.

Acceptable Compounds:

1. Euclid Chemical Company - "Euco NS"
2. Master Builders - "Masterflow 713"
3. Sonneborn - "SonogROUT"
4. "Crystex" by L & M Construction Chemical Company

All grout shall conform to CRD-C-621, "Corps of Engineers Specification for Non-Shrink Grout".

Expansion Joint Material: Unless otherwise detailed and specified for special joint conditions, Contractor shall provide fiber strips by Celotex Corp or equivalent. Strips shall be nominal 1/2" thick and full depth of contact surface.

Curing and Sealing Compounds: Curing and sealing compounds shall be odorless, water-soluble type meeting the water retention requirements of ASTM C309, Type I, Class A. Moisture loss not more than 0.055 gr./sq. cm. when applied at 200 sq. ft/gal.

Acceptable Compounds:

1. "Masterseal" as manufactured by Master Builders
2. "Sealco 309" as manufactured by Gifford-Hill/American Admixtures
3. "Kure-N-Seal" as manufactured by Sonneborn-Rexnord

Concrete Curing Agent At Exposed Concrete Slabs Provide "Ashford Formula" as manufactured by Curecrete Chemical Company, P. O. Box 735, Orem, Utah 84057 or equivalent.

Bonding Compound: The compound shall be acrylic latex for interior or exterior use and will not re-emulsify in the exterior.

Acceptable Compounds:

1. "Weld-crete" by Larsen Products Corp.
2. "S.B.R. Latex" by The Euclid Chemical Company
3. "Sonocrete" by Sonneborn

Underlayment Compound: Free-flowing, self leveling, pumpable cementitious base compound.

Acceptable Compounds:

1. "Flo-Top" by Euclid Chemical Company
2. "K-15" by Ardex, Inc.
3. "Underlayment 110" by Master Builders, Inc.
4. "Levelex" by L & M Construction Chemicals, Inc.

Epoxy Adhesive: The compound shall be a two (2) component, 100 percent solids, 100 percent reactive compound suitable for use on dry or damp surfaces.

Acceptable Compounds:

1. "Euco Epoxy No. 452 mv or No. 620 by The Euclid Chemical Company
2. "Sikadur Hi-Mod" by Sika Chemical Corporation
3. "Epabond" by L & M Construction Chemical Co.

8.13.10 MIX DESIGNS

Strength Requirements, Proportioning and Consistency: Strength requirements at 28 days and the location of each type of concrete required for this project shall be as shown on the Drawings. The submittal for review shall be made at least 20 days prior to commencement of work.

Normal Weight Concrete: Provide normal weight concrete based on the approved trial batches method result.

Concrete Proportioning:

- All mix designs shall be proportioned in accordance with Section 3.9 on the basis of field experience or trial mixtures per latest edition of ACI 301.
- Trial batches method shall be used. Contractor shall employ and pay for an Testing Laboratory who is accepted to Designer for preparing and reporting proposed mix designs. The Testing Laboratory shall not be the same as used for field ITL. The Testing Laboratory representative shall be required to obtain a representative specimen of the aggregates intended for use in the design mix from the ready-mix concrete supplier.
- The proposed mix design shall be submitted with the accompanying standard deviation analysis or trial batch data. The mix design shall be proportioned to achieve a compressive strength 1200 psi higher than the specified strength. Adjustments to concrete shall not be made at construction site for any reason including the addition of mix-water. All mix materials shall be incorporated together at the point of batching.
- Do not use the same testing agency for field ITL.

Consistency:

- Proportions of aggregate to cement shall be such as to produce a mixture which will work readily into corners and angles of forms and around reinforcement without requiring excessive manipulation or resulting in excessive segregation or water gain at the surface. Proportions of fine aggregate shall lie between 30 percent and 50 percent unless otherwise required by the Designer.
- Methods of measuring material shall be such that proportions can be accurately controlled and easily checked at any time during the Work. Measurements of material for ready-mixed concrete shall conform to the "Standard Specifications for Ready-Mixed Concrete", ASTM Designation C 94.

Air Content:

- All concrete exposed to freezing and thawing and/or required to be watertight shall have an air content at point of placement of 4.5 percent to 7.0 percent. All interior slabs subject to abrasion, shall have a maximum air content of 3 percent.
- All exterior concrete work shall be air-entrained concrete. All concrete admixtures shall be used in complete accordance with the manufacturer's specifications and recommendations.

Water-Cement Ratio: All concrete subjected to freezing and thawing shall have a maximum water-cement ratio of 0.50. All concrete required to be watertight and/or subjected to deicers shall have a maximum water-cement ratio of 0.45.

Slump: Proportion and design mixes to result in concrete slump at point of placement as follows:

- Ramps, slabs, and slopping surfaced: Not more than three (3) inches.
- Reinforced foundation systems: Not less than one (1) inch and not more than four (4) inches.

- Concrete containing HRWR Admixture (Superplasticizer): Not more than six (6) inches after addition of HRWR.
- Other concrete: Not more than four (4) inches.

8.13.11 ADMIXTURE USAGES

Use water-reducing admixture or high-range water-reducing admixture (Superplasticizer) in concrete as required for placement and workability.

Use non-chloride accelerating admixture in concrete slabs placed at ambient temperatures below degrees 50 deg. F (10 deg. C).

Use high-range water-reducing admixture in pumped concrete, concrete for slab-on-grade, Engineerural concrete, parking structure slabs, concrete required to be watertight, and concrete with water/cement ratios below 0.5.

Laboratory Reports: Provide and submit laboratory test reports for concrete materials and mix designs. All such reports will be subject to Designer's approval.

8.13.12 EXECUTION

8.13.13 INSPECTION OF WORK BEFORE PLACING

The Contractor shall inspect the work to receive cast-in-place concrete for deficiencies which would prevent proper execution of the finished work. Do not proceed with placing until such deficiencies are corrected. Do not place concrete on earth until the fill or excavation has been compacted as set forth under Applicable Sections of the Specifications.

Do not place concrete in forms until all foreign matter has been removed from the forms and the reinforcing steel is in proper position for the placement of concrete.

8.13.14 PLACEMENT OF CONCRETE

Preparation of Equipment and Place of Deposit: Before placing concrete, all equipment for mixing and transporting concrete shall be cleaned, all debris and ice removed from place to be occupied by the concrete, forms thoroughly wetted, except in freezing weather, or coated, and reinforcement thoroughly cleaned of ice or other coatings. Water shall be removed from place of deposit before concrete is placed.

Mixing: Concrete shall be mixed until uniform distribution of materials is obtained, and shall be discharged completely before the mixer is recharged. Ready-mix concrete shall be mixed and delivered in accordance with requirements set forth in the "Standard Specifications for Ready-Mixed Concrete", ASTM C94.

Conveying: Concrete shall be conveyed from mixer to place of deposit by methods which will prevent separation or loss of materials. Equipment for chute, pumping, or pneumatically conveying concrete shall be of such size and design as to assure practically a continuous flow of concrete at delivery without separation of materials.

Depositing: Concrete shall be deposited as near as practical to its final position to avoid segregation due to rehandling or flowing. Depositing shall proceed at such a rate that concrete is at all times plastic and flows readily into space between the bars. No concrete that has partially set or been contaminated by foreign material shall be deposited, nor shall rettempered concrete be used. Maximum free-fall of concrete shall not exceed distance specified in ACI 301 and no deviation from the specifications will be permitted. Pouring, when once started, shall be carried on as a continuous operation until the panel or section is completed. The top surfaces shall be generally level. When construction joints are necessary, they shall be made in accordance with the paragraphs entitled, "Construction Joints". Care shall be taken to avoid separation of materials by over-vibration. All concrete shall be thoroughly compacted by suitable means during placing, and thoroughly worked around reinforcement and embedded fixtures and into corners of forms.

8.13.15 JOINTS

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Construction Joints: Locate and install construction joints as indicated or, if not indicated, locate so as not to impair strength and appearance of the structure, as acceptable to the Designer. Provide keyways at least 1-1/2" deep in construction joints in walls, slabs, and between walls and footings unless otherwise shown.

Isolation Joints in Slabs on Ground: Provide isolation joints using expansion joint material in slabs on ground at all points of contact between slabs on ground and vertical surfaces, such as column pedestals, foundation walls, grade beams, etc., and elsewhere as indicated.

Contraction (Control) Joints in Slabs-on-Ground:

- Construct contraction joints in slab-on-ground to form panels of patterns as shown. Use saw cuts 1/8 inch wide by 1/4 slab depth or preformed strips 1/4 inch wide by 1/4 of slab depth, unless otherwise indicated.
- Form contraction joints by inserting premolded plastic, hardboard, or fiberboard strip into fresh concrete until top surface of strip is flush with slab surface. Tool slab edges round on each side of insert. After concrete has cured, remove inserts and clean groove of loose debris.
- Contraction joints in unexposed floor slabs may be formed by saw cuts within 24 hours or use soft cut saw immediately after slab finishing as may be safely done without dislodging aggregate.
- If joint pattern not shown, provide joints not exceeding 15 feet in either direction and located to conform to bay spacing wherever possible.

8.13.16 CLEANING FINISHED EXPOSED CONCRETE SURFACES:

In the event that efflorescence, stains, oil, grease, or any unsightly accumulation of foreign materials are visible on the exposed surfaces of finished concrete, remedial action shall be required to remove these blemishes. Such action may cover all exposed concrete or, when irregular lapping can be avoided, only such parts as are affected by stains of other unsightly appearances. Cleaning shall proceed as follows: Remove blemishes with detergents and scrubbing and a thorough washing with water. Complete all cleaning on any section in one (1) day. Spots or streaks remaining may be hosed down lightly so as not to change the texture of the concrete.

8.13.17 CURING AND PROTECTION

See Section 03350.

8.13.18 TESTING

Testing Agent's Responsibilities:

- ITL shall verify Contractor's proposed materials for compliance with Specifications.
- Review Contractor's proposed mix design. Contractor shall submit mix design to Designer for review and approval.
- Secure production samples of material at plants or stockpiles during course of work and test for compliance with Specifications.
- Conduct strength tests of concrete in accordance with following procedures:
 1. Secure composite samples in accordance with "Method of Sampling Fresh Concrete" (ASTM C172).
 2. Mold and cure four specimens from each sample in accordance with "Standard Method of Making and Curing Test Specimens in the Field", (ASTM C31).
 3. Test two specimens at 7 days (ASTM C39). Test two specimens at 28 days in accordance with "Standard Method of Test for Compressive Strength of Cylindrical

Concrete Specimens" (ASTM C39). One additional cylinder shall be kept 56 days for a reserve. Test evaluation shall be conducted in accordance with provisions of ACI 318. Ultimate strength design shall apply as basis for testing.

4. One sample of four cylinders shall be taken for each 100 cu. yds. or fraction thereof for each mix design of concrete placed in any one day, except that in no case shall given mix design be represented by less than five tests.
5. ITL should record each specimen with air temperature, concrete temperature, general weather conditions (clear, cloudy, windy, etc.) and relative humidity.
6. ITL will report all test results to Owner, Designer, Structural Engineer, Contractor, and Concrete Supplier on same day that tests are made.

8.13.19 REPAIR OF DEFECTIVE AREAS

With prior approval of the Designer, as to method and procedure, all repair of defective areas shall conform to ACI 301, Chapter 9, and materials specified within this section must be used.

All structural repairs shall be made with prior approval of the Designer, as to method and procedure, using the specified epoxy adhesive and/or epoxy mortar. Where epoxy injection procedures must be used, an approved low viscosity epoxy made by the manufacturers previously specified shall be used.

Additional Testing: ITL shall make additional tests of in-place concrete when test results indicated specified concrete strengths and other characteristics have not been attained in the structure, as directed by the Designer. ITL will conduct test to determine adequacy of concrete by cored cylinders complying with ASTM C42, or by other methods as directed. Contractor shall pay for such tests when unacceptable concrete is verified.

END OF SECTION 03300

8.14 SECTION 03350 - CONCRETE FINISHES

8.14.1 GENERAL

8.14.2 RELATED DOCUMENTS

The general provisions of the Contract, including General and Supplementary Conditions and General Requirements, apply to the work specified in this Section.

8.14.3 DESCRIPTION OF WORK

Work Included This Section: Work shall consist of providing specified finishes, including floor hardener, to all Cast-In-Place concrete shown on the Drawings.

Related Work Specified Elsewhere:

- Concrete Walks (02520)
- Concrete Curbs and Gutters (02513)
- Cast-In-Place Concrete (03300)

Floor Flatness/Levelness Tolerances: Contractor's responsibility to conduct floor flatness/levelness tolerances in accordance with the following procedures:

Statistical sampling procedures used to determine characteristics F-numbers include profile data collected using any instrument capable of measuring point elevations on 12-inch (300-mm) centers - optical level, laser level, leveled straightedge with shims and gages, floor profilograph, or hand operated digital readout instrument floor profiler. A standard procedure for determining random-traffic floor profiles is set forth ASTM E-1155, "Standard Method for Determining Floor Flatness and Levelness Using the F-Number System (Inch-Pound System)". Measurements are not taken within 2 ft. of joints or projections through the slab.

Contractor shall report all test results (verbal and graphic) to Designer on same day that tests are made.

8.14.4 PRODUCTS

8.14.5 MATERIALS

Fine Aggregate: ASTM C33, Clean, fine aggregate. Natural sand free from loam, clay, lumps or other deleterious substances.

Portland Cement: ASTM C150, Type I, gray.

Water: Potable, clean, fresh, free from oil, organic matter or other deleterious materials.

Bonding Agent: "Probond ET-150", as manufactured by Protex Industries, Inc., "ColmaFix", as manufactured by Sika Chemical Company. "Flex-Con", as manufactured by Euclid Chemical Company.

Curing Compound and Sealer: See Section 03300.

Epoxy Bonding Compound: 100% solids, 100% reactive, suitable for use on dry or damp surfaces. One of following: "Euco Epoxy No. 452 mv by The Euclid Chemical Company or "Sikadur Hi-Mod" by Sika Chemical Corporation, "Epabond" by L & M Construction Chemical Co., or "Sonobond" by Sonneborn.

Underlayment Compound: See Section 03300.

8.14.6 EXECUTION

8.14.7 GENERAL

Comply with ACI 302.1 R-89 "Guide For Concrete Floor And Slab Construction" and as herein specified.

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8.14.8 CONDITION OF SURFACES

Surfaces to receive bonding grout containing the bonding admixture shall be structurally sound and clean of any material which reduces bonding.

8.14.9 CONCRETE SURFACE REPAIRS

Any concrete which is not formed as shown on the Drawings, or for any reason is out of alignment or level, or shows a defective surface, or shows defects which reduce the structural adequacy of a member or members, shall be considered as not conforming to the intent of these Specifications. Defective concrete work shall be removed from the project by the Contractor at his expense, unless the Designer grants permission to patch the defective area. Permission to patch any such area shall not be considered a waiver of the Designer's right to require complete removal of the defective work if the patching does not, in Designer's opinion, satisfactorily restore the quality and appearance of the surface, or if patching does not restore the structural adequacy of member(s).

After removing forms, inspect all concrete surfaces. Patch any pour joints, voids, honeycomb, stone pockets, or other defective areas permitted by the Designer to be patched, and all tie holes. Where necessary, chip away defective areas to a depth of not less than 1", with the edges perpendicular to the surface. The areas to be patched and a space at least 6" wide entirely surrounding it shall be wetted to prevent absorption of water from the patching mortar. A grout of equal parts Portland cement and sand with a 50/50 mixture of the bonding admixture and water to produce a consistency of thick paint shall then be well brushed into the surface, followed immediately by the patching mortar. The patching mortar shall be made of the same material (and of approximately the same proportions) as used for the concrete, except that the coarse aggregate shall be omitted. The mortar shall not be richer than 1 part cement to 3 parts sand. The amount of mixing water shall be as little as is consistent with the requirements of handling and placing. The mortar shall be retempered without the addition of water by allowing it to stand for a period of one (1) hour, during which time it shall be mixed occasionally to prevent setting.

Compact mortar thoroughly into place, and screed off so as to leave the patch slightly higher than the surrounding surface. Leave patch undisturbed for a period of 1 to 2 hours to permit initial shrinkage before final finishing. Finish patch in such a manner as to match adjoining surface. On exposed surface where unlined forms have been used, obtain the final finish by striking off the surface with a straight-edge spanning the patch, and held parallel to the direction of the form marks. All patches shall be cured in accordance with curing requirements for the surface in which the patch occurs. Keep patch moist for not less than three (3) days after installation.

Tie holes left by the withdrawal of rods, or the holes left by the removal of ends of ties shall be filled solidly with mortar after first being wet thoroughly. For holes passing entirely through a wall, a plunger-type grout gun shall be used to force the mortar through the wall, starting at the back face. A piece of burlap or canvas shall be held over the hole on the outside; and when the hole is completely filled, the excess mortar shall be struck off with the cloth flush with the surface. Holes not passing entirely through the walls shall be filled with a small tool that will permit packing the hole solidly with mortar. Any excess mortar at the surface of the wall shall be struck off flush with a cloth.

All structural repairs shall be made with prior approval of the Designer, as to method and procedure, using the specified epoxy adhesive and/or epoxy mortar.

FINISHES ON FORMED SURFACES: Upon completion of patching, surfaces of concrete shall be finished as follows:

- Grout and Rubber Float Finish:
 1. All exterior and interior concrete surfaces which will not be covered by other construction, and which will be visible, shall receive a grout and rubber float finish.
 2. Remove all fins and projections. Rub surface lightly with dry, coarse carborundum stone, with concrete dry. Use no water at this stage. Cure concrete for three more days.

3. Following cure, fog down surface until thoroughly saturated (2 to 6 hours). Apply grout consisting of 1 part Portland cement and 1-1/2 parts of fine sand (passed through No. 50 sieve) with a 50/50 mixture of the bonding admixture and water to produce a consistency of thick paint. Apply grout uniformly with a brush, completely filling all air bubbles and holes.
4. Scour thoroughly with 80 grit carborundum stone or cork float. Do not add more water. After making surface uniform in color and texture, let stand until grout becomes tacky. Remove excess grout with rubber float. No tool marks shall be visible.
5. Cure for 48 hours with continuously wet burlap, or by continuous dampening with fog spray.

Common Finish: Common finish shall be produced by filling smoothly all tie holes, honeycomb, and other depressions, knocking off and evening up burrs and form marks. Common finish shall be confined to concrete surfaces which will be covered by other construction and which will not be visible.

Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces occurring adjacent to formed surfaces, strike-off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces unless otherwise indicated.

8.14.10 MONOLITHIC SLAB FINISHES

Scratch Finish: Apply scratch finish to monolithic slab surfaces to receive concrete floor topping or thick set mortar setting beds for tile, and other bonded applied cementitious finish flooring material, and as otherwise indicated.

Slope surfaces uniformly to drains where required. After leveling, roughen surface before final set with stiff brushes or brooms.

Float Finish: Apply float finish to monolithic slab surfaces to receive trowel finish and other finishes as hereinafter specified, and slab surfaces which are to be covered with membrane or elastic waterproofing, and as otherwise indicated.

After the concrete has been placed, consolidated, struck off, and leveled, the concrete shall not be worked further until ready for floating. Floating shall begin when the water sheen has disappeared and when the surface has stiffened sufficiently to permit the operation. During or after the first floating, plane of surface shall be checked with a 10-ft straight edge applied at not less than two different angles. All high spots shall be cut down and all low spots filled during this procedure to produce a surface of not less than Ff 18 - Fl 18 tolerance throughout. The slab shall then be floated immediately to a uniform, smooth, granular texture.

Trowel Finish: Apply trowel finish to monolithic slab surfaces (including interior ramps) to be exposed to view and slab surfaces to be covered with resilient flooring, carpet, ceramic or quarry tile, paint, or other thin film finish coating system.

After floating, begin first trowel finish operation using a power-driven trowel. Begin final trowel when surface produces a ringing sound as trowel is moved over surface. Consolidate concrete surface by final hand-trowel operation, free of trowel marks, uniform in texture and appearance, and with surface leveled to tolerances of Ff 20 - Fl 20. Grind smooth surface defects that would telegraph through applied floor covering system.

Non-slip Broom Finish: Apply non-slip broom finish only to exterior concrete surfaces.

Immediately after float finishing, slightly roughen concrete surface by sweeping with fiber-bristle broom perpendicular to main traffic route. Coordinate required final finish with Designer before application.

Patching and Leveling of Concrete Floors: Slabs not meeting required tolerances including strength shall be patched and leveled at no additional cost to the Owner. Thoroughly clean, dampen with water, and brush coat

the area to be patched with specified bonding agent. Place patching and leveling mortar as directed by manufacturer before bonding compound has dried.

8.14.11 CONCRETE CURING AND PROTECTION

General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. In hot, dry, and windy weather, protect concrete from rapid moisture loss before and during finishing operations with an evaporation-control material. Start initial curing as soon as free water has disappeared from concrete surface after placing and finishing. Weather permitting, keep continuously moist for not less than 7 days.

Curing Method: Perform curing of concrete by moisture curing, by moisture-retaining cover curing, by curing and sealing compound, and by combinations thereof, as herein specified. Curing methods to be used shall be submitted to Designer/Engineer for approval before beginning work.

Provide Moisture Curing by one of following methods:

- Keep concrete surface continuously wet by covering with water.
- Use continuous water-fog spray.
- Cover concrete surface with specified absorptive cover, thoroughly saturate cover with water, and keep continuously wet. Place absorptive cover to provide coverage of concrete surfaces and edges, with 4-inch lap over adjacent absorptive covers.
- Moisture Curing shall be used in all exterior plazas and terraces.

Provide Moisture-Cover Curing as follows:

- Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width with sides and ends lapped at least 3 inches and sealed by waterproof tape or adhesive. Immediately repair any holes or tears during curing period using cover material and waterproof tape.

Provide Curing and Sealing Compound to exposed interior slabs and to exterior slabs, walks, and curbs as follows:

- Apply specified clear curing and sealing compound to concrete slabs as soon as final finishing operations are complete (within 2 hours and after surface water sheen has disappeared). Apply uniformly in continuous operation by power spray or roller in accordance with manufacturer's directions. Recoat areas subjected to heavy rainfall within 3 hours after initial application. Maintain continuity of coating and repair damage during curing period.
- Use membrane curing compounds that will not affect surfaces to be covered with finish materials applied directly to concrete.

Curing Formed Surfaces: Cure formed concrete surfaces, including supported slabs, and other similar surfaces, by moisture curing with forms in place for full curing period; or until forms are removed. If forms are removed before curing period is complete, apply curing and sealing compound to damp surface as soon as water film has disappeared.

Curing Unformed Surfaces: Cure unformed surfaces, such as slabs, floor topping, and other flat surfaces, by applying one of above specified curing method. Concrete surfaces which receive liquid floor hardener or thin film finish coating system shall be final cured by use of moisture-retaining cover, unless otherwise directed.

8.14.12 PROTECTION

Protect freshly placed concrete from damage or injury that may mark or injure the finish surfaces of the concrete.

END OF SECTION 03350

8.15 SECTION 05120 - STRUCTURAL STEEL

8.15.1 GENERAL

8.15.2 RELATED DOCUMENTS

Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

8.15.3 SUMMARY

This Section includes fabrication and erection of structural steel work, as shown on drawings including schedules, notes, and details showing size and location of members, typical connections, and types of steel required.

1. Structural steel is that work defined in American Institute of Steel Construction (AISC) "Code of Standard Practice" and as otherwise shown on drawings.
2. Miscellaneous Metal Fabrications are specified elsewhere in Division 5.
3. Refer to Division 3 for anchor bolt installation in concrete, Division 4 for anchor bolt installation in masonry.

8.15.4 SUBMITTALS

General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.

Product data or manufacturer's specifications and installation instructions for following products. Include laboratory test reports and other data to show compliance with specifications (including specified standards).

1. Structural steel (each type), including certified copies of mill reports covering chemical and physical properties.
2. High-strength bolts (each type), including nuts and washers.
3. Structural steel primer paint.
4. Shrinkage-resistant grout.

Shop drawings prepared under supervision of a licensed Structural Engineer, including complete details and schedules for fabrication and assembly of structural steel members, procedures, and diagrams.

1. Include details of cuts, connections, camber, holes, and other pertinent data. Indicate welds by standard AWS symbols and show size, length, and type of each weld.
2. Provide setting drawings, templates, and directions for installation of anchor bolts and other anchorages to be installed as work of other sections.

Test reports conducted on shop- and field-bolted and welded connections. Include data on type(s) of tests conducted and test results.

Certified copies of each survey conducted by a licensed Land Surveyor, showing elevations and locations of base plates and anchor bolts to receive structural steel and final elevations and locations for major members. Indicate discrepancies between actual installation and contract documents.

8.15.5 QUALITY ASSURANCE

Codes and Standards: Comply with provisions of following, except as otherwise indicated:

1. American Institute of Steel Construction (AISC) "Code of Standard Practice for Steel Buildings and Bridges."
2. AISC "Specifications for Structural Steel Buildings," including "Commentary."
3. "Specifications for Structural Joints using ASTM A 325 or A 490 Bolts" approved by the Research Council on Structural Connections.

4. American Welding Society (AWS) D1.1 "Structural Welding Code - Steel."
5. ASTM A 6 "General Requirements for Delivery of Rolled Steel Plates, Shapes, Sheet Piling and Bars for Structural Use."

Qualifications for Welding Work: Qualify welding procedures and welding operators in accordance with AWS "Qualification" requirements.

1. Provide certification that welders to be employed in work have satisfactorily passed AWS qualification tests.
2. If recertification of welders is required, retesting will be Contractor's responsibility.

8.15.6 DELIVERY, STORAGE, AND HANDLING

Deliver materials to site at such intervals to ensure uninterrupted progress of work.

Deliver anchor bolts and anchorage devices, which are to be embedded in cast-in-place concrete or masonry, in ample time to not to delay work.

Store materials to permit easy access for inspection and identification. Keep steel members off ground by using pallets, platforms, or other supports. Protect steel members and packaged materials from erosion and deterioration. If bolts and nuts become dry or rusty, clean and relubricate before use.

- Do not store materials on structure in a manner that might cause distortion or damage to members or supporting structures. Repair or replace damaged materials or structures as directed.

8.15.7 PRODUCTS

8.15.8 MATERIALS

Metal Surfaces, General: For fabrication of work that will be exposed to view, use only materials that are smooth and free of surface blemishes including pitting, rust and scale seam marks, roller marks, rolled trade names, and roughness. Remove such blemishes by grinding, or by welding and grinding, prior to cleaning, treating, and applying surface finishes.

Structural Steel Shapes, Plates, and Bars: ASTM A 36 or ASTM A 572, Grade 50, as indicated on the Drawings.

Cold-Formed Steel Tubing: ASTM A 500, Grade B, $F_y = 46,000$ psi.

Steel Pipe: ASTM A 53, Type E, Grade B; or ASTM A 501.

- Finish: Black, except where indicated to be galvanized.

Anchor Bolts: ASTM A 307 or ASTM A 46, nonheaded type unless otherwise indicated.

Unfinished Threaded Fasteners: ASTM A 307, Grade A, regular low-carbon steel bolts and nuts.

- Provide hexagonal heads and nuts for all connections.

High-Strength Threaded Fasteners: Heavy hexagon structural bolts, heavy hexagon nuts, and hardened washers, as follows:

- Quenched and tempered medium-carbon steel bolts, nuts, and washers, complying with ASTM A 325.

Electrodes for Welding: Comply with AWS Code.

Structural Steel Primer Paint: Fabricator's standard rust-inhibiting primer. Primer shall be in compliance with FSTT-P-664.

Metallic Shrinkage-Resistant Grout: Premixed factory-packaged ferrous aggregate grouting compound.

- Products: Subject to compliance with requirements, provide one of the following:
 1. Firmix; Euclid Chemical Company
 2. Ferrogrout; L & M Construction Chemicals, Inc.
 3. Embeco 885; Master Builders
 4. Kemox G; Sika Corporation.

Nonmetallic Shrinkage-Resistant Grout: Premixed, nonmetallic, noncorrosive, nonstaining product containing selected silica sands, Portland cement, shrinkage compensating agents, plasticizing and water-reducing agents, complying with CE-CRD-C621.

- Products: Subject to compliance with requirements, provide one of the following:
 1. Euco N.S.; Euclid Chemical Company
 2. Crystex; L & M Construction Chemicals, Inc.
 3. Masterflow 713; Master Builders
 4. Five Star Grout; U.S. Grout Corp.

8.15.9 FABRICATION

Shop Fabrication and Assembly: Fabricate and assemble structural assemblies in shop to greatest extent possible. Fabricate items of structural steel in accordance with AISC Specifications and as indicated on final shop drawings.

- Properly mark and match-mark materials for field assembly. Fabricate for delivery sequence that will expedite erection and minimize field handling of materials.
- Where finishing is required, complete assembly, including welding of units, before start of finishing operations. Provide finish surfaces of members exposed in final structure free of markings, burrs, and other defects.

Connections: Weld or bolt shop connections, as indicated.

Bolt field connections, except where welded connections or other connections are indicated.

- Provide high-strength threaded fasteners for principal bolted connections, except where unfinished bolts are indicated.

Provide unfinished threaded fasteners for only bolted connections of secondary framing members to primary members (including purlins, girts, and other framing members taking only nominal stresses) and for temporary bracing to facilitate erection. High-Strength Bolted Construction: Install high-strength threaded fasteners in accordance with AISC "Specifications for Structural Joints using ASTM A 325 or A 490 Bolts."

Welded Construction: Comply with AWS Code for procedures, appearance and quality of welds, and methods used in correcting welding work.

Assemble and weld built-up sections by methods that will produce true alignment of axes without warp.

Build up welded door frames attached to structural steel framing. Weld exposed joints continuously and grind smooth. Plug-weld steel bar stops to frames, except where shown removable. Secure removable stops to frames with countersunk, cross-recessed head machine screws, uniformly spaced not more than 10 inches o.c., unless otherwise indicated.

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Holes for Other Work: Provide holes required for securing other work to structural steel framing and for passage of other work through steel framing members, as shown on final shop drawings.

Provide threaded nuts welded to framing and other specialty items as indicated to receive other work.

Cut, drill, or punch holes perpendicular to metal surfaces. Do not flame-cut holes or enlarge holes by burning. Drill holes in bearing plates.

8.15.10 SHOP PAINTING

General: Shop-paint structural steel, except those members or portions of members to be embedded in concrete or mortar. Paint embedded steel that is partially exposed on exposed portions and initial 2 inches of embedded areas only.

- Do not paint surfaces to be welded or high-strength bolted with friction-type connections.
- Apply 2 coats of paint to surfaces that are inaccessible after assembly or erection. Change color of second coat to distinguish it from first.

Surface Preparation: After inspection and before shipping, clean steelwork to be painted. Remove loose rust, loose mill scale, and spatter, slag, or flux deposits. Clean steel in accordance with Steel Structures Painting Council (SSPC) as follows:

- SP-3 "Power-Tool Cleaning."
- Painting: Immediately after surface preparation, apply structural steel primer paint in accordance with manufacturer's instructions and at a rate to provide dry film thickness of not less than 1.5 mils. Use painting methods that result in full coverage of joints, corners, edges, and exposed surfaces.

8.15.11 SOURCE QUALITY CONTROL

General: Materials and fabrication procedures are subject to inspection and tests in mill, shop, and field, conducted by a qualified inspection agency. Such inspections and tests will not relieve Contractor of responsibility for providing materials and fabrication procedures in compliance with specified requirements.

Promptly remove and replace materials or fabricated components that do not comply.

Design of Members and Connections: Details shown are typical; similar details apply to similar conditions, unless otherwise indicated. Verify dimensions at site whenever possible without causing delay in the work.

- Promptly notify Designer whenever design of members and connections for any portion of structure are not clearly indicated.

8.15.12 EXECUTION

8.15.13 ERECTION

Surveys: Employ a licensed land surveyor for accurate erection of structural steel. Check elevations of concrete and masonry bearing surfaces, and locations of anchor bolts and similar devices, before erection work proceeds, and report discrepancies to Designer. Do not proceed with erection until corrections have been made or until compensating adjustments to structural steel work have been agreed upon with Designer.

Temporary Shoring and Bracing: Provide temporary shoring and bracing members with connections of sufficient strength to bear imposed loads. Remove temporary members and connections when permanent members are in place and final connections are made. Provide temporary guy lines to achieve proper alignment of structures as erection proceeds.

Temporary Planking: Provide temporary planking and working platforms as necessary to effectively complete work.

Setting Bases and Bearing Plates: Clean concrete and masonry bearing surfaces of bond-reducing materials and roughen to improve bond to surfaces. Clean bottom surface of base and bearing plates.

- Set loose and attached base plates and bearing plates for structural members on wedges or other adjusting devices.
- Tighten anchor bolts after supported members have been positioned and plumbed. Do not remove wedges or shims, but if protruding, cut off flush with edge of base or bearing plate prior to packing with grout.
- Pack grout solidly between bearing surfaces and bases or plates to ensure that no voids remain. Finish exposed surfaces, protect installed materials, and allow to cure.
- For proprietary grout materials, comply with manufacturer's instructions.

Field Assembly: Set structural frames accurately to lines and elevations indicated. Align and adjust various members forming part of complete frame or structure before permanently fastening. Clean bearing surfaces and other surfaces that will be in permanent contact before assembly. Perform necessary adjustments to compensate for discrepancies in elevations and alignment.

Level and plumb individual members of structure within specified AISC tolerances.

Establish required leveling and plumbing measurements on mean operating temperature of structure. Make allowances for difference between temperature at time of erection and mean temperature at which structure will be when completed and in service.

Splice members only where indicated and accepted on shop drawings.

Erection Bolts: On exposed welded construction, remove erection bolts, fill holes with plug welds, and grind smooth at exposed surfaces.

- Comply with AISC Specifications for bearing, adequacy of temporary connections, alignment, and removal of paint on surfaces adjacent to field welds.
- Do not enlarge unfair holes in members by burning or by using drift pins, except in secondary bracing members. Ream holes that must be enlarged to admit bolts.

Gas Cutting: Do not use gas cutting torches in field for correcting fabrication errors in primary structural framing. All structural steel requiring corrective fabrication shall be returned to Fabricator's shop for modification required.

Touch-Up Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas of shop paint. Apply paint to exposed areas using same material as used for shop painting.

- Apply by brush or spray to provide minimum dry film thickness of 1.5 mils.

8.15.14 QUALITY CONTROL

Engage an independent testing and inspection agency (ITL) to inspect high-strength bolted connections and welded connections and to perform tests and prepare test reports.

ITL shall conduct and interpret tests, shall state in each report whether test specimens comply with requirements, and shall specifically state any deviations.

The Contractor shall correct deficiencies in structural steel work which ITL reports have indicated are not in compliance with requirements. Additional tests as necessary shall be performed by the ITL to reconfirm any non-

compliance of original work. Such tests and/or additional services of the Designer made necessary by such non-compliance shall be paid for by the Contractor.

8.15.15 SHOP AND FIELD WELDING INSPECTION/TESTING

ITL shall obtain copies of all welder inspections/tests as required during fabrication of structural steel and will submit reports to the Designer which include shop welder's certifications, type and location of all defects found during inspection, measures required/performed to correct such defects, statements of final approval of all welding of shop connections and other fabrication data/information pertinent to safe/proper welding of shop connections.

ITL shall inspect/test during fabrication and erection of structural steel assemblies in accordance with AWS Structural Welding Code and follows:

- Perform visual inspections of all welds for size, pinholes, undercut, and overlap. Any visual indication of cracks shall be checked further using magnetic particle testing methods.
- Perform non-destructive tests of welds on 10% of member as follows. Owner reserves right to require additional tests. If any test fails, contractor shall bear the testing cost; otherwise, owner shall bear testing cost.
- Fillet Welds - Visual inspection per member. Magnetic particle testing may be used.
- Partial Penetration Welds - One spot test per weld using ultrasonic testing techniques.
- Full Penetration Welds - One spot test per weld for shop welding and the entire length of all field welds. Use radio-graphic or ultrasonic testing techniques.

All welds that fail shall be rewelded and retested until they pass. Cost of all retesting shall be born by Contractor.

Perform additional tests, to reconfirm any noncompliance of the original work, and as may be necessary to show compliance of corrected work. Cost of all retesting shall be borne by Contractor.

8.15.16 HIGH STRENGTH BOLTED CONNECTIONS

ITL shall inspect in accordance with AISC Specification for Structural Joints, and as follows:

- Visually inspect all bolts.
- Check joint tightening per the proper AISC Test Procedure for that tightening method used:
 1. Minimum of two bolts of every third connection between floor beams and girders.
 2. Minimum of two bolts of every connection between girders and columns.
- All bolted connections that fail shall be corrected and all bolts in that connection shall be retested by ITL. Cost of retests on connections that fail shall be borne by Contractor.

END OF SECTION 05120

8.16 SECTION 05400 - COLD-FORMED METAL FRAMING

8.16.1 GENERAL

8.16.2 RELATED DOCUMENTS

Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this section.

8.16.3 SUMMARY

Types of cold-formed metal framing units include the following:

- C-shaped steel joists.

8.16.4 SUBMITTALS

General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.

- Product data and installation instructions for each item of cold-formed metal framing and accessories.
 - Shop drawings for special components and installations not fully dimensioned or detailed in manufacturer's product data.
1. Include placing drawings for framing members showing size and gage designations, number, type, location, and spacing. Indicate supplemental strapping, bracing, splices, bridging, accessories, and details required for proper installation.

8.16.5 QUALITY ASSURANCE

Component Design: Calculate structural properties of studs in accordance with American Iron and Steel Institute (AISI) "Specification for Design of Cold-Formed Steel Structural Members."

Welding: Use qualified welders and comply with American Welding Society (AWS) D1.3, "Structural Welding Code - Sheet Steel."

8.16.6 PRODUCTS

8.16.7 MANUFACTURERS

Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated in the work include but are not limited to the following:

1. Alabama Metal Industries Corp.
2. Dale Industries, Inc.
3. Dietrich Industries, Inc.
4. Marino Industries, Inc.
5. Superior Steel Studs, Inc.
6. USG Industries
7. United States Steel
8. Wheeling Corrugating Co.

8.16.8 METAL FRAMING

System Components: Manufacturers' standard load-bearing studs of type, size, shape, and gage as indicated. With each type of metal framing required, provide manufacturer's standard, steel runners (tracks), blocking, lintels, clip angles, shoes, reinforcements, fasteners, and accessories for applications indicated, as needed to provide a complete metal framing system.

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Materials and Finishes:

- For 16-gage and heavier units, fabricate metal framing components of structural quality steel sheet with a minimum yield point of 40,000 psi; ASTM A 446, A 570, or A 611.
- For 18-gage and lighter units, fabricate metal framing components of commercial quality steel sheet with a minimum yield point of 33,000 psi; ASTM A 446, A 570, or A 611.
- Provide galvanized finish to metal framing components complying with ASTM A 525 for minimum G 60 coating.
- Finish of installation accessories to match that of main framing components, unless otherwise indicated.

Fasteners: Provide nuts, bolts, washers, screws, and other fasteners with corrosion-resistant plated finish.

Electrodes for Welding: Comply with AWS Code and as recommended by stud manufacturer.

Galvanizing Repair: Where galvanized surfaces are damaged, prepare surfaces and repair in accordance with procedures specified in ASTM A 780.

8.16.9 FABRICATION

General: Framing components may be prefabricated into assemblies before erection. Fabricate panels plumb, square, true to line, and braced against racking with joints welded. Perform lifting of prefabricated units to prevent damage or distortion.

Fabricate units in jig templates to hold members in proper alignment and position and to assure consistent component placement.

Fastenings: Attach similar components by welding. Attach dissimilar components by welding, bolting, or screw fasteners, as standard with manufacturer.

Wire tying of framing components is not permitted.

Fabrication Tolerances: Fabricate units to a maximum allowable tolerance variation from plumb, level, and true to line of 1/8 inch in 10 feet.

8.16.10 EXECUTION

8.16.11 INSTALLATION

General: Install metal framing systems in accordance with manufacturer's printed or written instructions and recommendations.

Erection Tolerances: Bolt or weld wall panels (at both horizontal and vertical junctures) to produce flush, even, true-to-line joints.

- Maximum variation in plane and true position between prefabricated assemblies should not exceed 1/16 inch.

Installation of Studs: Install straight and plumb, complete with bracing and reinforcing as indicated on drawings. Provide not less than 1-1/2-inch end bearing.

Field Painting: Touch-up damaged shop-applied protective coatings. Use galvanizing repair system for galvanized surfaces.

END OF SECTION 05400

8.17 SECTION 05500 - METAL FABRICATIONS

8.17.1 GENERAL

8.17.2 RELATED DOCUMENTS

Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

8.17.3 SUMMARY

This Section includes the following metal fabrications:

- Rough hardware
- Ladders
- Insect screen
- Loose bearing and leveling plates
- Loose steel lintels
- Shelf and relieving angles
- Miscellaneous framing and supports for the following:
 1. Overhead doors
 2. Insect screen frame
 3. Applications where framing and supports are not specified in other sections
- Miscellaneous steel trim
- Structural steel door frames
- Pipe bollards
- All other supports or fabrications required not detailed on structural drawings

Related Sections: The following Sections contain requirements that relate to this Section:

- Division 5 Section "Structural Steel" for structural steel framing system components.

8.17.4 SUBMITTALS

General: Submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Sections.

Shop drawings shall be prepared under supervision of a Professional Engineer registered in the State of South Carolina with detailing fabrication and erection of each metal fabrication indicated. Include plans, elevations, sections, and details of metal fabrications and their connections. Show anchorage and accessory items. Provide templates for anchors and bolts specified for installation under other Sections.

Samples representative of materials and finished products as may be requested by Engineer.

Welder certificates signed by Contractor certifying that welders comply with requirements specified under the "Quality Assurance" Article.

8.17.5 QUALITY ASSURANCE

Fabricator Qualifications: Firm experienced in producing metal fabrications similar to those indicated for this Project with a record of successful in-service performance, and with sufficient production capacity to produce required units without delaying the Work.

Welding Standards: Comply with applicable provisions of AWS D1.1 "Structural Welding Code--Steel," AWS D1.2 "Structural Welding Code--Aluminum," and AWS D1.3 "Structural Welding Code--Sheet Steel."

- Certify that each welder has satisfactorily passed AWS qualification tests for welding processes involved and, if pertinent, has undergone recertification.

8.17.6 PROJECT CONDITIONS

Field Measurements: Check actual locations of walls and other construction to which metal fabrications must fit by accurate field measurements before fabrication. Show recorded measurements on final shop drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

8.17.7 PRODUCTS

8.17.8 FERROUS METALS

Metal Surfaces, General: For metal fabrications exposed to view in the completed Work, provide materials selected for their surface flatness, smoothness, and freedom from surface blemishes. Do not use materials with exposed pitting, seam marks, roller marks, rolled trade names, or roughness.

Steel Plates, Shapes, and Bars: ASTM A 36.

Steel Tubing: Product type (manufacturing method) and as follows:

- Cold-Formed Steel Tubing: ASTM A 500.
 1. For exterior installations and where indicated, provide tubing with hot-dip galvanized coating per ASTM A 53.

Steel Pipe: ASTM A 53, standard weight (schedule 40), unless otherwise indicated, or another weight required by structural loads.

Galvanized finish for exterior installations and where indicated.

Gray-Iron Castings: ASTM A 48, Class 30.

Malleable-Iron Castings: ASTM A 47, Grade 32510 (ASTM A 47M, Grade 22010).

Cast-in-Place Anchors in Concrete: Anchors of type indicated below, fabricated from corrosion-resistant materials capable of sustaining, without failure, the load imposed within a safety factor of 4, as determined by testing per ASTM E 488, conducted by a qualified independent testing agency.

- Threaded or wedge type; galvanized ferrous castings, either ASTM A 47 (ASTM A 47M) malleable iron or ASTM A 27/A 27M cast steel. Provide bolts, washers, and shims as required, hot-dip galvanized per ASTM A 153.

Welding Rods and Bare Electrodes: Select according to AWS specifications for the metal alloy to be welded.

8.17.9 ALUMINUM

Aluminum Extrusions: ASTM B 221 (ASTM B 221M), alloy 6063-T6.

Aluminum-Alloy Rolled Tread Plate: ASTM B 632 (ASTM B 632M) Pattern 1, alloy 6061-T6.

Aluminum Screen (Mesh): Standard 18 x 14 mesh aluminum mounted in extruded aluminum rewirable frames.

8.17.10 PAINT

Shop Primer for Ferrous Metal: Fast-curing, lead- and chromate-free, universal modified-alkyd primer complying with performance requirements of FS TT-P-664, selected for good resistance to normal atmospheric corrosion,

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compatibility with finish paint systems indicated, and capability to provide a sound foundation for field-applied topcoats despite prolonged exposure.

Galvanizing Repair Paint: High-zinc-dust-content paint for regalvanizing welds in galvanized steel, with dry film containing not less than 94 percent zinc dust by weight, and complying with DOD-P-21035 or SSPC-Paint 20.

Bituminous Paint: Cold-applied asphalt mastic complying with SSPC-Paint 12, except containing no asbestos fibers.

8.17.11 FASTENERS

General: Provide plated fasteners complying with ASTM B 633, Class Fe/Zn 25 for electrodeposited zinc coating, for exterior use or where built into exterior walls. Select fasteners for the type, grade, and class required.

Bolts and Nuts: Regular hexagon-head bolts, ASTM A 307, Grade A (ASTM F 568, Property Class 4.6), with hex nuts, ASTM A 563 (ASTM A 563M), and, where indicated, flat washers.

Machine Screws: ANSI B18.6.3.

Plain Washers: Round, carbon steel, ANSI B18.22.1 (ANSI B18.22M).

Lock Washers: Helical, spring type, carbon steel, ANSI B18.21.1.

Expansion Anchors: Anchor bolt and sleeve assembly of material indicated below with capability to sustain, without failure, a load equal to 6 times the load imposed when installed in unit masonry and equal to 4 times the load imposed when installed in concrete as determined by testing per ASTM E 488 conducted by a qualified independent testing agency.

Material: Carbon steel components zinc-plated to comply with ASTM B 633, Class Fe/Zn 5.

Material: Group 1 alloy 304 or 316 stainless-steel bolts and nuts complying with ASTM F 593 (ASTM F 738M) and ASTM F 594 (ASTM F 836M).

Toggle Bolts: FS FF-B-588, tumble-wing type, class and style as required.

8.17.12 GROUT

Nonshrink, Metallic Grout: Factory-packaged, ferrous-aggregate grout complying with ASTM C 1107, specifically recommended by manufacturer for heavy-duty loading applications.

- **Available Products:** Subject to compliance with requirements, products that may be incorporated in the Work include, but are not limited to, the following:
- **Nonshrink, Metallic Grouts:**
 1. Supreme Plus; Cormix Construction Chemicals
 2. Hi Mod Grout; Euclid Chemical Company
 3. Embeco 885 and 636; Master Builders Technologies, Inc.
 4. Ferrolith G Redi-Mix and G-NC; Sonneborn Building Products--ChemRex, Inc.
 5. Met-ox; The Spray-Cure Company

8.17.13 CONCRETE FILL

Concrete Materials and Properties: Comply with requirements of Division 3 Section "Cast-in-Place Concrete" for normal-weight, air-entrained, ready-mix concrete with a minimum 28-day compressive strength of 3000 psi (20 MPa), unless higher strengths are indicated.

8.17.14 FABRICATION, GENERAL

Form metal fabrications from materials of size, thickness, and shapes indicated but not less than that needed to comply with performance requirements indicated. Work to dimensions indicated or accepted on shop drawings, using proven details of fabrication and support. Use type of materials indicated or specified for various components of each metal fabrication.

Form exposed work true to line and level with accurate angles and surfaces and straight sharp edges.

Allow for thermal movement resulting from the following maximum change (range) in ambient temperature in the design, fabrication, and installation of installed metal assemblies to prevent buckling, opening up of joints, and overstressing of welds and fasteners. Base design calculations on actual surface temperatures of metals due to both solar heat gain and nighttime sky heat loss.

- Temperature Change (Range): 100 deg F (55.5 deg C).

Shear and punch metals cleanly and accurately. Remove burrs.

Ease exposed edges to a radius of approximately 1/32 inch (1 mm), unless otherwise indicated. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work. Remove sharp or rough areas on exposed traffic surfaces.

Weld corners and seams continuously to comply with the following:

- Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
- Obtain fusion without undercut or overlap.
- Remove welding flux immediately.
- At exposed connections, finish exposed welds and surfaces smooth and blended so that no roughness shows after finishing, and contour of welded surface matches those adjacent.

Form exposed connections with hairline joints, flush and smooth, using concealed fasteners wherever possible. Use exposed fasteners of type indicated or, if not indicated, Phillips flat-head (countersunk) screws or bolts. Locate joints where least conspicuous.

Provide for anchorage of type indicated; coordinate with supporting structure. Fabricate and space anchoring devices to secure metal fabrications rigidly in place and to support indicated loads.

Shop Assembly: Preassemble items in shop to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Use connections that maintain structural value of joined pieces. Clearly mark units for reassembly and coordinated installation.

Cut, reinforce, drill, and tap metal fabrications as indicated to receive finish hardware, screws, and similar items.

Fabricate joints that will be exposed to weather in a manner to exclude water, or provide weep holes where water may accumulate.

8.17.15 ROUGH HARDWARE

Furnish bent, or otherwise custom-fabricated, bolts, plates, anchors, hangers, dowels, and other miscellaneous steel and iron shapes as required for framing and supporting woodwork, and for anchoring or securing woodwork to concrete or other structures. Straight bolts and other stock rough hardware items are specified in Division 6 Sections.

Fabricate items to sizes, shapes, and dimensions required. Furnish steel washers.

8.17.16 STEEL LADDERS

General: Fabricate ladders for the locations shown, with dimensions, spacings, details, and anchorages as indicated. Comply with requirements of OSHA.

Siderails: Continuous, steel, 1/2-by-2-1/2-inch (12-by-64-mm) flat bars, with eased edges, spaced 18 inches (460 mm) apart.

Bar Rungs: 3/4-inch- (19-mm-) diameter steel bars, spaced 12 inches (300 mm) o.c.

Fit rungs in centerline of side rails, plug weld and grind smooth on outer rail faces.

Support each ladder at top and bottom and at intermediate points spaced not more than 5 feet (1.5 m) o.c. with welded or bolted steel brackets.

- Size brackets to support design dead and live loads indicated and to hold centerline of ladder rungs clear of the wall surface by not less than 7 inches (180 mm).
- Extend side rails above top rung, and return rails to wall or structure unless other secure handholds are provided.

Provide nonslip surfaces on top of each rung by coating with abrasive material metallurgically bonded to the rung by a proprietary process.

- Available Products: Subject to compliance with requirements, products that may be incorporated in the Work include, but are not limited to, the following:

1. Mebac, IKG Borden
2. SLIP-NOT, W. S. Molnar Co.

8.17.17 LOOSE BEARING AND LEVELING PLATES

Provide loose bearing and leveling plates for steel items bearing on masonry or concrete construction, made flat, free from warps or twists, and of the required thickness and bearing area. Drill plates to receive anchor bolts and for grouting as required. Galvanize after fabrication.

8.17.18 LOOSE STEEL LINTELS

Fabricate loose structural steel lintels from steel angles and shapes of size indicated for openings and recesses in masonry walls and partitions at locations indicated.

Weld adjoining members together to form a single unit where indicated.

Size loose lintels for equal bearing of 1 inch per foot (85 mm per meter) of clear span but not less than 8 inches (200 mm) bearing at each side of openings, unless otherwise indicated.

Galvanize loose steel lintels located in exterior walls.

8.17.19 SHELF AND RELIEVING ANGLES

Fabricate shelf and relieving angles from steel angles of sizes indicated and for attachment to concrete framing. Provide slotted holes to receive 3/4-inch (19-mm) bolts, spaced not more than 6 inches (150 mm) from ends and not more than 24 inches (600 mm) o.c., unless otherwise indicated.

For cavity walls, provide vertical channel brackets to support shelf/relieving angles from back-up masonry and concrete. Align expansion joints in angles with indicated control and expansion joints in cavity wall exterior wythe.

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8.17.20 MISCELLANEOUS FRAMING AND SUPPORTS

General: Provide steel framing and supports for applications indicated that are not a part of structural steel framework as required to complete the Work.

Fabricate units to sizes, shapes, and profiles indicated and required to receive other adjacent construction retained by framing and supports. Fabricate from structural steel shapes, plates, and steel bars of welded construction using mitered joints for field connection. Cut, drill, and tap units to receive hardware, hangers, and similar items.

- Equip units with integrally welded anchors for casting into concrete or building into masonry. Furnish inserts if units must be installed after concrete is placed.
- Except as otherwise indicated, space anchors 24 inches (600 mm) o.c. and provide minimum anchor units in the form of steel straps 1-1/4 inches (32 mm) wide by 1/4 inch (6 mm) thick by 8 inches (200 mm) long.
- Galvanize miscellaneous framing and supports in the following locations:
- Exterior locations.
- Interior locations where indicated.

8.17.21 MISCELLANEOUS STEEL TRIM

Unless otherwise indicated, fabricate units from structural steel shapes, plates, and bars of profiles shown with continuously welded joints, and smooth exposed edges. Miter corners and use concealed field splices wherever possible.

Provide cutouts, fittings, and anchorages as required to coordinate assembly and installation with other work. Provide anchors, welded to trim, for embedding in concrete or masonry construction, spaced not more than 6 inches (150 mm) from each end, 6 inches (150 mm) from corners, and 24 inches (600 mm) o.c., unless otherwise indicated.

Galvanize miscellaneous steel trim in the following locations:

- Exterior locations
- Interior locations where indicated

8.17.22 INSECT SCREEN

Provide a complete insect screen enclosure, including a screened door for access, for the "attic" space formed between the membrane roof and the sloping metal roof. Include a 2'-0" wide continuous screen for the metal soffit. Furnish and install all extruded aluminum rewirable frames required to enclose the attic space. Attach the soffit vent by securing the screen to the soffit frame. Fasten the vertical enclosure at the upper roof by securing the main frame to the steel columns spaced at 5'-0" O.C. Provide all the additional framing members required to complete the work. Leave screen approximately 1" above the membrane roof.

8.17.23 STRUCTURAL STEEL DOOR FRAMES

Fabricate steel door frames from structural shapes and bars of size and to dimensions indicated, fully welded together, with 5/8-by-1-1/2-inch (16-by-38-mm) steel bar stops, unless otherwise indicated. Plug-weld built-up members and continuously weld exposed joints. Secure removable stops to frame with countersunk machine screws, uniformly spaced at not more than 10 inches (250 mm) o.c. Reinforce frames and drill and tap as required to accept finish hardware.

Provide steel strap anchors for securing door frames into adjoining concrete or masonry, using 1/8-by-2-inch (3-by-50-mm) straps of the length required for a minimum 8-inch (200-mm) embedment, unless otherwise indicated. Weld anchors to frame jambs no more than 12 inches (300 mm) from both bottom and head of frame and space anchors not more than 30 inches (750 mm) apart. Extend bottom of frames to floor elevation indicated with steel angle clips welded to frames for anchoring frame to floor with expansion shields and bolts.

Galvanize frames and anchors in the following locations:

- Exterior locations
- Interior locations where indicated

8.17.24 PIPE BOLLARDS

Fabricate pipe bollards from Schedule 80 steel pipe. Cap bollards with 1/4-inch (6.4-mm) minimum steel plate.

Fabricate sleeves for bollard anchorage from steel pipe with 1/4-inch- (6.4-mm-) thick steel plate welded to bottom of sleeve.

8.17.25 FINISHES, GENERAL

Comply with NAAMM "Metal Finishes Manual" for recommendations relative to applying and designing finishes.

Finish metal fabrications after assembly.

8.17.26 STEEL AND IRON FINISHES

Galvanizing: For those items indicated for galvanizing, apply zinc coating by the hot-dip process complying with the following requirements:

- ASTM A 153 for galvanizing iron and steel hardware.
- ASTM A 123 for galvanizing both fabricated and unfabricated iron and steel products made of uncoated rolled, pressed, and forged shapes, plates, bars, and strip 0.0299 inch (0.76 mm) thick or thicker.

Preparation for Shop Priming: Prepare uncoated ferrous metal surfaces to comply with minimum requirements indicated below for SSPC surface preparation specifications and environmental exposure conditions of installed metal fabrications:

- Exteriors (SSPC Zone 1B): SSPC-SP 6 "Commercial Blast Cleaning."
- Interiors (SSPC Zone 1A): SSPC-SP 3 "Power Tool Cleaning."

Apply shop primer to uncoated surfaces of metal fabrications, except those with galvanized finishes or to be embedded in concrete, sprayed-on fireproofing, or masonry, unless otherwise indicated. Comply with requirements of SSPC-PA 1 "Paint Application Specification No. 1" for shop painting.

- Stripe paint corners, crevices, bolts, welds, and sharp edges.

8.17.27 ALUMINUM FINISHES

Finish designations prefixed by AA conform to the system established by the Aluminum Association for designating aluminum finishes.

As-Fabricated Finish: AA-M10 (Mechanical Finish: as fabricated, unspecified).

Class I, Clear Anodic Finish: AA-M12C22A41 (Mechanical Finish: nonspecular as fabricated; Chemical Finish: etched, medium matte; Anodic Coating: Engineerural Class I clear coating 0.7 mil [0.018 mm] or thicker) complying with AAMA 607.1.

8.17.28 EXECUTION

8.17.29 PREPARATION

Coordinate and furnish anchorages, setting drawings, diagrams, templates, instructions, and directions for installing anchorages, including concrete inserts, sleeves, anchor bolts, and miscellaneous items having integral anchors that are to be embedded in concrete or masonry construction. Coordinate delivery of such items to Project site.

Center nosings on tread widths with noses flush with riser faces and tread surfaces.

Set sleeves in concrete with tops flush with finish surface elevations. Protect sleeves from water and concrete entry.

8.17.30 INSTALLATION, GENERAL

Fastening to In-Place Construction: Provide anchorage devices and fasteners where necessary for securing miscellaneous metal fabrications to in-place construction. Include threaded fasteners for concrete and masonry inserts, toggle bolts, through-bolts, lag bolts, wood screws, and other connectors as required.

Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installing miscellaneous metal fabrications. Set metal fabrication accurately in location, alignment, and elevation; with edges and surfaces level, plumb, true, and free of rack; and measured from established lines and levels.

Provide temporary bracing or anchors in formwork for items that are to be built into concrete masonry or similar construction.

Fit exposed connections accurately together to form hairline joints. Weld connections that are not to be left as exposed joints but cannot be shop-welded because of shipping size limitations. Do not weld, cut, or abrade the surfaces of exterior units that have been hot-dip galvanized after fabrication and are intended for bolted or screwed field connections.

Field Welding: Comply with the following requirements:

- Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
- Obtain fusion without undercut or overlap.
- Remove welding flux immediately.
- At exposed connections, finish exposed welds and surfaces smooth and blended so that no roughness shows after finishing, and contour of welded surface matches those adjacent.

Corrosion Protection: Coat concealed surfaces of aluminum that will come into contact with grout, concrete, masonry, wood, or dissimilar metals with a heavy coat of bituminous paint.

8.17.31 SETTING LOOSE PLATES

Clean concrete and masonry bearing surfaces of bond-reducing materials, and roughen to improve bond to surfaces. Clean bottom surface of bearing plates.

Set loose leveling and bearing plates on wedges or other adjustable devices. After the bearing members have been positioned and plumbed, tighten the anchor bolts. Do not remove wedges or shims, but if protruding, cut off flush with the edge of the bearing plate before packing with grout.

- Use nonshrink, metallic grout in concealed locations where not exposed to moisture; use nonshrink, nonmetallic grout in exposed locations, unless otherwise indicated.
- Pack grout solidly between bearing surfaces and plates to ensure that no voids remain.

8.17.32 INSTALLING PIPE BOLLARDS

Anchor bollards in concrete with pipe sleeves preset and anchored into concrete. After bollards have been inserted into sleeves, fill annular space between bollard and sleeve solidly with nonshrink, nonmetallic grout, mixed and placed to comply with grout manufacturer's directions.

Fill bollards solidly with concrete, mounding top surface.

8.17.33 ADJUSTING AND CLEANING

Touchup Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with same material as used for shop painting to comply with SSPC-PA 1 requirements for touching up shop-painted surfaces.

- Apply by brush or spray to provide a 2.0-mil (0.05-mm) minimum dry film thickness.

Touchup Painting: Cleaning and touchup painting of field welds, bolted connections, and abraded areas of the shop paint on miscellaneous metal is specified in Division 9 Section "Painting."

For galvanized surfaces, clean welds, bolted connections, and abraded areas, and apply galvanizing repair paint to comply with ASTM A 780.

END OF SECTION 05500

8.18 SECTION 07210 - BUILDING INSULATION

8.18.1 GENERAL

Thermal resistivity or "r-value" represents the reciprocal of thermal conductivity (k-value), which is the rate of heat flow through a homogenous material exactly 1 inch thick. Thermal resistivities are expressed by the temperature difference in degrees F between the two exposed faces required to cause one BTU to flow through one sq. ft. per hour at mean temperatures indicated.

Fire Performance Characteristics: Provide insulation materials identical to those whose indicated fire performance characteristics have been determined per ASTM E 119, ASTM E 84, and ASTM E 136, as applicable, by UL or other testing and inspecting organizations acceptable to authorities having jurisdiction. Identify products with appropriate marking of applicable testing and inspecting organization.

Submittals: Submit product data for each form and type of insulation indicated.

Products:

General: Provide performed units in sizes to fit applications indicated, selected from manufacturer's standard thicknesses, widths, and lengths.

Faced Mineral Fiber Blanket/Batt Insulation: ASTM C 665 for Type III, Class A; foil-scrim-polyethylene vapor-retarder membrane on one face; and as follows:

Mineral Fiber Type: Fibers manufactured from glass or slag.

Surface Burning Characteristics: Maximum flame spread and smoke developed values of 25 and 50, respectively.

Wall/ceiling insulation shall be friction fit provided in 15" or 24" wide roll quantities as required. Thickness of insulation shall be 6 1/4" thick, R-19 walls and ceilings. See Division 13 for additional details and requirements.

Sound Attenuation Blankets: 4" thick, 4.0 pcf density, over all ceilings in generator room.

Polyethylene Vapor Retarder: ASTM D 4397, 6.0 mils thick, with a maximum permeance rating of 0.13 perms. Provide vapor barrier between insulation and drywall.

Number of Layers: Two outer layers of polyethylene film and one inner layer of nylon reinforcing, with an overall thickness of 6.0 to 8.0 mils.

Tape for Vapor Retarder: Pressure sensitive tape of type recommended by vapor retarder manufacturer for sealing joints and penetrations in vapor retarder.

Adhesive for Bonding Insulation: Product with demonstrated capability to bond insulation or mechanical anchors securely to substrates indicated without damaging or corroding either insulation, anchors, or substrates.

Adhesively Attached Pin Anchors: Perforated zinc-plated steel plate, 0.106 inch thick and 2 inches square, welded to projecting copper-coated, low-carbon steel pin, with mild steel self-locking washer, 0.016 inch thick of size required to hold insulation securely.

Where spindles will be exposed to human contact after installation, protect ends with capped self-locking washers.

Execution:

General: Comply with insulation manufacturer's instructions for installation of insulation.

Support insulation units by adhesive or mechanical anchorage or both as applicable to location and conditions indicated.

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Install protection board course over insulation before backfilling against or placing cast-in-place concrete against insulation.

END OF SECTION 07210

8.20 SECTION 07901 - JOINT SEALANTS

8.20.1 GENERAL

Preconstruction Joint Sealant-Substrate Tests: Submit substrate materials representative of actual joint surfaces to joint sealant manufacturer for laboratory testing of joint sealants for adhesion to primed and unprimed substrates and for compatibility with joint substrates and other joint-related materials.

Submittals: In addition to product data, submit the following:

Samples of each type and color of joint sealant required.

Certified test reports for joint sealants evidencing compliance with requirements.

8.20.2 PRODUCTS

Compatibility: Provide joint sealants, joint fillers, and other related materials that are compatible with one another and with joint substrates under service and application conditions, as demonstrated by testing and field experience.

Colors: Provide color indicated of exposed joint sealants or, if not otherwise indicated, as selected by Engineer from manufacturer's standard colors.

Acrylic Sealant: One-part, non-sage, solvent-release-curing acrylic terpolymer sealant complying with AAMA 808.3 or FS TT-S-00230, or both, with capability, when tested per ASTM C 719, to withstand the following percentage change in joint width existing at time of application without failing adhesively or cohesively:

Maximum cyclic movement capability: plus or minus 7.5 percent.

Acoustical Sealant: Non-sag, paintable, non-staining, latex sealant complying with ASTM C 834 and effective in reducing airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies per ASTM E 90.

Tape Sealant: Solvent-free, butyl-based tape sealant with a solids content of 100 percent formulated to be non-staining, paintable, and non-migrating in contact with non-porous surfaces with or without reinforcement thread to prevent stretch and packaged on rolls with release paper on one side.

Preformed Foam Sealant: Preformed, precompressed, open-cell, high-density urethane foam sealant impregnated with a on-drying, water-repellent agent; in precompressed sizes and in roll or stick form to fit joint widths indicated; permanently elastic, mildew-resistant, non-migratory, non-staining, compatible with joint substrates and other joint sealants; and as follows:

Impregnating Agent: Manufacturer's standard.

Density: Manufacturer's standard.

Sealant Backings, General: Non-staining; compatible with joint substrates, sealants, primers, and other joint fillers; approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.

Plastic Foam Joint Fillers: Preformed, compressible, resilient, non-waxing, non-extruding strips of plastic foam of material indicated below, and of size, shape, and density to control sealant depth and otherwise contribute to producing optimum sealant performance.

Open-cell polyurethane foam.

Elastomeric Tubing Joint Fillers: Neoprene, butyl, EPDM, or silicone tubing complying with ASTM D 1056, non-absorbent to water and gas, and capable of remaining resilient at temperatures down to -26 deg F (-32 deg C).

Bond-Breaker Tape: Polyethylene tape or other plastic tape as recommended by sealant manufacturer for preventing bond between sealant and joint filler or other materials at back of joint.

Primer: As recommended by joint sealant manufacturer where required for adhesion of sealant to joint substrates indicated.

8.20.3 EXECUTION

General: Comply with joint sealant manufacturer's instructions applicable to products and applications indicated.

Sealant Installation Standard: Comply with ASTM C 1193.

Acoustical Sealant Application Standard: Comply with ASTM C 919 for use of joint sealants in acoustical applications.

END OF SECTION 07901

8.21 SECTION 08111 - STANDARD STEEL DOORS AND FRAMES

8.21.1 GENERAL

Submittals: With manufacturer's standard details and specifications for steel doors and frames, submit shop drawings showing application to project, as required.

Standards: In addition to other specified requirements, comply with Steel Door Institute "Recommended Specifications for Standard Steel Doors and Frames" ANSI/SDI-100.

Products:

Manufacturer: One of the following:

1. Amweld Building Products, Inc.
2. Ceco Corp.
3. Copco Door Co.
4. Currries Company
5. Deansteel Manufacturing Co.
6. Fenestra Corp.
7. Kewanee Corp.
8. Mesker Door Co.
9. Pioneer Industries
10. Premier Products, Inc. (Formerly Dittco)
11. Republic Builders Products
12. Steelcraft Manufacturing Co.

Hot-Rolled Steel Sheets and Strip: Commercial quality carbon steel, pickled and oiled, complying with ASTM A 569 and ASTM A 568.

Supports and Anchors: Fabricate of not less than 16-gage sheet steel; galvanized where used with galvanized frames.

Shop Applied Primer: Rust-inhibitive enamel or paint, either air-drying or baking, suitable as a base for specified finish paints complying with ANSI A224.1.

Fabrication: Fabricate units to be rigid, neat in appearance, and free from defects, warp or buckle. Weld exposed joints continuously, grind, dress, and make smooth, flush and invisible.

Prepare steel doors and frames to receive mortised and concealed finish hardware, including cutouts, reinforcing, drilling and tapping, complying with ANSI A 115 "Specifications for Door and Frame Preparation for Hardware."

Reinforce units to receive surface-applied finish hardware to be field applied.

Locate finish hardware as indicated or, if not indicated, per DHI "Recommended Locations for Builder's Hardware."

Doors: SDI grades and models specified below or as indicated on drawings or schedules:

Interior Doors: ANSI/SDI-100, Grade II, heavy-duty, Model 3 or 4, minimum 16-gage cold-rolled steel faces.

Exterior Doors: ANSI/SDI-100, Grade III, extra heavy-duty, Model 4, minimum 16-gage galvanized steel faces in compliance with SDI 112. Doors shall be reinforced, stiffened, sound deadened and insulated with impregnated kraft honeycore completely filling the inside of the doors and laminated to the inside faces of both panels. Doors shall have continuous vertical mechanical interlocking joints at lock and hinge edges with visible edge seams. Doors shall be beveled (1/2" in 2") hinge and lock edges. Top and bottom steel reinforcement channels shall be 14 gage and spot welded within the door. Hinge reinforcements shall be 16 gage and closer reinforcements, 14 gage.

Frames: Comply with ANSI/SDI-100, of the types and styles indicated, for materials quality, metal gages, and construction details.

Provide standard hollow metal frames for doors, and other openings as indicated.

Fabricate frames with mitered, coped, or welded corners.

Prepare frames to receive 2 silencers on strike jambs of single-door frames and on heads of double-door frames. Frames shall be formed from 16 gage cold-rolled steel. Frames shall have 2" faces. Frames shall be supplied with factory installed rubber bumpers. Frames shall have 8 gage steel hinge reinforcements. Strike reinforcements shall be 16 gage and prepared for a ANSI-A115.1-2 strike. Reinforcements for surface closer shall be 14 gage steel. Frames shall be furnished with a minimum of six wall anchors and two base anchors of manufacturer's standard design.

Provide 26-gage steel plaster guards or mortar boxes, welded to frame, at back of hardware cutouts where installed in concrete, masonry or plaster openings.

Protect inside faces of frames in plaster or masonry wall construction which are placed with antifreeze additives, using high-build fibered asphalt emulsion coating.

Form exterior frames from 16-gage galvanized steel. Provide rain drips for all exterior frames.

Execution:

Installation: Install hollow-metal units in accordance with manufacturer's instructions and final shop drawings (if any). Fit doors to frames and floors with clearances specified in ANSI/SDI-100.

Install frames in accordance with SDI 105.

Finish hardware is specified in another Division 8 section.

END OF SECTION 08111

8.22 SECTION 08333 - OVERHEAD DOORS

8.22.1 GENERAL

Submittals: Manufacturer's product data and installation instructions.

8.22.2 PRODUCTS

Coiling Overhead Doors: Provide complete operating insulated overhead coiling door assemblies including door curtain, guides, counterbalance, hardware, operators, and installation accessories.

Performance Requirements

Provide doors certified to withstand a 20-psf wind-load pressure.

Thermal Performance, U – 0.166 Maximum

Sound Transmission Rating, STC-24 Minimum

Endlocks: Malleable iron castings, galvanized, secured to curtain slats.

Windlocks: Malleable iron castings, galvanized, secured to curtain slats at 24 inches o.c. on both edges.

Bottom Bar: Two angles not less than 1/8 inch thick of same metal as curtain slats. Provide flexible rubber, vinyl, or neoprene weather seal and cushion bumper.

Curtain Jamb Guides: Built up of ASTM A 36 steel angles, channels, and flat bars as required.

Weather Seals: Manufacturer's standard rubber or neoprene on metal pressure bars. Provide 1/8-inch-thick, continuous sheet secured to inside of curtain coil hood.

Counterbalance: Manufacturer's standard, adjustable, helical torsion spring mounted around steel shaft in barrel, with grease-sealed ball bearings or self-lubricating graphite bearings for rotating members.

Hood: Enclose coiled curtain and operating mechanism and act as weather seal. Provide closed ends for surface-mounted hoods.

Steel, not less than 0.0276 inch thick (24 gage), hot-dip galvanized.

Aluminum, not less than 0.032 inch thick, mill finish.

Shop Finish: Clean and paint ferrous metal and galvanized surfaces with manufacturer's standard rust-inhibitive primer.

Manual Door Operators: Chain-hoist operation with continuous, cadmium-plated alloy steel hand chain required not more than 35 lb pull. Provide self-locking mechanism for stopping curtain at any point in travel until unit reactivated.

8.22.3 EXECUTION

Installation: Set track, door, and operating equipment complete with required hardware, jamb and head mold stops, anchors, inserts, hangers, and equipment supports according to manufacturer's installation instructions.

After installation, lubricate, test, and adjust doors to operate without warp, twist, or distortion.

END OF SECTION 08333

8.23 SECTION 08710 - FINISH HARDWARE

8.23.1 GENERAL

Delivery, Storage and Handling - Pack items of hardware separately in individual boxes complete with necessary screws, tools, keys, and installation instructions. Mark each box with both the item number and the set number as shown on the approved hardware schedule.

Protect hardware from damage by weather, moisture and breakage.

All locks shall be furnished with four keys tagged with door number. Project shall be keyed and master-keyed as directed by Owner. Provide six master keys.

Submittals - Submit the following in accordance with conditions of contract and Division 1 specification sections.

- Product data including manufacturer' technical product data for each item of door hardware, installation instruction, maintenance of operating parts and finish, and other information necessary to show compliance with requirements.
- Final hardware schedule coordinated with doors, frames, and related work to insure proper size, thicknesses, hand, function, and finish of door hardware. Final hardware schedule content: organize schedule into "hardware sets" indicating complete designations of every item required for each door or opening. Include the following information:
 1. Type, style, function, size and finish of each hardware item.
 2. Name and manufacturer of each item
 3. Fastenings and other pertinent information.
 4. Location of each hardware set cross referenced to indications on drawings both on floor plans and in door and frame schedule.
 5. Explanation of all abbreviations, symbols. And codes contained in schedule.
 6. Mounting locations for hardware.
 7. Door and frame sizes and materials.
 8. Keying information.

Submittal Sequence: Submit final schedule at earliest possible date particularly where acceptance of hardware schedule must precede fabrication of other work that is critical in the project construction schedule. Include with schedule the product data, samples, shop drawings or other work affected by door hardware and other information essential to the coordinated review of schedule.

Hardware consultant shall be responsible for coordinating with the Engineer and owner all keying requirements. The contractor shall schedule all door hardware with the owner.

Templates for doors, frames, and other work specified to be factory prepared for the installation of door hardware. Check shop drawings of other work to confirm that adequate provisions are made for locating and installing door hardware to comply with indicated requirements.

8.23.2 MATERIAL

8.23.3 LIST OF MANUFACTURERS:

Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Butts and Hinges:
 - a) Bommer Industries, Inc.
 - b) Hager Hinge Co.
 - c) McKinney Products Co.
 - d) Stanley Hardware, Div. Stanley Works

2. Cylinders and Locks:
 - a) Corbin & Russwin Engineerural Hardware, Div. Black & Decker Corp.
 - b) Sargent Manufacturing Company
 - c) Schlage Lock, Div. Ingersoll-Rand Door Hardware Group
 - d) Yale Security Inc.
3. Exit/Panic Devices:
 - a) Precision Hardware, Inc.
 - b) Sargent Manufacturing Company
 - c) Von Duprin, Div. Ingersoll-Rand Door Hardware Group
4. Overhead Closers:
 - a) LCN, Div. Ingersoll-Rand Door Hardware Group
 - b) Rixson-Firemark, Div. Yale Security, Inc.
 - c) Sargent Manufacturing Company
5. Kick, Mop, and Armor Plates:
 - a) Hager Hinge Co.
 - b) H.B. Ives, A Harrow Company
 - c) Rockwood
6. Door Stripping and Seals:
 - a) Hager Hinge Co.
 - b) National Guard Products, Inc.
 - c) Pemko Manufacturing Co., Inc.
 - d) Reese Enterprises, Inc.
7. Thresholds:
 - a) Hager Hinge Co.
 - b) National Guard Products, Inc.
 - c) Pemko Manufacturing Co., Inc.
 - d) Reese Enterprises, Inc.
8. Sound Stripping:
 - a) Hager Hinge Co.
 - b) National Guard Products, Inc.
 - c) Pemko Manufacturing Co., Inc.
 - d) Reese Enterprises, Inc.

This listing of manufacturers is intended to set the standard for quality expected on this project. Hardware of equal quality and serviceability will be accepted. Provide either the product designated or the comparable product of one of the other manufacturers designated above.

HARDWARE SET ONE: (All exterior doors)

1-1/2 Pair	Butts	BB1199 x 4-1/2"xNRPxUS32D H
1 Each	Exit Device	8888FOB x US 320, S
1 Each	Closer	4111 H CUSH AL, L
1 Each	Kickplate	190 S 10" x 34" X us 320, H
1 Each	Threshmold	171A x 36", P
1 Each	Sweep	315 CN x 36, P
1 Set	Weatherstrip	S88D x 17', P
2 Each	Cylinders	As required

HARDWARE SET TWO: (Interior Door)

1-1/2 Pair	Butts	BB1168 x 4-1/2" x 4-1/2" x ya 26D, H
1 Each	Exit Device	8145 0B US 26D, S
1 Each	Closer	4111 H CUSH AL, L
1 Each	Kickplate	190 S 10" H
1 Each	Thresmold	171 A x 36", P
1 Each	Sweep	315 CN x 36", P
1 Set	Weatherstrip	S88D x 17', P
1 Each	Cylinders	As required

Installation - Install hardware in accordance with manufacturer's printed instructions. Use proper tools and templates.

END OF SECTION 08710

8.24 SECTION 08800 - GLAZING

8.24.1 GENERAL

System Performance Requirements: Provide glazing systems capable of withstanding normal thermal movement, wind loading, and impact loading, without failure including loss or glass breakage attributable to: defective manufacture, fabrication, and installation; deterioration of glazing materials; and other defects in construction.

Glass Design: Provide glass lites in the thicknesses and strengths (annealed or heat-treated) to meet or exceed the following criteria based on analysis of project loads and in-service conditions:

Minimum glass thickness, nominally, of lites in exterior walls is 6.0 mm (0.23 inch).

Minimum glass thicknesses of lites composed of annealed or heat-treated glass are selected so the worst-case probability of failure does not exceed the following:

8 lites per 1000 for lites set vertically or not over 15 degrees off vertical and under wind action.

8.24.2 SUBMITTALS

Product certificates signed by glazing materials, manufacturers certifying that their products comply with specified requirements.

Compatibility and adhesion test reports from sealant manufacturer indicating that glazing materials were tested for compatibility and adhesion with glazing sealants.

Compatibility test report from insulating glass edge sealant manufacturer indicating glass edge sealants were tested for compatibility with other glazing materials.

Glazing publications: Comply with published recommendations of glass product manufacturers, "FGMA Glazing Manual", and publications of AAMA, LSGA, and SIGMA as applicable to products indicated, except where more stringent requirements are indicated.

Insulating Glass Certification Program: Provide insulating glass units permanently marked with appropriate certification label of inspecting and testing agency indicated below:

- Insulating Glass Certification Council (IGCC)
- Associated Laboratories, Inc. (ALI)
- National Certified Testing Laboratories (NCTL)

8.24.3 PRODUCTS

Available Products: Subject to compliance with requirements, products that may be incorporated in the Work include, but are not limited to, the products specified in Product Data Sheets at the end of this Section.

Products: Subject to compliance with requirements, provide one of the products specified in Product Data Sheets at the end of this Section.

Float Glass: ASTM C 1036, Type I, Class as indicated below, and Quality q3:

Class 1 (clear) unless otherwise indicated.

Refer to requirements for sealed insulating glass units for performance characteristics of assembled units composed of tinted glass, coated or uncoated.

Wired Glass: ASTM C 1036, Type II, Class 1, Quality q8; 6 mm (0.23 inch) thick; of form and mesh pattern indicated below:

Polished Wired Glass: Form 1, and as follows:

Mesh m1 (diamond)

Sealed Insulating Glass Units: Pre-assembled units complying with ASTM E 774 and with other requirements indicated, including those in Insulating Glass Product Data Sheet at the end of this Section.

For properties of individual glass lites making up units, refer to requirements specified elsewhere in this Section applicable to glass products comprising lites of insulating glass units.

Provide heat-treated, coated float glass of kind indicated or, if not otherwise indicated, Kind HS where recommended by manufacturer to comply with system performance requirements specified and Kind FT where safety glass is designated or required.

Performance characteristics designated for coated insulating glass are nominal values based on manufacturer's published test data for units with lites 6.0 mm (0.23 inch) thick and nominal ½-inch dehydrated space between lites, unless otherwise indicated.

Elastomeric Glazing Sealants: Products complying with ASTM C 920 requirements indicated on each Elastomeric Glazing Sealant Product Data Sheet at the end of this Section, in colors indicated, compatible with other materials they will contact.

Additional Movement Capability: Provide products, when tested per ASTM C 719, with the capability to withstand the specified percentage change in the joint width existing at time of installation and remain in compliance with other requirements of ASTM C 920 for uses indicated.

Soft Compression Gaskets: Extruded or molded closed-cell, integral-skinned gaskets of material indicated below, complying with ASTM C 509, Type II, black, and of profile and hardness required to maintain watertight seal:

1. Neoprene
2. EPDM
3. Silicone
4. Thermoplastic polyolefin rubber
5. Any material indicated above

Miscellaneous Glazing Materials: Products of material, size, and shape complying with referenced glazing standard, requirements of manufacturers of glass and other glazing materials involved for glazing application indicated, and with a proven record of compatibility with surfaces contacted in installation.

Fabricate glass and other glazing products in sizes required to glaze openings indicated for project, with edge and face clearances, edge and surface conditions, and bite complying with recommendations of product manufacturer and referenced glazing publications as required to comply with system performance requirements.

Clean cut or flat grind vertical edges of butt-glazed monolithic lites in a manner that produces square edges with slight kerfs at junctions with indoor and outdoor faces.

8.24.4 EXECUTION

Comply with combined recommendations of manufacturers of glass, sealants, gaskets, and other glazing materials, except where more stringent requirements are indicated, including those in "FGMA Glazing Manual".

Protect glass from edge damage during handling and installation.

Do not exceed edge pressures stipulated by glass manufacturers for installing glass lites.

Set glass lites in each series with uniform pattern, draw, bow, and similar characteristics.

Lock Strip Gasket Glazing: Comply with ASTM C 716 and gasket manufacturer's printed recommendations. Provide supplementary wet seal and weep system unless otherwise indicated.

Protect glass from contact with contaminating substances resulting from construction operations and weld splatter.

Remove and replace glass that is broken, chipped, cracked, abraded, or damaged in any way, including natural causes, accidents and vandalism, during construction period.

Wash glass on both faces in each area of project not more than four (4) days prior to date scheduled for inspections that establish date of Substantial Completion. Wash glass as recommended by glass manufacturer.

END OF SECTION 08800

8.25 SECTION 09250 - GYPSUM WALLBOARD

8.25.1 GENERAL

8.25.2 SCOPE

The purpose of this specification is to define the material and installation of the gypsum partition systems.

8.25.3 PRODUCTS

8.25.4 MATERIALS

Gypsum Board shall meet federal specification SS-L-30D and ASTM specification C36, 5/8 inch thick as noted on drawings, tapered edge.

Fasteners for attaching gypsum board to metal studs shall be self-drillings, corrosion resistant, bugle headed steel screws, one (1) inch long for single ply wallboard.

Corner bead shall be standard concealed galvanized steel 1 1/8" X 1 1/8" for clinch-on application.

Edge trim shall be standard concealed galvanized steel metal trim, similar to USG NO. 200-A.

Joint treatment shall be manufacturer's recommended standard joint treatment compounds with regular joint tape.

8.25.5 EXECUTION

8.25.6 INSTALLATION - WALL

Gypsum Board shall be applied with long dimension parallel for walls and at right angles for ceilings to framing members and all abutting ends and edges shall occur over stud flanges. Wallboard of the maximum practical length shall be used to minimize end joints. All end joints shall be neatly fitted and staggered. Joints on opposite sides of the partition shall be so arranged as to occur on different studs.

For vertical wall board application screw fasteners shall be spaced a maximum of 12 inches on center in the field of the board and eight (8) inch on centers staggered along the vertical abutting edges. For horizontal wallboard application, screw fasteners shall be spaced a maximum of 12 inches on center in the field of the board and 12 inches on center along the abutting end joints. Screws shall be power driven with an electric screw driver and screw heads shall be recessed slightly below the surface of the wallboard. Screws shall not be driven closer than 3/8 inch from edges and ends of the boards.

All joints, screw head and other depressions in the surface of the wallboard shall be treated in accordance with the manufacturer's recommended practice for perforated tape joint system.

All internal and external angles formed by the intersection of either wallboard surfaces or other surfaces shall be treated with metal trim or perforated tape joint system and in accordance with the drawing details.

All vertical or horizontal external corners shall have a DUR-A-BEAD corner reinforcement applied in accordance with manufacturer's directions.

END OF SECTION 09250

8.26 SECTION 09510 - ACOUSTICAL CEILING

8.26.1 GENERAL

8.26.2 RELATED DOCUMENTS

Drawings and general provisions of contract, including general and supplementary conditions and division 1 specification sections, apply to this section.

8.26.3 SUMMARY

This section includes the following:

- Acoustical tile ceiling systems, including exposed tee suspension systems, and acoustical lay in boards.

8.26.4 QUALITY ASSURANCE

Fire performance characteristics: Provide acoustical ceilings that are identical to those tested for the following fire performance characteristics, per ASTM test method indicated below, by UL or other testing and inspecting organizations acceptable to authorities having jurisdiction.

Surface burning characteristics: As follows, tested per ASTM E 84 and complying with ASTM E 1264 for Class A products.

- Flame Spread: 25 or less.
- Smoke developed: 50 or less

Single-source responsibility for ceiling units. Obtain each type of acoustical ceiling unit from a single source with resources to provide products of consistent quality in appearance and physical properties without delaying progress of the work.

Single-source responsibility for suspension system: Obtain each type of suspension system from a single source with resources to provide products of consistent quality in appearance and physical properties without delaying progress of the work.

8.26.5 DELIVERY, STORAGE, AND HANDLING

Deliver acoustical ceiling units to project site in original, unopened packages and store them in a fully enclosed space where they will be protected against damage from moisture, direct sunlight, surface contamination, and other causes.

Before installing acoustical ceiling units, permit them to reach room temperature and a stabilized moisture content.

Handle acoustical ceiling units carefully to avoid chipping edges or damaging units in any way.

8.26.6 PROJECT CONDITIONS

Space enclosure: Do not install interior acoustical ceilings until space is enclosed and weatherproof, wet work in space is completed and nominally dry, work above ceilings is complete, and ambient conditions of temperature and humidity will be continuously maintained at values near those indicated for final occupancy.

8.26.7 PRODUCTS

8.26.8 MANUFACTURERS

Available products: Subject to compliance with requirements, products that may be incorporated in the work include but are not limited to the following:

- Mineral-base tile - water felted, with painted finish and perforated pattern, fire-resistance rated: Class A (Flame spread 25 or under) UL labeled.

8.26.9 ACOUSTICAL CEILING UNITS, GENERAL

Standard for acoustical ceiling units: Provide manufacturers' standard units of configuration indicated that comply with ASTM E 1264 classifications as designated by reference to types, patterns, acoustical ratings, and light reflectance, unless otherwise indicated.

Perforated and fissured pattern: Units matching pattern indicated by reference to manufacturers' standard pattern designations, with other characteristics as follows:

- Perforated and fissured Pattern: Units fitting ASTM E 1264 pattern designation C and D, with other characteristics as follows:
 1. Color/Light reflectance coefficient: White/LR 0.80.
 2. Color: Standard white.
 3. Ceiling sound transmission class: CSTC 40, non-perforated.
 4. Edge Detail: Standard.
 5. Size: 24 inches by 24 inches by 5/8 inch.

8.26.10 METAL SUSPENSION SYSTEMS, GENERAL

Standard for metal suspension systems: Provide manufacturer's standard exposed metal suspension systems of types, structural classifications, and finishes indicated that comply with applicable ASTM C 635 requirements.

Finishes and colors: Provide manufacturer's standard factory-applied finish for exposed moldings.

Wire for hangers and ties: ASTM A 641, Class 1 Zinch coating, soft temper.

- Gage: Provide wire sized so that stress at 3 times hanger design load (ASTM C 635, Table 1, direct-hung) will be less than yield stress of wire, but provide not less than 0.106-inch diameter (12-gage).

Hanger Rods: Mild steel, zinc coated, or protected with rust-inhibitive paint.

Angle Hangers: Angles with legs not less than 7/8-inch wide, formed with 0.0365-inch-thick galvanized steel sheet complying with ASTM A 446, coating designation G90, with bolted connections and 5/16-inch-diameter bolts.

Edge moldings and trim: Provide manufacturer's standard molding for edges and penetrations of ceiling that fits with type of edge detail and suspension system indicated.

- For circular penetrations of ceiling, provide edge moldings fabricated to diameter required to fit penetration exactly.
- For acoustical tile adhered to substrate, provide edge moldings at ceiling perimeters and where indicated.

Indirect-Hung Suspension System: Main and cross-runners roll-formed from electrolytic zinc- coated cold-rolled steel sheet; other characteristics as follows:

- Structural Classification: Intermediate-Duty system.
- Carrying channels: 1-1/2-inch steel channels, hot-rolled or cold-rolled, not less than 0.475 lb. per linear ft.

8.26.11 EXECUTION

8.26.12 EXAMINATION

Examine substrates and structural framing to which ceiling system attaches or abuts, with installer present, for compliance with requirements specified in this and other sections that affect installation and anchorage of ceiling system. Do not proceed with installation until unsatisfactory conditions have been corrected.

8.26.13 PREPARATION

Coordination: Furnish layouts for preset inserts, clips, and other ceiling anchors whose installation is specified in other sections.

8.26.14 INSTALLATION

General: Install acoustical ceiling systems to comply with installation standard below per manufacturer's instructions and Cisca "Ceiling Systems Handbook."

1. Standard for installation of ceiling suspension systems: Comply with ASTM C636.
2. Do not attach hangers to steel deck tabs.
3. Do not attach hangers to steel roof deck. Attach hangers to structural members.

Space hangers not more than 4'-0" O.C. along each member supported directly from hangers, unless otherwise shown, and provide hangers not more than 8 inches from ends of each member.

Install edge moldings of type indicated at perimeter of acoustical ceiling area and at locations where necessary to conceal edges of acoustical units.

Install acoustical tile in coordination with suspension system. Place splines or flanges of suspension system into kerfed edges, or insert tile tongues into tile grooves, so that every tile-to-tile joint is closed by double lap of material.

- Fit adjoining tile to form flush, tight joints. Scribe and cut for accurate fit at borders and around penetrating work.

Insulate engine exhaust system before installing ceiling.

8.26.15 CLEANING

Clean exposed surfaces of acoustical ceilings, including trim, edge moldings, and suspension members. Comply with manufacturer's instructions for cleaning and touch-up of minor finish damage. Remove and replace work that cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.

END OF SECTION 09510

8.27 SECTION 09666 - WOOD BASE

8.27.1 GENERAL

Furnish all materials, equipment and labor required to install all wood base scheduled or required to complete the project.

8.27.2 MATERIALS

BASE: Shall be 1" x 6" high, painted Southern Yellow Pine units as indicated on drawing.

8.27.3 INSTALLATION

Install base in accordance with the manufacturer's written instructions.

END OF SECTION 09666

8.28 SECTION 09900 - PAINTING

8.28.1 GENERAL

8.28.2 RELATED DOCUMENTS

The general provisions of the contract, including general and supplementary conditions and general requirements, apply to the work specified in this section.

8.28.3 SCOPE

Work included this section: Work of this section shall consist of providing all painting, as scheduled on drawings and as specified.

- Term "paint" as used herein, emulsion, enamels, paints, and other coating where used as prime, intermediate or finish coats.

Surfaces to be painted: Complete coverage of all exposed surfaces is intended, without restricting the extent of the work to be performed, the work shall include, but is not limited to the following:

- Ferrous Metal: All exposed surfaces of all ferrous metal work, including galvanized, which is not finished painted under other sections, including doors and hollow metal frames.
- Gypsum Drywall: All exposed surfaces.
- Plywood: All exposed surfaces.

Surfaces not to be painted:

- Concealed spaces, concealed pipes and ducts.
- Color coding or piping identification.
- Nonferrous metals and stainless steel.
- Concrete floors.
- Prefinished materials.

8.28.4 QUALITY ASSURANCE

Standard: For purposes of designating type and quality for work under this section, drawings and specifications are based on products manufactured or furnished by Sherwin-Williams, excepting as noted specifically otherwise.

Other acceptable manufacturers: Products of following manufacturers similar to those specified herein and meeting all requirements of these specifications will also be acceptable for use on project.

1. Devoe
2. Glidden
3. PPG
4. Pratt & Lambert
5. Porter Paints
6. Duron

Source: Products for use on this project shall be of one manufacturer unless noted specifically otherwise herein.

8.28.5 SUBMITTALS

Color samples: Submit to Engineer in triplicate manufacturer's complete color samples for color selection. Owner will select one color from manufacturers standards.

8.28.6 PRODUCT HANDLING

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CONFORMED

Storage of Materials: Paints, enamels, lacquers, sealers, stains, varnish, paste fillers and similar materials shall be delivered in original sealed containers that plainly show designated name, formulas, or specification number, batch number, color, date of manufacture, manufacturer's directions and name of manufacturer.

Store all materials in single, heated space, provided by general contractor. Keep storage place neat and clean, and remove soiled or used rags, waste and trash from building every night to avoid danger of fire.

8.28.7 ENVIRONMENTAL CONDITIONS

Maintain temperature in building at constant 6 degrees F., or above during drying of masonry, and provide adequate ventilation for escape of moisture from building, in order to prevent mildew, damage to other work, and improper drying of paint. Once painting has commenced, provide constant temperature of 65 degrees or above and prevent wide variations in temperature which might result in condensation of freshly painted surfaces.

- Exterior painting shall not be performed when the temperature is below 50 degrees F., while the surface is damp, during cold, rains, or frosty weather, or when temperature is likely to drop to freezing within 24 hours. Avoid painting surfaces while they are exposed to hot sun.

Cleaning Area: Before painting is started in any area, it shall be broom cleaned and dust shall be removed from all areas to be painted. After painting operations begin in a given area, room cleaning will not be allowed. Cleaning shall then be done only with commercial cleaning equipment.

Illumination: Provide adequate illumination in all areas where painting operations are in progress.

8.28.8 PROTECTION

Drop Cloths: Protect adjacent areas and installations by use of drop cloths or other approved precautionary measures.

Hardware and fixtures: Remove and protect hardware, accessories, device plates, lighting fixtures, factory finished work, and similar items; or provide ample in-place protection. Upon completion of each space, carefully replace all removed items. All painting work shall be done only by skilled mechanics, using adequate tools for work to be done.

Extra Stock: Contractor shall turn over to the owner at final inspection one gallon of each type and final color of paint used on project.

8.28.9 PRODUCTS

8.28.10 MATERIALS

Paint Materials: All materials used for work shall be types specified in this section. Paint shall arrive at project site, ready-mixed, except for tinting of undercoats, and thinning, if directed by manufacturer's printed instruction. Tinting materials shall be as recommended by manufacturer for particular materials to be tinted.

Thinner: Type and product recommended by manufacturer of finishing material.

1. Turpentine: Pure gum spirits of turpentine, ASTM specification D13.
2. Mineral Spirits: ASTM specification D13.

Putty: Commercial grade of putty composed of linseed oil, whiting, and white lead.

Application Equipment: Equipment shall be adequate and in keeping with work and workmanship required herein.

8.28.11 EXECUTION

8.28.12 INSPECTION OF SURFACES

Before starting any work, examine surfaces to receive paint finish for defects which cannot be corrected by procedures specified under "preparation of surfaces" and which might prevent satisfactory results. Do not proceed with work until such conditions are corrected. Commencing of work shall constitute acceptance of surfaces, and thereafter painting contractor shall be fully responsible for satisfactory work.

8.28.13 PREPARATION OF SURFACES

Paints shall be applied only to surfaces that are completely free of surface moisture as determined by sight or touch. In no case shall paint be applied to surfaces upon which there is visible frost or ice.

- **Ferrous Surfaces:** Surfaces that have not been shop-coated shall be solvent cleaned to remove oil and grease. Surfaces that contain loose rust, loose mill scale, and other foreign substances shall be mechanically cleaned by power wire brushing or sandblasting. After cleaning, apply one coat of ferrous metal primer to all ferrous surfaces that are to receive paint other than asphalt varnish. Protect shop-coated metal from corrosion before and after installation by treating corroded areas immediately upon detection. Abraded or corroded spots on shop-coated surfaces shall be wire brushed and touched up with the same materials as the shop coat. All edges of repaired areas shall be carefully feathered out on exposed surfaces.
- **Galvanized Surfaces:** Galvanized surfaces to be painted shall be solvent cleaned and treated in accordance with paint manufacturer's direction.

8.28.14 APPLICATION

Method of Application: All interior paint shall be applied by brush or rollers in accordance with manufacturer's recommendations.

Sequence of coats: Allow sufficient time between successive coats to permit proper drying. Modify as necessary to suit adverse weather conditions.

- If Engineer so directs, succeeding coats shall not be applied until he has had opportunity to inspect completed coat.

General Requirements for Workmanship: Coverage and hide shall be complete. Where color, stain, dirt or undercoats show through final coat of paint, surface shall be covered by additional coats until paint film is of uniform finish, color, appearance, thickness, and coverage, at no additional cost to owner.

- Give special attention to insure that edges, corners, crevices, welds, and rivets receive film thickness equivalent to that of adjacent painted surfaces.
- Touch up all scarred and abraded areas on shop-primed work after cleaning and smoothing down to avoid shoulders.
- Rate of application shall not exceed average rate of coverage recommended by manufacturer for type of surface involved.
- Each coat of paint shall be a perceptibly different shade of color.
- Finished surfaces shall be free from runs, drops, ridges, waves, laps, sags, brush marks; and free of variations of color, texture and finish.
- **Workmanship for Interior Painting:** Refinish a whole wall rather than spot-finish where a portion of the finish has been damaged or is unsatisfactory.
 1. Remove electrical panel box covers and doors before painting wall. Paint separately and reinstall after all paint is dry.

8.28.15 PAINTING SCHEDULE

One (1) coat - Rust penetrating metal primer

Two (2) coats - Semi-gloss alkyd enamel

Gypsum Wallboard (Walls): Spot prime all cemented and taped joints with Latex Vinyl Primer, in addition to first prime coat.

- One (1) coat - Latex Vinyl Primer
- Two (2) coats - Velour Flat Alkyd

Wood (Painted):

- One (1) coat - Enamel Undercoat
- Two (2) coats - Velour Alkyd Semi-gloss enamel

END OF SECTION 09900

8.29 SECTION 10522 - FIRE EXTINGUISHERS, CABINETS, AND ACCESSORIES

8.29.1 GENERAL

UL-Listed Products: Fire extinguishers shall be UL listed with UL listing mark for type, rating, and classification of extinguisher.

FM-Listed Products: Fire extinguishers approved by Factory Mutual Research Corporation for type, rating, and classification of extinguisher with FM marking.

8.29.2 PRODUCTS

Fire Extinguishers: Provide fire extinguishers for each cabinet and for other locations indicated.

Multipurpose Dry Chemical Type: UL-rated 2A-20BC, 10-pound nominal capacity, in enameled steel container.

Mounting Brackets: Provide brackets of sizes required for type and capacity of extinguisher indicated, in plated finish.

Cabinet Construction: Box with trim, frame, door, and hardware to suit cabinet type, trim style, and door style indicated. Weld joints and grind smooth. Miter and weld perimeter door frames.

Fire-Rated Cabinets: UL listed with UL listing mark with fire-resistance rating of wall where it is installed.

Cabinet Type: Suitable for containing the following:

Fire extinguisher.

Cabinet Mounting: Suitable for the mounting indicated:

Surface-Mounted: Fully exposed and mounted directly on wall.

Trim Style: One piece with corners mitered, welded, and ground smooth.

Exposed Trim: One-piece combination trim and perimeter door frame overlapping surrounding wall surface with exposed trim face and wall return at outer edge.

Square-edge with $\frac{1}{4}$ to $\frac{5}{16}$ inch backbend depth.

Metal: Same metal and finish as door.

Door Material and Construction: Manufacturer's standard of material indicated, coordinated with cabinet types and trim styles selected.

Enameled Steel: Hollow construction with tubular stiles and rails.

Door Glazing: Clear float glass complying with ASTM C 1036, Type I, Class 1, Quality q3.

Identify fire extinguisher cabinet with FIRE EXTINGUISHER lettering applied to door. Provide lettering to comply with authorities having jurisdiction for letter style, color, size, spacing, and location.

Application Process: Silk screen

Door Style: Manufacturer's standard design

Full-Glass Panel: Float glass, 1/8 inch thick

Door Hardware: Provide door-operating hardware of proper type for cabinet type, trim style, and door material and style indicated. Provide lever handle with cam-action latch, or exposed or concealed door pull and friction latch. Provide concealed or continuous-type hinge permitting door to open 180 degrees.

Cabinet Finishes: Comply with NAAMM "Metal Finishes Manual". Protect exposed finishes from damage by application of temporary strippable covering prior to shipment.

Aluminum Cabinet Finishes: Finish designations prefixed by AA conform to the system established by Aluminum Association.

Baked-Enamel Finish: AA-C12C42R1x. Comply with paint manufacturer's specifications for cleaning, conversion coating, and painting.

Color: As selected from manufacturer's standard colors.

8.29.3 EXECUTION

Installation: Follow manufacturer's printed instructions.

Install at heights to comply with applicable regulations of governing authorities.

Fasten mounting brackets and fire extinguisher cabinets to structure, square and plumb.

Quantity: Four (4)

Locations: One (1) in switchgear room, mounted on wall between electrical panels and battery charger. Three (3) in engine room, mounted on three different walls. Space the fire extinguishers at fairly uniform intervals around the engine room perimeter. Select the locations so they will not be obscured or obstructed by the equipment or facilities, including the future installations as indicated.

END OF SECTION 10522

8.30 SECTION 13122 - METAL BUILDING SYSTEMS

8.30.1 GENERAL

8.30.2 RELATED DOCUMENTS

Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

8.30.3 DESCRIPTION OF WORK

This Section includes a 21'-0" eave height single-story, 46'-0" single-span, rigid-frame-type pre-engineered metal building with a minimum roof slope of 1:12.

- Eave height should be able to allow the installation of a clear 18'-0" AFF ceiling without the penetration of any structure roof framing through the ceiling.
- Exterior walls are covered with field-assembled insulated wall panels attached to framing members using exposed fasteners. Endwalls shall not be expandable.
- Roof System consists of the manufacturer's standard standing-seam insulated roof.
- Manufacturer's standard building components and accessories may be used, provided components, accessories, and complete structure conform to design indicated and specified requirements.

Related Work Specified Elsewhere:

- Concrete floor and foundations and installation of anchor bolts are specified in Division 3 Section "Concrete Work."

8.30.4 SYSTEM PERFORMANCE REQUIREMENTS

General: Furnish, deliver, and erect the pre-engineered metal building system complete with windows, doors, and other accessories as shown on plans and as specified to withstand loads from winds, gravity, structural movement including movement thermally induced, and to resist in-service use conditions that the building will experience, including exposure to the weather, without failure.

- Design each member to withstand stresses resulting from combinations of loads that produce the maximum allowable stresses in that member in accordance with AISC "Specifications for the Design Fabrication and Erection of Structural Steel for Buildings and the AISI "Specification for the Design of Cold Formed Steel Structural Members".

Design Loads: Basic design loads, as well as auxiliary and collateral loads, are indicated on the drawings.

- Basic design loads include live load, wind load, and seismic load, in addition to the dead load.
- Collateral loads include additional dead loads over and above the weight of the metal building system such as sprinkler systems and roof-mounted mechanical systems.

Structural Framing and Roof and Siding Panels: Design primary and secondary structural members and exterior covering materials for applicable loads and combinations of loads in accordance with the "South Carolina State Building Code", latest edition.

Structural Steel: Comply with the American Institute of Steel Construction's (AISC) "Specifications for the Design, Fabrication and Erection of Structural Steel for Buildings" for design requirements and allowable stresses.

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Light Gage Steel: Comply with the American Iron and Steel Institute's (AISI) "Specification for the Design of Cold Formed Steel Structural Members" and for design requirements and allowable stresses. Roof purlin deflection shall be limited to 1/180 of the span under full live load. Wall girt deflection shall be limited to 1/120 of the span under full wind load.

Welded Connections: Comply with the American Welding Society's (AWS) "Standard Code for Arc and Gas Welding in Building Construction" for welding procedures.

The connections of column bases to the foundation shall be considered as theoretical pins.

Building frame deflections shall be evaluated under full wind load as defined by ASCE-7. The use of 10 year mean recurrence wind pressures or the use of probability factors shall not be allowed to reduce wind loads for deflection calculations.

Wind design criteria shall be in accordance with ASCE-7, latest edition. Pressure coefficients shall be selected assuming any one door in any wall open during full wind conditions.

Building Accessories: Provide metal building system accessories that comply with the following criteria:

- Hollow Metal Doors and Frames: Comply with the Steel Door Institute's SDI-100 for types, styles, and design requirements and with ANSI A115 for hardware preparation.
- Aluminum Windows: Comply with AAMA 101 for window-type designations and performance requirements.
- Steel Windows: Comply with the Steel Window Institute's (SWI) "Recommended Specifications for Steel Windows" for grade classification and types.
- Glass: Comply with ASTM C 1036 for glass type, class, quality, style, kind, and form and with recommendations of the Flat Glass Marketing Association's (FGMA) "Glazing Manual."

8.30.5 SUBMITTALS

General: Submit the following in accordance with Conditions of the Contract and Division 1 Specification Sections.

Product data consisting of metal building system manufacturer's product information for building components and accessories.

- Shop drawings for metal building structural framing system, roofing and siding panels, and other metal building system components and accessories that are not fully detailed or dimensioned in manufacturer's product data.
- Structural Framing: Furnish complete erection drawings prepared by or under the supervision of a professional engineer registered in South Carolina. Include details showing fabrication and assembly of the metal building system. Show anchor bolts settings and sidewall, endwall, and roof framing. Include transverse cross-sections. Provide foundation design for building and building reactions for design of foundations sealed by a South Carolina registered Professional Engineer.
- Roofing and Siding Panels: Provide layouts of panels on walls and roofs, details of edge conditions, joints, corners, custom profiles, supports, anchorages, trim, flashings, closures, and special details. Include transverse cross-sections.

Building Accessory Components: Provide details of metal building accessory components to clearly indicate methods of installation including the following:

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- Personnel doors: Provide elevations and details of each type of door and frame, including anchors and reinforcement; show location and installation requirements for finish hardware. Provide schedule of doors and frames using the same reference numbers for details and openings as those indicated on the drawings; include complete hardware schedule.
- Overhead Sectional Service Doors: Provide fully dimensioned details of construction, including 1/4-inch scale elevations of door units and not less than 3/4-inch scale details showing door sections, tracks, brackets, guides, hardware, and method of operation.
- Steel Windows: Provide 1/4-inch scale elevations of window units and not less than 3/4-inch scale details showing anchors, hardware, operators, and glazing details.
- Sheet Metal Accessories: Provide layouts at 1/4-inch scale. Provide details of ventilators, louvers, gutters, downspouts, and other sheet metal accessories at not less than 1-1/2-inch scale showing profiles, methods of joining, and anchorages.

Wiring diagrams from the manufacturer of motor operated overhead service doors detailing power, signal, and control systems differentiating clearly between field-installed and manufacturer-installed wiring.

Samples for initial selection purposes in form of manufacturer's color charts or chips showing full range of colors, textures, and patterns available for metal roofing and siding panels with factory-applied finishes.

Samples for verification purposes of roofing and siding panels. Provide sample panels 12-inch long by actual panel width, in the profile, style, color, and texture indicated. Include clips, battens, fasteners, closures, and other panel accessories.

Installer certificates signed by metal building manufacturer written certification certifying that the installer complies with requirements included under the "Quality Assurance" Article.

Professional engineer's certificate prepared, sealed, and signed by a Professional Engineer, verifying that the structural framing and covering panels meet indicated loading requirements and codes of the South Carolina State Building Code, latest edition.

8.30.6 QUALITY ASSURANCE

Installer Qualifications: Engage an experienced Installer to erect the pre-engineered metal building who has specialized in the erection and installation of types of metal buildings systems similar to that required for this project and who is certified in writing by the metal building system manufacturer as qualified for erection of the manufacturer's products.

Manufacturer's Qualifications: Provide pre-engineered metal buildings manufactured by a firm experienced in manufacturing metal buildings systems that are similar to those indicated for this project and have a record of successful in-service performance. Manufacturer shall hold current certification in Category MB of the AISC Quality Certification Program.

Single-Source Responsibility: Obtain the metal building system components, including structural framing, wall and roof covering, and accessory components, from one source from a single manufacturer.

Design Criteria: The drawings indicate size, profiles, and dimensional requirements of the pre-engineered metal buildings and are based on the specific type and model indicated. Metal building systems having equal characteristics by other manufacturers may be considered provided that deviations in dimensions and profiles are minor and do not change the design concept or intended performance as judged by the Engineer. The burden of proof of equality is on the proposer.

8.30.7 DELIVERY, STORAGE, AND HANDLING

Deliver prefabricated components, sheets, panels, and other manufactured items so they will not be damaged or deformed. Package wall and roof panels for protection against transportation damage.

Handling: Exercise care in unloading, storing, and erecting wall and roof covering panels to prevent bending, warping, twisting, and surface damage.

Stack materials on platforms or pallets, covered with tarpaulins or other suitable weathertight ventilated covering. Store metal wall and roof panels so that water accumulations will drain freely. Do not store panels in contact with other materials that might cause staining, denting or other surface damage.

8.30.8 WARRANTY

Roofing and Siding Panel Finish Warranty: Furnish the roofing and siding panel manufacturer's written warranty, covering failure of the factory-applied exterior finish on metal wall and roof panels within the warranty period. This warranty shall be in addition to and not a limitation of other rights the Owner may have against the Contractor under the Contract Documents.

Warranty period for factory-applied exterior finishes on wall and roof panels is 20 years after the date of Substantial Completion. The roofing system shall have a 10 year manufacturer's warranty against leakage and an independent 2 year Contractor's warranty against leakage.

8.30.9 EXTRA MATERIALS

Maintenance Stock: Furnish at least 5 percent excess over required amount of nuts, bolts, screws, washers, and other required fasteners for each metal building. Pack in cartons labeled to identify the contents and store on the site where directed.

8.30.10 PRODUCTS

8.30.11 MANUFACTURERS

Contractor's bid shall be based on providing one of the following Manufacturers only unless an alternate Manufacturer is approved prior to bidding by formal addendum. No additional Manufacturers shall be approved after the bid date.

- Manufacturer: Subject to compliance with specified requirements, provide metal building systems provided by one of the following:
 1. Butler Manufacturing Co.
 2. Ceko Buildings Division.
 3. Varco-Pruden Buildings.
 4. Mesco Metal Buildings.
 5. United Structures of America.
 6. American Buildings Company (Nucor)
 7. Whirlwind Steel

8.30.12 MATERIALS

Hot-Rolled Structural Steel Shapes: Comply with ASTM A 36 or A 572.

Steel Tubing or Pipe: Comply with ASTM A 500, Grade B, ASTM A 501, or ASTM A 53.

Steel Members Fabricated from Plate or Bar Stock: Provide 42,000 psi minimum yield strength. Comply with ASTM A 572, ASTM A 529.

Steel Members Fabricated by Cold Forming: Comply with ASTM A 607, Grade 50.

Cold-Rolled Carbon Steel Sheet: Comply with requirements of ASTM A 366 or ASTM A 568.

Hot-Rolled Carbon Steel Sheet: Comply with requirements of ASTM A 568 or ASTM A 569.

Structural Quality Zinc-Coated (Galvanized) Steel Sheet: Comply with ASTM A 446 with G90 coating complying with ASTM A 525. Grade to suit manufacturer's standards.

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Commercial Quality Zinc-Coated (Galvanized) Steel Sheet: Comply with ASTM A 526 with G60 coating complying with ASTM A 525.

Bolts for Structural Framing: Comply with ASTM A 307 or ASTM A 325 as necessary for design loads and connection details.

Glass and Glazing Materials: Provide glass complying with ASTM C 1036, of quality and type indicated. Place manufacturer's label identification on each glass light.

Polished Wired Glass: Type II, Class 1, Form I, Mesh m1 (welded diamond), UL labeled, nominal 1/4 inch thick, polished wired glass.

Patterned Wired Glass: Type II, Class 1, Form 2 (pattern as selected), Mesh m1 (welded diamond), UL labeled, nominal 1/4 inch thick, patterned wired glass.

Silicone Sealant: Single-component elastomeric silicone sealant complying with FS TT-S-001543, Class A, nonsag, and ASTM C 920, Type S, Grade NS, Class 25, Uses G, A, and O. Provide low modulus nonacid curing type, except use acid type if channel surfaces are porous.

Polysulfide Sealant: 2-component elastomeric polysulfide sealant complying with FS TT-S-00227, Class A, Type 2, and ASTM C 920, Type M, Grade NS, Class 25, Uses G, A, and O, as applicable.

Acrylic Sealant: Single-component acrylic terpolymer or polypropenatate solvent-based thermo-plastic sealant complying with FS TT-S-00230, Class B, Type II, and ASTM C 920, Type S, Grade NS, Class 12-1/2, Uses G, A, and O, as applicable.

Glazing Tape: Preformed butyl-polyisobutylene glazing tape, complying with AAMA 807.1 packaged on rolls with release paper on side, with or without continuous spacer rod.

Face Glazing Compound: Comply with ASTM C 669.

Glazing Gasket: Extruded or molded close cell, integral-skinned preformed neoprene of profile and hardness required to maintain watertight seal, complying with ASTM C 509, Type II, black.

Setting Blocks: Neoprene, EPDM, or silicone setting blocks as required for compatibility with glazing sealants, 80 to 90 Shore A durometer hardness.

Spacers: Neoprene, EPDM, or silicone blocks or continuous extrusions, as required for compatibility with glazing sealant, of size, shape, and hardness recommended by glass and sealant manufacturer for application indicated.

Edge Blocks: Neoprene, EPDM, or silicone as required for compatibility with glazing sealant, of size and hardness required to limit lateral movement of glass.

Filler Rods: Compressible closed-cell or waterproof-jacketed rod stock of flexible and resilient synthetic rubber or plastic foam with 5-10 psi compression strength for 25 percent deflection.

Thermal Insulation: Glass fiber blanket insulation, complying with ASTM C 991, of 0.5 lb per cu. ft. density, thickness as indicated, with UL flame spread classification of 25 or less, and 2 inch wide continuous vapor-tight edge tabs.

- Vapor Barrier: Vinyl film.
- Retainer Strips: 26-gage (0.0179-inch) formed galvanized steel retainer clips colored to match the insulation facing.

Paint and Coating Materials: Comply with performance requirements of the federal specifications indicated. Unless specifically indicated otherwise, compliance with compositional requirements of federal specifications indicated is not required.

Shop Primer for Ferrous Metal: Fast-curing, lead-free, abrasion-resistant, rust-inhibitive primer selected by the manufacturer for compatibility with substrates with types of alkyd finish paint systems indicated and for capability to provide a sound foundation for field-applied topcoats despite prolonged exposure. Comply with FS TT-P-86, Types I, II, or III.

Shop Primer for Galvanized Metal Surfaces: Zinc dust-zinc oxide primer selected by the manufacturer for compatibility with substrate. Comply with FS TT-P-641.

8.30.13 STRUCTURAL FRAMING

Rigid Frames: Fabricate from hot-rolled structural steel shapes. Provide factory-welded, shop-painted, built-up "I-beam"-shape or open-web-type frames consisting of tapered or parallel flange beams and tapered columns. Furnish frames with attachment plates, bearing plates, and splice members. Factory drill for field-bolted assembly.

Provide length of span and spacing of frames indicated.

Primary Endwall Framing: Provide the following primary endwall framing members fabricated for field-bolted assembly:

- Endwall Columns: Manufacturer's standard shop-painted, built-up factory-welded "I"-shape or cold-formed "C" sections, fabricated from 14-gage minimum (0.0747-inch) steel.
- Endwall Beams: Manufacturer's standard shop-painted "C"-shape roll-formed sections fabricated from 16-gage minimum (0.0598-inch) steel.

Secondary Framing: Provide the following secondary framing members:

- Roof Purlins, Sidewall and Endwall Girts: "C"-or "Z"-shaped sections fabricated from 16 gage minimum (0.0598-inch) shop-painted roll-formed steel. Purlin spacers shall be fabricated from 14-gage minimum (0.0747-inch) cold-formed galvanized steel sections.
- Eave Struts: Unequal flange "C"-shaped sections formed to provide adequate backup for both wall and roof panels. Fabricate from 16-gage minimum (0.0598-inch) shop-painted roll-formed steel.
- Flange and Sag Bracing: 1-5/8- by 1-5/8 inch minimum angles fabricated from 16-gage minimum (0.0598-inch) shop-painted roll-formed steel.
- Base or Sill Angles: Fabricate from 14-gage minimum (0.0747-inch) cold-formed galvanized steel sections.
- Secondary endwall structural members, except columns and beams, shall be the manufacturer's standard sections fabricated from 14-gage minimum (0.0747-inch) cold-formed galvanized steel.

Wind Bracing: Provide adjustable wind bracing using 1/2 inch diameter minimum threaded steel rods; comply with ASTM A 36 or ASTM A 572, Grade 50. Locate interior end bay bracing only where indicated.

Bolts: Provide shop-painted bolts except when structural framing components are in direct contact with roofing and siding panels. Provide zinc-plated or cadmium-plated bolts when structural framing components are in direct contact with roofing and siding panels.

Shop Painting: Clean surfaces to be primed of loose mill scale, rust, dirt, oil, grease, and other matter precluding paint bond. Follow procedures of SSPC-SP3 for power-tool cleaning, SSPC-SP7 for brush-off blast cleaning.

- Prime structural steel primary and secondary framing members with the manufacturer's standard rust-inhibitive primer.
- Prime galvanized members, after phosphoric acid pretreatment, with manufacturer's standard zinc dust-zinc oxide primer.

8.30.14 ROOFING AND SIDING PANELS

Face Sheets: Fabricate wall and roof panel face sheets to the profile or configuration indicated from 24-gage minimum (0.0179-inch), structural quality, Grade C, zinc-coated steel sheets.

Standing-Seam Roof Panels: Manufacturer's factory-formed standing-seam roof panel system designed for mechanical attachment of panels to roof purlins using concealed fasteners and sealants. Form panels of 24-gage minimum (0.0179-inch), Grade C, zinc-coated steel sheets. Roof panels shall carry an Underwriter's Laboratories uplift rating of Class 90.

Fasteners: Self-tapping screws, bolts, nuts, self-locking rivets, self-locking bolts, end-welded studs, and other suitable fasteners designed to withstand design loads.

- Provide metal-backed neoprene washers under heads of fasteners bearing on weather side of panels.
- Use stainless steel fasteners for exterior application and galvanized or cadmium-plated fasteners for interior applications.
- Locate and space fastenings in true vertical and horizontal alignment. Use proper tools to obtain controlled uniform compression for positive seal without rupture of neoprene washer.
- Provide fasteners with heads matching color of roofing or siding sheets by means of plastic caps or factory-applied coating.

Accessories: Provide the following sheet metal accessories factory-formed of the same material in the same finish as roof and wall panels:

- Flashings.
- Closers.
- Fillers.
- Metal expansion joints.
- Ridge covers.
- Fascias.

Flexible Closure Strips: Closed-cell, expanded cellular rubber, self-extinguishing flexible closure strips. Cut or premold to match configuration of roofing and siding sheets. Provide closure strips where indicated or necessary to ensure weathertight construction.

Sealing Tape: Pressure-sensitive 100 percent solids grey polyisobutylene compound sealing tape with release paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape 1/2 inch wide and 1/8 inch thick.

Joint Sealant: One-part elastomeric polyurethane, polysulfide, or silicone rubber sealant as recommended by the building manufacturer.

Baked Enamel Finish: Provide the manufacturer's standard shop-applied baked enamel finish to galvanized steel roof and wall panels, and related trim and accessory elements. For roofing and siding, apply finish coat on exterior facings and manufacturer's standard wash coat on reverse face.

- Clean galvanized steel with an alkaline compound, then treat with a zinc phosphate conversion coating, and seal with a chromic acid rinse.

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- Apply baked-on thermo-setting modified acrylic enamel to pretreated steel sheets, in one or more coats as standard with the manufacturer to achieve a minimum dry film thickness of 1.5 mils.
- Color: As selected by the Engineer from the manufacturer's standard colors.

8.30.15 PERSONNEL DOORS

Materials: Fabricate personnel doors and frames from commercial quality, cold-rolled carbon steel sheet or commercial quality hot-rolled, pickled and oiled carbon steel sheet.

- Zinc-coated Steel Sheets: Comply with ASTM A 526; with G60 coating complying with ASTM A 525, mill phosphatized.

Anchors and Accessories: Provide manufacturer's standard units. For items built into exterior walls, use galvanized units complying with ASTM A 153.

Doors: Provide doors of types and styles indicated. Comply with SDI-100 for material quality, metal gages, and construction details.

Frames: Provide frames of the types and sizes indicated. Comply with SDI-100 for material quality, metal gages, and construction details.

- Provide standard hollow metal frames for doors, transoms, sidelights, borrowed lights, and other openings as indicated.
- Prepare frames to receive 3 silencers on strike jambs of single door frames and 2 silencers on heads of frames for pairs of doors.

Fabrication: Fabricate units to be rigid, neat in appearance, and free from defects, warp, or buckle. Provide continuous welds on exposed joints; grind, dress, and make welds smooth, flush, and invisible.

Hardware: Prepare hollow metal units to receive mortised and concealed finish hardware, including cutouts, reinforcing, drilling, and tapping. Comply with ANSI A115.

- Reinforce to receive field-applied, surface-mounted finish hardware.
- Locate finish hardware in accordance with "Recommended Locations for Builder's Hardware," published by the Door and Hardware Institute.
- Provide hardware for each door leaf, as follows:
 1. Hinges: 1-1/2 pair, steel, template hinges, 4-1/2 inch by 4-1/2 inch.
 2. Lockset: Cylindrical type, key in knob.
 3. Threshold: Extruded aluminum (exterior doors only).
 4. Silencers: Pneumatic rubber type for metal frames.
- Shop-paint exposed surfaces, including galvanized surfaces, using manufacturer's standard baked-on rust-inhibitive primer.

8.30.16 SECTIONAL OVERHEAD DOORS

General: Provide complete operating sectional overhead door assemblies including frames, sections, brackets, guides, tracks, counterbalance, hardware, operators, and installation accessories.

Steel Door Sections: Construct door sections from 24-gage minimum (0.0239-inch), Grade A, structural quality carbon steel sheets with a minimum yield strength of 33,000 psi.

- Exterior Face: Match pattern shown on drawings.
- Fabricate sections from a single sheet to provide units not more than 24 inches high and nominal 2 inches deep. Roll horizontal meeting edges to form a continuous shiplap, rabbeted, or keyed weatherseal with a continuous reinforcing flange.
- Enclose open section with 16-gage minimum (0.0598-inch) galvanized steel channel end stiles welded in place. Provide intermediate stiles, cut to door section profile, spaced not more than 48 inches on center and welded in place.
- Reinforce bottom section with a continuous channel or angle conforming to bottom section profile. Reinforce sections with continuous horizontal and diagonal reinforcing, as required by door width, and design wind loading.
- Insulate inner core of door sections with glass fiber, polystyrene, or polyurethane foam-type insulation.
- Finish by cleaning, pretreating, and applying the manufacturer's standard prime coat to both door faces after forming.
- Tracks: Provide complete galvanized steel track assembly including brackets, bracing, and reinforcing for rigid support of ball-bearing roller guides, as required for type and size of door. Size track assembly for door size and weight; design for clearances indicated. Slot vertical sections of track at 2 inches on center for door drop safety device. Slope tracks at proper angle from vertical, or otherwise design to ensure tight closure at jambs when door unit is closed. Weld or bolt to track supports.

Track Reinforcement and Supports: Provide galvanized steel track reinforcement and support members. Secure, reinforce, and support tracks as required for size and weight of door to provide strength and rigidity and to ensure against sag, sway, and detrimental vibration during opening and closing.

Weather Seals: Continuous rubber, neoprene, or flexible vinyl adjustable weatherstrip gasket on top and compressible astragal on the bottom of each overhead door.

Hardware: Heavy-duty, rust-resistant hardware, with galvanized, cadmium-plated, or stainless steel fasteners to suit type of door.

- Hinges: Provide heavy steel hinges at each end stile and at each intermediate stile in accordance with manufacturer's recommendations for the type of door.
- Rollers: Provide heavy-duty rollers with steel ball bearings in case-hardened steel races, mounted with varying projections to suit slope of track. Provide case-hardened steel roller tires of diameter to suit track size.
- Lifting Handles: Provide galvanized steel lifting handles on inside and outside of doors.
- Locking Bars: Provide cremone-type locking bar, operable from inside and outside. Fabricate locking device assembly with mortise lock, spring-loaded dead bolt, chromium-plated operating handle, cam plate and adjustable locking bar to engage through slots in track, and lock cylinder.

Counterbalance: Torsion spring counterbalance assembly consisting of adjustable-tension, tempered steel torsion springs mounted on a case-hardened shaft.

Manual Door Operator: Provide lift handles and pull rope for raising and lowering doors, operating with not more than 25-lb. lift or pull.

8.30.17 STEEL WINDOWS

Steel Window Members: Form from standard hot-rolled steel shapes, or cold-formed steel plate, bar, sheet, or strip, as designed by the manufacturer to comply with specified requirements.

Trim members include glazing beads, screen frames, weatherstrip retainers, flashing, and similar items not functioning as prime structural members. Provide units of extruded aluminum or of formed sheet aluminum or stainless steel.

Mullions and Subframes: Form of hot-rolled or cold-formed steel, of manufacturer's standard profile for span and spacing indicated.

Fasteners: Provide bronze, brass, stainless steel, or other metal fasteners warranted by the manufacturer to be noncorrosive and compatible with window members, trim, hardware, anchors, and other components of connected work.

Anchors, Clips, and Window Accessories: Depending on strength and corrosion-inhibiting requirements, fabricate units of stainless steel, hot-dip zinc-coated steel or iron complying with ASTM A 123, or bronze/brass.

Weatherstripping: Provide weatherstripping as recommended by the manufacturer, applied to each operable sash.

Glazing Stops: Provide extruded aluminum or formed steel, snap-on or screwed-type glazing stops.

Insect Screens: Provide removable units for each operable sash. Fabricate from extruded aluminum or formed steel with replaceable 18 by 14 mesh of 0.013-inch-diameter aluminum wire and vinyl retainer spline.

Hardware: Provide standard design for operation indicated, of die-cast steel, malleable iron, or bronze, with steel or bronze operating arms.

Window Types (Operation): Drawings indicate locations of the following types:

- Fixed units (without vents).

Window Classification (Grade): As follows:

- Commercial Projected Windows: Provide units complying with SWI recommended specifications (1-3/8 inch by 1/8 inch, inside glazing).
- Shop Prime Coat Finish: Provide hot alkali cleaning, rinse, hot phosphate treatment, chromic acid rinse, metal primer dip coating, 1-mil dry film thickness.
- Galvanized and Prime Coat Finish: Provide SSPC-SP1 cleaning, SSPC-SP8 pickling, and ASTM A 123 hot-dip galvanizing, followed by hot phosphate treatment, chromic acid rinse, metal primer dip coating, 1-mil dry film paint thickness.

8.30.18 SHEET METAL ACCESSORIES

General: Provide coated steel sheet metal accessories with coated steel roofing and siding panels.

Gutters: Form in 8-foot-long sections, complete with end pieces, outlet tubes, and other special pieces as required. Size in accordance with SMACNA. Join sections with riveted and soldered or sealed joints. Provide expansion-type slip joint at center of runs. Furnish gutter supports spaced 36 inches on center, constructed of

same metal as gutters. Provide bronze, copper, or aluminum wire ball strainers at outlets. Finish to match roof fascia and rake.

Downspouts: Form in 10-foot-long sections, complete with elbows and offsets. Join sections with 1-1/2-inch telescoping joints. Provide fasteners designed to hold downspouts securely 1 inch away from walls; locate fasteners at top and bottom and at approximately 5 feet on center in between. Finish to match wall panels.

Continuous Ridge Ventilators: Provide factory-engineered and -fabricated, continuous ridge ventilator of the continuous-heat-valve type as furnished by the building manufacturer. Provide in standard length sections in locations indicated. Provide throat size and total length indicated, complete with side baffles, ventilator assembly, operating damper, hardware, bird screen, end caps, splice plates, flashing, reinforcing diaphragms, closures, and fasteners. Finish to match roof panels.

- Provide bird screens of 1/2-inch by 1/2-inch galvanized steel or expanded diamond mesh.

Wall Louvers: Provide louvers, size and design indicated, of 18-gage minimum (0.0478-inch) steel. Fold or bead blades at edges, set at an angle that excludes driving rains, and secure to frames by riveting or welding. Finish to match wall panels.

- Provide flanges on interior face of frames where air intake or exhaust louvers are indicated to be connected with mechanically operated dampers or metal ductwork.
- Provide 1/2-inch by 1/2-inch galvanized steel mesh bird screens in rewirable frames on exterior face of louvers. Secure with clips to ensure ease of removal for cleaning and rewiring. Fabricate screens and frames of same type metal as louvers.

8.30.19 FABRICATION

General: Design prefabricated components and necessary field connections required for erection to permit easy assembly and disassembly.

- Fabricate components in such a manner that once assembled, they may be disassembled, repackaged, and reassembled with a minimum amount of labor.
- Clearly and legibly mark each piece and part of the assembly to correspond with previously prepared erection drawings, diagrams, and instruction manuals.

Structural Framing: Shop-fabricate framing components to indicated size and section with base plates, bearing plates, and other plates required for erection, welded in place. Provide holes for anchoring or connections shop-drilled or punched to template dimensions.

Shop Connections: Provide power riveted, bolted, or welded shop connections.

Field Connections: Provide bolted field connections.

8.30.20 EXECUTION

8.30.21 ERECTION

Framing: Erect framing true to line, level, plumb, rigid, and secure. Level base plates to a true even plane with full bearing to supporting structures, set with double-nutted anchor bolts. Use a nonshrinking grout to obtain uniform bearing and to maintain a level base line elevation. Moist cure grout for not less than 7 days after placement.

Purlins and Girts: Provide rake or gable purlins with tight-fitting closure channels and fascias. Locate and space wall girts to suit door and window arrangements and heights. Secure purlins and girts to structural framing and hold rigidly to a straight line by sag rods.

Bracing: Provide diagonal rod or angle cross bracing in roof and sidewalls as required.

- Movement-resisting frames may be used in lieu of sidewall rod bracing, to suit manufacturer's standards and building layout.
- Panel diaphragm capacity of roof and wall panels shall not be utilized to resist lateral loads.

Framed Openings: Provide shapes of proper design and size to reinforce openings and to carry loads and vibrations imposed, including equipment furnished under mechanical and electrical work. Securely attach to building structural frame.

8.30.22 ROOFING AND SIDING

General: Arrange and nest sidelap joints so prevailing winds blow over, not into, lapped joints. Lap ribbed or fluted sheets one full rib corrugation. Apply panels and associated items for neat and weathertight enclosure. Avoid "panel creep" or application not true to line. Protect factory finishes from damage.

- Field cutting of exterior panels by torch is not permitted.
- Provide weatherseal under ridge cap. Flash and seal roof panels at eave and rake with rubber, neoprene, or other closures to exclude weather.

Roof Sheets: Provide sealant tape at lapped joints of ribbed or fluted roof sheets and between roof sheets and protruding equipment, vents, and accessories.

- Apply a continuous ribbon of sealant tape to clean, dry surface of the weather side of fastenings on end laps, and on side laps of corrugated nesting-type, ribbed, or fluted panels and elsewhere as needed to make roof sheets weatherproof to driving rains.

Wall Sheets: Apply elastomeric sealant continuously between metal base channel (sill angle) and concrete and elsewhere as necessary for waterproofing. Handle and apply sealant and backup in accordance with the sealant manufacturer's recommendations.

- Align bottom of wall panels and fasten panels with blind rivets, bolts, or self-tapping screws. Fasten flashings and trim around openings and similar elements with self-tapping screws. Fasten window and door frames with machine screws or bolts. When building height requires two rows of panels at gable ends, align lap of gable panels over wall panels at eave height.
- Install screw fasteners with power tools having controlled torque adjusted to compress neoprene washer tightly without damage to washer, screw threads, or panels. Install screws in predrilled holes.
- Provide weatherproof escutcheons for pipe and conduit penetrating exterior walls.

Sheet Metal Accessories: Install gutters, downspouts, ventilators, louvers, and other sheet metal accessories in accordance with manufacturer's recommendations for positive anchorage to building and weathertight mounting. Adjust operating mechanism for precise operation.

Hollow Metal Doors and Frames: Install doors and frames straight, plumb, and level. Securely anchor frames to building structure. Set units with 1/8-inch maximum clearance between door and frame at jambs and head and 3/4-inch maximum between door and floor. Adjust hardware for proper operation.

Overhead Sectional Doors: Set doors and operating equipment with necessary hardware, jamb and head mold stops, anchors, inserts, hangers, and equipment supports in accordance with manufacturer's instructions. Adjust moving hardware for proper operation.

Windows: Anchor windows securely in place. Seal perimeter of each unit with the elastomeric sealant used for panels. Adjust and lubricate operating sash and hardware for proper operation. Clean surfaces of window units. Mount screens direct to frames with tapped screw clips.

Glazing: Clean channel surfaces and prime as recommended by sealant manufacturer. Cut glass to required size for measured opening; provide adequate edge clearance and glass bite all around. Do not install glass that has significant edge damage or other defects.

- Install setting blocks at quarter points, set in a bed of sealant if heel-bead is used. Install spacers inside and out, all around, wherever liquid or plastic/mastic compounds are used, except on glass sizes smaller than 50 united inches.

Replace glass that is broken or damaged prior to the time of acceptance. Each piece of exterior glass must be airtight and watertight through normal weather/temperature cycles and through normal door/window operation.

Thermal Insulation: Install insulation concurrently with installation of roof panels in accordance with manufacturer's directions. Install blankets straight and true in one-piece lengths with both sets of tabs sealed to provide a complete vapor barrier. Locate insulation on underside of roof sheets, extending across the top flange of purlin members and held taut and snug to roofing panels with retainer clips. Install retainer strips at each longitudinal joint, straight and taut, nesting with roof rib to hold insulation in place.

Cleaning and Touch-Up: Clean component surfaces of matter that could preclude paint bond. Touch up abrasions, marks, skips, or other defects to shop-primed surfaces with same type material as shop primer.

END OF SECTION 13122

8.31 SECTION 15010 - BASIC MECHANICAL REQUIREMENTS

8.31.1 GENERAL

8.31.2 RELATED DOCUMENTS

Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this and the other sections of Division 15.

8.31.3 SUMMARY

This Section includes general administrative and procedural requirements for mechanical installations. The following administrative and procedural requirements are included in this Section to expand the requirements specified in General and Supplementary Conditions and Division 1:

- Submittals.
- Record documents.
- Maintenance manuals.
- Rough-ins.
- Mechanical installations.
- Cutting and patching.

Related Sections: The following sections contain requirements that relate to this section:

- Division 15 Section "BASIC MECHANICAL MATERIALS AND METHODS," for materials and methods common to the remainder of Division 15, plus general related specifications including:
 1. Access to mechanical installations.
 2. Excavation for mechanical installations within the building boundaries, and from building to utilities connections.
- The Owner has proposed that the purchase of the diesel electric system equipment be accomplished under an equipment purchase contract. The Construction Contractor shall provide services for receiving, unloading, and installing this equipment. Contractor shall also assist the equipment supplier with initial startup of the equipment and systems.
- The equipment pertaining to DIVISION 15 which was purchased by the Owner for installation by the Contractor as specified herein and indicated on the drawings:
 1. Engine generator sets (Two)
 2. Diesel exhaust Tier V. after treatment CEM system with exhaust silencers, piping and insulation as described on the drawings. (Two)
 3. Exhaust piping expansion joints (multiple-joint manifold connection at engine). (Two)
- Installation instructions for individual equipment items will be made available to contractors directly from the equipment suppliers upon request.
- Install all equipment in accordance with manufacturers written instructions.

8.31.4 SUBMITTALS

General: Follow the procedures specified in the Conditions of the Contract and Division 1 Specification Sections.

8.31.5 RECORD DOCUMENTS

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Prepare record documents in accordance with the requirements in the Conditions of the Contract and Division 1 Specification Sections. In addition to the requirements specified, indicate the following installed conditions:

- Ductwork mains and branches, size and location, for both exterior and interior; locations of dampers and other control devices; filters, boxes, and terminal units requiring periodic maintenance or repair.
- Mains and branches of piping systems, with valves and control devices located and numbered, concealed unions located, and with items requiring maintenance located (i.e., traps, strainers, expansion compensators, tanks, etc.). Valves shall be marked with identifying tag attached to valve handle. Valve location diagrams, complete with valve tag chart. Refer to Division 15 Section "Mechanical Identification." Indicate actual inverts and horizontal locations of underground piping.
- Equipment locations (exposed and concealed), dimensioned from prominent building lines.
- Approved substitutions, Contract Modifications, and actual equipment and materials installed.
- Contract Modifications, actual equipment and materials installed.

8.31.6 MAINTENANCE MANUALS

Prepare maintenance manuals in accordance with the Conditions of the Contract and Division 6 General Conditions. In addition to the requirements specified, include the following information for equipment items:

- Description of function, normal operating characteristics and limitations, performance curves, engineering data and tests, and complete nomenclature and commercial numbers of replacement parts.
- Manufacturer's printed operating procedures to include start-up, break-in, and routine and normal operating instructions; regulation, control, stopping, shutdown, and emergency instructions; and summer and winter operating instructions.
- Maintenance procedures for routine preventative maintenance and troubleshooting; disassembly, repair, and reassembly; aligning and adjusting instructions.
- Servicing instructions and lubrication charts and schedules.

8.31.7 DELIVERY, STORAGE, AND HANDLING

Deliver products to the project properly identified with names, model numbers, types, grades, compliance labels, and other information needed for identification.

8.31.8 PRODUCTS (Not Applicable)

8.31.9 EXECUTION

8.31.10 ROUGH-IN

Verify final locations for rough-ins with field measurements and with the requirements of the actual equipment to be connected.

Refer to equipment specifications in Divisions 2 through 16 for rough-in requirements.

8.31.11 MECHANICAL INSTALLATIONS

General: Sequence, coordinate, and integrate the various elements of mechanical systems, materials, and equipment. Comply with the following requirements:

- Coordinate mechanical systems, equipment, and materials installation with other building components.
- Verify all dimensions by field measurements.
- Arrange for chases, slots, and openings in other building components during progress of construction, to allow for mechanical installations.
- Coordinate the installation of required supporting devices and sleeves to be set in poured-in-place concrete and other structural components, as they are constructed.
- Sequence, coordinate, and integrate installations of mechanical materials and equipment for efficient flow of the Work. Give particular attention to large equipment requiring positioning prior to closing in the building.
- Where mounting heights are not detailed or dimensioned, install systems, materials, and equipment to provide the maximum headroom possible.
- Coordinate connection of mechanical systems with exterior underground and overhead utilities and services. Comply with requirements of governing regulations, franchised service companies, and controlling agencies. Provide required connection for each service.
- Install systems, materials, and equipment to conform with approved submittal data, including coordination drawings, to greatest extent possible. Conform to arrangements indicated by the Contract Documents, recognizing that portions of the Work are shown only in diagrammatic form. Where coordination requirements conflict with individual system requirements, refer conflict to the Engineer.
- Install systems, materials, and equipment level and plumb, parallel and perpendicular to other building systems and components, where installed exposed in finished spaces.
- Install mechanical equipment to facilitate servicing, maintenance, and repair or replacement of equipment components. As much as practical, connect equipment for ease of disconnecting, with minimum of interference with other installations. Extend grease fittings to an accessible location.
- Install access panel or doors where units are concealed behind finished surfaces. Access panels and doors are specified in Division 8 Section "ACCESS DOORS" and Division 15 Section "BASIC MECHANICAL MATERIALS AND METHODS."
- Install systems, materials, and equipment giving right-of-way priority to systems required to be installed at a specified slope.

8.31.12 CUTTING AND PATCHING

General: Perform cutting and patching in accordance with the Conditions of the Contract and Division 1 Specification Sections. In addition to the requirements specified in Division 1, the following requirements apply:

Protection of Installed Work: During cutting and patching operations, protect adjacent installations.

Perform cutting, fitting, and patching of mechanical equipment and materials required to:

- Uncover Work to provide for installation of ill-timed Work.

- Remove and replace defective Work.
- Remove and replace Work not conforming to requirements of the Contract Documents.
- Remove samples of installed Work as specified for testing.
- Install equipment and materials in existing structures.
- Upon written instructions from the Engineer, uncover and restore Work to provide for Engineer observation of concealed Work.

END OF SECTION 15010

8.32 SECTION 15050 - BASIC MECHANICAL MATERIALS AND METHODS

8.32.1 GENERAL

8.32.2 RELATED DOCUMENTS

Drawings and general provisions of Contract, including General and the Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

8.32.3 SUMMARY

This Section includes the following basic mechanical materials and methods to complement other Division 15 Sections.

- Piping materials and installation instructions common to most piping systems.
- Equipment nameplate data requirements.
- Nonshrink grout for equipment installations.
- Field-fabricated metal and wood equipment supports.
- Installation requirements common to equipment specification Sections.
- Cutting and patching.
- Touchup painting and finishing.

Pipe and pipe fitting materials are specified in piping system Sections.

8.32.4 DEFINITIONS

Pipe, pipe fittings, and piping include tube, tube fittings, and tubing.

Finished Spaces: Spaces other than mechanical and electrical equipment rooms, furred spaces, pipe and duct shafts, unheated spaces immediately below the roof, spaces above ceilings, unexcavated spaces, crawl spaces, and tunnels.

Exposed Interior Installations: Exposed to view indoors. Examples include finished occupied spaces and mechanical equipment rooms.

Exposed Exterior Installations: Exposed to view outdoors, or subject to outdoor ambient temperatures and weather conditions. Examples include rooftop locations.

Concealed Interior Installations: Concealed from view and protected from physical contact by building occupants. Examples include above ceilings and in duct shafts.

8.32.5 SUBMITTALS

General: Submit the following according to the Conditions of the Contract and Division 1 Specification Sections.

Product data for following piping specialties:

- Mechanical sleeve seals.
- Identification materials and devices.

Samples of color, lettering style, and other graphic representation required for each identification material and device.

Shop drawings detailing fabrication and installation for metal supports and anchorage for mechanical materials and equipment.

Welder certificates signed by Contractor certifying that welders comply with requirements specified under the "Quality Assurance" Article.

8.32.6 QUALITY ASSURANCE

Qualify welding processes and operators for structural steel according to AWS D1.1 "Structural Welding Code--Steel."

Qualify welding processes and operators for piping according to ASME "Boiler and Pressure Vessel Code," Section IX, "Welding and Brazing Qualifications."

- Comply with provisions of ASME B31 Series "Code for Pressure Piping."
- Certify that each welder has passed AWS qualification tests for the welding processes involved and that certification is current.

ASME A13.1 for lettering size, length of color field, colors, and viewing angles of identification devices.

Equipment Selection: Equipment of greater or larger power, dimensions, capacities, and ratings may be furnished provided such proposed equipment is approved in writing and connecting mechanical and electrical services, circuit breakers, conduit, motors, bases, and equipment spaces are increased. No additional costs will be approved for these increases, if larger equipment is approved. If minimum energy ratings or efficiencies of the equipment are specified, the equipment must meet the design requirements and commissioning requirements.

8.32.7 DELIVERY, STORAGE, AND HANDLING

Deliver pipes and tubes with factory-applied end-caps. Maintain end-caps through shipping, storage, and handling to prevent pipe-end damage and prevent entrance of dirt, debris, and moisture.

Protect stored pipes and tubes from moisture and dirt. Elevate above grade. When stored inside, do not exceed structural capacity of the floor.

Protect flanges, fittings, and piping specialties from moisture and dirt.

8.32.8 SEQUENCING AND SCHEDULING

Coordinate mechanical equipment installation with other building components.

Arrange for chases, slots, and openings in building structure during progress of construction to allow for mechanical installations.

Coordinate the installation of required supporting devices and set sleeves in poured-in-place concrete and other structural components as they are constructed.

Sequence, coordinate, and integrate installations of mechanical materials and equipment for efficient flow of the Work. Coordinate installation of large equipment requiring positioning prior to closing in the building.

Coordinate connection of electrical services.

Coordinate connection of mechanical systems with exterior underground and overhead utilities and services. Comply with requirements of governing regulations, franchised service companies, and controlling agencies.

Coordinate requirements for access panels and doors where mechanical items requiring access are concealed behind finished surfaces. Access panels and doors are specified in Division 8 Section "Access Doors."

Coordinate installation of identifying devices after completing covering and painting where devices are applied to surfaces. Install identifying devices prior to installing acoustical ceilings and similar concealment.

8.32.9 PRODUCTS

8.32.10 PIPE AND PIPE FITTINGS

Refer to individual piping system specification Sections for pipe and fitting materials and joining methods.

Pipe Threads: ASME B1.20.1 for factory-threaded pipe and pipe fittings.

8.32.11 JOINING MATERIALS

Refer to individual piping system specification Sections in Division 15 for special joining materials not listed below.

Pipe Flange Gasket Materials: Suitable for the chemical and thermal conditions of the piping system contents.

- ASME B16.21, nonmetallic, flat, asbestos-free, 1/8-inch (3mm) maximum thickness, except where thickness or specific material is indicated.
 1. Full-Face Type: For flat-face, Class 125 cast-iron and cast-bronze flanges.
 2. Narrow-Face Type: For raised-face, Class 250 cast-iron and steel flanges.
- ASME B16.20 for grooved, ring-joint, steel flanges.
- AWWA C110, rubber, flat face, 1/8 inch (3 mm) thick, except where other thickness is indicated; and full-face or ring type, except where type is indicated.

Flange Bolts and Nuts: ASME B18.2.1, carbon steel, except where other material is indicated.

Welding Filler Metals: Comply with AWS D10.12 for welding materials appropriate for wall thickness and chemical analysis of steel pipe being welded.

Couplings: Iron body sleeve assembly, fabricated to match outside diameters of plain-end pressure pipes.

- Sleeve: ASTM A 126, Class B, gray iron.
- Followers: ASTM A 47 (ASTM A 47M), Grade 32510 or ASTM A 536 ductile iron.
- Gaskets: Rubber.
- Bolts and Nuts: AWWA C111.
- Finish: Enamel paint.

8.32.12 PIPING SPECIALTIES

Escutcheons: Manufactured wall, ceiling, and floor plates; deep-pattern type where required to conceal protruding fittings and sleeves.

Inside Diameter: Closely fit around pipe, tube, and insulation.

Outside Diameter: Completely cover opening.

Cast Brass: Split casting, with concealed hinge and set-screw.

- Finish: Rough brass.

Dielectric Fittings: Assembly or fitting having insulating material isolating joined dissimilar metals to prevent galvanic action and stop corrosion.

- Description: Combination of copper alloy and ferrous; threaded, solder, plain, and weld neck end types and matching piping system materials.
- Insulating Material: Suitable for system fluid, pressure, and temperature.
- Dielectric Unions: Factory-fabricated, union assembly for 250-psig (1725kPa) minimum working pressure at a 180 deg F (82 deg C) temperature.
- Dielectric Flanges: Factory-fabricated, companion-flange assembly for 150- or 300-psig (1035kPa or 2070kPa) minimum pressure to suit system pressures.
- Dielectric-Flange Insulation Kits: Field-assembled, companion-flange assembly, full-face or ring type. Components include neoprene or phenolic gasket, phenolic or polyethylene bolt sleeves, phenolic washers, and steel backing washers.
- Provide separate companion flanges and steel bolts and nuts for 150- or 300-psig (1035kPa or 2070kPa) minimum working pressure to suit system pressures.
- Mechanical Sleeve Seals: Modular, watertight mechanical type. Components include interlocking synthetic rubber links shaped to continuously fill annular space between pipe and sleeve. Connecting bolts and pressure plates cause rubber sealing elements to expand when tightened.
- Sleeves: The following materials are for wall, floor, slab, and roof penetrations:
 1. Steel Pipe: ASTM A 53, Type E, Grade A, Schedule 40, galvanized, plain ends.
 2. Cast-Iron: Cast or fabricated wall pipe equivalent to ductile-iron pressure pipe, having plain ends and integral water stop, except where other features are specified.

8.32.13 IDENTIFYING DEVICES AND LABELS

General: Manufacturer's standard products of categories and types required for each application as referenced in other Division 15 Sections. Where more than one type is specified for listed application, selection is Installer's option, but provide single selection for each product category.

Equipment Nameplates: Metal nameplate with operational data engraved or stamped, permanently fastened to equipment.

- Data: Manufacturer, product name, model number, serial number, capacity, operating and power characteristics, labels of tested compliances, and similar essential data.
- Location: An accessible and visible location.

Snap-On Plastic Pipe Markers: Manufacturer's standard preprinted, semi-rigid snap-on, color-coded pipe markers, conforming to ASME A13.1.

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Engraved Plastic-Laminate Signs: ASTM D 709, Type I, cellulose, paper-base, phenolic-resin-laminate engraving stock; Grade ES-2, black surface, black phenolic core, with white (letter color) melamine subcore, except when other colors are indicated.

- Fabricate in sizes required for message.
- Engraved with engraver's standard letter style, of sizes and with wording to match equipment identification.
- Punch for mechanical fastening.
- Thickness: 1/16 inch (1.5 mm), except as otherwise indicated.
- Thickness: 1/8 inch (3 mm), except as otherwise indicated.
- Thickness: 1/16 inch (1.5 mm) for units up to 20 square inches (13,000 sq. mm) or 8 inches (200 mm) long; 1/8 inch (3 mm) for larger units.
- Fasteners: Self-tapping stainless-steel screws or contact-type permanent adhesive.

Plastic Equipment Markers: Laminated-plastic, color-coded equipment markers. Conform to following color code:

1. Green: Cooling equipment and components.
 2. Yellow: Heating equipment and components.
 3. Yellow/Green: Combination cooling and heating equipment and components.
 4. Brown: Energy reclamation equipment and components.
 5. Blue: Equipment and components that do not meet any of the above criteria.
 6. For hazardous equipment, use colors and designs recommended by ASME A13.1.
 7. Nomenclature: Include following, matching terminology on schedules as closely as possible:
- Name and plan number
 - Equipment service
 - Design capacity
 - Other design parameters such as pressure drop, entering and leaving conditions, and rpm
 1. Size: Approximately 2-1/2 by 4 inches (65 by 100 mm) for control devices, dampers, and valves; and 4-1/2 by 6 inches (115 by 150 mm) for equipment.

Lettering and Graphics: Coordinate names, abbreviations, and other designations used in mechanical identification, with corresponding designations indicated. Use numbers, lettering, and wording indicated for proper identification and operation/maintenance of mechanical systems and equipment.

- Multiple Systems: Where multiple systems of same generic name are indicated, provide identification that indicates individual system number as well as service such as "Boiler No. 3," "Air Supply No. 1H," or "Standpipe F12."

8.32.14 GROUT

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Nonshrink, Nonmetallic Grout: ASTM C 1107, Grade B.

Characteristics: Post-hardening, volume-adjusting, dry, hydraulic-cement grout, nonstaining, noncorrosive, nongaseous, and recommended for interior and exterior applications.

Design Mix: 5000-psi (34.50MPa), 28-day compressive strength.

Packaging: Premixed and factory-packaged.

8.32.15 EXECUTION

8.32.16 PIPING SYSTEMS--COMMON REQUIREMENTS

General: Install piping as described below, except where system Sections specify otherwise. Individual piping system specification Sections in Division 15 specify piping installation requirements unique to the piping system.

General Locations and Arrangements: Drawings (plans, schematics, and diagrams) indicate general location and arrangement of piping systems. Indicated locations and arrangements were used to size pipe and calculate friction loss, expansion, pump sizing, and other design considerations. Install piping as indicated, except where deviations to layout are approved on coordination drawings.

Install piping at indicated slope.

Install components having pressure rating equal to or greater than system operating pressure.

Install piping in concealed interior and exterior locations, except in equipment rooms and service areas.

Install piping free of sags and bends.

Install exposed interior and exterior piping at right angles or parallel to building walls. Diagonal runs are prohibited, except where indicated.

Install piping tight to slabs, beams, joists, columns, walls, and other building elements. Allow sufficient space above removable ceiling panels to allow for ceiling panel removal.

Install piping and valves to allow application of insulation plus 1-inch (25mm) clearance around insulation.

Locate groups of pipes parallel to each other, spaced to permit valve servicing.

Install fittings for changes in direction and branch connections.

Install couplings according to manufacturer's printed instructions.

Install pipe escutcheons for pipe penetrations of concrete and masonry walls, wall board partitions, and suspended ceilings according to the following:

- Uninsulated Piping Wall Escutcheons: Cast-brass with set-screw.
- Piping in Utility Areas: Cast-brass or stamped-steel, with set-screw or spring clips.

Sleeves are not required for core drilled holes, unless noted otherwise on the contract drawings.

Install sleeves for pipes passing through concrete and masonry walls, gypsum-board partitions, concrete floor and roof slabs, and where indicated.

- Cut sleeves to length for mounting flush with both surfaces.
 1. Exception: Extend cast-iron sleeve fittings below floor slab as required to secure clamping ring where specified.

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- Build sleeves into new walls and slabs as work progresses.
- Install large enough sleeves to provide 1/4-inch (6mm) annular clear space between sleeve and pipe or pipe insulation. Use the following sleeve materials:
 1. Steel Pipe Sleeves: For pipes smaller than 6 inches (150 mm). Cast-Iron Sleeve Fittings: For floors having membrane waterproofing. Secure flashing between clamping flanges. Install section of cast-iron soil pipe to extend sleeve to 2 inches (50 mm) above finished floor level. Flashing is specified in Division 7 Section "Flashing and Sheet Metal."
 2. Cast iron for sizes 6 inches or greater.
- Seal space outside of sleeve fittings with non-shrink, nonmetallic grout.
 1. Except for below-grade wall penetrations, seal annular space between sleeve and pipe or pipe insulation, using elastomeric joint sealants specified in Division 7 Section "Joint Sealants."

Above Grade, Exterior Wall, Pipe Penetrations: Seal penetrations using sleeves and mechanical sleeve seals. Size sleeve for 1-inch (25mm) annular clear space between pipe and sleeve for installation of mechanical seals.

- Install steel pipe for sleeves smaller than 6 inches (150 mm).
- Install cast-iron wall pipes for sleeves 6 inches (150 mm) and larger.
- Assemble and install mechanical seals according to manufacturer's printed instructions.

Below Grade, Exterior Wall, Pipe Penetrations: Install cast-iron wall pipes for sleeves. Seal pipe penetrations using mechanical sleeve seals. Size sleeve for 1-inch (25mm) annular clear space between pipe and sleeve for installation of mechanical seals.

Verify final equipment locations for roughing in.

Refer to equipment specifications in other Sections for roughing-in requirements.

Piping Joint Construction: Join pipe and fittings as follows and as specifically required in individual piping system Sections.

- Ream ends of pipes and tubes and remove burrs. Bevel plain ends of steel pipe.
- Remove scale, slag, dirt, and debris from inside and outside of pipe and fittings before assembly.
- Threaded Joints: Thread pipe with tapered pipe threads according to ASME B1.20.1. Cut threads full and clean using sharp dies. Ream threaded pipe ends to remove burrs and restore full inside diameter. Join pipe fittings and valves as follows:
 1. Note the internal length of threads in fittings or valve ends, and proximity of internal seat or wall, to determine how far pipe should be threaded into joint.
 2. Apply appropriate tape or thread compound to external pipe threads (except where dry seal threading is specified).
 3. Align threads at point of assembly.

4. Tighten joint with wrench. Apply wrench to valve end into which pipe is being threaded.
 5. Damaged Threads: Do not use pipe or pipe fittings having threads that are corroded or damaged. Do not use pipe sections that have cracked or open welds.
- Welded Joints: Construct joints according to AWS D10.12 "Recommended Practices and Procedures for Welding Low Carbon Steel Pipe" using qualified processes and welding operators according to the "Quality Assurance" Article.
 - Flanged Joints: Align flange surfaces parallel. Select appropriate gasket material, size, type, and thickness for service application. Install gasket concentrically positioned. Assemble joints by sequencing bolt tightening to make initial contact of flanges and gaskets as flat and parallel as possible. Use suitable lubricants on bolt threads. Tighten bolts gradually and uniformly using torque wrench.
 - Piping Connections: Except as otherwise indicated, make piping connections as specified below.
 1. Install unions in piping 1 ½ inches (40 mm) and smaller adjacent to each valve and at final connection to each piece of equipment having a 1 ½ -inch (40mm) or smaller threaded pipe connection.
 2. Install flanges in piping 2 inches (50 mm) and larger adjacent to flanged valves and at final connection to each piece of equipment having flanged pipe connection.
 3. Wet Piping Systems (Water/Engine Coolant, Fuel Oil, and Diesel Exhaust Fluid): Install dielectric coupling and nipple fittings to connect piping materials of dissimilar metals.

8.32.17 EQUIPMENT INSTALLATION--COMMON REQUIREMENTS

Install equipment to provide the maximum possible headroom where mounting heights are not indicated.

Install equipment according to approved submittal data. Portions of the Work are shown only in diagrammatic form. Refer conflicts to the Engineer.

Install equipment level and plumb, parallel and perpendicular to other building systems and components in exposed interior spaces, except where otherwise indicated.

Install mechanical equipment to facilitate servicing, maintenance, and repair or replacement of equipment components. Connect equipment for ease of disconnecting, with minimum of interference with other installations. Extend grease fittings to an accessible location.

Install equipment giving right-of-way to piping systems installed at a required slope.

8.32.18 LABELING AND IDENTIFYING

Piping Systems: Install pipe markers on each system. Include arrows showing normal direction of flow.

- Plastic markers, with application systems. Install on pipe insulation segment where required for hot non-insulated pipes.
- Locate pipe markers wherever piping is exposed in finished spaces, machine rooms, accessible maintenance spaces (shafts, tunnels, plenums), and exposed exterior locations as follows:
- Near each valve and control device.

- Near each branch, excluding short take-offs for fixtures and terminal units. Mark each pipe at branch, where flow pattern is not obvious.
- Near locations where pipes pass through walls, floors, ceilings, or enter inaccessible enclosures.
- At access doors, manholes, and similar access points that permit view of concealed piping.
- Near major equipment items and other points of origination and termination.
- Spaced at a maximum of 50-foot (15m) intervals along each run. Reduce intervals to 25 feet (7.5 m) in congested areas of piping and equipment.
- On piping above removable acoustical ceilings, except omit intermediately spaced markers.
- Equipment: Install engraved plastic laminate sign or equipment marker on or near each major item of mechanical equipment.
 1. Lettering Size: Minimum 1/4-inch (6mm) -high lettering for name of unit where viewing distance is less than 2 feet (0.6 m), 1/2-inch (13mm) -high for distances up to 6 feet (1.8 m), and proportionately larger lettering for greater distances. Provide secondary lettering 2/3 to 3/4 of size of principal lettering.
 2. Text of Signs: Provide text to distinguish between multiple units, inform operator of operational requirements, indicate safety and emergency precautions, and warn of hazards and improper operations, in addition to name of identified unit.
- Adjusting: Relocate identifying devices which become visually blocked by work of this Division or other Divisions.

8.32.19 PAINTING AND FINISHING

Damage and Touch Up: Repair marred and damaged factory-painted finishes with materials and procedures to match original factory finish.

8.32.20 ERECTION OF METAL SUPPORTS AND ANCHORAGE

Cut, fit, and place miscellaneous metal supports accurately in location, alignment, and elevation to support and anchor mechanical materials and equipment.

Field Welding: Comply with AWS D1.1 "Structural Welding Code--Steel."

8.32.21 CUTTING AND PATCHING

Cut, channel, chase, and drill floors, walls, partitions, ceilings, and other surfaces necessary for mechanical installations. Perform cutting by skilled mechanics of the trades involved.

Repair cut surfaces to match adjacent surfaces.

8.32.22 GROUTING

Install nonmetallic nonshrink grout for mechanical equipment base bearing surfaces, pump and other equipment base plates, and anchors. Mix grout according to manufacturer's printed instructions.

Clean surfaces that will come into contact with grout.

Provide forms for placement of grout, as required.

Avoid air entrapment when placing grout.

Place grout to completely fill equipment bases.

Place grout on concrete bases to provide a smooth bearing surface for equipment.

Place grout around anchors.

Cure placed grout according to manufacturer's printed instructions.

END OF SECTION 15050

8.33 SECTION 15100 - VALVES

8.33.1 GENERAL

8.33.2 RELATED DOCUMENTS

Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification sections, apply to this section.

Requirements of the following Division 15 Sections apply to this section:

- "Basic Mechanical Requirements."
- "Basic Mechanical Materials and Methods."

8.33.3 SUMMARY

This Section includes general duty valves common to most mechanical piping systems.

Special purpose valves are specified in individual piping system specifications.

All valves installed with Diesel Exhaust Fluid (DEF) system shall be of materials suitable for DEF and as specified in Section 15492 "Diesel Exhaust Fluid Piping Systems"

8.33.4 SUBMITTALS

General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.

Product data, including body material, valve design, pressure and temperature classification, end connection details, seating materials, trim material and arrangement, dimensions and required clearances, and installation instructions.

8.33.5 QUALITY ASSURANCE

Single Source Responsibility: Comply with the requirements specified in Division 1 Section "MATERIALS AND EQUIPMENT," under "Source Limitations."

American Society of Mechanical Engineers (ASME) Compliance: Comply with ASME B31.9 for building services piping and ASME B31.1 for power piping.

Manufacturers Standardization Society of the Valve and Fittings Industry (MSS) Compliance: Comply with the various MSS Standard Practices referenced.

8.33.6 DELIVERY, STORAGE, AND HANDLING

Preparation For Transport: Prepare valves for shipping as follows:

- Ensure valves are dry and internally protected against rust and corrosion.
- Protect valve ends against damage to threads, flange faces, and weld-end preps.
- Set valves in best position for handling. Set globe and gate valves closed to prevent rattling; set ball and plug valves open to minimize exposure of functional surfaces; set butterfly valves closed or slightly open; and block swing check valves in either closed or open position.

Storage: Use the following precautions during storage:

- Do not remove valve end protectors unless necessary for inspection; then reinstall for storage.

- Protect valves from weather. Store valves indoors. Maintain valve temperature higher than the ambient dew point temperature. If outdoor storage is necessary, support valves off the ground or pavement in watertight enclosures.

8.33.7 PRODUCTS

8.33.8 MANUFACTURERS

Available Manufacturers: Subject to compliance with requirements, manufacturers offering products which may be incorporated in the work include, but are not limited to, those listed in valve schedule.

8.33.9 VALVE FEATURES, GENERAL

Valve Design: Rising stem or rising outside screw and yoke stems.

- Nonrising stem valves may be used where headroom prevents full extension of rising stems.

Pressure and Temperature Ratings: As scheduled and required to suit system pressures and temperatures.

Sizes: Same size as upstream pipe, unless otherwise indicated.

Operators: Provide the following special operator features:

- Handwheels, fastened to valve stem, for valves other than quarter turn.
- Lever handles, on quarter-turn valves.
- Handles, fastened to valve stem for butterfly valves.

Extended Stems: Where insulation is indicated or specified, provide extended stems arranged to receive insulation.

Bypass and Drain Connections: Comply with MSS SP-45 bypass and drain connections.

End Connections: As indicated in the valve specifications.

- Threads: Comply with ANSI B1.20.1.
- Flanges: Comply with ANSI B16.1 for cast iron, ANSI B16.5 for steel, and ANSI B16.24 for bronze valves.

8.33.10 GATE VALVES

Gate Valves, 1 Inch and Smaller: MSS SP-80; Class 150, body and union bonnet of ASTM B 62 cast bronze; with threaded or solder ends, solid disc, copper-silicon alloy stem, brass packing gland, "Teflon" impregnated packing, and malleable iron handwheel. Do not use solder end valves for hot water heating or steam piping applications.

Gate Valves, 1 1/2 Inch and Larger: MSS SP-70; Class 125 iron body, bronze mounted, with body and bonnet conforming to ASTM A 126 Class B; with flanged ends, "Teflon" impregnated packing, and two-piece backing gland assembly.

8.33.11 BALL VALVES

Ball Valves: Rated for 150 psi saturated steam pressure, 400 psi WOG pressure; two-piece construction; with bronze body conforming to ASTM B 62, standard (or regular) port, chrome-plated brass ball, replaceable "Teflon" or "TFE" seats and seals, blowout-proof stem, and vinyl-covered steel handle. Select threaded ends.

8.33.12 CHECK VALVES

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Swing Check Valves 1 Inch and Smaller: MSS SP-80; Class 150, cast-bronze body and cap conforming to ASTM B 62; with horizontal swing, Y-pattern, and bronze disc; and having threaded ends. Provide valves capable of being reground while the valve remains in the line.

8.33.13 EXECUTION

8.33.14 EXAMINATION

Examine valve interior through the end ports for cleanliness, freedom from foreign matter, and corrosion. Remove special packing materials, such as blocks used to prevent disc movement during shipping and handling.

Actuate valve through an open-close and close-open cycle. Examine functionally significant features, such as guides and seats made accessible by such actuation. Following examination, return the valve closure member to the shipping position.

Examine threads on both the valve and the mating pipe for form (i.e., out-of-round or local indentation) and cleanliness.

Examine mating flange faces for conditions that might cause leakage. Check bolting for proper size, length, and material. Check gasket material for proper size, material composition suitable for service, and freedom from defects and damage.

Prior to valve installation, examine the piping for cleanliness, freedom from foreign materials, and proper alignment.

Replace defective valves with new valves.

8.33.15 VALVE ENDS SELECTION

Select valves with the following ends or types of pipe/tube connections:

- Steel Pipe Sizes, 1 Inch and Smaller: threaded end.
- Steel Pipe Sizes 1 1/2 Inch and Larger: flanged end.

8.33.16 VALVE INSTALLATIONS

General Application: Use gate and ball valves for shut-off duty. Refer to piping system specification sections for specific valve applications and arrangements.

Locate valves for easy access and provide separate support where necessary.

Install valves and unions for each fixture and item of equipment arranged to allow equipment removal without system shutdown. Unions are not required on flanged devices.

Install valves in horizontal piping with stem at or above the center of the pipe.

Install valves in a position to allow full stem movement.

Installation of Check Valves: Install for proper direction of flow as follows:

- Swing Check Valves: Horizontal position with hinge pin level.

8.33.17 THREADED CONNECTIONS

Note the internal length of threads in valve ends, and proximity of valve internal seat or wall, to determine how far pipe should be threaded into valve.

Align threads at point of assembly.

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Apply appropriate tape or thread compound to the external pipe threads (except where dry seal threading is specified).

Assemble joint, wrench tight. Wrench on valve shall be on the valve end into which the pipe is being threaded.

8.33.18 FLANGED CONNECTIONS

Align flange surfaces parallel.

Assemble joints by sequencing bolt tightening to make initial contact of flanges and gaskets as flat and parallel as possible. Use suitable lubricants on bolt threads. Tighten bolts gradually and uniformly with a torque wrench.

8.33.19 FIELD QUALITY CONTROL

Tests: After piping systems have been tested and put into service, but before final adjusting and balancing, inspect valves for leaks. Adjust or replace packing to stop leaks; replace valves if leak persists.

8.33.20 ADJUSTING AND CLEANING

Cleaning: Clean mill scale, grease, and protective coatings from exterior of valves and prepare valves to receive finish painting or insulation.

8.33.21 VALVE PRESSURE/TEMPERATURE CLASSIFICATION SCHEDULES

VALVES, 2-INCH AND SMALLER

<u>SERVICE</u>	<u>GATE</u>	<u>BALL</u>	<u>CHECK</u>
Fuel Oil Piping	150	150	150

VALVES, 2-1/2-INCH AND LARGER

<u>SERVICE</u>	<u>GATE</u>	<u>CHECK</u>
Fuel Oil Piping	125	125

8.33.22 VALVE SCHEDULE

Gate Valves – 1 Inch and Smaller:

<u>MANUFACTURER</u>	<u>THREADED NRS</u>	<u>THREADED RS</u>
Crane	438	428
Grinnell	3000	3010
Hammond	IB645	IB640
Lunkenheimer	2129	2127
Milwaukee	105	148
Nibco	T113	T111
Powell	507	500
Stockham	B103	B-100

Gate Valves – 11/2 Inch and Larger:

<u>MANUFACTURER</u>	<u>OS&Y RS</u>	<u>NRS</u>
Crane	465-1/2	461
Grinnell	6020A	6060A
Hammond	IR1140	IR1138
Lunkenheimer	1430	1428
Milwaukee	F2885	F-2882
Nibco	617-O	F-619
Stockham	G623	G-612
Powell	1793	1787

Ball Valves - 1 Inch and Smaller:

<u>MANUFACTURER</u>	<u>THREADED ENDS</u>
Conbraco (Apollo)	70-100
Crane	9302
Grinnell	3500
Jamesbury	351
Lunkenheimer	708HST
Metraflex	IT
Nibco	T-580
Powell	4210T
Stockham	S-216 BR-R-T
Watts	B-6000

Swing Check Valves – 1 Inch and Smaller:

<u>MANUFACTURER</u>	<u>THREADED ENDS</u>
Crane	137
Grinnell	3320
Hammond	IB946
Lunkenheimer	230-70
Milwaukee	510
Nibco	T-433
Powell	596
Stockham	B-321

END OF SECTION 15100

8.34 SECTION 15125 - PIPE EXPANSION JOINTS

8.34.1 GENERAL

8.34.2 RELATED DOCUMENTS

Drawings and general provisions of the Contract, including the General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

8.34.3 SUMMARY

This Section includes pipe expansion joints, guides, and anchors for mechanical piping systems.

8.34.4 PERFORMANCE REQUIREMENTS

Compatibility: Provide pipe expansion joints, pipe alignment guides, and pipe anchors suitable for piping system fluids, materials, working pressures, and temperatures.

Fabricate and install expansion and anchor system capable of sustaining forces generated by gravity, thermal movement, and seismic events.

8.34.5 SUBMITTALS

General: Submit the following according to the Conditions of the Contract and Division 1 Specification Sections.

Product data for each type of pipe expansion joint and pipe alignment guide specified.

Pipe expansion joint schedule showing manufacturer's figure number, size, location, and features for each required expansion joint.

Assembly-type shop drawings for each type of pipe expansion joint, pipe alignment guide, and anchor, indicating dimensions, weights, required clearances, and methods of component assembly.

Welder certificates signed by Contractor certifying that welders comply with requirements specified under the "Quality Assurance" Article.

Maintenance data for each type pipe expansion joint specified to include in the "Operating and Maintenance Manuals" specified in the Division 1 Section "Project Closeout."

8.34.6 QUALITY ASSURANCE

Qualify welding processes and welding operators according to AWS D1.1 "Structural Welding Code--Steel."

- Certify that each welder has satisfactorily passed AWS qualification tests for welding processes involved and, if pertinent, has undergone recertification.

Qualify welding processes and welding operators according to ASME "Boiler and Pressure Vessel Code," Section IX, "Welding and Brazing Qualifications."

8.34.7 PRODUCTS

8.34.8 MANUFACTURERS

Manufacturers: Subject to compliance with requirements, provide products by one of the following:

Metal-Bellows, Packless-Type Pipe Expansion Joints:

- Keflex, Inc.
- Metraflex Co.

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- Senior Flexonics Inc., Expansion Joint Div.
- DME Products

Pipe Alignment Guides:

- B-Line Systems, Inc.
- Grinnell Corp., Pipe Supports Div.

8.34.9 PIPE EXPANSION JOINTS, GENERAL

Capability: Absorb 200 percent of maximum piping expansion between anchors.

PACKLESS-TYPE PIPE EXPANSION JOINTS

Metal-Bellows Packless-Type Pipe Expansion Joints: Pressure rated for 175 psig (1200 kPa) minimum; conform to the standards of Expansion Joint Manufacturers Association, Inc. (EJMA); with end fittings and external tie rods for limiting maximum travel. Features include the following:

- Steel Piping Systems: 2-ply stainless-steel bellows and carbon-steel shrouds.

8.34.10 PIPE ALIGNMENT GUIDES

Factory-fabricated cast semisteel or heavy fabricated steel, consisting of bolted two-section outer cylinder and base. Include two-section guiding spider that bolts tightly to the pipe.

- Alignment Guide Lengths: As required for indicated travel.

8.34.11 MISCELLANEOUS MATERIALS

Structural Steel: ASTM A 36/A 36M, steel plates, shapes, and bars, black and galvanized.

Bolts and Nuts: ASME B18.10 or ASTM A 183, steel, hex-head, track bolts and nuts.

Washers: ASTM F 844, steel, plain, flat washers.

Powder-Actuated Fasteners: Attachments with pull-out and shear capacities appropriate for supported loads and building materials where used.

Concrete: Portland-cement mix, 3000 psi (20.7 MPa).

- Cement: ASTM C 150, Type I.
- Fine Aggregate: ASTM C 33, sand.
- Coarse Aggregate: ASTM C 33, crushed gravel.
- Water: Potable.

Grout: ASTM C 1107, Grade B, nonshrink, nonmetallic.

- Characteristics include post-hardening volume-adjusting dry hydraulic-cement-type grout that is nonstaining, noncorrosive, nongaseous and is recommended for both interior and exterior applications.
- Design Mix: 5000 psi (34.5 MPa), 28-day compressive strength.
- Water: Potable.
- Packaging: Premixed and factory-packaged.

8.34.12 EXECUTION**8.34.13 EXAMINATION**

Examine substrates and conditions under which pipe expansion joints, pipe alignment guides, and pipe anchors are to be installed. Do not proceed until unsatisfactory conditions have been corrected.

8.34.14 PIPE EXPANSION JOINT INSTALLATION

Install pipe expansion joints according to manufacturer's written instructions. Joints shall be installed with tension compression rods in place. Once all companion flanges are bolted together, rods may be removed.

Align expansion joints to avoid end-loading and torsional stress.

8.34.15 FABRICATED-TYPE PIPE EXPANSION COMPENSATION INSTALLATION

Install pipe expansion loops cold-sprung in tension or compression as required to absorb 50 percent of total compression or tension that will be produced during anticipated change in temperature.

Connect risers to mains with at least 5 pipe fittings including tee in main.

Connect risers to terminal units with at least 4 pipe fittings including tee in riser.

8.34.16 PIPE ALIGNMENT GUIDE INSTALLATION

Install pipe alignment guides on piping that adjoins pipe expansion joints.

Install pipe alignment guides on piping that adjoins pipe expansion loops.

Install pipe alignment guides on piping elsewhere as indicated.

Secure pipe alignment guides to building substrate.

8.34.17 PIPE ANCHOR INSTALLATION

Install pipe anchors at proper locations to prevent stresses from exceeding those permitted by ASME B31.9 and to prevent transfer of loading and stresses to connected equipment.

Fabricate and install anchors by welding steel shapes, plates, and bars to piping and to structure. Comply with ASME B31.9 and with AWS D1.1.

Construct concrete pipe anchors of poured-in-place concrete of dimensions indicated.

Where pipe expansion joints are indicated, install pipe anchors according to expansion unit manufacturer's written instructions to control movement to compensators.

Pipe Anchor Spacings: Where not otherwise indicated, install pipe anchors at ends of principal pipe runs, at intermediate points in pipe runs between expansion loops and bends. Preset anchors as required to accommodate both expansion and contraction of piping.

Use grout to form flat bearing surfaces for pipe expansion joints, pipe alignment guides, and pipe anchors that are installed on or in concrete.

8.34.18 PAINTING

Touching Up: Clean field welds and abraded areas of shop paint and paint, exposed areas immediately after erecting hangers and supports. Use same materials as used for shop painting. Comply with SSPC-PA 1 requirements for touching up field-painted surfaces.

- Apply by brush or spray to provide a minimum dry film thickness of 2.0 mils (0.05 mm).

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Touching Up: Cleaning and touchup painting of field welds, bolted connections, and abraded areas of shop paint on miscellaneous metal is specified in Division 9 Section "Painting."

Galvanized Surfaces: Clean welds, bolted connections, and abraded areas and apply galvanizing-repair paint to comply with ASTM A 780.

END OF SECTION 15125

8.35 SECTION 15145 - HANGERS AND SUPPORTS

8.35.1 GENERAL

8.35.2 RELATED DOCUMENTS

Drawing and general provisions of the Contract, including the General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

8.35.3 SUMMARY

This Section includes hangers and supports for mechanical systems piping and equipment.

Related Sections: The following Sections contain requirements that relate to this Section:

- Division 5 Section "Metal Fabrications" for materials for attaching hangers and supports to building structure.

8.35.4 DEFINITIONS

Terminology used in this Section is defined in MSS SP-90.

8.35.5 SUBMITTALS

General: Submit the following according to the Conditions of the Contract and Division 1 Specification Sections.

Product data for each type of hanger and support.

Submit pipe hanger and support schedule showing manufacturer's Figure No., size, location, and features for each required pipe hanger and support.

Welder certificates signed by Contractor certifying that welders comply with requirements specified under the "Quality Assurance" Article.

8.35.6 QUALITY ASSURANCE

Qualify welding processes and welding operators according to AWS D1.1 "Structural Welding Code--Steel."

- Certify that each welder has satisfactorily passed AWS qualification tests for welding processes involved and, if pertinent, has undergone recertification.

Qualify welding processes and welding operators according to ASME "Boiler and Pressure Vessel Code," Section IX, "Welding and Brazing Qualifications."

NFPA Compliance: Comply with NFPA 12 for hangers and supports used as components of fire protection systems.

Listing and Labeling: Provide hangers and supports that are listed and labeled as defined in NFPA 70, Article 100.

- UL and FM Compliance: Hangers, supports, and components include listing and labeling by UL and FM where used for fire protection piping systems.
- Listing and Labeling Agency Qualifications: A "Nationally Recognized Testing Laboratory" (NRTL) as defined in OSHA Regulation 1910.7.

8.35.7 PRODUCTS

8.35.8 MANUFACTURED UNITS

Hangers, Supports, and Components: Factory-fabricated according to MSS SP-58.

- Components include hot-dipped galvanized coatings where installed for piping and equipment that will not have a field-applied finish.

Thermal-Hanger Shield Inserts: 100-psi (690kPa) average compressive strength, waterproofed calcium silicate, encased with sheet metal shield. Insert and shield cover entire circumference of pipe and are of length indicated by manufacturer for pipe size and thickness of insulation.

Powder-Actuated Drive-Pin Fasteners: Powder-actuated-type, drive-pin attachments with pull-out and shear capacities appropriate for supported loads and building materials where used. Fasteners for fire protection systems include UL listing and FM approval.

Mechanical-Anchor Fasteners: Insert-type attachments with pull-out and shear capacities appropriate for supported loads and building materials where used. Fasteners for fire protection systems include UL listing and FM approval.

8.35.9 MISCELLANEOUS MATERIALS

Structural Steel: ASTM A 36/A 36M, steel plates, shapes, and bars, black and galvanized.

Bolts and Nuts: ASME B18.10 or ASTM A 183, steel, hex-head, track bolts and nuts.

Washers: ASTM F 844, steel, plain, flat washers.

Grout: ASTM C 1107, Grade B, nonshrink, nonmetallic.

Characteristics include post-hardening, volume-adjusting, dry, hydraulic-cement-type grout that is nonstaining, noncorrosive, nongaseous and is recommended for both interior and exterior applications.

- Design Mix: 5000-psi (34.5MPa), 28-day compressive strength.
- Water: Potable.
- Packaging: Premixed and factory-packaged.

8.35.10 EXECUTION

8.35.11 HANGER AND SUPPORT APPLICATIONS

Specific hanger requirements are specified in the Section specifying the equipment and systems.

Comply with MSS SP-69 for pipe hanger selections and applications that are not specified in piping specification Sections.

8.35.12 HANGER AND SUPPORT INSTALLATION

General: Comply with MSS SP-69 and SP-89. Install hangers, supports, clamps, and attachments as required to properly support piping from building structure.

Arrange for grouping of parallel runs of horizontal piping supported together on field-fabricated, heavy-duty trapeze hangers where possible.

Install supports with maximum spacing between supports complying with MSS SP-69.

Install building attachments within concrete or to structural steel. Space attachments within maximum piping span length indicated in MSS SP-69. Install additional attachments at concentrated loads, including valves, flanges,

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guides, strainers, expansion joints, and at changes in direction of piping. Install concrete inserts before concrete is placed; fasten insert to forms. Install reinforcing bars through openings at top of inserts.

Install concrete inserts in new construction prior to placing concrete.

Install powder-actuated drive-pin fasteners in concrete after concrete is placed and completely cured. Use operators that are licensed by powder-actuated tool manufacturer. Install fasteners according to powder-actuated tool manufacturer's operating manual. Do not use in lightweight concrete slabs or in concrete slabs less than 4 inches (100 mm) thick.

Install mechanical-anchor fasteners in concrete after concrete is placed and completely cured. Install according to fastener manufacturer's written instructions. Do not use in lightweight concrete slabs or in concrete slabs less than 4 inches (100 mm) thick.

Install hangers and supports complete with necessary inserts, bolts, rods, nuts, washers, and other accessories.

Install hangers and supports to allow controlled movement of piping systems, permit freedom of movement between pipe anchors, and facilitate action of expansion joints, expansion loops, expansion bends, and similar units.

Load Distribution: Install hangers and supports so that piping live and dead loading and stresses from movement will not be transmitted to connected equipment.

Pipe Slopes: Install hangers and supports to provide indicated pipe slopes and so that maximum pipe deflections allowed by ASME B31.9 "Building Services Piping" is not exceeded.

Insulated Piping: Comply with the following installation requirements.

- Clamps: Attach clamps, including spacers (if any), to piping with clamps projecting through insulation; do not exceed pipe stresses allowed by ASME B31.9.
- Saddles: Install protection saddles MSS Type 39 where insulation without vapor barrier is indicated. Fill interior voids with segments of insulation that match adjoining pipe insulation.

8.35.13 EQUIPMENT SUPPORTS

Fabricate structural steel stands to suspend equipment from structure above or support equipment above floor.

Grouting: Place grout under supports for equipment, and make a smooth bearing surface.

8.35.14 METAL FABRICATION

Cut, drill, and fit miscellaneous metal fabrications for pipe and equipment supports.

Fit exposed connections together to form hairline joints. Field-weld connections that cannot be shop-welded because of shipping size limitations.

Field Welding: Comply with AWS D1.1 procedures for manual shielded metal-arc welding, appearance and quality of welds, methods used in correcting welding work, and the following:

- Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
-
- Obtain fusion without undercut or overlap.
-
- Remove welding flux immediately.
-

- Finish welds at exposed connections so that no roughness shows after finishing, and so that contours of welded surfaces match adjacent contours.

8.35.15 ADJUSTING

Hanger Adjustment: Adjust hangers to distribute loads equally on attachments and to achieve indicated slope of pipe.

8.35.16 PAINTING

Touching Up: Clean field welds and abraded areas of shop paint and paint exposed areas immediately after erection of hangers and supports. Use same materials as used for shop painting. Comply with SSPC-PA 1 requirements for touching up field-painted surfaces.

- Apply by brush or spray to provide a minimum dry film thickness of 2.0 mils (0.05 mm).

Touching Up: Cleaning and touchup painting of field welds, bolted connections, and abraded areas of shop paint on miscellaneous metal is specified in Division 9 Section "Painting."

Galvanized Surfaces: Clean welds, bolted connections, and abraded areas and apply galvanizing-repair paint to comply with ASTM A 780.

END OF SECTION 15145

8.36 SECTION 15250 - MECHANICAL INSULATION

8.36.1 GENERAL

8.36.2 RELATED DOCUMENTS

Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

8.36.3 SUMMARY

This Section includes pipe and duct insulation.

8.36.4 DEFINITIONS

Hot Surfaces: Normal operating temperatures of 100 deg F or higher.

Thermal Resistance: "R-values" represent the reciprocal of thermal conductivity (k-value). Thermal conductivity is the rate of heat flow through a homogenous material exactly 1 inch thick. Thermal resistivities are expressed by the temperature difference in degrees F between two exposed faces required to cause one Btu to flow through one square foot of material, in one hour, at a given mean temperature.

Density: Is expressed in lb/cu.ft.

8.36.5 SUBMITTALS

General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.

Product data for each type of mechanical insulation identifying k-value, thickness, and accessories.

8.36.6 QUALITY ASSURANCE

Fire Performance Characteristics: Conform to the following characteristics for insulation including facings, cements, and adhesives, when tested according to ASTM E 84, by UL or other testing or inspecting organization acceptable to the authority having jurisdiction. Label insulation with appropriate markings of testing laboratory.

- Interior Insulation: Flame spread rating of 25 or less and a smoke developed rating of 50 or less.
- Exterior Insulation: Flame spread rating of 75 or less and a smoke developed rating of 150 or less.

8.36.7 SEQUENCING AND SCHEDULING

Schedule insulation application after testing of piping and duct systems.

8.36.8 PRODUCTS

8.36.9 MANUFACTURERS

Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated in the Work include, but are not limited to, the following:

- Glass Fiber:
 1. CertainTeed Corporation
 2. Knauf Fiberglass GmbH
 3. Manville

4. Owens-Corning Fiberglas Corporation
5. USG Interiors, Inc. - Thermafiber Division

- Cellular Glass:

1. Pittsburg Corning Corporation.

- Mineral Wool:

1. Rock Wool Manufacturing Company
2. Roxul, Inc
3. Owens-Corning Fiberglass Corporation

8.36.10 GLASS FIBER

Material: Inorganic glass fibers, bonded with a thermosetting resin.

Jacket: All-purpose, factory-applied, laminated glass-fiber-reinforced, flame-retardant kraft paper and aluminum foil having self-sealing lap.

Board: ASTM C 612, Class 2, semi-rigid jacketed board.

- Thermal Conductivity: 0.26 average maximum, at 75 deg F mean temperature
 1. Density: 12 pcf average maximum.

Blanket: ASTM C 553, Type II, Class F-1, jacketed flexible blankets.

- Thermal Conductivity: 0.32 average maximum, at 75 deg F mean temperature.

Preformed Pipe Insulation: ASTM C 547, Class 1, rigid pipe insulation, jacketed.

- Thermal Conductivity: 0.26 average maximum at 75 deg F mean temperature
- Density: 10 average maximum

Adhesive: Produced under the UL Classification and Follow-up service.

- Type: Non-flammable, solvent-based
- Service Temperature Range: Minus 20 to 180 deg F

Vapor Barrier Coating: Waterproof coating recommended by insulation manufacturer for outside service.

8.36.11 CELLULAR GLASS

Material: Inorganic, foamed or cellulated glass, annealed, rigid, hermetically sealed cells, incombustible.

Facing: ASTM C 921, Type 1, factory-applied, laminated foil, flame-retardant, vinyl facing.

Form: The following as indicated:

- Blocks: ASTM C 552, Type I
- Boards: ASTM C 552, Type IV
- Preformed Pipe: ASTM C 552, Type II, Class 2 (jacketed)

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- Special Shapes: ASTM C 552, Type III, in shapes and thicknesses as indicated.

Thermal Conductivity: 0.38 average maximum at 75 deg F mean temperature.

Minimum Density: 7 pcf.

Maximum Density: 9.5 pcf.

8.36.12 MINERAL WOOL BOARD

Material: Mineral wool bonded together with a high temperature binder, adhered to a laminate facing surface; incombustible.

Form: Flexible board/blanket

Thermal Conductivity: 0.59 at 600 deg F.

Dry Density: 8.0 pcf maximum.

Compressive Strength: 150 psf minimum.

Fire Performance Characteristics: Provide materials identical to those whose fire performance characteristics have been determined, per test method indicated below, by UL or other testing and inspecting organization acceptable to authorities having jurisdiction.

- Test Method: ASTM E 84
- Flame Spread: 10
- Smoke Developed: 5

8.36.13 INSULATING CEMENTS

Mineral Fiber: ASTM C 195.

- Thermal Conductivity: 1.0 average maximum at 500 deg F mean temperature.
- Compressive Strength: 10 psi at 5 percent deformation.

Expanded or Exfoliated Vermiculite: ASTM C 196.

- Thermal Conductivity: 1.10 average maximum at 500 deg F mean temperature.
- Compressive Strength: 5 psi at 5 percent deformation.

Mineral Fiber, Hydraulic-Setting Insulating and Finishing Cement: ASTM C 449.

- Thermal Conductivity: 1.2 average maximum at 400 deg F mean temperature.
- Compressive Strength: 100 psi at 5 percent deformation.

8.36.14 ADHESIVES

Flexible Elastomeric Cellular Insulation Adhesive: Solvent-based, contact adhesive recommended by insulation manufacturer.

Lagging Adhesive: MIL-A-3316C, non-flammable adhesive in the following Classes and Grades:

- Class 1, Grade A for bonding glass cloth and tape to unfaced glass fiber insulation, sealing edges of glass fiber insulation, and bonding lagging cloth to unfaced glass fiber insulation.

- Class 2, Grade A for bonding glass fiber insulation to metal surfaces.

8.36.15 JACKETS

General: ASTM C 921, Type 1, except as otherwise indicated.

Aluminum Jacket: ASTM B 209, 3003 Alloy, H-14 temper, roll stock ready for shop or field cutting and forming to indicated sizes.

- Finish and Thickness: Corrugated finish, 0.010 inch thick, unless otherwise indicated.
- Elbows: Preformed 45-degree and 90-degree, short- and long-radius elbows, same material, finish, and thickness as jacket.

8.36.16 ACCESSORIES AND ATTACHMENTS

Bands: 3/4-inch wide, in one of the following materials compatible with jacket:

Aluminum: 0.007 inch thick.

Wire: 14-gage nickel copper alloy, 16-gage, soft-annealed stainless steel, or 16-gage, soft-annealed galvanized steel.

Anchor Pins: Capable of supporting 20 pounds each. Provide anchor pins and speed washers of sizes and diameters as recommended by the manufacturer for insulation type and thickness.

8.36.17 SEALING COMPOUNDS

Vapor Barrier Compound: Water-based, fire-resistive composition.

- Water Vapor Permeance: 0.08 perm maximum
- Temperature Range: Minus 20 to 180 deg F

Weatherproof Sealant: Flexible-elastomer-based, vapor-barrier sealant designed to seal metal joints.

- Water Vapor Permeance: 0.02 perm maximum
- Temperature Range: Minus 50 to 250 deg F
- Color: Aluminum

8.36.18 EXECUTION

8.36.19 PREPARATION

Surface Preparation: Clean, dry, and remove foreign materials such as rust, scale, and dirt.

Mix insulating cements with clean potable water. Mix insulating cements contacting stainless-steel surfaces with demineralized water.

- Follow cement manufacturer's printed instructions for mixing and portions.

8.36.20 INSTALLATION, GENERAL

Refer to schedules at the end of this Section for materials, forms, jackets, and thicknesses required for each mechanical system.

Select accessories compatible with materials suitable for the service. Select accessories that do not corrode, soften, or otherwise attack the insulation or jacket in either the wet or dry state.

Apply insulation material, accessories, and finishes according to the manufacturer's printed instructions.

Install insulation with smooth, straight, and even surfaces.

Seal joints and seams to maintain vapor barrier on insulation requiring a vapor barrier.

Seal penetrations for hangers, supports, anchors, and other projections in insulation requiring a vapor barrier.

Seal Ends: Except for flexible elastomeric insulation, taper ends at 45 degree angle and seal with lagging adhesive. Cut ends of flexible elastomeric cellular insulation square and seal with adhesive.

Apply adhesives and coatings at manufacturer's recommended coverage-per-gallon rate.

Keep insulation materials dry during application and finishing.

Items Not Insulated: Unless otherwise indicated do not apply insulation to the following systems, materials, and equipment:

- Factory-insulated flexible ducts.
- Factory-insulated plenums, casings, terminal boxes, and filter boxes and sections.
- Flexible connectors for ducts and pipes.
- Vibration control devices.
- Testing laboratory labels and stamps.
- Nameplates and data plates.
- Access panels and doors in air distribution systems.
- Pipe expansion joints.
- Below grade piping.
- Piping specialties including unions, strainers and check valves.
- Sections of pipe through sleeved openings.
- Containment piping.

8.36.21 PIPE INSULATION INSTALLATION, GENERAL

Tightly butt longitudinal seams and end joints. Bond with adhesive.

Stagger joints on double layers of insulation.

Apply insulation continuously over fittings, valves, and specialties, except as otherwise indicated.

Apply insulation with a minimum number of joints.

Apply insulation with integral jackets as follows:

- Pull jacket tight and smooth.
- Cover circumferential joints with butt strips, at least 3-inches wide, and of same material as insulation jacket. Secure with adhesive and outward clinching staples along both edges of butt strip and space 4 inches on center.
- Longitudinal Seams: Overlap seams at least 1-1/2 inches. Apply insulation with longitudinal seams at bottom of pipe. Clean and dry surface to receive self-sealing lap. Staple laps with outward clinching staples along edge at 4 inches on center.

Exception: Do not staple longitudinal laps on insulation applied to piping systems with surface temperatures at or below 35 deg F.

- Vapor Barrier Coatings: Where vapor barriers are indicated, apply on seams and joints, over staples, and at ends butt to flanges, unions, valves, and fittings.
- At penetrations in jackets for thermometers and pressure gages, fill and seal voids with vapor barrier coating.
- Repair damaged insulation jackets, except metal jackets, by applying jacket material around damaged jacket. Adhere, staple, and seal. Extend patch at least 2 inches in both directions beyond damaged insulation jacket and around the entire circumference of the pipe.

Roof Penetrations: Apply insulation for interior applications to a point even with the top of the roof flashing. Seal with vapor barrier coating. Apply insulation for exterior applications butted tightly to interior insulation ends. Extend metal jacket for exterior insulation outside roof flashing at least 2 inches below top of roof flashing. Seal metal jacket to roof flashing with vapor barrier coating.

Flanges, Fittings, and Valves - Interior Exposed and Concealed: Coat pipe insulation ends with vapor barrier coating. Apply premolded, precut, or field-fabricated segments of insulation around flanges, unions, valves, and fittings. Make joints tight. Bond with adhesive.

- Use same material and thickness as adjacent pipe insulation.
- Overlap nesting insulation by 2 inches or 1-pipe diameter, which ever is greater.
- Apply materials with adhesive, fill voids with mineral fiber insulating cement. Secure with wire or tape.
- Insulate elbows and tees smaller than 3-inches pipe size with premolded insulation.
- Insulate elbows and tees 3 inches and larger with premolded insulation or insulation material segments. Use at least 3 segments for each elbow.

Hangers and Anchors: Apply insulation continuously through hangers and around anchor attachments. Install saddles, shields, and inserts as specified in Division 15 Section "Supports and Anchors." For cold surface piping, extend insulation on anchor legs a minimum of 12 inches and taper and seal insulation ends.

- Inserts and Shields: Cover hanger inserts and shields with jacket material matching adjacent pipe insulation.

8.36.22 GLASS FIBER PIPE INSULATION INSTALLATION

Bond insulation to pipe with lagging adhesive.

Seal exposed ends with lagging adhesive.

Seal seams and joints with vapor barrier compound.

8.36.23 CELLULAR GLASS PIPE INSULATION INSTALLATION

Cellular Glass Insulation: Join sections of cellular glass insulation with vapor barrier compound. Secure insulation with manufacturer's recommended adhesive. Seal joints with manufacturer's recommended joint sealer.

- Multiple Layer Installations: Stagger joints of multilayer installations. Secure inner layer with glass fiber reinforced tape. Secure outer layers with 2 metal bands for each insulation section.
- Finishing: Apply manufacturer's recommended weather barrier mastic.

- Finishing: Apply metal jacket over manufacturer's recommended vapor barrier mastic.

8.36.24 MINERAL WOOL INSULATION INSTALLATION

Apply 2-layer insulation with joints tightly butted and staggered at least 3 inches.

Metal Jacket: Where indicated, apply 0.020" aluminum metal jacket over finished insulation as specified in this Section for installation of metal jackets.

8.36.25 DUCT INSULATION

Blanket Insulation: Install tight and smooth. Secure to ducts having long sides or diameters as follows:

- Smaller Than 24 Inches: Bonding adhesive applied in 6-inch-wide transverse strips on 12-inch centers.
- 24 Inches and Larger: Anchor pins spaced 12 inches apart each way. Apply bonding adhesive to prevent sagging of the insulation.
- Overlap joints 3 inches.
- Seal joints, breaks, and punctures with vapor barrier compound.

8.36.26 JACKETS

Interior Exposed Insulation: Install continuous aluminum jackets.

Exterior Exposed Insulation: Install continuous aluminum jackets and seal all joints and seams with waterproof sealant.

Install metal jacket with 2-inch overlap at longitudinal and butt joints. Overlap longitudinal joints to shed water. Seal butt joints with weatherproof sealant recommended by insulation manufacturer. Secure jacket with stainless-steel draw bands 12 inches on center and at butt joints.

8.36.27 APPLICATIONS

General: Materials and thicknesses are specified in schedules at the end of this Section.

Interior, Exposed Piping Systems: Unless otherwise indicated, insulate the following piping systems:

- Diesel engine exhaust, start engines and burn-off exhaust system before installing insulation.
- Diesel fuel oil returned to daytank (oil cooler) from engine.
- Domestic water.

Exterior, Exposed Piping Systems: Unless otherwise indicated, insulate the following piping systems:

- Diesel engine exhaust, start engines and burn-off exhaust system before installing insulation.

Duct Systems: Unless otherwise indicated, insulate the following duct systems:

- All supply and return air ductwork.

8.36.28 PIPE INSULATION SCHEDULES

General: Abbreviations used in the following schedules include:

- Field-Applied Jackets: A – Aluminum

- Pipe Sizes: NPS - Nominal Pipe Size
- DIESEL FUEL OIL RETURNED TO DAYTANK (OIL COOLER) FROM ENGINE.

<u>PIPE SIZES (NPS)</u>	<u>MATERIALS</u>	<u>THICKNESS IN INCHES</u>	<u>VAPOR BARRIER REQ'D</u>	<u>FIELD- APPLIED JACKET</u>
ALL	GLASS FIBER	1 ½	YES	A
	CELLULAR GLASS	2	YES	A

- INTERIOR DIESEL ENGINE EXHAUST EXPOSED

<u>PIPE SIZES (NPS)</u>	<u>MATERIALS</u>	<u>THICKNESS IN INCHES</u>	<u>VAPOR BARRIER REQ'D</u>	<u>FIELD- APPLIED JACKET</u>
ALL	MINERAL WOOL	6	YES	A

8.36.29 DUCT SYSTEMS INSULATION SCHEDULE

HVAC SUPPLY AND RETURN DUCTS

<u>MATERIAL</u>	<u>FORM</u>	<u>THICKNESS IN INCHES</u>	<u>VAPOR BARRIER REQ'D</u>	<u>FIELD- APPLIED JACKET</u>
• INTERIOR EXPOSED DUCT:				
GLASS FIBER	BOARD	1-1/2	YES	NONE
• EXTERIOR EXPOSED DUCT:				
GLASS FIBER	BOARD	2	YES	A

END OF SECTION 15250

8.37 SECTION 15365 – CARBON DIOXIDE EXTINGUISHING SYSTEMS

8.37.1 GENERAL

8.37.2 RELATED DOCUMENTS

Drawings and general provisions of the contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this section.

8.37.3 SUMMARY

This section includes a complete carbon dioxide fire extinguishing system.

Related Section: The following sections contain requirements that relate to this Section:

- Division 15 Section “Basic Mechanical Materials and Methods” for joining materials identification and basic installation requirements.
- Division 15 Section “Hangers and Supports” for equipment and piping hangers and supports not specified in this section.

8.37.4 SYSTEM PERFORMANCE REQUIREMENTS

Design and obtain approval from Georgetown, SC Fire Department for carbon dioxide, fire extinguishing systems for Georgetown Peak Shaving Generation Plant – Engine Generator Room and Switchgear Room (high pressure system).

Design (including system calculations) and provide engineered-type automatic operation carbon dioxide, total flooding, fire extinguishing systems. Comply with NFPA 12, Chapter 5, “Total Flooding Systems” and Annex D. System shall provide a minimum carbon dioxide concentration, by volume at 70 degrees F, of 34 percent within the generator room and 50 percent within the switchgear room. Design concentration shall be achieved within 1 minute from start of discharge. Carbon dioxide concentrations shall be monitored and periodically recorded for 20 minutes, as recommended by NFPA 12 for deep-seated fires. The carbon dioxide levels recorded during the 20 minute test period shall be reviewed and validated by a professional engineering test report and seal as satisfactorily satisfying the extinguishing system requirements of NAPA 12.

Include extinguishing agent storage tank/containers, panels, controls, and alarm devices in locations indicated. Other devices and equipment may be located at designer’s discretion, except where specific location is indicated.

8.37.5 SYSTEM DESCRIPTION AND OPERATION

Carbon dioxide fire extinguishing system includes extinguishing agent and storage tank/containers, piping, detection and alarm devices, control and alarm panels, accessories, wiring, and connections for power and integration into building fire alarm system, for hazard areas indicated.

Systems Operation General: Comply with requirements of NFPA 12 Chapter 4, Section 4.5, “Detection, Actuation, and Control”.

8.37.6 SUBMITTALS

General: Submit the following according to Conditions of Contract and Division 1 Specification Sections.

Product data including rated weights (shipping, installed, and operating), furnished specialties, and accessories. Indicate dimensions, required clearances, and methods of assembly of components, and piping and wiring connections.

Calculations for required weight of carbon dioxide agent for each hazard enclosure and area application.

Coordination drawings for enclosure reflected ceiling plans drawn accurately to scale and coordinating penetrations, and ceiling-mounted items. Show the following:

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- Extinguishing agent storage tank/containers, piping, discharge nozzles, detectors, panels, and accessories.
- Method of attaching hangers to building structure.
- Ceiling-mounted items including light fixtures, diffusers, grilles, speakers, sprinklers, and access panels.

Wiring diagrams from manufacturers detailing electrical requirements for electrical power supply wiring to equipment. Include ladder-type wiring diagrams for interlock and control wiring required for final installation. Differentiate between portions of wiring that are factory-installed and portions that are field-installed. Detail field-installed wiring for controls, alarms, detectors, and accessories.

Licensed Engineer's drawings and calculations specified in "Quality Assurance" article of this section to authority having jurisdiction.

Licensed Engineer's installation report specified in "Field Quality Control" article of this section.
Test and inspection reports specified in "Field Quality Control" article of this section.

Maintenance data for inclusion in Operating and Maintenance Manuals specified in Division 1 Section "Project Closeout".

8.37.7 QUALITY ASSURANCE

Manufacturer Qualifications: Firms whose equipment, agents, and major accessories are listed by product name and manufacturer in UL "Fire Protection Equipment Directory" and FM "Approval Guide" and conform to other requirements indicated.

Provide listing/approval stamp, label, or other marking on equipment made to specified standards.

Comply with authority having jurisdiction requirements pertaining to submittals, approvals, materials, installation, inspections, and testing.

Licensed Engineer: Submittals for design drawings, calculations, and installation inspection reports shall bear seal and signature of Registered Engineer, licensed in jurisdiction where project is located, certifying compliance with specifications.

FM Standards: Provide equipment, components, and accessories complying with the FM "Approval Guide".

NFPA Standards: Provide equipment, components, accessories, installation, and testing complying with the following:

- NFPA 12 "Standard on Carbon Dioxide Extinguishing Systems"
- NFPA 70 "National Electrical Code"
- NFPA 72 "National Fire Alarm and Signaling Code"

ASME Standards: Provide piping, tubing, and installation complying with ASME B31.1 "Power Piping".

UL Standards: Provide equipment, components, and accessories complying with the following:

- UL "Fire Protection Equipment Directory"

Single-Source Responsibility: Obtain system components from single source, with responsibility and accountability to answer and resolve problems as regards compatibility, installation, performance, and acceptance of systems.

8.37.8 SEQUENCING AND SCHEDULING

Proceed with carbon dioxide system installation only after submittals have been reviewed by Owner's Engineer and by authority having jurisdiction.

8.37.9 PRODUCTS

8.37.10 MANUFACTURERS

Manufacturers: Subject to compliance with requirements, provide products by one of the following:

Carbon Dioxide Equipment and Systems:

- Kidde-Fenwal, Inc.
- Ansul Fire Protection, Tyco Fire Protection Products
- Chemetron Fire Systems Inc.

8.37.11 PIPING MATERIALS

Piping, Valves, and Discharge Nozzles: Conform with types and standards listed in NFPA 12, Chapter 4, Section 4.7, "Distribution Systems" and Annex C, for pipe and orifice size determination.

8.37.12 PIPES AND TUBES

Black Steel Pipe: ASTM A 106, Grade A, B, or C; Schedule 40, seamless, for sizes ¾ inches and smaller and schedule 80 for pipes one inch or greater in diameter.

8.37.13 PIPE AND TUBE FITTINGS

Use of Class 150 fittings or ordinary cast-iron fittings is prohibited.

Malleable-Iron Fittings: ASME B16.3, CLASS 300.

Steel Pipe Flanges and Flanged Fittings: ASME B16.5, Class 300.

Forged-Steel Fittings: ASME B16.11, Class 1000, socket-welding.

8.37.14 VALVES

General: Brass, designed to be suitable for intended operation.

Storage Container Valves: With rupture disc or solenoid, capable of immediate and total agent discharge, and suitable for intended capacity.

Valves in Sections of Closed Piping and Manifolds: Designed to prevent entrapment of liquid, or valve and separate pressure relief device.

Valves in Manifolds: Check valve, designed to prevent loss of carbon dioxide when storage container is removed from manifold.

8.37.15 STORAGE CONTAINERS (HIGH PRESSURE SYSTEM)

Storage Containers: Steel pressure vessel constructed, tested, and marked in accordance with applicable Department of Transportation (DOT) and U.S. Bureau of Explosives specifications. Cylinder shall be suitable for a minimum 850 psi charging pressure at 70°F with a filling density of not more than 68% of its water capacity and shall be equipped with valve, pressure switch, and pressure gauge.

- Finish: Red enamel or red epoxy paint.

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- Manifold: Piping with valves, pressure switch, and connections for multiple storage containers, as indicated
- Storage Container Brackets: Factory – or field fabricated retaining brackets consisting of steel straps and channels, suitable for container support, maintenance, and refilling or replacement.

8.37.16 EXTINGUISHING AGENT

Extinguishing Agent: Clean, dry, non-corrosive, non-damaging, non-deteriorating carbon dioxide conforming to quality requirements listed in NFPA 12.

8.37.17 DISCHARGE NOZZLES

Discharge Nozzles: Equipment manufacturer's standard corrosion resistant construction of 1-piece brass or aluminum-alloy of type, discharge pattern, and capacity required for application.

8.37.18 CONTROL PANELS

General: UL-listed or FM-approved, including equipment and features required for testing, supervision, and operation of extinguishing system.

Power Requirements: Operation of 120 volts ac power (Dedicated Circuit); with electrical contacts for connection to system components and to fire alarm system; transformer and rectifier, as required to produce power at voltage required for accessories and alarm devices.

Enclosure: NEMA ICS 6, Type 1, 18-gage minimum, enameled-steel cabinet.

Mounting: Surface

Supervised Circuits: Provide for each independent hazard area, and configure using cross, counting, independent or priority-zone concepts.

Control Panel Features: Provide the following features:

- Automatic switchover to standby power at loss of primary power.
- Electrical contacts to switchgear system for shutdown of generators, roof ventilation fan, closing of air solenoids (dampers), and closing fuel solenoid. Two sets of contacts for each zone shall be provided.
- Electrical contacts to switchgear to indicate control panel loss of primary power.
- Electrical contacts to switchgear system to monitor storage containers (high pressure system)
- Low pressure
- Relays for electrical contacts shall be DC, powered from the alarm system standby power.
- Annunciator Panel: Graphic type showing protected area plan and location of detectors and manual release stations. Include lamps to indicate device-initiating alarm, electrical contacts for connection to control panel, and stainless steel or aluminum enclosure.
- Standby Power: Unit with nickel-cadmium batteries, having capacity to operate system for 72 hours and alarm for minimum of 15 minutes, with automatic battery charger having varying rate between trickle and high depending on battery voltage, and maintaining batteries in fully charged condition. Include manual voltage control, dc voltmeter, dc ammeter, electrical contacts for connection to control panel, and suitable enclosure.

8.37.19 DETECTION DEVICES

General: Provide detection devices conforming to requirements of NFPA 12 and NFPA 72, and following types where indicated.

Ionization Detectors: UL 268, dual-chamber type, having sampling and referencing chambers, with smoke-sensing element. Select for clean applications only. (Switchgear Room).

Photoelectric Detectors: UL 268, consisting of LED light source and silicon photo diode receiving element. Select for clean applications only. (Switchgear Room).

Thermal Detectors: Rate-compensating (or rate-anticipating) type designed to compensate for thermal lag; self-storing; stainless steel shell; hermetically sealed; explosion proof. Select for dirty applications. (Engine-generator equipment room).

8.37.20 MANUAL RELEASE STATIONS

Manual Release Stations: UL-listed or FM-approved, red-finish, "Pull Station", 120 volts ac or low-voltage compatible with controls. Include contacts for connection to control panel. Unit can manually discharge carbon dioxide extinguishing system with operating device that will remain engaged until unlocked.

- Mounting: Surface

8.37.21 SWITCHES

General: UL-listed or FM-approved, where available, with electrical contacts for connection to control panel, 120 volts ac or low-voltage compatible with controls.

Lock-out Switches: To prevent accidental discharge.

Door Closers: Magnetic retaining and release device.

8.37.22 CARBON DIOXIDE SYSTEM ALARM DEVICES

General: UL-listed or FM-approved, low-voltage, surface-mounting, except where otherwise indicated.

Horns/Sirens: 90 to 940 dBA.

- Strobe-Light: Translucent lens, with caption "FIRE".

8.37.23 IDENTIFICATION

Refer to Division 15 Section "Basic Mechanical Materials and Methods" for piping equipment and accessory labels.

Provide appropriate warning signage as described in NFPA12, Chapter 4, Section 4.3.2, "Signs".

8.37.24 ELECTRIC POWER AND WIRING

Electric power, wiring, and wiring devices are specified in Division 16 sections.

8.37.25 TRANSMISSION TO REMOTE CENTRAL STATION

Automatically route alarm, supervisory, and trouble signals to a remote central station service via dial telephone network, furnish modem and auto dialer as required.

8.37.26 EXECUTION

8.37.27 EXAMINATION

Examine areas and conditions, with installer present, for compliance with hazard area requirements that will reduce carbon dioxide leakage. Include requirements specified, installation tolerances, and other conditions

affecting performance of carbon dioxide fire extinguishing systems. Do not proceed with installation until unsatisfactory conditions have been corrected.

8.37.28 PIPING INSTALLATION, GENERAL

Basic piping installation and pipe joining methods are specified in Division 15 Section "Basic Mechanical Materials and Methods".

8.37.29 CARBON DIOXIDE SYSTEM INSTALLATION

Install carbon dioxide fire extinguishing system components according to manufacturers' written instructions, the original design, and referenced standards.

Install extinguishing agent storage tank/containers on concrete pad in location and orientation indicated.

Install steel pipe and pipe fittings, valves, and discharge nozzles according to requirements listed in NFPA 12, Chapter 4, Section 4.7, "Distribution Systems" and related Annex C paragraphs, and ASME B31.1 "Power Piping".

- Install valves designed to prevent entrapment of liquid or install pressure-relief devices, in valved sections of piping systems
 1. Support piping using supports and methods according to NFPA 13 and according to Division 15 Section "Hangers and Supports".
 2. Install control panels, detection system components, alarms, and accessories, complying to requirements of NFPA 12, Chapter 4, Section 4.5, "Detection, Actuation, and Control Systems" as required for systems-supervised application.

8.37.30 CONNECTIONS

General: Drawings indicate general arrangement of extinguishing agent storage tank/containers, accessories, and control panels.

Install piping adjacent to agent storage tanks and equipment to allow replacement, servicing, and maintenance.

Install electrical connections to power supply, system components, and building fire alarm system.

Electrical Connections: Power wiring and disconnect switches are specified in Division 16.

Grounding: Connect unit components to ground according to the National Electrical Code.

8.37.31 LABELING AND IDENTIFICATION

Install labeling on piping, storage tank/containers, equipment, and alarm panels according to requirements of NFPA 12.

8.37.32 FIELD QUALITY CONTROL

Licensed Engineer: Inspect installed system, prepare installation report, and certify that installation complies with specifications, design drawings and calculations, and requirements of authorities having jurisdiction.

Manufacturer's Field Service: Provide services of a factory-authorized service representative to supervise and inspect the installation of carbon dioxide fire extinguishing systems. Include equipment, piping, alarms, interlocks with other equipment, and electrical connections. Report results in writing.

Comply with operating instructions and procedures of NFPA 12, Chapter 4, Section 4.4.3, "Approval of Installations" including the following inspections and tests to demonstrate compliance with requirements:

- Check mechanical items.

- Inspect extinguishing agent storage tank/containers and extinguishing agent, and check mountings for adequate anchoring.
- Check electrical systems.
- Functional (pre-discharge) test.
- System functional operational test.
- Remote monitoring operations.
- Control panel primary power source.
- Perform “puff” test on piping system, using compressed air or carbon dioxide.

Test and adjust operating and safety controls. Replace damaged and malfunctioning controls and equipment.

Perform field acceptance tests of each carbon dioxide fire extinguishing system when system installation is complete. Comply with operating instructions and procedures of NFPA 12, Chapter 4, Section 4.4.3, “Approval of Installations” including the following to demonstrate compliance with requirements:

- Functional (pre-discharge) test.
- System functional operational test.
- Remote monitoring operations.
- Control panel primary power source.
- Perform “puff” test on piping system, using compressed air or carbon dioxide.

Where possible, field correct malfunctioning equipment, then retest to demonstrate compliance. Replace equipment that cannot be satisfactorily corrected or does not perform as specified and indicated, then retest to demonstrate compliance. Repeat procedure until satisfactory results are obtained.

- Report test results promptly and in writing to owner’s engineer and authority having jurisdiction.

8.37.33 COMMISSIONING

Provide services of factory-authorized service representative to provide start-up service.

Preparation: Perform following final checks before start-up:

- Tests of piping system complete.
- Check for piping connections leaks.
- Test operation of safety controls and devices.
- Check operation of storage tank refrigeration unit, pressure gauge, and liquid level gauge.

Starting Procedures: Follow manufacturer’s written procedures. If no procedures are prescribed by manufacturer, proceed as follows:

- Energize circuits.
- Adjust operating controls.

8.37.34 DEMONSTRATION

Provide services of factory-authorized service representative to demonstrate and train owner’s maintenance personnel as specified below.

Procedures and schedules related to start-up and shut-down, troubleshooting, servicing, and preventive maintenance.

Review data in Operating and Maintenance Manuals. Refer to Division 1 Section “Project Closeout”.

Schedule training with at least a 7-day advance notice.

END OF SECTION 15365

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8.38 SECTION 15491 - FUEL OIL PIPING SYSTEMS

8.38.1 GENERAL

8.38.2 RELATED DOCUMENTS

Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

8.38.3 SUMMARY

This section includes fuel oil pipe, containment pipe, fittings, specialties, outdoor bulk storage fuel oil tank, and indoor fuel oil day tank.

Related Sections: The following sections contain requirements that relate to this section:

- Section 01010 - Summary of work, fuel oil furnished by owner and equipment furnished by owner.
- Section 02200 - Earthwork, excavating, trenching, and backfilling for piping.
- Steel Fuel Oil Piping: 150 psig (1035 kPa).
- Underground flexible containment piping system, with H-20 load bearing rating.

8.38.4 SUBMITTALS

General: Submit the following according to Conditions of Contract and Division 1 Specification Sections.

Product data, including size, dimensions, capacity, pressure rating, accessories, and operating characteristics for the following:

- Each fuel oil system specialty.
- Leak detection and monitoring system.
- Special duty valves.
- Underground containment piping system.

Maintenance data for fuel oil specialties, leak detection and monitoring system and special duty valves, for inclusion in Operating and Maintenance Manual specified in Division 1 Section "Project Closeout."
Test reports specified in "Field Quality Control" article in Part 3.

Wiring diagrams for each item of equipment with electric power supply. Include ladder-type wiring diagrams for interlock and control wiring required for final installation. Differentiate between portions of wiring that are factory installed and portions that are field installed.

8.38.5 QUALITY ASSURANCE

Comply with NFPA 31 "Standard for the Installation of Oil Burning Equipment" for fuel oil piping materials, components, installations, inspection, and testing.

Comply with NFPA 70 "National Electrical Code" for electrical connections between wiring and electrically operated control devices.

Provide listing/approval stamp, label, or other marking on equipment made to specified standards.

Listing and Labeling: Provide equipment and accessories that are listed and labeled.

- Terms "Listed" and "Labeled": As defined in the "National Electrical Code," Article 100.

Product Options: Fuel oil piping systems equipment, specialties, piping, and accessories are based on specific types, manufacturers, and models indicated. Equipment and other components having equal performance characteristics by other manufacturers may be considered, provided deviations in dimensions, operation, and other characteristics do not change design concept or intended performance as judged by the Owner's engineer. The burden of proof of equality of products is on the contractor. Refer to Division 1 Section "Product Substitutions."

Comply with requirements of EPA and state and local authorities having jurisdiction. Include monitoring of piping.

8.38.6 PRODUCTS

8.38.7 MANUFACTURERS

Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated in the Work include, but are not limited to, the following:

Oil Piping Specialties:

- Emco Wheaton, Inc.
- A.Y. McDonald Mfg. Co.
- OPW Fueling Components Group, Dover Corp.
- Preferred Utilities Manufacturing Corp.
- Universal Valve Co., Inc.

Leak Detection and Monitoring Systems:

- Leak Sensor by Emco Wheaton, Inc.
- Perm Alert ESP Subsid, Midwesco, Inc.
- Trace Tek Products Group, Raychem Corp.
- Veeder-Root Co.
- Pneumercator, Inc.

Bulk Fuel Storage Tanks:

- Convault

Day Tank Systems:

- Simplex, Inc.
- Tramont Corporation
- Pryco

8.38.8 PIPES AND TUBES

Refer to Part 3 Article "Piping Applications" for identification of systems where pipe and tube materials specified below are used.

Steel Pipe: ASTM A 53, Schedule 40, Type S (seamless) or Type E (electric-resistance welded), Grade A, black, with beveled ends.

8.38.9 PIPE AND TUBE FITTINGS

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Refer to Part 3 Article "Piping Applications" for identification of systems where pipe and tube fitting materials specified below are used.

Malleable-Iron Threaded Fittings: ASME B16.3, Class 150, standard pattern, with threads according to ASME B1.20.1.

Steel Fittings: ASTM A 234/A 234M, seamless or welded, for welded joints.

Steel Flanges and Flanged Fittings: ASME B16.5.

Unions: ASME B16.39, Class 150, malleable iron. Include ground joint with brass-to-iron seat and female pattern ends with threads according to ASME B1.20.1.

8.38.10 UNDERGROUND FLEXIBLE CONTAINMENT PIPING SYSTEMS

General: Underground flexible containment piping systems are factory fabricated and pre-engineered and include double walled carrier piping and fittings, secondary-containment conduit and fittings, centering spacers in annular space between carrier pipe and inside of conduit, and liquid-tight joints. Conduits and spacers are arranged so that system can be vented and drained and space is available for installing leak detection cable. Containment conduit material has corrosion-resisting coatings. Piping installation shall be sloped toward transition sump such that any underground fuel leaks flow into transition sump,

Containment conduit piping system sizes refer to carrier pipe sizes.

Include system manufacturer's standard fittings, terminal pieces, and accessories.

Underground double wall flexible containment piping system: UL 971 listed, integral primary/secondary, normal vent & vapor piping suitable for low sulfur diesel fuel, gasoline, aviation & marine fuel delivery.

8.38.11 JOINING MATERIALS

Refer to Division 15 Section "Basic Mechanical Materials and Methods" for other joining materials.

Gaskets for Flanged Joints: Full-faced for cast-iron flanges and ring-type for steel flanges. Select materials that will suit service of piping system in which gasket will be installed and will not be detrimentally affected by chemical and thermal conditions of fuel oil. Flange bolts and nuts shall be ASME B18.2.1, carbon steel.

Welding Filler Materials: Comply with AWS D10.12 for welding materials appropriate for wall thickness and chemical analysis of steel pipe being welded.

8.38.12 PIPING SPECIALTIES

Pipe Connectors: UL 567.

Strainers: Y pattern, full size of connecting piping. Include Type 304 stainless-steel screens with 3/64-inch (1.2 mm) perforations, except where other screens are indicated.

- Pressure Rating: 175 psig (1200 kPa) WOG working pressure.
- Construction: Bronze body, with female threaded ends.
- Screwed screen retainer with centered blow-down and pipe plug.
- Flexible Pipe Connectors for Ferrous Piping: Stainless-steel hose covered with Stainless steel wire braid, with ASME B1.20.1 threaded steel pipe nipples or ASME B16.5 steel pipe flanges welded to hose.

8.38.13 VALVES

Refer to Division 15 Section "Valves" for gate, ball, and check valves.

Vertical Ball Check Valves: Class 200, 400 psig (2750 kPa) maximum operating pressure, 2-piece bronze construction with threaded-end connections, integral bronze seats, and replaceable stainless steel ball.

8.38.14 LEAK DETECTION AND MONITORING SYSTEM

Description: UL-listed, calibrated, leak detection and monitoring system to detect the presence of No. 2 liquid fuel at any point along the pipe's length, sound an alarm, and pinpoint the distance to the leak.

System includes probes and other sensors, sensing cable, remote alarm panel graphic display map, and auxiliary equipment, secondary containment system. 4-20 ma tank level signals shall be provided as indicated on the drawings and specified herein.

The leak detection system shall be capable of being interfaced to electronic fuel leak detectors at the outside fuel tank containment wall, the outside piping transition sump, the interior fuel and day tank piping leak detection tape as indicated on the drawings.

8.38.15 OUTDOOR BULK FUEL OIL STORAGE TANK

The Insulated Secondary Containment Aboveground Storage Tank Systems for Flammable and Combustible Liquids, Protected Type: Vehicle Impact Protected, and Projectile Resistant shall be tested to and listed for the following: UL - 142, aboveground tanks for flammable and combustible liquids.

- UL - 2085, two hour furnace fire test and two hour simulated pool fire test for insulated tank.
- UL - 2085 and UFC Test Standard APPENDIX #A-II-F-1, for both Vehicle Impact Protection and Projectile Resistance.
- UL - 2085, insulated aboveground tanks for flammable and combustible liquids.
- ULC/ORD - C 142.16, protected aboveground tank assemblies for flammable and combustible liquids.
- ULC/ORD - C 142.5, concrete encased aboveground tank assemblies for flammable and combustible liquids.
- ULC/ORD - 142.16, the furnace burn requirements for two hour fire rating.
- ULC/ORD - 142.5, the open (pool) fire testing for two hour flammable liquid fire test.
- ULC/ORD - 142.23, aboveground tanks for waste oil.
- The requirements for uniform fire code for two hour (fire wall) test.

The primary steel tank shall be rectangular in shape and have continuous welds on all exterior seams, and manufactured in accordance with U. L. 142.

The primary steel tank shall be pressure tested at 5 psig for 24 hours.

The primary steel tanks shall have "emergency vent" system as per NFPA 30 Code requirements.

The protected and insulated AST systems shall have a thru tank leak detector tube to allow for physical checkup and monitoring capability between the primary and the secondary containment.

The primary steel tank shall be pressurized at 5 psig during concrete encasement.

The outer surface on the primary steel tank shall be covered by a minimum of 1/4" Thick (6.4 mm) Styrofoam insulation panels or equally acceptable thermal insulation.

The secondary containment shall consist of a 30 Mil thick (0.78 mm) polyethylene membrane, or equally acceptable material, enclosing the steel tank and insulation material.

The primary steel tank and the secondary containment shall be encased in six inches of monolithic reinforce concrete, with a minimum design strength of 4,000 psi at 28 days. The concrete design shall include the following for long term durability: air entertainment, water reducing admixture, and steel reinforcement.

The protected and insulated AST systems shall be of concrete exterior and a continuous and visually verifiable monolithic (seamless) pour on top, bottom, ends, and sides and contain no cold joints or heat sinks (heat transfer points). The AST must be shop fabricated and tested in accordance with the UL listings.

No steel or insulating material shall come in contact with the concrete or other corrosive material.

All openings shall be from the top only.

All exposed metal must be powder coated to inhibit corrosion.

The protected and insulated AST systems shall include a minimum 5-15 gallon powder coated, U. L. listed spill containment, and shall include normally closed valve to release spilled product into the primary steel tank.

The protected and insulated AST systems shall have a coated concrete exterior to resist weather and reflect sunlight.

The protected and insulated AST systems shall have a warranty of 30 years for systems 2,000 Gallon capacity and larger and 20 years for systems, 1,000 Gallon capacity and smaller with optional 20 year warranty.

The protected and insulated AST systems design shall have been in use for a minimum of nine (9) years. The manufacturer must stipulate no AST containment system failure in 15,000 units produced.

The protected and insulated AST systems shall have two (2) lugs for connecting grounding conductors for lightning protection in accordance with NFPA 78.

The protected and insulated AST systems shall be provided with level gauges as follows:

- Direct reading level gauge visible from fill port
- Remote read level gauge, with 4-20 mA output.

The AST shall have valve located within the fill pipe to close automatically at 95 percent fill level.

8.38.16 INDOOR FUEL OIL DAY TANK

A single separately mounted fuel day tank shall be furnished to service two engines initially and a future third engine. The day tank shall be of 350 gallon capacity. Day tank design shall allow installation so that the level of the fuel when the day tank is full is no higher than the engine injectors as indicated on the drawings.

Fuel returned to the day tank from each engine will be cooled by engine mounted fuel cooler.

For the initial installation, mounting facilities and power supply interconnection points for the future engine are to be provided.

The day tank shall be equipped with two tank mounted service pumps in parallel to pump fuel from the main fuel supply to the day tank. Each pump shall be rated to supply 110 percent of the full standby load requirements of three engines. The pump control system shall be arranged to alternately operate each pump and to run only one pump unless the day tank fuel level drops below 50% when both pumps will operate. A separate return pump shall be provided to return any overfill fuel to the main fuel supply. The return pump shall be rated at 110% of the combined fuel flow ratings of the service pumps. All pump ratings are to be applied to a minimum 40 feet head. Pump motors shall be non-over-loadable on the curve. Each Engine will consume 139.5 gal/hr of fuel.

The day tank shall be equipped with an automatic control system to provide automated operation of the day tank pumping system and to provide alarms with external contact outputs as follows:

- Motor control system failure
- High fuel
- Low fuel
- Fuel in basin
- Critical low fuel (activate at 10% tank capacity)

Indication of fuel level within the day tank shall be provided.

The day tank is intended for indoor use and shall be provided with rupture basin and all vents, drains, piping interconnection points and other features required for use in the service described. The day tank shall be constructed with separate 1 inch NPT connections for fuel supply and return lines from each engine and the future engine (3 supply connections and 3 return connections). The day tank system shall be UL listed.

A single separately mounted Racor filter (fuel/water separator) shall be provided to be installed on the building interior wall in the supply piping from the main storage tank. The filter shall be rated for the total flow of the day tank supply pumps.

Day tank shall be hydrostatically tested at 200 percent of design pressure.

8.38.17 EXECUTION

8.38.18 PIPING APPLICATIONS

Aboveground Piping, smaller than 2 inches: Use steel pipe, cast iron and malleable –iron fittings, and threaded joints.

Aboveground Piping, sizes 2 inches and larger: Use steel pipe, steel fittings and flanged joints.

Containment pipe will only be used below grade and terminate 1'-0" above grade level with appropriate terminal pieces. Sleeves shall not be used where containment pipes penetrate concrete slabs/building structures. Instead, sections of pipe/fittings will be set in place during construction or slabs/walls will be constructed with piping in place.

Joining Methods Alternative: Aboveground piping may be joined with flanges instead of joints indicated.

Underground Containment Piping System: Double wall, flexible fuel pipes as indicated on the drawings and specified herein.

8.38.19 PIPE INSTALLATIONS

Refer to Division 15 "Basic Mechanical Materials and Methods" for basic piping installation instructions and Division 2 "Earthwork" for excavation, trenching, and backfilling.

Use eccentric reducer fittings to make reductions in pipe sizes. Install fittings with level side down.

Install strainers as indicated.

Install transition sumps with electronic 'hydrocarbon' present sensors as indicated.

8.38.20 HANGER AND SUPPORT INSTALLATION

Refer to Division 15 Section "Hangers and Supports" for hanger and support devices.

Install hangers for horizontal piping with following maximum spacing and minimum rod sizes:

Steel Pipe Nominal Pipe Size (Inches)	Min. Rod Max. Span (Feet)	Diameter (Inches)
1/2 and smaller	5	3/8
3/4	7	3/8
1	7	3/8
1-1/4	7	3/8
1-1/2	9	3/8
2 and larger	10	3/8

Support vertical steel pipe at floor (grade) and at spacing not greater than 15 feet.

8.38.21 PIPE JOINT CONSTRUCTION

Refer to Division 15 Section "Basic Mechanical Materials and Methods" for basic pipe joint construction.

8.38.22 VALVE INSTALLATIONS

Install valves in accessible locations, protected from physical damage. Tag valves with a metal tag attached with a metal chain indicating the piping systems supplied.

Install gate valves at each branch connection to supply mains and elsewhere as indicated.

Install drain valves at low points in mains, risers, branch lines, and elsewhere as required for system drainage.

Install swing check valves as required to control flow direction.

8.38.23 FIELD QUALITY CONTROL

Test fuel oil piping according to NFPA 31. Remake leaking joints and connections using new materials. Test pressure to be 1.5 times the design pressure, not-to-exceed 100 PSI for four hours.

Test and adjust controls and safeties. Replace damaged or malfunctioning controls and equipment.

8.38.24 DEMONSTRATION

Train Owner's maintenance personnel on procedures and schedules related to start-up and shutdown, troubleshooting, servicing, and preventive maintenance.

Review data in Operating and Maintenance Manuals. Refer to Division 1 Section "Project Closeout."

Schedule training with Owner with at least 7 days advance notice.

8.38.25 COMMISSIONING

Before activating system perform these steps:

- Open valves to full open position and close bypass valves.
- Remove and clean strainer screens.
- Check pumps for proper direction of rotation.
- Fill oil storage tank with proper fuel type.
- Check operating controls of engine-generators.
- Check operation at automatic bypass valves.
- Check leak detection monitoring systems for proper operation.

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- Prime systems and fill day tanks with fuel.
- Verify operation of Level Control Alarm panel inside plant and at tank

1. Verify operation of fuel leak detector sensor and tape

END OF SECTION 15491

8.40 SECTION 15492 – DIESEL EXHAUST FLUID (DEF) PIPING SYSTEMS

8.40.1 GENERAL

8.40.2 RELATED DOCUMENTS

Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

8.40.3 SUMMARY

This section includes DEF pipe, fittings, valves, specialties, and the outdoor bulk storage DEF tank.

Related Sections: The following sections contain requirements that relate to this section:

- Section 01010 - Summary of work, DEF furnished by owner and equipment furnished by owner.
- Section 02200 - Earthwork, excavating, trenching, and backfilling for piping.

8.40.4 SUBMITTALS

General: Submit the following according to Conditions of Contract and Division 1 Specification Sections.

Product data, including size, dimensions, capacity, materials, pressure rating, accessories, and operating characteristics for the following:

- DEF storage tank
- Tank Insulation
- Special duty valves / remote fill port
- Submersible supply pump
- DEF Level Sensor interfaced to level / control panel inside plant
- Local DEF level/alarm panel located at DEF tank fill line
- DEF outside fill and supply line heat tracing

Service Conditions, chemical and temperature, description and size of all fittings and accessories.
Test reports specified in "Field Quality Control" article in Part 3.

Wiring diagrams for each item of equipment with electric power supply. Differentiate between portions of wiring that are factory installed and portions that are field installed.

Technical Manuals, guidelines for use & installation, warranty information, factory test report

8.40.5 QUALITY ASSURANCE

The tanks of the same material furnished under this section shall be supplied by a manufacturer who has been regularly engaged in the design and manufacturing of rotationally molded chemical storage tanks using cross-linked and high density linear polyethylene tanks for over ten years.

All dimensions will be taken with the tank in the vertical position, unfilled. Tank dimensions will represent the exterior measurements. The tolerance for the outside diameter, including out of roundness, shall be per ASTM D1998. 10.2.4 The tolerance for fitting placements shall be +/- 0.5 in. in elevation and 2 degrees radial at ambient temperature.

The tank shall be of proven design to withstand impact test as found in ASTM D1998, with test specimens conditioned at -40 degrees F for a minimum of two hours.

The tank shall be of proven design to meet ASTM D2765 Method C insoluble 0-xylene fraction test.

The tank shall be hydrostatically tested with water filled to the brim for 8 hours.

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The finished tank shall be free of visual defects such as air bubbles, foreign inclusions, pinholes, pimples, crazing, cracking and delaminations. All edges and openings shall be trimmed smooth.

Comply with NFPA 70 "National Electrical Code" for electrical connections between wiring and electrically operated control devices.

Provide listing/approval stamp, label, or other marking on equipment made to specified standards.

Comply with requirements of EPA and state and local authorities having jurisdiction.

8.40.6 PRODUCTS

8.40.7 MANUFACTURERS

Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated in the Work include, but are not limited to, the following:

- DEF Piping Specialties:
 1. Emco Wheaton, Inc.
 2. A.Y. McDonald Mfg. Co.
 3. OPW Fueling Components Group, Dover Corp.
 4. Preferred Utilities Manufacturing Corp.
 5. Universal Valve Co., Inc.
 6. DEF Bulk Storage Tank
 7. KleeBlue, Snyder Industries, Inc.

8.40.8 PIPES, TUBES, VALVES AND FITTINGS

All wetted materials must be compatible for storing and transporting DEF as defined in ISO 22241 and PEI RP1100. Compatible materials include 304 stainless steel, polypropylene and polyethylene, EPDM and Viton gaskets and seals. The following materials shall not be used: cast iron, black iron, carbon steel, plated steel, aluminum, plated aluminum, copper, brass, zinc, lead, magnesium, or silver.

Refer to Part 3 Article "Piping Applications" for identification of systems where pipe and tube materials specified below are used.

All DEF system piping shall be stainless steel; type 304 stainless steel, schedule 40 seamless pipe ASTM 312. All valves and fittings shall be 304 stainless steel unless approved otherwise with acceptable materials specified herein.

The outdoor bulk DEF storage tank shall be 1,100 gallon, single wall, insulated as identified on the drawings and specified herein.

- Tank shall be molded in one-piece, seamless construction according to ASTM D1998. (laminated or fabricated tanks will not be accepted) and shall be capable of storing DEF at atmospheric pressure and temperature ranging from 0 – 110 degrees F.
- Tank shall be flat bottom suitable for installing on level concrete pad. Tank shall be cylindrical, upright style top mounted anchor holes. The uninsulated tank shall have maximum 68 inches in diameter and 92 inches high.
- Tank shall have factory installed, 1 inch polyfoam insulation. Tank insulation shall add no more than 2 inches to the overall tank dimensions.
- Tank shall have one 3/4 hp submersible pump, 120V, 1 phase, rated 10 gal/min at 33 psi. Electrical connection junction box shall be provided at top of the tank.
- Tank shall have top mounted, pressure relief valve, non-adjustable, set per manufactures recommendation.

- Tank shall have top mounted pressure vacuum vent and manway.
- Tank shall have insulated top fill line with check valve and lockable ball valve. Tank shall have 2 inch OPW male daybreak remote fill adapter, oriented as indicated on the drawings. Mechanical overfill protection valve shall be provided.
- An extra 2 inch opening shall be provided on top of tank.
- Tank fill line shall allow up to 80 gal/min flow at 50 psi. Fill line shall have mechanical overfill protection that slows fill rate to 5 gal/min or less when tank is nearly full.
- An electronic level sensor shall be provided in the tank with the ability to be interfaced to the fuel level/control alarm panel located inside the plant and to provide a 4-20 mA signal to the switchgear control system as indicated on the drawings.
- The completed tank assembly shall be suitable for installation as indicated on the drawings, including fill port location, tank tie-down anchor locations and supply line piping.

8.40.9 LOCAL LEVEL/ALARM PROGRAMMABLE DISPLAY

A local DEF tank level/high level alarm programmable display shall be provided and installed as indicated on the drawings. The display shall be interfaced with the fuel/DEF tank level/alarm panel located inside the plant. The local programmable display shall be a Pneumercator ETD1000.

8.40.10 EXECUTION

PIPING APPLICATIONS

All DEF piping shall be 304 stainless steel as indicated on the drawings and specified herein.

Above ground piping outside and inside the plant shall be insulated with foam insulation.

DEF Supply piping above ground piping outside the plant shall be heat traced, with thermostatically controlled, 120Vac, 1 phase heat tape. DEF vent piping does not require heat trace.

8.40.11 PIPE INSTALLATIONS

Refer to Division 15 "Basic Mechanical Materials and Methods" for basic piping installation instructions and Division 2 "Earthwork" for excavation, trenching, and backfilling.

Use eccentric reducer fittings to make reductions in pipe sizes. Install fittings with level side down.

DEF piping penetrating concrete slabs and building walls shall be thru appropriately sized galvanized steel sleeves. After installation, sleeve shall be filled with grout and made smooth on each end.

Piping and valves shall be installed to provide a complete DEF storage and delivery system to the generator dosing control panels as indicated on the drawings.

8.40.12 HANGER AND SUPPORT INSTALLATION

Refer to Division 15 Section "Hangers and Supports" for hanger and support devices.

Install hangers for horizontal piping with following maximum spacing and minimum rod sizes:

Steel Pipe Nominal Pipe Size (Inches)	Min. Rod Max. Span (Feet)	Diameter (Inches)
1/2 and smaller	5	3/8
3/4	7	3/8
1	7	3/8
1-1/4	7	3/8
1-1/2	9	3/8
2 and larger	10	3/8

Support vertical steel pipe at floor (grade) and at spacing not greater than 15 feet.

8.40.13 PIPE JOINT CONSTRUCTION

Refer to Division 15 Section "Basic Mechanical Materials and Methods" for basic pipe joint construction.

8.40.14 VALVE INSTALLATIONS

Install valves in accessible locations, protected from physical damage. Tag valves with a metal tag attached with a metal chain indicating the piping systems supplied.

Install gate valves at each branch connection to supply mains and elsewhere as indicated.

Install drain valves at low points in mains, risers, branch lines, and elsewhere as required for system drainage.

Install swing check valves as required to control flow direction.

8.40.15 FIELD QUALITY CONTROL

Test DEF piping for leaks. Remake leaking joints and connections using new materials. Test pressure to be 1.5 times the design pressure, not-to-exceed 100 PSI for four hours.

Test and adjust controls and safeties. Replace damaged or malfunctioning controls and equipment.

8.40.16 DEMONSTRATION

Train Owner's maintenance personnel on procedures and schedules related to start-up and shutdown, troubleshooting, servicing, and preventive maintenance.

Review data in Operating and Maintenance Manuals. Refer to Division 1 Section "Project Closeout."

Schedule training with Owner with at least 7 days advance notice.

8.40.17 COMMISSIONING

Before activating system perform these steps:

- Open valves to full open position and close bypass valves.
- Remove and clean strainer screens.
- Check pumps for proper direction of rotation.
- Fill DEF storage tank with DEF.
- Check mechanical float level gauge and high level alarm.
- Check submersible pump control interface with generator control contacts.
- Check level probe 4-20 mA level signal and display.

- Check each generator dosing control cabinet DEF tank is filled with DEF from the outdoor DEF bulk storage tank.
- Verify all heat tracing on outside DEF lines is operating.
- Verify operation of Level Control Alarm panel inside plant and at tank.

END OF SECTION 15492

Attachment: Preliminary Conformed Georgetown Gen Building Constr Spec 7_3_2017 (2329 : Motion to Approve Contract With Coastal

8.41 SECTION 15781 - PACKAGED HEATING AND COOLING UNITS

8.41.1 GENERAL

8.41.2 RELATED DOCUMENTS:

Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.

Division-15 Basic Mechanical Materials and Methods sections apply to work of this section.

8.41.3 DESCRIPTION OF WORK:

Extent of packaged heating and cooling units work required by this section is indicated on drawings and schedules, and by requirements of this section.

Types of packaged heating and cooling units specified in this section include the following:

- Outdoor packaged units, 15-tons and smaller.

Electrical Work: Provide the following wiring as work of this section, in accordance with requirements of Division 16:

- Provide control wiring between unit-mounted control panel and thermostats, remote control panels, and any other control device furnished as work of this section.
- Provide factory-mounted and wired controls and electrical devices as specified in this section.

Refer to Division-16 sections for other electrical work including motor starters, disconnects, wires/cables, raceways, and other required electrical devices; not work of this section.

8.41.4 QUALITY ASSURANCE:

Manufacturer's Qualifications: Firms regularly engaged in manufacture of packaged heating and cooling units, of types and capacities required, whose products have been in satisfactory use in similar service for not less than 5 years.

Codes and Standards:

- ARI Compliance: Provide capacity ratings for packaged heating and cooling units in accordance with ARI Standard 210 "Standard for Commercial and Industrial Unitary Air-Conditioning Equipment".
- ASHRAE Compliance: Construct refrigeration system of packaged heating and cooling units in accordance with ASHRAE Standard 15 "Safety Code for Mechanical Refrigeration".

UL Compliance: Provide packaged heating and cooling units which are UL-listed and labeled.

UL Compliance: Provide packaged heating and cooling units which are designed, manufactured, and tested in accordance with UL requirements.

8.41.5 SUBMITTALS:

Product Data: Submit manufacturer's technical product data, including rated capacities of selected model clearly indicated, weights, furnished specialties and accessories; and installation and start-up instructions.

Shop Drawings: Submit manufacturer's assembly-type shop drawings indicating dimensions, weight loadings, required clearances, and methods of assembly of components.

Wiring Diagrams: Submit manufacturer's electrical requirements for power supply wiring to packaged heating and cooling units. Submit manufacturer's ladder-type wiring diagrams for interlock and control wiring required for final

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installation of packaged heating and cooling units and controls. Clearly differentiate between portions of wiring that are factory-installed and portions to be field-installed.

Maintenance Data: Submit maintenance data and parts list for each packaged heating and cooling unit, control, and accessory; including "trouble-shooting" maintenance guide. Include this data and product data in maintenance manual; in accordance with requirements of Division 1.

8.41.6 DELIVERY, STORAGE, AND HANDLING:

Handle packaged heating and cooling units and components carefully to prevent damage, breaking, denting and scoring. Do not install damaged packaged heating and cooling units or components; replace with new.

Store packaged heating and cooling units and components in clean dry place. Protect from weather, dirt, fumes, water, construction debris, and physical damage.
Comply with Manufacturer's rigging and installation instructions for unloading packaged heating and cooling units, and moving units to final location for installation.

8.41.7 PROJECT WARRANTY

Warranty on Motor/Compressor: Provide written warranty, agreeing to replace/repair, within warranty period, motors/compressors with inadequate and defective materials and workmanship, including leakage, breakage, improper assembly, or failure to perform as required; provided manufacturer's instructions for handling, installing, protecting, and maintaining units have been adhered to during warranty period. Replacement is limited to component replacement only, and does not include labor for removal and reinstallation.

Warranty Period: 5 years from Date of Substantial Completion.

8.41.8 PRODUCTS

8.41.9 OUTDOOR PACKAGED UNITS, 15 TONS AND SMALLER:

General: Provide factory-assembled and tested packaged units as indicated, consisting of casing, compressor, evaporator, fans, filters, and unit controls. Provide capacities and electrical characteristics as scheduled.

Casing: Zinc coated, heavy gauge steel construction, and epoxy painted exterior finish. Provide removable panels and/or access doors for inspection and access to internal parts. Insulate casing with 1/2" thick minimum thermal insulation, and compressor compartment with acoustical insulation. Provide knockouts for electrical and piping connections.

Refrigeration Circuit: Provide refrigerant thermal expansion valve for refrigerant control. Provide access valves in suction and liquid lines. Provide dual refrigeration circuits for dual compressor units.

Compressors: Provide welded shell, hermetic compressors, 3,600 rpm; or serviceable hermetic compressors, 1750 rpm. Provide crankcase heaters.

Evaporator Coil: Construct of copper tubing and aluminum fins, pressure and leak tested at 1.5 times working pressure.

Fans: Provide double-inlet, forward curved, centrifugal fans with adjustable belt drive. Provide permanently lubricated fan and motor bearings, and thermal overloads in motor.

Filters: Provide 2" thick throwaway filters.

Integral Air-Cooled Condensers: Provide condenser coil constructed of copper tubes and aluminum fins. Factory leak-test at 1.5 times working pressure, dehydrate and provide full charge of refrigerant. Provide subcooler and accumulator.

- Condenser Fan: Provide double-width, double-inlet, forward- curved centrifugal fan with adjustable belt drive.

- Low Ambient Control: Provide head pressure control, designed to operate at temperatures down to 0 degree F (-18 degrees C).

Controls: Provide factory-installed and wired controls, with terminal strip. Provide connections for remote thermostat.

- Provide each motor with individual overload protection.
- Provide high and low refrigerant cutouts.
- Provide fan-auto and automatic changeover thermostat switches.

Electric Heat: Manufacturer's standard construction, factory wired for single point wiring connection, with overcurrent and overheat protection devices.

Available Manufacturers: Subject to compliance with requirements, manufacturers offering packaged units which may be incorporated in the work include, but are not limited to, the following:

- Carrier Air Conditioning; Division of Carrier Corporation
- McQuay Air Conditioning; Snyder General Corporation
- Trane (The) Company

8.41.10 EXECUTION

8.41.11 INSPECTION

General: Examine areas and conditions under which packaged heating and cooling units are to be installed. Do not proceed with work until unsatisfactory conditions have been corrected in manner acceptable to Installer.

8.41.12 INSTALLATION OF PACKAGED HEATING AND COOLING UNITS:

General: Install packaged heating and cooling units in accordance with manufacturer's installation instructions. Install units plumb and level, firmly anchored in locations indicated, and maintain manufacturer's recommended clearances.

Support: Install units on concrete pad, 4" larger on each side than equipment base. Cast anchor bolt inserts into pad.

Electrical Wiring: Install electrical devices furnished by manufacturer but not specified to be factory-mounted. Furnish copy of manufacturer's wiring diagram submittal to electrical installer.

- Verify that electrical wiring installation is in accordance with manufacturer's submittal and installation requirements of Division-16 sections. Do not proceed with equipment start-up until wiring installation is acceptable to equipment Installer.

Ductwork: Refer to Division-15 section "Ductwork". Connect supply and return ducts to unit with flexible duct connections. Provide transitions to exactly match unit duct connection size.

- Connect outside air duct to unit with flexible connection, provide manual damper, quadrant and lock.

8.41.13 FIELD QUALITY CONTROL:

General: Start-up packaged heating and cooling units, in accordance with manufacturer's start-up instructions. Test controls and demonstrate compliance with requirements. Replace damaged or malfunctioning controls and equipment.

8.41.14 SPARE PARTS:

General: Furnish to Owner, with receipt, the following spare parts for each packaged heating and cooling unit.

- One set of matched fan belts for each belt driven fan.
- One set filters for each unit.

END OF SECTION 15781

8.42 SECTION 15870 - POWER VENTILATORS

8.42.1 GENERAL

8.42.2 RELATED DOCUMENTS

Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

Requirements of the following Division 15 Sections apply to this section:

- "Basic Mechanical Requirements."
- "Basic Mechanical Materials and Methods."

8.42.3 SUMMARY

This Section includes the following types of power ventilators:

- Centrifugal Roof Exhaust Fan

Related Sections: The following sections contain requirements that relate to this section:

- Division 15 Section "Testing, Adjusting, and Balancing" for air- handling systems testing, adjusting, and balancing requirements and procedures.
- Division 16 Section "Circuit and Motor Disconnects" for disconnect switches.

8.42.4 SUBMITTALS

General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections:

- Product data for selected models, including specialties, accessories, and the following:
 1. Motor ratings and electrical characteristics plus motor and fan accessories.
 2. Materials gages and finishes, including color charts.
 3. Wiring diagrams that detail power, signal, and control wiring. Differentiate between manufacturer-installed wiring and field- installed wiring.
 4. Maintenance data for air-handling units, for inclusion in Operating and Maintenance Manual specified in Division 1 and Division 15 Section "Basic Mechanical Requirements."

8.42.5 QUALITY ASSURANCE

UL Compliance: Fans shall be designed, manufactured, and tested in accordance with UL 705 "Power Ventilators."

NEMA Compliance: Motors and electrical accessories shall comply with NEMA standards.

Electrical Component Standard: Components and installation shall comply with NFPA 70 "National Electrical Code."

8.42.6 DELIVERY, STORAGE, AND HANDLING

Lift and support units with the manufacturer's designated lifting or supporting points.

Disassemble and reassemble units as required for movement into the final location following manufacturer's written instructions.

Deliver fan units as a factory-assembled unit to the extent allowable by shipping limitations, with protective crating and covering.

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8.42.7 SEQUENCING AND SCHEDULING

Coordinate the installation of roof curbs, equipment supports, and roof penetrations specified in Division 7.

Coordinate the size and location of structural steel support members.

8.42.8 EXTRA MATERIALS

Furnish one additional complete set of belts for each belt-driven fan.

8.42.9 PRODUCTS

8.42.10 MANUFACTURERS

Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated in the Work include but are not limited to, the following:

- Centrifugal Roof Exhaust Fans:
 1. Moffitt Corporation
 2. Hartzell
 3. Essick Air Products, Breidert
 4. Greenheck Fan Corp.
 5. Aerovent

8.42.11 SOURCE QUALITY CONTROL

Testing Requirements: The following factory tests are required:

- Sound Power Level Ratings: Comply with AMCA Standard 301 "Method for Calculating Fan Sound Ratings From Laboratory Test Data." Test fans in accordance with AMCA Standard 300 "Test Code for Sound Rating." Fans shall be licensed to bear the AMCA Certified Sound Ratings Seal.
- Fan Performance Ratings: Establish flow rate, pressure, power, air density, speed of rotation, and efficiency by factory tests and ratings in accordance with AMCA Standard 210/ASHRAE Standard 51 - Laboratory Methods of Testing Fans for Rating.

8.42.12 FANS, GENERAL

General: Provide fans that are factory fabricated and assembled, factory tested, and factory finished with indicated capacities and characteristics.

Fans and Shafts: Statically and dynamically balanced and designed for continuous operation at the maximum rated fan speed and motor horsepower.

- Fan Shaft: Turned, ground, and polished steel designed to operate at no more than 70 percent of the first critical speed at the top of the speed range of the fan's class.

Belt Drives: Factory mounted, with final alignment and belt adjustment made after installation.

- Service Factor: 1.4.

Belts: Oil-resistant, nonsparking, and nonstatic.

Motors and Fan Wheel Pulleys: Adjustable pitch for use with motors through 15 HP; fixed pitch for use with motors larger than 15 HP. Select pulley so that pitch adjustment is at the middle of the adjustment range at fan design conditions.

- Belt Guards: Provide steel belt guards for motors mounted on the outside of the fan cabinet.

Shaft Bearings: Provide type indicated, having a median life "Rating Life" (AFBMA (L(50)) of 200,000, calculated in accordance with AFBMA Standard 9 for ball bearings and AFBMA Standard 11 for roller bearings.

Factory Finish: The following finishes are required:

- Sheet Metal Parts: Prime coating prior to final assembly.

8.42.13 CENTRIFUGAL ROOF EXHAUST FANS

General Description: Belt-driven fans consisting of housing, wheel, damper, fan shaft, bearings, motor, unit mounted starter/disconnect switch, drive assembly, curb base, and accessories.

Fan Housing, and Base: Reinforced and braced heavy gauge aluminum, containing dampers and rain trough, motor and drive assembly, and fan wheel.

Fan Wheel: Centrifugal backward inclined, dynamically and statically balanced, constructed of aluminum and shall include a wheel cone carefully matched to the inlet cone for precise running tolerances.

Shaft Bearings: Prelubricated and sealed, self-aligning, pillow- block-type ball bearings.

Motors and Fan Wheel Pulleys: Adjustable pitch. Select pulley so that pitch adjustment is at the middle of the adjustment range at design conditions.

Motors Mounts: Outside of the fan cabinet with adjustable base for belt tensioning, drive assembly and belts enclosure, and weatherproof housing of same material as fan housing.

Roof Curbs: Prefabricated, heavy-gage, galvanized steel; mitered and welded corners; 2-inch-thick, rigid fiberglass insulation adhered to inside walls; built-in cant and mounting flange for flat roof deck; and 2-inch wood nailer. Size as required to suit roof opening and fan base.

Overall Height: 12 inches.

8.42.14 MOTORS

Torque Characteristics: Sufficient to accelerate the driven loads satisfactorily.

Motor Sizes: Minimum sizes and electrical characteristics as indicated. If not indicated, large enough so that the driven load will not require the motor to operate in the service factor range.

Temperature Rating: 50 deg C maximum temperature rise at 40 deg C ambient for continuous duty at full load (Class A Insulation).

Service Factor: 1.15 for polyphase motors and 1.35 for single-phase motors.

Motor Construction: NEMA Standard MG 1, general purpose, continuous duty, Design B. Provide permanent-split capacitor classification motors for shaft-mounted fans and capacitor start classification for belted fans.

- Bases: Adjustable.
- Bearings: The following features are required:
 1. Ball or roller bearings with inner and outer shaft seals.
 2. Grease lubricated.
 3. Designed to resist thrust loading where belt drives or other drives produce lateral or axial thrust in motor.

- Enclosure Type: The following features are required:

Open drip-proof motors where satisfactorily housed or remotely located during operation.

Guarded drip-proof motors where exposed to contact by employees or building occupants.

- Overload protection: Built-in, automatic reset, thermal overload protection.
 - Noise rating: Quiet.
 - Efficiency: Energy-efficient motors shall have a minimum efficiency as scheduled in accordance with IEEE Standard 112, Test Method B. If efficiency not specified, motors shall have a higher efficiency than "average standard industry motors" in accordance with IEEE Standard 112, Test Method B.
1. Nameplate: Indicate the full identification of manufacturer, ratings, characteristics, construction, and special features.

8.42.15 EXECUTION

8.42.16 EXAMINATION

Examine areas and conditions, with Installer present, for compliance with requirements for installation tolerances, roof curbs, equipment supports, and other conditions affecting performance of fans.

Do not proceed until unsatisfactory conditions have been corrected.

8.42.17 INSTALLATION, GENERAL

Install fans level and plumb, in accordance with manufacturer's written instructions.

- Support utility set fans on equipment bases and roof supports using neoprene pads. Secure units to anchor bolts installed in equipment base.
- Secure roof-mounted fans to roof curbs with cadmium-plated hardware.

8.42.18 FIELD QUALITY CONTROL

Manufacturer's Field Inspection: Arrange and pay for a factory- authorized service representative to perform the following:

- Inspect the field assembly of components and installation of fans including ductwork and electrical connections.
- Prepare a written report on findings and recommended corrective actions.

8.42.19 ADJUSTING, CLEANING, AND PROTECTING

Adjust damper linkages for proper damper operation.

8.42.20 COMMISSIONING

Final Checks Before Start-Up: Perform the following operations and checks before start-up:

- Remove shipping blocking and bracing.
- Verify unit is secure on mountings and supporting devices and that connections for piping, ductwork, and electrical are complete. Verify proper thermal overload protection is installed in motors, starters, and disconnects.
- Perform cleaning and adjusting specified in this Section.
- Disconnect fan drive from motor, verify proper motor rotation direction, and verify fan wheel free rotation and smooth bearings operations. Reconnect fan drive system, align belts, and install belt guards.

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- Lubricate bearings, pulleys, belts, and other moving parts with factory-recommended lubricants.
- Verify manual and automatic volume control and that fire and smoke dampers in connected ductwork systems are in the full-open position.
- Disable automatic temperature control operators.

Starting procedures for fans:

- Energize motor; verify proper operation of motor, drive system, and fan wheel. Adjust fan to indicated RPM.

Replace fan and motor pulleys as required to achieve design conditions.

- Measure and record motor electrical values for voltage and amperage.

Shut unit down and reconnect automatic temperature control operators.

Refer to Division 15 Section "Testing, Adjusting, and Balancing" for procedures for air-handling-system testing, adjusting, and balancing.

8.42.21 DEMONSTRATION

Demonstration Services: Arrange and pay for a factory-authorized service representative to train Owner's maintenance personnel on the following:

- Procedures and schedules related to start-up and shutdown, troubleshooting, servicing, preventative maintenance, and how to obtain replacement parts.
- Familiarization with contents of Operating and Maintenance Manuals specified in Division 1 Section "Project Closeout" and Division 15 Section "Basic Mechanical Requirements."

1. Schedule training with at least 7 days' advance notice.

END OF SECTION 15870

8.43 SECTION 15891 - METAL DUCTWORK

8.43.1 GENERAL

8.43.2 RELATED DOCUMENTS

Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

Requirements of the following Division 15 Sections apply to this section:

- "Basic Mechanical Requirements."
- "Basic Mechanical Materials and Methods."

8.43.3 SUMMARY

This Section includes rectangular metal ducts for heating, ventilating, and air conditioning systems.

Related Sections: The following sections contain requirements that relate to this Section:

- Division 15 Section "Testing, Adjusting, and Balancing."

8.43.4 DEFINITIONS

Sealing Requirements Definitions: For the purposes of duct systems sealing requirements specified in this Section, the following definitions apply:

- Seams: A seam is defined as joining of two longitudinally (in the direction of airflow) oriented edges of duct surface material occurring between two joints. All other duct surface connections made on the perimeter are deemed to be joints.
- Joints: Joints include girth joints; branch and subbranch intersections; so-called duct collar tap-ins; fitting subsections; access door and access panel frames and jambs.

8.43.5 SYSTEM PERFORMANCE REQUIREMENTS

The duct system design, as indicated, has been used to select and size air moving and distribution equipment and other components of the air system. Changes or alterations to the layout or configuration of the duct system must be specifically approved in writing. Accompany requests for layout modifications with calculations showing that the proposed layout will provide the original design results without increasing the system total pressure.

8.43.6 SUBMITTALS

General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.

Product data including details of construction relative to materials, dimensions of individual components, profiles, and finishes for the following items:

- Sealing Materials.

Record drawings including duct systems routing, fittings details, reinforcing, support, and installed accessories and devices, in accordance with Division 15 Section "Basic Mechanical Requirements" and Division 1.

NFPA Compliance: Comply with the following NFPA Standards:

- NFPA 90A, "Standard for the Installation of Air Conditioning and Ventilating Systems," except as indicated otherwise.

8.43.7 PRODUCTS

8.43.8 SHEET METAL MATERIALS

Sheet Metal, General: Provide sheet metal in thicknesses indicated, packaged and marked as specified in ASTM A 700.

Galvanized Sheet Steel: Lock-forming quality, ASTM A 527, Coating Designation G 90.

8.43.9 HANGERS AND SUPPORTS

Building Attachments: Concrete inserts, powder actuated fasteners, or structural steel fasteners appropriate for building materials. Do not use powder actuated concrete fasteners for lightweight aggregate concretes or for slabs less than 4 inches thick.

Hangers: Galvanized sheet steel, or round, uncoated steel, threaded rod.

- Hangers Installed In Corrosive Atmospheres: Electro-galvanized, all-thread rod or hot-dipped-galvanized rods with threads painted after installation.
- Straps and Rod Sizes: Conform with Table 4-1 in SMACNA HVAC Duct Construction Standards, 1985 Edition, for sheet steel width and gage and steel rod diameters.

Duct Attachments: Sheet metal screws, blind rivets, or self-tapping metal screws; compatible with duct materials.

Trapeze and Riser Supports: Steel shapes conforming to ASTM A 36.

- Where galvanized steel ducts are installed, provide hot-dipped-galvanized steel shapes and plates.

8.43.10 RECTANGULAR DUCT FABRICATION

General: Except as otherwise indicated, fabricate rectangular ducts with galvanized sheet steel, in accordance with SMACNA "HVAC Duct Construction Standards," Tables 1-3 through 1-19, including their associated details. Conform to the requirements in the referenced standard for metal thickness, reinforcing types and intervals, tie rod applications, and joint types and intervals. Minimum thickness of sheetmetal shall be 24 gauge.

- Fabricate rectangular ducts in lengths appropriate to reinforcement and rigidity class required for pressure classification.
- Provide materials that are free from visual imperfections such as pitting, seam marks, roller marks, stains, and discolorations.

Static Pressure Classifications: Except where otherwise indicated, construct duct systems to the following pressure classifications:

- Supply Ducts: 1 inches water gage.
- Return Ducts: 1 inches water gage, negative pressure.

Crossbreaking or Cross Beading: Crossbreak or bead duct sides that are 19 inches and larger and are 20 gage or less, with more than 10 sq. ft. of unbraced panel area, as indicated in SMACNA "HVAC Duct Construction Standard," Figure 1-4, unless they are lined or are externally insulated.

8.43.11 RECTANGULAR DUCT FITTINGS

Fabricate elbows, transitions, offsets, branch connections, and other duct construction in accordance with SMACNA "HVAC Metal Duct Construction Standard," 1985 Edition, Figures 2-1 through 2-10.

8.43.12 EXECUTION

8.43.13 DUCT INSTALLATION, GENERAL

Duct System Pressure Class: Construct and install each duct system for the specific duct pressure classification indicated.

Install ducts with the fewest possible joints.

Use fabricated fittings for all changes in directions, changes in size and shape, and connections.

Install couplings tight to duct wall surface with projections into duct at connections kept to a minimum.

Locate ducts, except as otherwise indicated, vertically and horizontally, parallel and perpendicular to building lines; avoid diagonal runs. Install duct systems in shortest route that does not obstruct useable space or block access for servicing building and its equipment.

Install ducts close to walls, overhead construction, columns, and other structural and permanent enclosure elements of building.

Provide clearance of 1 inch where furring is shown for enclosure or concealment of ducts, plus allowance for insulation thickness, if any.

Install insulated ducts with 1-inch clearance outside of insulation.

Conceal ducts from view in finished and occupied spaces by locating above suspended ceilings.

Coordinate layout with suspended ceiling and lighting layouts and similar finished work.

8.43.14 SEAM AND JOINT SEALING

General: Seal duct seams and joints as follows:

Seal externally insulated ducts prior to insulation installation.

8.43.15 HANGING AND SUPPORTING

Install rigid, rectangular metal duct with support systems indicated in SMACNA "HVAC Duct Construction Standards," Tables 4-1 through 4-3 and Figures 4-1 through 4-8.

Support horizontal ducts within 2 feet of each elbow and within 4 feet of each branch intersection.

Support vertical ducts at a maximum interval of 16 feet and at each floor.

Upper attachments to structures shall have an allowable load not exceeding 1/4 of the failure (proof test) load but are not limited to the specific methods indicated.

Install concrete insert prior to placing concrete.

Install powder actuated concrete fasteners after concrete is placed and completely cured.

8.43.16 CONNECTIONS

Equipment Connections: Connect equipment with flexible connectors in accordance with Division 15 Section "Duct Accessories."

Branch Connections: Comply with SMACNA "HVAC Duct Construction Standards," Figures 2-7 and 2-8.

Outlet and Inlet Connections: Comply with SMACNA "HVAC Duct Construction Standards," Figures 2-16 through 2-18.

8.43.17 FIELD QUALITY CONTROL

Remake leaking joints as required and apply sealants to achieve specified maximum allowable leakage.

8.43.18 ADJUSTING AND CLEANING

Adjust volume control devices as required by the testing and balancing procedures to achieve required air flow. Refer to Division 15 Section "TESTING, ADJUSTING, AND BALANCING" for requirements and procedures for adjusting and balancing air systems.

Vacuum ducts systems prior to final acceptance to remove dust and debris.

END OF SECTION 15891

8.44 SECTION 15910 - DUCT ACCESSORIES

8.44.1 GENERAL

8.44.2 RELATED DOCUMENTS

Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

8.44.3 SUMMARY

This Section includes the following:

- Manual volume control dampers
- Counterbalanced backdraft dampers
- Louvers
- Actuators
- Acoustical Silencers
- Turning vanes
- Duct-mounted access doors and panels
- Flexible connectors
- Flexible ducts
- Accessories hardware
- Air compressor

Related Sections: The following Sections contain requirements that relate to this Section:

Division 15 Section "Air Outlets and Inlets" for diffusers, registers, and grilles.

8.44.4 SUBMITTALS

General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.

Product data including details for materials, dimensions of individual components, profiles, and finishes for the following items:

- Manual volume control dampers
- Duct-mounted access panels and doors
- Acoustical Silencers
- Flexible ducts
- Louvers
- Actuators

Shop drawings from manufacturer detailing assemblies. Include dimensions, weights, loadings, required clearances, method of field assembly, components, and location and size of each field connection. Detail the following:

- Special fittings and volume control damper installation (both manual and automatic) details.

Product Certification: Submit certified test data on dynamic insertion loss; self-noise power levels; and airflow performance data, static pressure loss, and dimensions and weights.

8.44.5 QUALITY ASSURANCE

NFPA Compliance: Comply with the following NFPA Standards:

- NFPA 90A, "Standard for the Installation of Air Conditioning and Ventilating Systems."

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- NFPA 90B, "Standard for the Installation of Warm Air Heating and Air Conditioning Systems."

8.44.6 PRODUCTS

8.44.7 MANUAL VOLUME CONTROL DAMPERS

General: Provide factory-fabricated volume-control dampers, complete with required hardware and accessories. Stiffen damper blades to provide stability under operating conditions.

Standard Volume Control Dampers: Multiple, parallel blade design low leakage rating, and suitable for vertical applications.

- Steel Frames: Hat-shaped, galvanized-steel channels, minimum of 16 gage, and with mitered and welded corners. Provide frames with flanges.
- Roll-Formed Steel Blades: 16-gage galvanized steel.
- Blade Axles: Galvanized steel.
- Tie Bars and Brackets: Galvanized steel.
- Jamb Seals: Flexible metal, compression type
- Blade Seals: PVC coated polyester fabric, mechanically locked into the blade edge.
- Linkage: Concealed out of airstream
- Acceptable manufacturers:
 1. American Warming and Ventilating
 2. Louvers and Dampers
 3. Prefco Products
 4. Ruskin
 5. Dowco

Spin In Duct Dampers: Single blade, 26 ga. galvanized steel spin collar with damper

Jackshaft: 1-inch-diameter, galvanized-steel pipe rotating within a pipe bearing assembly mounted on supports at each mullion and at each end of multiple damper assemblies. Provide appropriate length and number of mountings to connect linkage of each damper of a multiple damper assembly.

Damper Control Hardware: Zinc-plated, die-cast core with a heavy-gage dial and handle made of 3/32-inch-thick zinc-plated steel, and a 3/4-inch hexagon locking nut. Provide center hole to suit damper operating rod size.

8.44.8 COUNTERBALANCED BACKDRAFT DAMPERS

General: Provide dampers as manufactured by one of the following and in accordance with the requirements of this section.

- American Warming and Ventilating
- Louvers and Dampers
- Prefco Products
- Ruskin
- Safe-Air, Dowco

Frame: Frame shall be .125" (3.2) wall thickness 6063T5 extruded aluminum with 12 gage (2.8) galvanized steel structural base at each corner.

Blades: Blades shall be .070" (1.8) wall thickness 6063T5 extruded aluminum with extruded vinyl blade edge seals mechanically locked into blade edge. Adhesive or clip on type seals are unacceptable.

Bearings: Bearings shall be corrosion resistant, long life synthetic type for quiet operation.

Linkage: Linkage shall be ½" (13) wide tiebar connected to stainless steel pivot pins.

Counterbalance: Zinc plated bar on blades (except top blade), adjustable for final "on the job" setting.

8.44.9 LOUVERS

General: Provide louvers as manufactured by one of the following and in accordance with the requirements of this section.

- American Warning and Ventilating
- Louvers and Dampers
- Prefco Products
- Ruskin
- Dowco

Materials: Factory assembled and with AMCA certified rating seal.

Construction: Horizontal drainable fixed blades and frame of .081 inch nominal wall thickness aluminum, 6 inches deep, 37 1/2 deg. blade angle.

Screens: Provide interior face mounted insect screen at louvers. Screen shall be ¾ inch x .051 in expanded, flattened aluminum in removable frame.

8.44.10 ACTUATORS

Pneumatic Damper Actuators

Pivot mounting type with replaceable ozone resistant rolling rubber diaphragm, steel housing, maximum air pressure 30 psig.

Equip with an integral spiral steel-spring mechanism, with nominal spring range 80-13 psi.

2-Position Actuator, power open - spring close.

8.44.11 ACOUSTICAL SILENCERS

General: Provide factory-fabricated and -tested rectangular silencer with performance characteristics and physical requirements as indicated.

Fire Performance: Adhesives, sealers, packing material, and accessory materials shall have fire ratings not exceeding 25 for flame spread and 50 for smoke developed when tested according to ASTM E 84, "Standard Test Method for Surface Burning Characteristics of Building Materials."

Rectangular Units: Fabricate casings with a minimum of 22-gage solid sheet metal for outer casing and 26-gage perforated sheet metal for inner casing.

Sheet Metal Perforations: 1/8-inch diameter for inner casing and baffle sheet metal.

Fibrous Acoustic Fill Material: Inert and vermin-proof fibrous material with density to obtain specified acoustic performance. Pack under not less than 5 percent compression to eliminate voids due to vibration and settling.

Fabricate silencers to form rigid units that will not pulsate, vibrate, rattle, or otherwise react to system pressure variations.

- Do not use nuts, bolts, and sheet metal screws for unit assemblies.
- Lock form and seal or continuously weld joints.

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- Suspended Units: Provide factory-installed suspension hooks or lugs attached to the frame in quantities and spaced to prevent deflection or distortion.
- Reinforcement: Provide cross angles or trapeze angles for rigid suspension.

Source Quality Control: Perform the following factory tests:

Acoustic Performance: Test silencers with airflow in both directions through silencer, according to ASTM E 477, "Methods of Testing Duct Liner Materials and Prefabricated Silencers for Acoustical and Airflow Performance."

Record acoustic ratings, including dynamic insertion loss and self-noise power levels for both forward flow (air and noise in same direction) and reverse flow (air and noise in opposite directions) with an airflow of at least 2,000 FPM face velocity.

Leak Test: Test units for airtightness at 200 percent of the associated fan static pressure or 6-inch W.G. static pressure, whichever is greater.

Acceptable Manufacturers:

- Aeroacoustics
- Semco
- United McGill
- Industrial Acoustics, IAC
- Rink, (Ruskin)

8.44.12 TURNING VANES

Fabricate turning vanes according to SMACNA HVAC Duct Construction Standards, Figures 2-2 through 2-7.

Manufactured Turning Vanes: Fabricate of 1-1/2-inch-wide, curved blades set at 3/4 inch on center, support with bars perpendicular to blades set at 2 inches on center, and set into side strips suitable for mounting in ducts.

Acoustic Turning Vanes: Fabricate of airfoil-shaped aluminum extrusions with perforated faces and fiber glass fill.

8.44.13 DUCT-MOUNTED ACCESS DOORS AND PANELS

General: Refer to the Access Door Materials Schedule at the end of this Section for frame and door thickness, number of hinges and locks, and location of locks. Provide construction and airtightness suitable for duct pressure class.

Frame: Galvanized sheet steel. Provide with bend-over tabs and foam gaskets.

Door: Double-wall, galvanized sheet metal construction with insulation fill and thickness, number of hinges and locks as indicated for duct pressure class. Provide 1-inch by 1-inch butt hinge or piano hinge and cam latches.

Seal around frame attachment to duct and door to frame with neoprene or foam rubber seals.

Insulation: 1-inch thick fiber glass or polystyrene foam board.

8.44.14 FLEXIBLE CONNECTORS

General: Flame-retarded or noncombustible fabrics, coatings, and adhesives complying with UL Standard 181, Class 1.

Standard Metal-Edged Connectors: Factory-fabricated with a strip of fabric 3-1/2 inches wide attached to 2 strips of 2-3/4-inch-wide, 24-gage, galvanized sheet steel. Fold and crimp metal edge strips onto fabric as illustrated in SMACNA HVAC Duct Standard, 1st Edition, Figure 2-19.

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Conventional, Indoor System Flexible Connectors Fabric: Glass fabric double coated with polychloroprene.

- Minimum Weight: 26 oz. per sq yd.
- Tensile Strength: 480 lb per inch in the warp and 360 lb per inch in the filling.

8.44.15 FLEXIBLE DUCTS

General: Comply with UL 181, Class 1.

Flexible Ducts - Insulated: Factory-fabricated, insulated, round duct, with an outer jacket enclosing 1-1/2-inch-thick, glass fiber insulation around a continuous inner liner.

- Reinforcement: Steel-wire helix encapsulated in the inner liner.
- Outer Jacket: Glass-reinforced, silver mylar with a continuous hanging tab, integral fiber glass tape, and nylon hanging cord.
- Outer Jacket: Polyethylene film.
- Inner Liner: Polyethylene film.

8.44.16 ACCESSORIES HARDWARE

Flexible Duct Clamps: Stainless steel band with cadmium-plated hex screw to tighten band with a worm-gear action. Provide in sizes from 3 to 18 inches to suit duct size.

Adhesives: High strength, quick setting, neoprene based, waterproof and resistant to gasoline and grease.

8.44.17 AIR COMPRESSOR

Install air compressor with compressed air piping for operation of the pneumatic actuators.

Provide complete system as shown in the Mechanical Drawings, including all starters/controls for auto operation.

8.44.18 EXECUTION

8.44.19 EXAMINATION

Examine areas and conditions for compliance with requirements for installation tolerances and other conditions affecting performance of duct accessories. Do not proceed with installation until unsatisfactory conditions are corrected.

8.44.20 INSTALLATION

Install duct accessories according to manufacturer's installation instructions and applicable portions of details of construction as shown in SMACNA standards.

Install volume control dampers in lined duct with methods to avoid damage to liner and to avoid erosion of duct liner.

8.44.21 ADJUSTING

Adjust duct accessories for proper settings.

Check air compressor operation and set pressure reducing valve at 20 psi. Check/adjust pneumatic actuators and linkage for full-open damper position when pressurized, full-closed position with no pressure.

END OF SECTION 15910

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8.45 SECTION 15932 - AIR OUTLETS AND INLETS

8.45.1 GENERAL

8.45.2 RELATED DOCUMENTS:

Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.

8.45.3 DESCRIPTION OF WORK

Extent of air outlets and inlets work is indicated by drawings and schedules, and by requirements of this section.

Types of outlets and inlets required for project include the following:

Ceiling air diffusers and grilles.

Refer to other Division-15 sections for ductwork and duct accessories required in conjunction with air outlets and inlets; not work of this section.

Refer to other Division-15 sections for balancing of air outlets and inlets; not work of this section.

8.45.4 QUALITY ASSURANCE

Manufacturer's Qualifications: Firms regularly engaged in manufacture of air outlets and inlets of types and capacities required, whose products have been in satisfactory use in similar service for not less than 5 years.

Codes and Standards:

- ARI Compliance: Test and rate air outlets and inlets in accordance with ARI 650 "Standard for Air Outlets and Inlets".
- ASHRAE Compliance: Test and rate air outlets and inlets in accordance with ASHRAE 70 "Method of Testing for Rating the Air Flow Performance of Outlets and Inlets".
- NFPA Compliance: Install air outlets and inlets in accordance with NFPA 90A "Standard for the Installation of Air Conditioning and Ventilating Systems".

8.45.5 SUBMITTALS:

Product Data: Submit manufacturer's technical product data for air outlets and inlets including the following:

Schedule of air outlets and inlets indicating drawing designation, room location, number furnished, model number, size, and accessories furnished.

Data sheet for each type of air outlet and inlet, and accessory furnished; indicating construction, finish, and mounting details.

Performance data for each type of air outlet and inlet furnished, including aspiration ability, temperature and velocity traverses; throw and drop; and noise criteria ratings. Indicate selections on data.

Maintenance Data: Submit maintenance data, including cleaning instructions for finishes, and spare parts lists. Include this data, product data, and shop drawings in maintenance manuals; in accordance with requirements of Division 1

8.45.6 PRODUCT DELIVERY, STORAGE AND HANDLING:

Deliver air outlets and inlets wrapped in factory-fabricated fiber-board type containers. Identify on outside of container type of outlet or inlet and location to be installed. Avoid crushing or bending and prevent dirt and debris from entering and settling in devices.

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Store air outlets and inlets in original cartons and protect from weather and construction work traffic. Where possible, store indoors; when necessary to store outdoors, store above grade and enclose with waterproof wrapping.

8.45.7 PRODUCTS

8.45.8 CEILING AIR DIFFUSERS:

General: Except as otherwise indicated, provide manufacturer's standard ceiling air diffusers where shown; of size, shape, capacity and type indicated; constructed of materials and components as indicated, and as required for complete installation.

Performance: Provide ceiling air diffusers that have, as minimum, temperature and velocity traverses, throw and drop, and noise criteria ratings for each size device as listed in manufacturer's current data.

Ceiling Compatibility: Provide diffusers with border styles that are compatible with adjacent ceiling systems, and that are specifically manufactured to fit into ceiling module with accurate fit and adequate support. Refer to general construction drawings and specifications for types of ceiling systems which will contain each type of ceiling air diffuser.

Types: Provide ceiling diffusers of type, capacity, and with accessories and finishes as listed on drawings.

Available Manufacturers: Subject to compliance with requirements, manufacturers offering diffusers which may be incorporated in the work include, but are not limited to, the following:

- Anemostat Products Div.; Dymanics Corp. of America.
- Carnes Co.; Div. of Wehr Corp.
- Metal Aire.
- Titus Products Div.; Philips Industries, Inc.
- Tuttle & Bailey; Div. of Interpace Corp.

8.45.9 GRILLES

General: Except as otherwise indicated, provide manufacturer's standard grilles where shown; of size, shape, capacity and type indicated; constructed of materials and components as indicated, and as required for complete installation.

Performance: Provide t-bar type, lay in grilles that have, as minimum capacity and noise criteria ratings for each size device and listed in manufacturer's current data.

Types: Provide grilles of type, capacity, and with accessories and finishes as listed on drawings.

Available Manufacturers: Subject to compliance with requirements, manufacturers offering registers and grilles which may be incorporated in the work include, but are not limited to, the following:

- Anemostat Products Div.; Dynamics Corp. of America
- Carnes Co.; Div. of Wehr Corp.
- Titus Products Div.; Philips Industries, Inc.
- Metal Aire

8.45.10 EXECUTION

8.45.11 INSPECTION

Examine areas and conditions under which air outlets and inlets are to be installed. Do not proceed with work until unsatisfactory conditions have been corrected.

8.45.12 INSTALLATION

General: Install air outlets and inlets in accordance with manufacturer's written instructions and in accordance with recognized industry practices to insure that products serve intended function.

Coordinate with other work, including ductwork and duct accessories, as necessary to interface installation of air outlets and inlets with other work.

Locate ceiling air diffusers and grilles, as indicated on general construction "Reflected Ceiling Plans". Unless otherwise indicated, locate units in center of acoustical ceiling module.

8.45.13 SPARE PARTS

Furnish to Owner, with receipt, 3 operating keys for each type of air outlet and inlet that require them.

END OF SECTION 15932

8.46 SECTION 15990 - TESTING, ADJUSTING, AND BALANCING

8.46.1 GENERAL

8.46.2 RELATED DOCUMENTS:

Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification sections, apply to work of this section.

Related Sections:

- General requirements for testing agencies are specified in the Division-1 Section Quality Control Services.
- Other Division-15 Sections specify balancing devices and their installation, and materials and installations of mechanical systems.
- Individual Division-15 system sections specify leak testing requirements and procedures.

8.46.3 SUMMARY

This Section specifies the requirements and procedures total mechanical systems testing, adjusting, and balancing. Requirements include measurement and establishment of the fluid quantities of the mechanical systems as required to meet design specifications, and recording and reporting the results.

Test, adjust, and balance the following mechanical systems:

- Supply air systems
- Return air systems
- Verify temperature control system operation
- Fuel Oil Systems
- Roof Exhaust Fan

8.46.4 DEFINITIONS

Systems testing, adjusting, and balancing is the process of checking and adjusting all the building environmental systems to produce the design objectives. It includes:

- The balance of air and liquid system distribution
- Adjustment of total system to provide design quantities
- Electrical measurement
- Verification of performance of all equipment and automatic controls
- Sound measurement

Test: To determine quantitative performance of equipment.

Adjust: To regulate the specified fluid flow rate and air patterns at the terminal equipment (e.g., reduce fan speed, throttling).

Balance: To proportion flows within the distribution system (submains, branches, and terminals) according to specified design quantities.

Procedure: Standardized approach and execution of sequence of work operations to yield reproducible results.

Report forms: Test data sheets arranged for collecting test data in logical order for submission and review. These data should also form the permanent record to be used as the basis for required future testing, adjusting, and balancing.

Terminal: The point where the controlled fluid enters or leaves the distribution system. These are supply inlets on water terminals, supply outlets on air terminals, return outlets on water terminals, and exhaust or return inlets on air terminals such as registers, grilles, diffusers, louvers, and hoods.

Main: Duct or pipe containing the system's major or entire fluid flow.

Submain: Duct or pipe containing part of the systems' capacity and serving two or more branch mains.

Branch main: Duct or pipe serving two or more terminals.

Branch: Duct or pipe serving a single terminal.

8.46.5 SUBMITTALS:

Agency Data:

- Submit proof that the proposed testing, adjusting, and balancing agency meets the qualifications specified below.

Engineer and Technicians Data:

- Submit proof that the Test and Balance Engineer assigned to supervise the procedures, and the technicians proposed to perform the procedures meet the qualifications specified below.

Procedures and Agenda: Submit a synopsis of the testing, adjusting, and balancing procedures and agenda proposed to be used for this project.

Maintenance Data: Submit maintenance and operating data that include how to test, adjust, and balance the building systems. Include this information in maintenance data specified in Division 1 and Section 15010.

Sample Forms: Submit sample forms, if other than those standard forms prepared by the AABC are proposed.

Certified Reports: Submit testing, adjusting, and balancing reports bearing the seal and signature of the Test and Balance Engineer. The reports shall be certified proof that the systems have been tested, adjusted, and balanced in accordance with the referenced standards; are an accurate representation of how the systems have been installed; are a true representation of how the systems are operating at the completion of the testing, adjusting, and balancing procedures; and are an accurate record of all final quantities measured, to establish normal operating values of the systems. Follow the procedures and format specified below:

- **Draft reports:** Upon completion of testing, adjusting, and balancing procedures, prepare draft reports on the approved forms. Draft reports may be hand written, but must be complete, factual, accurate, and legible. Organize and format draft reports in the same manner specified for the final reports. Submit 2 complete sets of draft reports. Only 1 complete set of draft reports will be returned.
- **Final Report:** Upon verification and approval of draft reports, prepare final reports, type written, and organized and formatted as specified below. Submit 2 complete sets of final reports.
- **Report Format:** Report forms shall be those standard forms prepared by the referenced standard for each respective item and system to be tested, adjusted, and balanced. Bind report forms complete with schematic systems diagrams and other data in reinforced, vinyl, three-ring binders. Provide binding edge labels with the project identification and a title descriptive of the contents. Divide the contents of the binder into the below listed divisions, separated by divider tabs:

1. General Information and Summary
2. Air Systems
3. Temperature Control Systems
4. Fuel Oil Systems
5. Sound Systems

- Report Contents: Provide the following minimum information, forms and data:
- General Information and Summary: Inside cover sheet to identify testing, adjusting, and balancing agency, Contractor, Owner, Engineer, and Project. Include addresses, and contact names and telephone numbers. Also include a certification sheet containing the seal and name address, telephone number, and signature of the Certified Test and Balance Engineer. Include in this division a listing of the instrumentations used for the procedures along with the proof of calibration.

The remainder of the report shall contain the appropriate forms containing as a minimum, the information indicated on the standard report forms prepared by the AABC, for each respective item and system. Prepare a schematic diagram for each item of equipment and system to accompany each respective report form.

Calibration Reports: Submit proof that all required instrumentation has been calibrated to tolerances specified in the referenced standards, within a period of six months prior to starting the project.

8.46.6 QUALITY ASSURANCE:

Test and Balance Engineer's Qualifications: A Professional Engineer (either on the installer's staff or and independent consultant), registered in the State in which the services are to be performed, and having at least 3-years of successful testing, adjusting, and balancing experience on projects with testing and balancing requirements similar to those required for this project.

Codes and Standards:

- AABC: "National Standards For Total System Balance"
- ASHRAE: ASHRAE Handbook, 1984 Systems Volume, Chapter 37, Testing, Adjusting, and Balancing

Pre-Balancing Conference: Prior to beginning of the testing, adjusting, and balancing procedures, schedule and conduct a conference with the Engineer and representatives of installers of the mechanical systems. The objective of the conference is final coordination and verification of system operation and readiness for testing, adjusting, and balancing.

8.46.7 PROJECT CONDITIONS

Systems Operation: Systems shall be fully operational prior to beginning procedures.

8.46.8 SEQUENCING AND SCHEDULING

Test, adjust, and balance the air systems before other systems.

8.46.9 PRODUCTS (Not Used)

8.46.10 EXECUTION

8.46.11 PRELIMINARY PROCEDURES FOR AIR SYSTEM BALANCING

Before operating the system, perform these steps:

- Obtain design drawings and specifications and become thoroughly acquainted with the design intent.
- Obtain copies of approved shop drawings of all air handling equipment, outlets (supply, return) and temperature control diagrams.
- Compare design to installed equipment and field installations.
- Walk the system from the system air handling equipment to terminal units to determine variations of installation from design.
- Check filters for cleanliness.
- Check dampers (both volume and fire) for correct and locked position, and temperature control for completeness of installation before starting fans.

- Prepare report test sheets for both fans and outlets. Obtain manufacturer's outlet factors and recommended procedures for testing. Prepare a summation of required outlet volumes to permit a crosscheck with required fan volumes.
- Determine best locations in main and branch ductwork for most accurate duct traverses.
- Place outlet dampers in the full open position.
- Prepare schematic diagrams of system "as-built" ductwork and piping layouts to facilitate reporting.
- Lubricate all motors and bearings.
- Check fan belt tension.
- Check fan rotation.

8.46.12 PRELIMINARY PROCEDURES FOR LIQUID SYSTEM BALANCING

Before operating the system perform these steps:

- Open valves to full open position.
- Remove and clean all strainers.
- Check pump rotation.
- Check expansion tanks to determine that they are not air bound and that the system is completely full of fuel and coolant.
- Check air vents at high points of systems and determine if all are installed and operating freely (automatic type) or to bleed air completely (manual type).

1. Lubricate all motors and bearings.

8.46.13 MEASUREMENTS

Provide all required instrumentation to obtain proper measurements, calibrated to the tolerances specified in the referenced standards. Instruments shall be properly maintained and protected against damage.

Provide instruments meeting the specifications of the referenced standards.

Use only those instruments which have the maximum field measuring accuracy and are best suited to the function being measured.

Apply instrument as recommended by the manufacturer.

Use instruments with minimum scale and maximum subdivisions and with scale ranges proper for the value being measured.

When averaging values, take a sufficient quantity of readings which will result in a repeatability error of less than 5 percent. When measuring a single point, repeat readings until 2 consecutive identical values are obtained.

Take all reading with the eye at the level of the indicated value to prevent parallax.

Use pulsation dampeners where necessary to eliminate error involved in estimating average of rapidly fluctuation readings.

Take measurements in the system where best suited to the task.

8.46.14 PERFORMING TESTING, ADJUSTING, AND BALANCING

Perform testing and balancing procedures on each system identified, in accordance with the detailed procedures outlined in the referenced standards.

Cut insulation, ductwork, and piping for installation of test probes to the minimum extent necessary to allow adequate performance of procedures.

Patch insulation, ductwork, and housings, using materials identical to those removed.

Seal ducts and piping, and test for and repair leaks.

Seal insulation to re-establish integrity of the vapor barrier.

Mark equipment settings, including damper control positions, valve indicators, fan speed control levers, and similar controls and devices, to show final settings. Mark with paint or other suitable, permanent identification materials.

Retest, adjust, and balance systems subsequent to significant system modifications, and resubmit test results.

8.46.15 TESTING FOR SOUND

Test and adjust mechanical systems for sound In accordance with the detailed instructions of the referenced standards.

8.46.16 RECORD AND REPORT DATA

Record all data obtained during testing, adjusting, and balancing in accordance with, and on the forms recommended by the referenced standards, and as approved on the sample report forms.

Prepare report of recommendations for correcting unsatisfactory mechanical performances when system cannot be successfully balanced.

8.46.17 DEMONSTRATION

Training:

- Train the Owner's maintenance personnel on troubleshooting procedures and testing, adjusting, and balancing procedures. Review with the Owner's personnel, the information contained in the Operating and Maintenance Data specified in Division 1 and Section 15010.
- Schedule training with Owner through the Engineer with at least 7 days prior notice.

END OF SECTION 15990

8.47 SECTION 16010 - BASIC ELECTRICAL REQUIREMENTS

8.47.1 GENERAL

8.47.2 RELATED DOCUMENTS

Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this and the other sections of Division 16.

8.47.3 SUMMARY

This Section includes general administrative and procedural requirements for electrical installations. The following administrative and procedural requirements are included in this Section to expand the requirements specified in Section 6 - GENERAL CONDITIONS:

- Shop Drawings.
- Record documents.
- Operation manuals.
- Shipment.

8.47.4 SUBMITTALS

General: Follow the procedures specified in Section 6.6 - SHOP DRAWINGS.

8.47.5 RECORD DOCUMENTS

The Contractor shall maintain an orderly and adequate file of up-to-date copies of all Engineer's drawings and specifications, manufacturer's prints and specifications, and other contract documents and supplementary data. In addition, the Contractor shall maintain a continuous record of all field changes by means of a set of drawings marked to indicate current "as-built" conditions. This "as-built" set of drawings shall be available for check by the Engineer in order for him to ascertain that it is being kept current. At the conclusion of work, the "as-built" drawings and other engineering data, accurately and neatly marked with field changes, shall be submitted to the Engineer in the required number of copies. The "as-built" drawings and data shall include all revisions to the work made under this Contract, including those made by subcontractors. The installed conditions shall include:

- Major raceway systems, size and location, for both exterior and interior; locations of control devices; distribution and branch electrical circuitry; and fuse and circuit breaker size and arrangements.
- Equipment locations (exposed and concealed), dimensioned from prominent building lines.
- Approved substitutions, Contract Modifications, and actual equipment and materials installed.
- A wiring log as described in Section 16195.

8.47.6 MAINTENANCE MANUALS

Prepare maintenance manuals in accordance with Section 6.27 - OPERATION MANUALS. In addition to the requirements specified in Section 6.27, include the following information for equipment items:

- Description of function, normal operating characteristics and limitations, performance curves, engineering data and tests, and complete nomenclature and commercial numbers of replacement parts.
- Manufacturer's printed operating procedures to include start-up, break-in, and routine and normal operating instructions; regulation, control, stopping, shutdown, and emergency instructions; and summer and winter operating instructions.
- Maintenance procedures for routine preventative maintenance and troubleshooting; disassembly, repair, and reassembly; aligning and adjusting instructions.

- Servicing instructions and lubrication charts and schedules.

8.47.7 DELIVERY, STORAGE, AND HANDLING

Deliver products to the project properly identified with names, model numbers, types, grades, compliance labels, and other information needed for identification.

8.47.8 ROUGH-IN

Verify final locations for rough-ins with field measurements and with the requirements of the actual equipment to be connected.

Refer to equipment specifications in Divisions 2 through 16 for rough-in requirements.

8.47.9 ELECTRICAL INSTALLATIONS

General: Sequence, coordinate, and integrate the various elements of electrical systems, materials, and equipment. Comply with the following requirements:

- Coordinate electrical systems, equipment, and materials installation with other building components.
- Verify all dimensions by field measurements.
- Arrange for chases, slots, and openings in other building components during progress of construction, to allow for electrical installations.
- Coordinate the installation of required supporting devices and sleeves to be set in poured-in-place concrete and other structural components, as they are constructed.
- Sequence, coordinate, and integrate installations of electrical materials and equipment for efficient flow of the Work. Give particular attention to large equipment requiring positioning prior to closing in the building.
- Where mounting heights are not detailed or dimensioned, install systems, materials, and equipment to provide the maximum headroom possible.
- Coordinate connection of electrical systems with exterior underground and overhead utilities and services. Comply with requirements of governing regulations, franchised service companies, and controlling agencies. Provide required connection for each service.
- Install systems, materials, and equipment to conform with approved submittal data, including coordination drawings, to greatest extent possible. Conform to arrangements indicated by the Contract Documents, recognizing that portions of the Work are shown only in diagrammatic form. Where coordination requirements conflict with individual system requirements, refer conflict to the Engineer.
- Install systems, materials, and equipment level and plumb, parallel and perpendicular to other building systems and components, where installed exposed in finished spaces.
- Install electrical equipment to facilitate servicing, maintenance, and repair or replacement of equipment components. As much as practical, connect equipment for ease of disconnecting, with minimum of interference with other installations.
- Install access panel or doors where units are concealed behind finished surfaces.
- Install systems, materials, and equipment giving right-of-way priority to systems required to be installed at a specified slope.

8.47.10 CUTTING AND PATCHING

Perform cutting, fitting, and patching of electrical equipment and materials required to:

1. Uncover Work to provide for installation of ill-timed Work.
2. Remove and replace defective Work.
3. Remove and replace Work not conforming to requirements of the Contract Documents.
4. Remove samples of installed Work as specified for testing.
5. Install equipment and materials in existing structures.

6. Upon written instructions from the Engineer, uncover and restore Work to provide for Engineer observation of concealed Work.

Cut, remove, and legally dispose of selected electrical equipment, components, and materials as indicated, including but not limited to removal of electrical items indicated to be removed and items made obsolete by the new Work.

Protect the structure, furnishings, finishes, and adjacent materials not indicated or scheduled to be removed.

Provide and maintain temporary partitions or dust barriers adequate to prevent the spread of dust and dirt to adjacent areas.

Protection of Installed Work: During cutting and patching operations, protect adjacent installations.

Patch existing finished surfaces and building components using new materials matching existing materials and experienced Installers. Installers' qualifications refer to the materials and methods required for the surface and building components being patched. Refer to Division 1 Section "DEFINITIONS AND STANDARDS" for definition of experienced "Installer."

Patch finished surfaces and building components using new materials specified for the original installation and experienced Installers. Installers' qualifications refer to the materials and methods required for the surface and building components being patched.

END OF SECTION 16010

8.48 SECTION 16050 - BASIC ELECTRICAL MATERIALS AND METHODS

8.48.1 GENERAL

8.48.2 RELATED DOCUMENTS

Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

Requirements specified in Section 16050 "Basic Electrical Requirements" apply to this Section.

8.48.3 SUMMARY

This Section includes limited scope general construction materials and methods for application with electrical installations as follows:

- Selective demolition including dismantling electrical materials and equipment made obsolete by these installations.
- Excavation for underground utilities and services, including underground raceways, vaults, and equipment.
- Miscellaneous metals for support of electrical materials and equipment.
- Wood grounds, nailers, blocking, fasteners, and anchorage for support of electrical materials and equipment.
- Joint sealers for sealing around electrical materials and equipment; and for sealing penetrations in fire and smoke barriers, floors, and foundation walls.

8.48.4 DEFINITIONS

The following definitions apply to excavation operations:

- Additional Excavation: Where excavation has reached required subgrade elevations, if unsuitable bearing materials are encountered, continue excavation until suitable bearing materials are reached. The Contract Sum may be adjusted by an appropriate Contract Modification.
- Subbase: as used in this Section refers to the compacted soil layer used in pavement systems between the subgrade and the pavement base course material.
- Subgrade: as used in this Section refers to the compacted soil immediately below the slab or pavement system.
- Unauthorized excavation consists of removal of materials beyond indicated subgrade elevations or dimensions without specific direction from the Engineer.

8.48.5 SUBMITTALS

General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.

- Product data for the following products:
 1. Access panels and doors.
 2. Joint sealers.
- Shop drawings detailing fabrication and installation for metal fabrications, and wood supports and anchorage for electrical materials and equipment.

- Coordination drawings for access panel and door locations in accordance with Division 16 Section "Basic Electrical Requirements."
- Schedules indicating proposed methods and sequence of operations for selective demolition prior to commencement of Work. Include coordination for shut-off of electrical service, and details for dust and noise control.
- Coordinate sequencing with construction phasing and Owner occupancy specified in Division 1 Section "Summary of Work."

8.48.6 QUALITY ASSURANCE

Installer Qualifications: Engage an experienced Installer for the installation and application joint sealers, access panels, and doors.

Qualify welding processes and welding operators in accordance with AWS D1.1 "Structural Welding Code - Steel."

Certify that each welder has satisfactorily passed AWS qualification tests for welding processes involved and, if pertinent, has undergone recertification.

- Fire-Resistance Ratings: Where a fire-resistance classification is indicated, provide access door assembly with panel door, frame, hinge, and latch from manufacturer listed in the UL "Building Materials Directory" for rating shown.

Provide UL Label on each fire-rated access door.

8.48.7 DELIVERY, STORAGE, AND HANDLING

Deliver joint sealer materials in original unopened containers or bundles with labels informing about manufacturer, product name and designation, color, expiration period for use, pot life, curing time, and mixing instructions for multi-component materials.

Store and handle joint sealer materials in compliance with the manufacturers' recommendations to prevent their deterioration and damage.

8.48.8 PROJECT CONDITIONS

Conditions Affecting Selective Demolition: The following project conditions apply:

- Protect adjacent materials indicated to remain. Install and maintain dust and noise barriers to keep dirt, dust, and noise from being transmitted to adjacent areas. Remove protection and barriers after demolition operations are complete.
- Locate, identify, and protect electrical services passing through demolition area and serving other areas outside the demolition limits. Maintain services to areas outside demolition limits. When services must be interrupted, install temporary services for affected areas.
- Conditions Affecting Excavations: The following project conditions apply:
 1. Maintain and protect existing building services which transit the area affected by selective demolition.
 2. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by excavation operations.
 3. Site Information: Subsurface conditions were investigated during the design of the Project. Reports of these investigations are available for information only; data in the reports are not intended as representations or warranties of accuracy or continuity of conditions. The Owner will not be responsible for interpretations or conclusions drawn from this information.

4. Existing Utilities: Locate existing underground utilities in excavation areas. If utilities are indicated to remain, support and protect services during excavation operations.
 5. Remove existing underground utilities indicated to be removed.
 6. Uncharted or Incorrectly Charted Utilities: Contact utility owner immediately for instructions.
 7. Provide temporary utility services to affected areas. Provide minimum of 48-hour notice to Engineer prior to utility interruption.
 8. Use of explosives is not permitted.
- Environmental Conditions: Apply joint sealers under temperature and humidity conditions within the limits permitted by the joint sealer manufacturer. Do not apply joint sealers to wet substrates.

8.48.9 SEQUENCE AND SCHEDULING

Coordinate the shut-off and disconnection of electrical service with the Owner and the utility company.

Notify the Engineer at least 5 days prior to commencing demolition operations.

8.48.10 PRODUCTS

8.48.11 SOIL MATERIALS

Subbase Material: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, crushed slag, or natural or crushed sand.

Drainage Fill: Washed, evenly graded mixture of crushed stone, or crushed or uncrushed gravel, with 100 percent passing a 1-1/2-inch sieve, and not more than 5 percent passing a No. 4 sieve.

Backfill and Fill Materials: Materials complying with ASTM D2487 soil classification groups GW, GP, GM, SM, SW, and SP; free of clay, rock, or gravel larger than 2 inches in any dimension; debris; waste; frozen materials; and vegetable and other deleterious matter.

8.48.12 MISCELLANEOUS METALS

Steel plates, shapes, bars, and bar grating: ASTM A 36.

Cold-Formed Steel Tubing: ASTM A 500.

Hot-Rolled Steel Tubing: ASTM A 501.

Steel Pipe: ASTM A 53, Schedule 40, welded.

Nonshrink, Nonmetallic Grout: Premixed, factory-packaged, nonstaining, noncorrosive, nongaseous grout, recommended for interior and exterior applications.

Fasteners: Zinc-coated, type, grade, and class as required.

8.48.13 MISCELLANEOUS LUMBER

Framing Materials: Standard Grade, light-framing-size lumber of any species. Number 3 Common or Standard Grade boards complying with WCLIB or AWPB rules, or Number 3 boards complying with SPIB rules. Lumber shall be preservative treated in accordance with AWPB LP-2, and kiln dried to a moisture content of not more than 19 percent.

Construction Panels: Plywood panels; APA C-D PLUGGED INT, with exterior glue; thickness as indicated, or if not indicated, not less than 15/32 inches.

8.48.14 JOINT SEALERS

General: Joint sealers, joint fillers, and other related materials compatible with each other and with joint substrates under conditions of service and application.

Colors: As selected by the Engineer from manufacturer's standard colors.

Elastomeric Joint Sealers: Provide the following types:

- One-part, nonacid-curing, silicone sealant complying with ASTM C 920, Type S, Grade NS, Class 25, for uses in non-traffic areas for masonry, glass, aluminum, and other substrates recommended by the sealant manufacturer.
- One-part, mildew-resistant, silicone sealant complying with ASTM C 920, Type S, Grade NS, Class 25, for uses in non-traffic areas for glass, aluminum, and nonporous joint substrates; formulated with fungicide; intended for sealing interior joints with nonporous substrates; and subject to in-service exposure to conditions of high humidity and temperature extremes.

Available Products: Subject to compliance with requirements, products which may be incorporated in the Work include, but are not limited to, the following:

- Products: Subject to compliance with requirements, provide one of the following:

One-Part, Nonacid-Curing, Silicone Sealant:

1. "Chem-Calk N-Cure 2000," Bostic Construction Products Div.
2. "Dow Corning 790," Dow Corning Corp.
3. "Silglaze N SCS 2501," General Electric Co.
4. "Silpruf SCS 2000," General Electric Co.
5. "864," Pecora Corp.
6. "Rhodorsil 5C," Rhone-Poulenc, Inc.
7. "Spectrum 1," Tremco, Inc.
8. "Spectrum 2," Tremco, Inc.
9. "Dow Corning 795," Dow Corning Corp.
10. "Rhodorsil 6B," Rhone-Poulenc, Inc.
11. "Rhodorsil 70," Rhone-Poulenc, Inc.
12. "OmniSeal," Sonneborn Building Products Div.
13. "Chem-Calk 100," Bostik Construction Products Div.
14. "Gesil N SCS 2600," General Electric Co.

One-Part, Mildew-Resistant, Silicone Sealant:

1. "Dow Corning 786," Dow Corning Corp.
2. "SCS 1702 Sanitary," General Electric Co.
3. "863 #345 White," Pecora Corp.
4. "Rhodorsil 6B White," Rhone-Poulenc, Inc.
5. "Proglaze White," Tremco Corp.
6. "OmniPlus," Sonneborn Building Products Div.
- 7.

Acrylic-Emulsion Sealants: One-part, nonsag, mildew-resistant, paintable complying with ASTM C 834 recommended for exposed applications on interior and protected exterior locations involving joint movement of not more than plus or minus 5 percent.

- Products: Subject to compliance with requirements, provide one of the following:

1. "Chem-Calk 600," Bostik Construction Products Div.
2. "AC-20," Pecora Corp.

3. Sonolac," Sonneborn Building Products Div.
4. "Tremco Acrylic Latex 834," Tremco, Inc.

Fire-Resistant Joint Sealers: Two-part, foamed-in-place, silicone sealant formulated for use in through-penetration fire-stopping around cables, conduit, pipes, and duct penetrations through fire-rated walls and floors. Sealants and accessories shall have fire-resistance ratings indicated, as established by testing identical assemblies in accordance with ASTM E 814, by Underwriters' Laboratories, Inc., or other testing and inspection agency acceptable to authorities having jurisdiction.

- Products: Subject to compliance with requirements, provide one of the following:
 1. "Dow Corning Fire Stop Foam," Dow Corning Corp.
 2. "Pensil 851," General Electric Co.

8.48.15 EXECUTION

8.48.16 EXAMINATION

Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting installation and application of joint sealers and access panels. Do not proceed with installation until unsatisfactory conditions have been corrected.

8.48.17 PREPARATION FOR JOINT SEALERS

Surface Cleaning for Joint Sealers: Clean surfaces of joints immediately before applying joint sealers to comply with recommendations of joint sealer manufacturer.

Apply joint sealer primer to substrates as recommended by joint sealer manufacturer. Protect adjacent areas from spillage and migration of primers, using masking tape. Remove tape immediately after tooling without disturbing joint seal.

8.48.18 SELECTIVE DEMOLITION

General: Demolish, remove, demount, and disconnect abandoned electrical materials and equipment.

Disposal and Cleanup: Remove from the site and legally dispose of demolished materials and equipment not indicated to be salvaged.

Electrical Materials and Equipment: Demolish, remove, demount, and disconnect the following items:

- Inactive and obsolete raceway systems, controls, and fixtures.

8.48.19 EXCAVATION

Slope sides of excavations to comply with local codes and ordinances. Shore and brace as required for stability of excavation.

Shoring and Bracing: Establish requirements for trench shoring and bracing to comply with local codes and authorities. Maintain shoring and bracing in excavations regardless of time period excavations will be open.

Remove shoring and bracing when no longer required. Where sheeting is allowed to remain, cut top of sheeting at an elevation of 30 inches below finished grade elevation.

Install sediment and erosion control measures in accordance with local codes and ordinances.

Dewatering: Prevent surface water and subsurface or ground water from flowing into excavations and from flooding project site and surrounding area.

- Do not allow water to accumulate in excavations. Remove water to prevent softening of bearing materials. Provide and maintain dewatering system components necessary to convey water away from excavations.
- Establish and maintain temporary drainage ditches and other diversions outside excavation limits to convey surface water to collecting or run-off areas. Do not use trench excavations as temporary drainage ditches.

Material Storage: Stockpile satisfactory excavated materials where directed, until required for backfill or fill. Place, grade, and shape stockpiles for proper drainage.

- Locate and retain soil materials away from edge of excavations. Do not store within drip-line of trees indicated to remain.
- Remove and legally dispose of excess excavated materials and materials not acceptable for use as backfill or fill.
- Excavation for Underground Vaults and Electrical Structures: Conform to elevations and dimensions shown within a tolerance of plus or minus 0.10 foot; plus a sufficient distance to permit placing and removal of concrete formwork, installation of services, other construction, and for inspection.
 1. Excavate, by hand, areas within drip-line of large trees. Protect the root system from damage and dry-out. Maintain moist conditions for root system and cover exposed roots with burlap. Paint root cuts of 1 inch in diameter and larger with emulsified asphalt tree paint.
 2. Take care not to disturb bottom of excavation. Excavate by hand to final grade just before concrete reinforcement is placed.

Trenching: Excavate trenches for electrical installations as follows:

- Excavate trenches to the uniform width, sufficiently wide to provide ample working room and a minimum of 6 to 9 inches clearance on both sides of raceways and equipment.
- Excavate trenches to depth indicated or required.
- Limit the length of open trench to that in which installations can be made and the trench backfilled within the same day.
- Where rock is encountered, carry excavation below required elevation and backfill with a layer of crushed stone or gravel prior to installation of raceways and equipment. Provide a minimum of 6 inches of stone or gravel cushion between rock bearing surface and electrical installations.

Cold Weather Protection: Protect excavation bottoms against freezing when atmospheric temperature is less than 35 deg F (1 deg 2 C).

- Backfilling and Filling: Place soil materials in layers to required subgrade elevations for each area classification listed below, using materials specified in Part 2 of this Section.
 1. Under walks and pavements, use a combination of subbase materials and excavated or borrowed materials.
 2. Under building slabs, use drainage fill materials.
 3. Under piping and equipment, use subbase materials where required over rock bearing surface and for correction of unauthorized excavation.
 4. For raceways less than 30 inches below surface of roadways, provide 4-inch-thick concrete base slab support. After installation of raceways, provide a 4-inch thick concrete encasement (sides and top) prior to backfilling and placement of roadway subbase.
 5. Other areas, use excavated or borrowed materials.
- Backfill excavations as promptly as work permits, but not until completion of the following:
 1. Inspection, testing, approval, and locations of underground utilities have been recorded.
 2. Removal of concrete formwork.

3. Removal of shoring and bracing, and backfilling of voids.
4. Removal of trash and debris.

Placement and Compaction: Place backfill and fill materials in layers of not more than 8 inches in loose depth for material compacted by heavy equipment, and not more than 4 inches in loose depth for material compacted by hand-operated tampers.

Before compaction, moisten or aerate each layer as necessary to provide optimum moisture content. Compact each layer to required percentage of maximum dry density or relative dry density for each area classification specified below. Do not place backfill or fill material on surfaces that are muddy, frozen, or contain frost or ice.

Place backfill and fill materials evenly adjacent to structures, piping, and equipment to required elevations. Prevent displacement of raceways and equipment by carrying material uniformly around them to approximately same elevation in each lift.

Compaction: Control soil compaction during construction, providing minimum percentage of density specified for each area classification indicated below.

- Percentage of Maximum Density Requirements: Compact soil to not less than the following percentages of maximum density for soils which exhibit a well-defined moisture-density relationship (cohesive soils), determined in accordance with ASTM D 1557 and not less than the following percentages of relative density, determined in accordance with ASTM D 2049, for soils which will not exhibit a well-defined moisture-density relationship (cohesionless soils).
- Areas Under Structures, Building Slabs and Steps, Pavements: Compact top 12 inches of subgrade and each layer of backfill or fill material to 90 percent maximum density for cohesive material, or 95 percent relative density for cohesionless material.
- Areas Under Walkways: Compact top 6 inches of subgrade and each layer of backfill or fill material to 90 percent maximum density for cohesive material, or 95 percent relative density for cohesionless material.
- Other Areas: Compact top 6 inches of subgrade and each layer of backfill or fill material to 85 percent maximum density for cohesive soils, and 90 percent relative density for cohesionless soils.
- Moisture Control: Where subgrade or layer of soil material must be moisture conditioned before compaction, uniformly apply water. Apply water in minimum quantity necessary to achieve required moisture content and to prevent water appearing on surface during, or subsequent to, compaction operations.
- Subsidence: Where subsidence occurs at electrical installation excavations during the period 12 months after Substantial Completion, remove surface treatment (i.e., pavement, lawn, or other finish), add backfill material, compact to specified conditions, and replace surface treatment. Restore appearance, quality, and condition of surface or finish to match adjacent areas.

8.48.20 ERECTION OF METAL SUPPORTS AND ANCHORAGE

Cut, fit, and place miscellaneous metal fabrications accurately in location, alignment, and elevation to support and anchor electrical materials and equipment.

Field Welding: Comply with AWS "Structural Welding Code."

8.48.21 ERECTION OF WOOD SUPPORTS AND ANCHORAGE

Cut, fit, and place wood grounds, nailers, blocking, and anchorage accurately in location, alignment, and elevation to support and anchor electrical materials and equipment.

Select fastener sizes that will not penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting wood members.

Attach to substrates as required to support applied loads.

8.48.22 APPLICATION OF JOINT SEALERS

General: Comply with joint sealer manufacturers' printed application instructions applicable to products and applications indicated, except where more stringent requirements apply.

- Comply with recommendations of ASTM C 962 for use of elastomeric joint sealants.
- Comply with recommendations of ASTM C 790 for use of acrylic- emulsion joint sealants.

Tooling: Immediately after sealant application and prior to time shinning or curing begins, tool sealants to form smooth, uniform beads; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint. Remove excess sealants from surfaces adjacent to joint. Do not use tooling agents that discolor sealants or adjacent surfaces or are not approved by sealant manufacturer.

Installation of Fire-Stopping Sealant: Install sealant, including forming, packing, and other accessory materials, to fill openings around electrical services penetrating floors and walls, to provide fire-stops with fire-resistance ratings indicated for floor or wall assembly in which penetration occurs. Comply with installation requirements established by testing and inspecting agency.

8.48.23 INSTALLATION OF ACCESS DOORS

Set frames accurately in position and securely attached to supports, with face panels plumb and level in relation to adjacent finish surfaces.

Adjust hardware and panels after installation for proper operation.

END OF SECTION 16050

8.49 SECTION 16100 - RACEWAYS, BOXES, AND CABINETS

8.49.1 GENERAL

8.49.2 RELATED DOCUMENTS

Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

8.49.3 SUMMARY

This Section includes raceways, fittings, boxes, enclosures, and cabinets for electrical wiring.

- Raceways include the following:
 1. Rigid metal conduit
 2. Intermediate metal conduit
 3. Electrical metallic tubing (EMT)
 4. Liquidtight flexible conduit
 5. Rigid nonmetallic conduit
 6. Wireway
 7. Surface raceways
- Boxes, enclosures, and cabinets include the following:
 1. Device boxes
 2. Outlet boxes
 3. Pull and junction boxes
 4. Cabinets and hinged cover enclosures
- Related Sections: The following Sections contain requirements that relate to this Section:
 1. Division 7 Section "Firestopping."
 2. Division 16 Section "Supporting Devices" for raceway and box supports.
 3. Division 16 Section "Underground Ducts and Utility Structures."
 4. Division 16 Section "Wiring Devices" for devices installed in boxes and floor box service fittings.

8.49.4 SUBMITTALS

General: Submit the following according to the Conditions of the Contract and Division 1 Specification Sections.

Product data for surface raceway, wireway and fittings, floor boxes, hinged cover enclosures, and cabinets.

Shop drawings for nonstandard boxes, enclosures, and cabinets. Include layout drawings showing components and wiring.

8.49.5 QUALITY ASSURANCE

Comply with NFPA 70 "National Electrical Code" for components and installation.

Listing and Labeling: Provide products specified in this Section that are listed and labeled.

- The Terms "Listed and Labeled": As defined in the "National Electrical Code," Article 100.
- Listing and Labeling Agency Qualifications: A "Nationally Recognized Testing Laboratory" (NRTL) as defined in OSHA Regulation 1910.7.

Comply with NECA "Standard of Installation."

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Coordinate layout and installation of raceway and boxes with other construction elements to ensure adequate headroom, working clearance, and access.

8.49.6 PRODUCTS

8.49.7 MANUFACTURERS

Available Manufacturers: Subject to compliance with requirements, Manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

Metal Conduit and Tubing:

- Monogram Co., AFC.
- Alflec Corp.
- Allied Tube and Conduit, Grinnell Co.
- Anamet, Inc., Anaconda Metal Hose.
- Anixter Brothers, Inc.
- Carol Cable Co., Inc.
- Cole-Flex Corp.
- Flexcon, Inc., Coleman Cable Systems, Inc.
- Spiraduct, Inc.
- Triangle PWC, Inc.
- Wheatland Tube Co.

Nonmetallic Tubing and Conduit:

- Anamet, Inc., Anaconda Metal Hose.
- Arnco Corp.
- Breeze-Illinois, Inc.
- Can-Tex Industries, Harsco Corp.
- Carlon.
- Certainteed Corp, Pipe & Plastics Group.
- Cole-Flex Corp.
- Condux International, Electrical Products.
- Electri-Flex Co.
- George-Ingraham Corp.
- Hubbell, Inc., Raco, Inc.
- R&G Sloan Manufacturing Co., Inc.
- Spiraduct, Inc.
- Thomas & Betts Corp.

Conduit Bodies and Fittings:

- Scott Fetzer Company, Adalet-PLM.
- American Electric, Construction Materials Group.
- Emerson Electric Co., Appleton Electric Co.
- Carlon.
- Hubbell, Inc., Killark Electric Manufacturing Co.
- General Signal, O-Z/Gedney Unit.
- Spring City Electrical Manufacturing Co.

Wireway:

- Hoffman Engineering Co.
- Keystone/Rees, Inc.

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- Square D Co.

Surface Metal Raceway:

- Airey-Thompson Co., Inc., A-T Power Systems.
- American Electric, Construction Materials Group.
- Butler Manufacturing Co., Walker Division.
- The Wiremold Co., Electrical Sales Division.

Surface Nonmetallic Raceway:

- Anixter Brothers, Inc.
- Butler Manufacturing Co., Walker Division.
- Hubbell, Inc., Wiring Device Division.
- JBC Enterprises, Inc., Enduro Fiberglass Systems.
- Panduit Corp.
- United Telecom, Premier Telecom Products, Inc.
- Thermotools Co.
- The Wiremold Co., Electrical Sales Division.

Boxes, Enclosures, and Cabinets:

- Scott Fetzer Company, Adalet-PLM.
- Butler Manufacturing Co., Walker Division.
- Cooper Industries, Midwest Electric.
- Electric Panelboard Co., Inc.
- Erickson Electrical Equipment Co.
- American Electric, FL Industries.
- Hoffman Engineering Co., Federal-Hoffman, Inc.
- Hubbell Inc., Killark Electric Manufacturing Co.
- General Signal, O-Z/Gedney.
- Parker Electrical Manufacturing Co.
- Racor, Inc., Hubbell Inc.
- Robroy Industries, Inc., Electrical Division.
- Spring City Electrical Manufacturing Co.
- Square D Co.
- Thomas & Betts Corp.
- Woodhead Industries, Inc., Daniel Woodhead Co.

8.49.8 METAL CONDUIT AND TUBING

Rigid Steel Conduit: ANSI C80.1.

Intermediate Metal Conduit: ANSI C80.6.

Electrical Metallic Tubing and Fittings: ANSI C80.3 with set-screw or compression-type fittings.

Liquidtight Flexible Metal Conduit: Flexible steel conduit with PVC jacket.

Fittings: NEMA FB 1, compatible with conduit/tubing materials.

8.49.9 NONMETALLIC CONDUIT AND TUBING

Rigid Nonmetallic Conduit (RNC): NEMA TC 2, Schedule 40 or 80 PVC.

PVC Conduit and Tubing Fittings: NEMA TC 3; match to conduit or conduit/tubing type and material.

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8.49.10 OUTLET AND DEVICE BOXES

Sheet Metal Boxes: NEMA OS 1.

Cast Metal Boxes: NEMA FB 1, type FD, cast fer alloy box with gasketed cover.

Nonmetallic Boxes: NEMA OS 2.

8.49.11 FLOOR BOXES

Floor Box: Cast metal, fully adjustable, rectangular.

8.49.12 PULL AND JUNCTION BOXES

Small Sheet Metal Boxes: NEMA OS 1.

Cast Metal Boxes: NEMA FB 1, cast aluminum with gasketed cover.

8.49.13 EXECUTION

8.49.14 EXAMINATION

Examine surfaces to receive raceways, boxes, enclosures, and cabinets for compliance with installation tolerances and other conditions affecting performance of the raceway system. Do not proceed with installation until unsatisfactory conditions have been corrected.

8.49.15 WIRING METHODS

Outdoors: Use the following wiring methods:

- Exposed: Rigid metal conduit.
- Concealed: Rigid or intermediate metal conduit.
- Underground, Single Run: Rigid nonmetallic conduit.
- Underground, Grouped: Rigid nonmetallic conduit.
- Connection to Vibrating Equipment (including transformers and hydraulic, pneumatic, or electric solenoid or motor-driven equipment): Liquidtight flexible metal conduit.
- Boxes and Enclosures: NEMA Type 3R.

Indoors: Use the following wiring methods:

- Connection to Vibrating Equipment (including transformers and hydraulic, pneumatic, or electric solenoid or motor-driven equipment): Liquidtight flexible metal conduit.
- Damp or Wet Locations: Rigid steel conduit.
- Exposed: Electrical metallic tubing above 10 feet in elevation and less than 1.25 inches in diameter. Rigid steel conduit for all runs at or below 10 feet in elevation or 1.25 inches or more in diameter.
- Concealed: Electrical metallic tubing or rigid nonmetallic conduit.
- Boxes and Enclosures: NEMA Type 1, except in damp or wet locations use NEMA Type 4, stainless steel.
- Under slab: Ridged non-metallic conduit.

8.49.16 INSTALLATION

- Install raceways, boxes, enclosures, and cabinets as indicated, according to manufacturer's written instructions.
- Conceal conduit and EMT, unless otherwise indicated, within finished walls, ceilings, and floors.

- Keep raceways at least 6 inches (150 mm) away from parallel runs of flues and hot water pipes. Install horizontal raceway runs above water piping.
- Install raceways level and square and at proper elevations. Provide adequate headroom.
- Complete raceway installation before starting conductor installation.
- Support raceway as specified in Division 16 Section "Supporting Devices."
- Use temporary closures to prevent foreign matter from entering raceway.
- Protect stub-ups from damage where conduits rise through floor slabs. Arrange so curved portion of bends is not visible above the finished slab.
- Make bends and offsets so the inside diameter is not reduced. Unless otherwise indicated, keep the legs of a bend in the same plane and the straight legs of offsets parallel.
- Use raceway fittings compatible with raceway and suitable for use and location. For intermediate steel conduit, use threaded rigid steel conduit fittings, except as otherwise indicated.
- Run concealed raceways with a minimum of bends in the shortest practical distance considering the type of building construction and obstructions, except as otherwise indicated.
- Raceways Underneath Slabs: Install below compacted stone. All 90 degree bends shall be below compacted stone with conduit penetrations of slab fully vertical.
- Transition nonmetallic tubing to rigid steel conduit before rising above floor.
- Install exposed raceways parallel to or at right angles to nearby surfaces or structural members, and follow the surface contours as much as practical.
- Run parallel or banked raceways together, on common supports where practical.
- Make bends in parallel or banked runs from same center line to make bends parallel. Use factory elbows only where they can be installed parallel; otherwise, provide field bends for parallel raceways.
- Join raceways with fittings designed and approved for the purpose and make joints tight.
- Make raceway terminations tight. Use bonding bushings or wedges at connections subject to vibration. Use bonding jumpers where joints cannot be made tight.
- Tighten set screws of threadless fittings with suitable tool.
- Terminations: Where raceways are terminated with locknuts and bushings, align the raceway to enter squarely, and install the locknuts with dished part against the box. Where terminations cannot be made secure with one locknut, use two locknuts, one inside and one outside the box.
- Where terminating in threaded hubs, screw the raceway or fitting tight into the hub so the end bears against the wire protection shoulder. Where chase nipples are used, align the raceway so the coupling is square to the box, and tighten the chase nipple so no threads are exposed.
- Install pull cord in empty raceways. Use 200 pound test nylon cord.
- Raceways 2-Inch Trade Size and Smaller: In addition to the above requirements, install in maximum lengths of 150 feet (45 m) and with a maximum of two 90-deg bends or equivalent. Install pull or junction boxes where necessary to comply with these requirements.

- Install raceway sealing fittings according to the manufacturer's written instructions. Locate fittings at suitable, approved, accessible locations and fill them with UL-listed sealing compound. For concealed raceways, install each fitting in a flush steel box with a blank cover plate having a finish similar to that of adjacent plates or surfaces. Install raceway sealing fittings at the following points and elsewhere as indicated:
 - Where conduits enter or leave hazardous locations.
 - Where conduits pass from warm locations to cold locations, such as the boundaries of refrigerated spaces and air-conditioned spaces.
 - Where otherwise required by the NEC.
- Stub-Up Connections: Extend conduits through concrete floor for connection to freestanding equipment with an adjustable top or coupling threaded inside for plugs, and set flush with the finished floor. Transition to nonmetallic conduit to ridged steel conduit before penetrating floor. Extend conductors to equipment with rigid steel conduit; flexible metal conduit may be used 6 inches (150 mm) above the floor. Where equipment connections are not made under this Contract, install screwdriver-operated threaded flush plugs flush with floor. Install grounding hubs for all conduit stub-ups.
- Flexible Connections: Use maximum of 6 feet (1830 mm) of flexible conduit for recessed and semirecessed lighting fixtures; for equipment subject to vibration, noise transmission, or movement; and for all motors. Use liquidtight flexible conduit in wet or damp locations. Install separate ground conductor across flexible connections.
- Do not install aluminum conduit embedded in or in contact with concrete.
- Set floor boxes level and adjust to floor surface.
- Install hinged cover enclosures and cabinets plumb. Support at each corner.
- Provide grounding connections for raceway, boxes, and components as indicated and instructed by manufacturer. Tighten connectors and terminals, including screws and bolts, according to equipment manufacturer's published torque-tightening values for equipment connectors. Where manufacturer's torqueing requirements are not indicated, tighten connectors and terminals according to tightening torques specified in UL Standard 486A.

8.49.17 PROTECTION

Provide final protection and maintain conditions, in a manner acceptable to manufacturer and Installer, to ensure that coatings, finishes, and cabinets are without damage or deterioration at Substantial Completion.

Repair damage to galvanized finishes with zinc-rich paint recommended by manufacturer.

Repair damage to PVC or paint finishes with matching touch-up coating recommended by the manufacturer.

8.49.18 CLEANING

Upon completion of installation of system, including outlet fittings and devices, inspect exposed finish. Remove burrs, dirt, and construction debris and repair damaged finish, including chips, scratches, and abrasions.

END OF SECTION 16100

8.50 SECTION 16119 – UNDERGROUND DUCTS & UTILITY STRUCTURES

8.50.1 GENERAL

8.50.2 RELATED DOCUMENTS

Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

8.50.3 SUMMARY

This Section includes underground conduits and ducts, pull boxes, handholes, concrete-encased duct banks, and other underground utility structures.

Related Sections: The following Sections contain requirements that relate to this Section:

- Division 2 Section “Earthwork” for general requirements for excavation, backfill and related items for ducts, manholes, and handholes.
- Division 3 Section “Cast-In-Place Concrete” for cast-in-place concrete requirements.

8.50.4 DEFINITIONS

Duct: Electrical conduit and other raceway, either metallic or nonmetallic, used underground, embedded in earth or concrete.

8.50.5 SUBMITTALS

General: Submit the following according to Conditions of the Contract and Division 1 Specification Sections.

Product data for metal accessories for conduit and miscellaneous components.

8.50.6 QUALITY ASSURANCE

Comply with NFPA 70 “National Electric Code” and ANSI C2 “National Electrical Safety Code” for components and installation.

Listing and Labeling: Provide products specified in this Section that are listed and labeled.

- The Terms “Listed” and “Labeled”. As defined in the “National Electrical Code,” Article 100.
- Coordinate layout and installation of ducts with final arrangement of other utilities as determined in the field.

8.50.7 DELIVERY, STORAGE, AND HANDLING

Deliver ducts to site with ends capped. Store nonmetallic ducts with supports to prevent bending, warping, and deforming.

8.50.8 PRODUCTS

8.50.9 MANUFACTURERS

Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

- Nonmetallic Ducts:
 1. Arnco Corp.

2. Breeze-Illinois, Inc.
3. CANTEX, Inc.
4. Carlon; Lamson & Sessions Company
5. Pipe & Plastic Group; Certainteed Products Corp.
6. Cole-Flex Co.
7. Electri-Flex Co.
8. Spiraduct, Inc.

8.50.10 CONDUIT AND DUCT

Rigid Steel Conduit: ANSI C80.1, galvanized.

Rigid Plastic Conduit: NEMA TC 2, Schedule 40 PVC, rated for use with 90 deg C conductors under all installation conditions.

Manufactured Bends: Not less than 36 inch (900 mm) radius.

8.50.11 ACCESSORIES

Duct Supports: Rigid PVC spacers selected to provide minimum duct spacings.

Duct Sealing Compound: Nonhardening, safe for human skin contact, not deleterious to cable insulation, workable at temperatures as low as 35 deg F (1 deg C), withstands temperature of 300 deg F (149 deg C) without slump, and adheres to clean surfaces of plastic ducts, metallic conduits, conduit coatings, concrete, masonry, lead, cable sheaths, cable jackets, insulation materials, and the common metals.

8.50.12 EXECUTION

8.50.13 APPLICATION

Direct buried or concrete encased PVC conduit.

8.50.14 EXAMINATION

Examine site to receive ducts for compliance with installation tolerances and other conditions affecting performance of the underground ducts. Do not proceed with installation until unsatisfactory conditions have been corrected.

8.50.15 EARTHWORK

Excavation and Backfill: Conform to Division 2 Section "Earthwork", but do not use heavy-duty, hydraulic-operated compaction equipment.

Restore surface features at areas disturbed by excavation, and re-establish original grades except as otherwise indicated. Replace removed sod as soon as possible after backfilling is completed. Restore all areas disturbed by trenching, storing of dirt, cable laying, and other work. Restore vegetation and include necessary topsoiling, fertilizing, liming, seeding, sodding, sprigging, or mulching. Perform according to Division 2 Section "Landscape Work".

Restore disturbed paving. Refer to "Cutting and Patching" in Division 1.

8.50.16 CONDUIT & DUCT INSTALLATION

Install nonmetallic conduit and duct as indicated according to manufacturer's written instructions.

Place all conduits a minimum of 36 inches below earth surface. Gravel paving shall be in addition to the 36 inch earth cover.

All underground concrete-encased conduits must be Schedule 40 (thick-walled PVC) or Schedule 80 encased in a 4,000 minimum psi concrete, to a minimum thickness of 3 inches from any conduit. Concrete encasement shall be reinforced with ½" steel rebar. The top of the encasement shall be a minimum of 33" below earth grade and a magnetically detectable tape (minimum width 1") is to be buried 6" below finished grade and following the centerline of the encasement. Conduits' outer edges within the encasement are to be spaced a minimum of 1" apart as shown on the drawings. All conduit segments are to be supplied with a nylon pull rope or ribbon of sufficient tensile strength to facilitate the installation of cables.

Rigid PVC interlocking spacers shall be used in concrete, selected to provide minimum conduit spacings and cover depths indicated while supporting conduits during concreting and backfilling; produced by the same manufacturer as the conduits.

Provisions shall be taken to prevent conduits from floating during concreting process, either by fastening spacers to trench bottom or by placing weights on entire conduit and spacer assembly. Ensure that conduits are adequately spaced to allow concrete to fill all voids between conduits.

All concrete-encased conduits shall be plugged during the concreting and backfilling processes. Duct plugs shall be manufactured from high impact plastic components and shall be corrosion proof. Duct plugs shall contain a durable elastic compressible gasket which will make it effective as a long term or temporary seal. They shall be removable and reusable. They shall meet or exceed the following mechanical requirements:

- a. Air Pressure 7.5 psi
- b. Water Head 15 ft.
- c. Pull Out 100 Kgf

Duct plugs used on spare conduits shall be equipped with a rope tie device on the back compression plate to allow the securing of a pull rope. This will allow excess rope slack to be stored within the conduit.

Curves and Bends: Use manufactured elbows for stub-ups at equipment and at building entrances. Use manufactured long sweep bends with a minimum radius of 36" both horizontally and vertically at other locations.

Make joints in ducts and fittings watertight according to manufacturer's instructions. Stagger couplings so those of adjacent ducts do not lie in the same plane.

Building Entrances: Transition from underground duct to conduit 10 feet (3 m) minimum outside the building wall. Use fittings manufactured for the purpose. Follow appropriate installation instructions below.

- Waterproofed Wall and Floor Entrances: Install a watertight entrance-sealing device with the sealing gland assembly on the inside. Anchor device into masonry construction with one or more integral flanges. Secure membrane waterproofing to the device to make permanently watertight.
- Stub-Ups: Use rigid steel conduit for stub-ups to equipment. For equipment mounted on outdoor concrete pads, extend underground steel conduit a minimum of 5 feet (1.5 m) from edge of pad. Install insulated grounding bushings on the terminations. Couple steel conduits to the ducts with adapters designed for the purpose and then encase coupling with 3 inches (75 mm) of concrete.
- Sealing: Provide temporary closure at terminations of ducts that are wired under this Project. Seal spare ducts at terminations.
- Pulling Cord: Install 200-pound-test nylon cord in ducts, including spares.

8.50.17 FIELD QUALITY CONTROL

Testing: Demonstrate capability and compliance with requirements upon completion of installation of underground duct and utility structures.

Duct Integrity: Rod ducts with a mandrel ¼ inch (6 mm) smaller in diameter than internal diameter of ducts. Where rodding indicates obstructions in ducts, remove the obstructions and retest.

Correct installations where possible, and retest to demonstrate compliance. Otherwise, remove and replace defective products and retest.

8.50.18 CLEANING

Pull brush through full length of ducts. Use round bristle brush with a diameter $\frac{1}{2}$ inch (12 mm) greater than internal diameter of duct.

END OF SECTION 16119

8.51 SECTION 16120 - WIRES AND CABLES

8.51.1 GENERAL

8.51.2 RELATED DOCUMENTS

Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

8.51.3 SUMMARY

This Section includes building wires and cables and associated splices, connectors, and terminations for wiring systems rated 600 volts and less.

Related Sections: The following Sections contain requirements that relate to this Section:

- Division 7 Section "Firestopping."
- Division 16 Section "Medium-Voltage Cables."
- Division 16 Section "Supporting Devices" for supports and anchors for fastening cable directly to building finishes.
- Division 16 Section "Electrical Identification" for insulation color coding and wire and cable markers.

8.51.4 SUBMITTALS

General: Submit the following according to the Conditions of the Contract and Division 1 Specification Sections.

Field test reports indicating and interpreting test results relative to compliance with performance requirements of testing standard.

Submit manufacturer's catalog descriptions of each wire, cable, or conductor for engineer's approval before ordering cable.

8.51.5 QUALITY ASSURANCE

Comply with NFPA 70 "National Electrical Code" for components and installation.

Listing and Labeling: Provide products specified in this Section that are listed and labeled.

The Terms "Listed and Labeled": As defined in the "National Electrical Code," Article 100.

8.51.6 SEQUENCING AND SCHEDULING

Coordination: Coordinate layout and installation of cable with other installations.

Revise locations and elevations from those indicated as required to suit field conditions and as approved by the Engineer.

8.51.7 DELIVERY, STORAGE, AND HANDLING

Deliver wire and cable according to NEMA WC-26.

8.51.8 PRODUCTS

8.51.9 MANUFACTURERS

Available Manufacturers: Subject to compliance with requirements, Manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

Wires and Cables:

- American Insulated Wire Corporation, Leviton Manufacturing Co.
- Brand-Rex Cable Systems, Brintec Corp.
- Carol Cable Company, Inc.
- Senator Wire & Cable Co.
- Houston Wire & Cable
- Pirelli Cable Corporation
- Southwire Co.

Connectors for Wires and Cables:

- AFC, Monogram Co.
- AMP, Inc.
- Anderson, Square D Co.
- Electrical Products Division, 3M Co.
- O-Z/Gedney Unit, General Signal
- Thomas & Betts
- Burndy

8.51.10 BUILDING WIRES AND CABLES

UL-listed building wires and cables with conductor material, insulation type, cable construction, and rating as specified in "Applications" Article.

- Conform to NEMA WC70.
- Stranded conductor for all sizes.
- Control Cable: Constructed of individual insulated copper conductors, number and size of conductors as shown on drawings, with color coded insulation per NEMA/ICEA Method 1, Table E-1, XHHW conductor insulation with overall jacket.

8.51.11 CONNECTORS AND SPLICES

UL-listed factory-fabricated wiring connectors of size, ampacity rating, material, and type and class for application and for service indicated. Select to comply with Project's installation requirements and as specified in Section 8.51.14 "Applications" Article. All control circuits are to be terminated with "ring tongue" insulated compression lugs.

8.51.12 EXECUTION

8.51.13 EXAMINATION

Examine raceways and building finishes to receive wires and cables for compliance with installation tolerances and other conditions. Do not proceed with installation until unsatisfactory conditions have been corrected.

8.51.14 APPLICATIONS

Service Entrance: Type XHHW, stranded copper conductor, in raceway.

Feeders: Type XHHW, stranded copper conductor in raceway.

Branch Circuits: Type XHHW, stranded copper conductor, in raceway.

Control Circuits: Type XHHW or multi conductor cable as shown on drawings, stranded copper conductor, in raceway.

8.51.15 INSTALLATION

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- Install wires and cables as indicated, according to manufacturer's written instructions and the NECA "Standard of Installation."
- Pull conductors into raceway simultaneously where more than one is being installed in same raceway.
- Use pulling compound or lubricant where necessary; compound used must not deteriorate conductor or insulation.
- Use pulling means, including fish tape, cable, rope, and basket-weave wire/cable grips that will not damage cables or raceway.
- Install exposed cable, parallel and perpendicular to surfaces or exposed structural members, and follow surface contours where possible.
- Conductor Splices: Keep to minimum.
- Install splices and tapes that possess equivalent or better mechanical strength and insulation ratings than conductors being spliced.
- Use splice and tap connectors that are compatible with conductor material.
- Splicing of multi conductor cable is not permitted.
- Wiring at Outlets: Install with at least 12 inches (300 mm) of slack conductor at each outlet.
- Connections: Connect outlets and components to wiring and to ground as indicated and instructed by manufacturer.
- Tighten connectors and terminals, including screws and bolts, according to equipment manufacturer's published torque-tightening values for equipment connectors.
- Where manufacturer's torqueing requirements are not indicated, tighten connectors and terminals according to tightening torques specified in UL Standard 486A.

8.51.16 FIELD QUALITY CONTROL

8.51.17 TESTING

Upon installation of wires and cables and before electrical circuitry has been energized, demonstrate product capability and compliance with requirements.

8.51.18 PROCEDURES

Perform each visual and mechanical inspection and electrical test stated in NETA Standard ATS, Section 7.3.2. Certify compliance with test parameters.

8.51.19 CORRECTIONS

Correct malfunctioning products at site, where possible, and retest to demonstrate compliance; otherwise, remove and replace with new units, and retest.

END OF SECTION 16120

8.52 SECTION 16124 – MEDIUM VOLTAGE CABLES

8.52.1 GENERAL

8.52.2 RELATED DOCUMENTS

Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

8.52.3 SUMMARY

This Section includes cables and related splices, terminations, and accessories for electrical distribution systems rated above 2,000 volts.

Related Sections: The following Sections contain requirements that relate to this Section:

- Division 16 Section “Supporting Devices” for cable and termination supports.
- Division 16 Section “Electrical Identification” for cable markers.
- Division 16 Section “Medium Voltage Transformers” for cable termination provisions.
- Division 16 Section “Medium Voltage Switchgear” for cable termination provisions.

8.52.4 SUBMITTALS

General: Submit the following according to the Conditions of the Contract and Division 1 Specification Sections.

- Product data for cables and cable accessories, including splices and terminations including warranty statement.
- Product certificate signed by manufacturer that its products comply with the specified requirements.
- Product Test Reports: Certified reports of manufacturers’ design and production tests indicating compliance of cable and accessories with referenced standards.
- Field test reports indicating and interpreting test results relative to compliance with performance requirements specified. Include certified copies of field test records.
- Maintenance Data: For cables and accessories, to be included in the “Project Manual” specified in Division 1.
- In-Service Data: Include periodic tests of cables in service.

8.52.5 QUALITY ASSURANCE

Installer Qualifications: Engage an experienced and certified cable splicer to install, splice, and terminate medium voltage cables.

Manufacturer Qualifications: Firm experienced in manufacturing medium voltage cable and accessories similar to those indicated for this project, with a record of successful in-service performance.

Comply with NFPA 70 “National Electric Code” for components and installation.

Listing and Labeling: Provide products specified in this Section that are listed and labeled.

The terms “listed and labeled”: As defined in the “National Electrical Code”, Article 100.

Single-Source Responsibility: All medium voltage cable shall be the product of a single manufacturer.

8.52.6 DELIVERY, STORAGE & HANDLING

8.52.7 CABLE REELS

Deliver medium voltage cables on factory reels conforming to NEMA WC26.

The Contractor shall inspect each reel of cable upon delivery. At this time, the cable protective covering shall be inspected for damage. Any damage found shall be reported to the Engineer without delay.

Loading and unloading shall be accomplished so that the lifting equipment does not contact the cable protective wrap or the cable surface. If a crane is used, the either a cradle supporting the reel flanges or a shaft through the arbor hole shall be used. If a fork lift is used, the forks shall lift the reel at 90 degrees to the reel flanges and the fork shall be long enough to make complete lifting contact with the flanges. Under no circumstances shall the forks contact the cable surface or the protective wrap. If an inclined ramp is used, the ramp shall be at the bottom of the ramp shall be accomplished by using the reel flanges and not the surface of the cable.

Under no circumstances shall the reels be dropped from any vehicle or equipment onto the ground or any other surface.

Reels shall be stored, standing on the flange edges, on a rigid surface to ensure that the flanges do not sink into the earth and do not allow the weight of the reel and cable to rest on the cable surface. Reels shall not be stored resting on the flat side of the flanges.

Cable shall not be stored in any area where it may be contacted by vehicles, equipment, falling objects, chemicals, petroleum, or other harmful materials, or where it may be damaged by high heat.

When the cable is to be installed at ambient temperatures 32 F (0 C), it shall be stored in a heated area at least 24 hours prior to installation. The cable shall not be installed at temperatures below 14 F (-10 C).

Whenever cable reels are moved by rolling, roll in the correct direction to avoid loosening the cable on the reel. Clear the rolling area of objects which could contact or possibly damage the cable or the protective wrap.

8.52.8 CABLE END SEALING

All cable ends shall be sealed when in storage or when installed and temporarily not terminated.

Procedure: The cable end shall be cleanly and squarely cut off. To the cable end apply a 3 ¾ inch square section on vinyl plastic seal over the exposed tape shall be applied lengthwise over the end of the cable first, and then wrapped tightly over the length of the cable for 3 inches to completely cover the seal material. The wrapping tape shall be overlapped by at least half the tape width.

The vinyl plastic seal shall be Aqua Seal or equivalent.

8.52.9 PRODUCTS

8.52.10 MANUFACTURERS

Manufacturers: Subject to compliance with requirements, provide products by one of the following:

- Power Cable:
 1. Cablec Corp.
 2. Hubbell Inc., The Kerite Co.
 3. The Okonite Co.
 4. Power Cable Division, Pirelli Cable Corp.
- Cable Splicing and Terminating Products and Accessories:
 1. Cooper Power Systems, Inc., RTE Components
 2. Elastimold
 3. Raychem Electrical Products Division
 4. 3M Electrical Products Division
- Separable Insulated Connector Components and Accessories:

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1. Cooper Power Systems, Inc., RTE Components
2. Elastimold
3. Joslyn Manufacturing Co.

8.52.11 CABLE

Type: MV90

Conductor: Copper, Soft Drawn

Conductor Stranding: Class B

Rated System Voltage Class: for 4.16 kV application: 5 kV

Insulation: Discharge resistant ethylene propylene rubber (EPR) conforming to NEMA WC74, UL 1072 and AEIC CS8-13. Insulation shall be of a color contrasting with the extruded semi-conducting shield. Insulation rating shall equal or exceed 133 percent of the rated system voltage class. The cable shall be heat, moisture, ozone and corona resistant, for use at 90 C conductor temperature. The insulation compound shall be compounded by the manufacturer in its own facility.

Shielding: Uncoated copper tape, helically applied over semiconducting insulation shield, with minimum overlap of 12.5 percent.

Jacket: High molecular weight insulating polyvinyl chloride (PVC), extruded over the copper tape shield. The jacket shall be oil, acid, alkali and sunlight resistant and meet or exceed NEMA WC74 and UL 1072.

Standards: The cable shall meet or exceed the following standards: NEMA WC74, , ASTM B-8, UL 1072, AEIC CS-8.

8.52.12 SPLICE KITS

Connectors: IEEE 404, compression type, as recommended by cable or splicing kit manufacturer for the application.

Splicing Products: As recommended in writing by the splicing kit manufacturer for the specific sizes, ratings, and configurations of cable conductors and splices specified. Include all components required for complete splice, with detailed instructions.

Heat-shrink splicing kit of uniform cross-section polymeric construction with outer heat-shrink jacket.

Premolded, cold-shrink rubber, inline splicing kit.

8.52.13 SOLID TERMINATIONS

The molded rubber cable termination kits shall be designed and manufactured for terminating the specified power cables. Contractor shall coordinate with manufacturers' data to determine exact diameters. Insulation class shall be equivalent to that of the cable.

The terminations shall be Class 1 for shielded cable, meeting the latest release of IEEE Standard 48, and suitable for use within the compartments of the generator step-up transformer specified in Section 16320 "Medium Voltage Transformers", and the switchgear specified in Section 16344 "Medium Voltage Indoor Switchgear." The terminations shall be heat-shrinkable type with heat-shrinkable inner stress control and outer nontracking tubes, multiple molded nontracking skirt modules, and compression-type connector. Terminations for shielded cables shall include a shield ground strap.

The termination kit shall include a molded silicone rubber skirted insulator over a high dielectric constant stress control tube. The cold shrink terminations shall be provided in an expanded state, mounted on a removable inner

supporting plastic core. As supplied in a pre-stretched condition the termination is ready for field installation. During installation the core is unwound allowing the termination to shrink and form a tight seal.

8.52.14 SOURCE QUALITY CONTROL

Test and inspect cables according to NEMA WC74 before shipping.

8.52.15 MEDIUM VOLTAGE CABLE WARRANTY

The cable manufacturer shall warrant each reel of cable to be free from defects in material, design and workmanship to provide reliable performance for a twenty-five (25) year life.

The warranty assumes the cable is installed, spliced, terminated and maintained in accordance with manufacturer's recommendations.

Prior to termination or splicing of cable, the contractor responsible for same shall submit qualifications of his personnel responsible for this work and their qualification to do same. Upon approval by the engineer in writing, contractor may proceed with this portion of the work.

Defective cable shall be replaced at no cost to the owner.

- When the manufacturer and the owner mutually determine a portion of or all the cable is defective, the cable manufacturer shall furnish replacement of said cable without charge.
- The replacement cable shall comply with these requirements and be delivered to the original delivery point free of any charge to the owner or the state of North Carolina.

Contractor shall state on his bid form the name of the cable manufacturer he intends to supply. Failure to do this places the contractor at risk of rejection of his bid.

Cable shop drawings shall include said described warranty from the cable manufacturer properly signed, and having the manufacturer's corporate seal affixed thereto.

8.52.16 EXECUTION

8.52.17 EXAMINATION

Examine raceways to receive medium voltage cables for compliance with installation tolerances and other conditions affecting performance of the cable. Do not proceed with installation until unsatisfactory conditions have been corrected.

8.52.18 INSTALLATION

Install medium voltage cable as indicated, according to manufacturer's written instructions and IEEE 576.

Pull conductors simultaneously where more than one cable is indicated in same raceway. Use NRTL-listed and manufacturer-approved pulling compound or lubricant where necessary. Do not exceed manufacturer's recommended maximum pulling tensions and sidewall pressure values.

Use pulling means including fish tape cable, rope, and basket-weave wire/cable grips that will not damage cables or raceways. Do not use rope hitches for pulling attachment to cable.

In manholes, handholes, pull boxes, junction boxes, and cable vaults, train cables around walls by the longest route from entry to exit and support cables at intervals adequate to prevent sag.

Install splices at pull points and elsewhere as indicated using standard kit. Conform to kit manufacturer's written instructions.

Install terminations at ends of conductors and seal multiconductor cable ends with standard kits. Conform to manufacturer's written instructions. Comply with classes of terminations indicated.

8.52.19 GROUNDING

Ground shields of shielded cable at terminations, splices, and separable insulated connectors. Ground metal bodies of terminators, splices, cable and separable insulated connector fittings, and hardware according to manufacturer's written instructions.

8.52.20 IDENTIFICATION

Identify cable in accordance with Division 16 Section "Electrical Identification".

8.52.21 FIELD QUALITY CONTROL

Testing: Upon installation of medium voltage cable and before electrical circuitry has been energized, demonstrate product capability and compliance with requirements.

Procedures: Perform each visual and mechanical inspection and electrical test stated in NETA Standard ATS, Section 7.3.3. Certify compliance with test parameters.

Correct malfunctioning units at site, where possible, and retest to demonstrate compliance, otherwise, remove and replace with new units and retest.

8.52.22 PROTECTION

Provide final protection and maintain conditions in a manner acceptable to manufacturer and installer, to prevent entrance of moisture into the cable and ensure that medium voltage cable is without damage or deterioration at Substantial Completion.

END OF SECTION 16124

8.53 SECTION 16143 - WIRING DEVICES

8.53.1 GENERAL

8.53.2 RELATED DOCUMENTS

Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

Requirements of the following Division 16 Sections apply to this section:

- Basic Electrical Requirements.

8.53.3 SUMMARY

This Section includes the following:

- Receptacles
- Ground Fault Circuit Interrupter Receptacles
- Plugs
- Plug Connectors
- Snap Switches
- Wall Plates

Related Sections: The following sections contain requirements that relate to this section:

- Division 16 Section "Circuit and Motor Disconnects" for devices other than snap switches and plug/receptacle sets used as disconnects for motors.
- Division 16 Section "Electrical Identification" for requirements for legends to be engraved on wall plates.

8.53.4 SUBMITTALS

Submit product data for each type of product specified.

8.53.5 QUALITY ASSURANCE

Regulatory Requirements: Comply with provisions of the following codes.

NFPA 70 "National Electrical Code".

UL and NEMA Compliance: Provide wiring devices which are listed and labeled by UL and comply with applicable UL and NEMA standards.

8.53.6 SEQUENCE AND SCHEDULING

Schedule installation of finish plates after the surface upon which they are installed has received final finish.

8.53.7 PRODUCTS

8.53.8 MANUFACTURERS

Available Manufacturers: Subject to compliance with requirements, Manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

- Bryant Electric Co.
- Challenger-Circle F
- Crouse-Hinds Co.

- Eagle Electric Mfg. Co.
- General Electric Co.
- Hubbell Inc.
- Pass and Seymour Inc.
- Slater Electric Co.
- Square D Co.
- Steel City; Midland-Ross Corp.
- Walker Division-Butler Mfg. Co.

8.53.9 WIRING DEVICES

General: Provide wiring devices, in types, characteristics, grades, colors, and electrical ratings for applications indicated which are UL listed and which comply with NEMA WD 1 and other applicable UL and NEMA standards. Provide ivory color devices except as otherwise indicated.

All devices shall be suitable for use with stranded wire. "Speed Wiring" is not acceptable.

Receptacles: As scheduled in Table 1 in Part 3 below. Comply with UL 498 and NEMA WD 1.

Receptacles, Industrial Heavy Duty: Provide pin and sleeve design receptacles conforming to UL 498. Comply with UL 1010 where installed in hazardous locations. Provide features indicated.

Snap Switches: quiet type AC switches as indicated in Table 2 in Part 3 below. Comply with UL 20 and NEMA WD1.

8.53.10 WIRING DEVICE ACCESSORIES

Wall plates: single and combination, of types, sizes, and with ganging and cutouts as indicated. Provide plates which mate and match with wiring devices to which attached. Provide metal screws for securing plates to devices with screw heads colored to match finish of plates. Provide wall plate color to match wiring devices except as otherwise indicated. Provide wall plates with engraved legend where indicated. Conform to requirements of Section "Electrical Identification." Provide plates possessing the following additional construction features:

- Material and Finish: 0.04 inch thick, type 302 satin finished stainless steel.

8.53.11 EXECUTION

8.53.12 INSTALLATION OF WIRING DEVICES AND ACCESSORIES

Install wiring devices and accessories as indicated, in accordance with manufacturer's written instructions, applicable requirements of NEC and in accordance with recognized industry practices to fulfill project requirements.

Coordinate with other Work, including painting, electrical boxes and wiring installations, as necessary to interface installation of wiring devices with other Work.

Install wiring devices only in electrical boxes which are clean; free from building materials, dirt, and debris.

Install galvanized steel wallplates in unfinished spaces.

Install wiring devices after wiring work is completed.

Install wall plates after painting work is completed.

Tighten connectors and terminals, including screws and bolts, in accordance with equipment manufacturer's published torque tightening values for wiring devices. Where manufacturer's torquing requirements are not indicated, tighten connectors and terminals to comply with tightening torques specified in UL Standard 486A. Use properly scaled torque indicating hand tool.

8.53.13 PROTECTION

Protect installed components from damage. Replace damaged items prior to final acceptance.

8.53.14 FIELD QUALITY CONTROL

Testing: Prior to energizing circuits, test wiring for electrical continuity, and for short-circuits. Ensure proper polarity of connections is maintained. Subsequent to energizing, test wiring devices and demonstrate compliance with requirements, operating each operable device at least six times.

Test ground fault interruptor operation with both local and remote fault simulations in accordance with manufacturer recommendations.

Table 1: Receptacles

(See Evaluations, Ref 3)
RECEPTACLES

Designation	Rated Amps	Rated Volts	Single/Duplex	NEMA Config.	UL Grade	Notes
--	20	125	Duplex	5-20R	Heavy Duty	
H	20	125	Duplex	5-20R	Hospital	
--	20	125	Single	5-20R	Heavy Duty	
WP	20	125	Duplex	5-20R	Heavy Duty	Weather Proof
WP GFI	20	125	Duplex	5-20R	Heavy Duty	Integral GFI
--	20	480	Single	LI6-20R	Heavy Duty	(Note 2) (Note 3)

Notes

1. Letter designations are used where symbols alone do not clearly designate on plans locations where specific receptacle types are used.
2. Protects downstream receptacles on same circuit.
3. Provide matching cap.

Table 2: Snap Switches

(See Evaluations, Ref 3)
SNAP SWITCHES

Designation	Typical Application	Load Rating	Rated Volts AC	Poles	UL Grade
S	Control Lights	20 A	120/277	1	Heavy Duty
S3	Control Lights	20 A	120/277	3-way	Heavy Duty
S	Disconn. Motor	1 HP	120/277	1	Heavy Duty (2)
S	Disconn. Motor	2 HP	115/575	3	Heavy Duty (2)
SP	Switch, Pilot Lt.	20 A	120/277	1	Heavy Duty (3)
SD	Dimmer Switch	600 W	120	1	Heavy Duty (4)

Notes

1. For snap switches, designation is the same as the symbol used on plans for the device. Type of switch is determined from plan context including type of device or circuit being controlled.
2. No overload element in switch.
3. Pilot light "on" when switch is "on".
4. Derate dimmer switch per manufacturer's recommendations where dimmers are ganged together.

END OF SECTION 16143

8.54 SECTION 16170 - CIRCUIT AND MOTOR DISCONNECTS

8.54.1 GENERAL

8.54.2 RELATED DOCUMENTS

Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

Requirements of the following Division 16 Sections apply to this section:

- Basic Electrical Requirements

8.54.3 SUMMARY

This Section includes circuit and motor disconnects.

The following sections contain requirements that relate to this section:

- Division 16 Section "Wiring Devices" for snap switches used as motor disconnects.

8.54.4 SUBMITTALS

Product data for each type of product specified.

Maintenance data for circuit and motor disconnects, for inclusion in the Project Manual specified in Division 1 and Division 16 Section "Basic Electrical Requirements."

8.54.5 QUALITY ASSURANCE

Electrical Component Standards: Provide components complying with NFPA 70 "National Electrical Code" and which are listed and labeled by UL. Comply with UL Standard 98 and NEMA Standard KS 1.

8.54.6 PRODUCTS

8.54.7 MANUFACTURERS

Manufacturers: Subject to compliance with requirements, provide products by one of the following:

- Appleton
- Crouse-Hinds Co.
- General Electric Co.
- Square D Company.
- Westinghouse Electric Corp.

8.54.8 CIRCUIT AND MOTOR DISCONNECT SWITCHES

General: Provide circuit and motor disconnect switches in types, sizes, duties, features ratings, and enclosures as indicated or as suitable for load. Provide NEMA 1 enclosure except for outdoor switches, and other indicated locations provide NEMA 3R enclosures with raintight hubs. For motor and motor starter disconnects, provide units with horsepower ratings suitable to the loads.

Non-fusible Disconnects: Heavy duty switches of classes and current ratings as indicated.

Switches for Classified Locations: heavy duty switches, with UL labels and listings for hazardous location classifications in which installed.

8.54.9 EXECUTION

Installation of Circuit And Motor Disconnects

Provide circuit and motor disconnect switches as indicated and where required by the above Code. Comply with switch manufacturers' printed installation instructions.

8.54.10 FIELD QUALITY CONTROL

Testing: Subsequent to completion of installation of electrical disconnect switches, energize circuits and demonstrate capability and compliance with requirements. Except as otherwise indicated, do not test switches by operating them under load. However, demonstrate switch operation through six opening/closing cycles with circuit unloaded. Open each switch enclosure for inspection of interior, mechanical and electrical connections, fuse installation, and for verification of type and rating of fuses installed. Correct deficiencies then retest to demonstrate compliance. Remove and replace defective units with new units and retest.

END OF SECTION 16170

8.55 SECTION 16190 - SUPPORTING DEVICES

8.55.1 GENERAL

8.55.2 RELATED DOCUMENTS

Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

Requirements of the following Division 16 Sections apply to this section:

- "Basic Electrical Requirements."
- "Basic Electrical Materials and Methods."

8.55.3 SUMMARY

This Section includes secure support from the building structure for electrical items by means of hangers, supports, anchors, sleeves, inserts, seals, and associated fastenings.

Related Sections: The following Sections contains requirements that relate to this Section:

- Division 5 Section "Metal Fabrications" for requirements for miscellaneous metal items involved in supports and fastenings.
- Division 7 Section "Joint Sealers" for requirements for firestopping at sleeves through walls and floors that are fire barriers.
- Refer to other Division 16 sections for additional specific support requirements that may be applicable to specific items.

8.55.4 SUBMITTALS

General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.

Product data for each type of product specified.

Shop drawings indicating details of fabricated products and materials.

8.55.5 QUALITY ASSURANCE

Electrical Component Standard: Components and installation shall comply with NFPA 70 "National Electrical Code."

Electrical components shall be listed and labeled by UL, ETL, CSA, or other approved, nationally recognized testing and listing agency that provides third-party certification follow-up services.

8.55.6 PRODUCTS

8.55.7 MANUFACTURERS

Available Manufacturers: Subject to compliance with requirements, Manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

- Slotted Metal Angle and U-Channel Systems:
 1. Allied Tube & Conduit
 2. American Electric
 3. B-Line Systems, Inc.
 4. Cinch Clamp Co., Inc.

5. GS Metals Corp.
6. Haydon Corp.
7. Kin-Line, Inc.
8. Unistrut Diversified Products

- Conduit Sealing Bushings:

1. Bridgeport Fittings, Inc.
2. Cooper Industries, Inc.
3. Elliott Electric Mfg. Corp.
4. GS Metals Corp.
5. Killark Electric Mfg. Co.
6. Madison Equipment Co.
7. L.E. Mason Co.
8. O-Z/Gedney
9. Producto Electric Corp.
10. Racco, Inc.
11. Red Seal Electric Corp.
12. Spring City Electrical Mfg. Co.
13. Thomas & Betts Corp.

8.55.8 COATINGS

Coating: Supports, support hardware, and fasteners shall be protected with zinc coating or with treatment of equivalent corrosion resistance using approved alternative treatment, finish, or inherent material characteristic. Products for use outdoors shall be hot-dip galvanized.

8.55.9 MANUFACTURED SUPPORTING DEVICES

Raceway Supports: Clevis hangers, riser clamps, conduit straps, threaded C-clamps with retainers, ceiling trapeze hangers, wall brackets, and spring steel clamps.

Fasteners: Types, materials, and construction features as follows:

- Expansion Anchors: Carbon steel wedge or sleeve type.
- Toggle Bolts: All steel springhead type.
- Powder-Driven Threaded Studs: Heat-treated steel, designed specifically for the intended service.

Conduit Sealing Bushings: Factory-fabricated watertight conduit sealing bushing assemblies suitable for sealing around conduit, or tubing passing through concrete floors and walls. Construct seals with steel sleeve, malleable iron body, neoprene sealing grommets or rings, metal pressure rings, pressure clamps, and cap screws.

Cable Supports for Vertical Conduit: Factory-fabricated assembly consisting of threaded body and insulating wedging plug for nonarmored electrical cables in riser conduits. Provide plugs with number and size of conductor gripping holes as required to suit individual risers. Construct body of malleable-iron casting with hot-dip galvanized finish.

U-Channel Systems: 16-gage steel channels, with 9/16-inch-diameter holes, at a minimum of 8 inches on center, in top surface. Provide fittings and accessories that mate and match with U-channel and are of the same manufacture.

8.55.10 FABRICATED SUPPORTING DEVICES

General: Shop- or field-fabricated supports or manufactured supports assembled from U-channel components.

Steel Brackets: Fabricated of angles, channels, and other standard structural shapes. Connect with welds and machine bolts to form rigid supports.

Pipe Sleeves: Provide pipe sleeves of one of the following:

- Sheet Metal: Fabricate from galvanized sheet metal; round tube closed with snaplock joint, welded spiral seams, or welded longitudinal joint. Fabricate sleeves from the following gage metal for sleeve diameter noted:
- 3-inch and smaller: 20-gage.
- 4-inch to 6-inch: 16-gage.
- over 6-inch: 14-gage.
- Steel Pipe: Fabricate from Schedule 40 galvanized steel pipe.
- Plastic Pipe: Fabricate from Schedule 80 PVC plastic pipe.

8.55.11 EXECUTION

8.55.12 INSTALLATION

Install supporting devices to fasten electrical components securely and permanently in accordance with NEC requirements.

Coordinate with the building structural system and with other electrical installation.

Raceway Supports: Comply with the NEC and the following requirements:

- Conform to manufacturer's recommendations for selection and installation of supports.

Strength of each support shall be adequate to carry present and future load multiplied by a safety factor of at least four. Where this determination results in a safety allowance of less than 200 lbs, provide additional strength until there is a minimum of 200 lbs safety allowance in the strength of each support.

- Install individual and multiple (trapeze) raceway hangers and riser clamps as necessary to support raceways. Provide U-bolts, clamps, attachments, and other hardware necessary for hanger assembly and for securing hanger rods and conduits.
- Support parallel runs of horizontal raceways together on trapeze-type hangers.
- Support individual horizontal raceways by separate pipe hangers. Spring steel fasteners may be used in lieu of hangers only for 1-1/2-inch and smaller raceways serving lighting and receptacle branch circuits above suspended ceilings only. For hanger rods with spring steel fasteners, use 1/4-inch-diameter or larger threaded steel. Use spring steel fasteners that are specifically designed for supporting single conduits or tubing.
- Space supports for raceways in accordance with Table I of this section. Space supports for raceway types not covered by the above in accordance with NEC.
- Support exposed and concealed raceway within 1 foot of an unsupported box and access fittings. In horizontal runs, support at the box and access fittings may be omitted where box or access fittings are independently supported and raceway terminals are not made with chase nipples or threadless box connectors.
- In vertical runs, arrange support so the load produced by the weight of the raceway and the enclosed conductors is carried entirely by the conduit supports with no weight load on raceway terminals.
- Vertical Conductor Supports: Install simultaneously with installation of conductors.
- Miscellaneous Supports: Support miscellaneous electrical components as required to produce the same structural safety factors as specified for raceway supports. Install metal channel racks for mounting cabinets, panelboards, disconnects, control enclosures, pull boxes, junction boxes, transformers, and other devices.
- In open overhead spaces, cast boxes threaded to raceways need not be supported separately except where used for fixture support; support sheet metal boxes directly from the building structure or by bar hangers. Where bar hangers are used, attach the bar to raceways on opposite sides of the box and support the raceway with an approved type of fastener not more than 24 inches from the box.
- Sleeves: Install in concrete slabs and walls and all other fire-rated floors and walls for raceways and cable installations. For sleeves through fire-rated-wall or floor construction, apply UL-listed firestopping

sealant in gaps between sleeves and enclosed conduits and cables in accordance with "Fire Resistant Joint Sealers" requirement of Division 7 Section "Joint Sealers."

- Conduit Seals: Install seals for conduit penetrations of slabs on grade and exterior walls below grade and where indicated. Tighten sleeve seal screws until sealing grommets have expanded to form watertight seal.
- Fastening: Unless otherwise indicated, fasten electrical items and their supporting hardware securely to the building structure, including but not limited to conduits, raceways, cables, cable trays, busways, cabinets, panelboards, transformers, boxes, disconnect switches, and control components in accordance with the following:
 1. Fasten by means of wood screws or screw-type nails on wood, toggle bolts on hollow masonry units, concrete inserts or expansion bolts on concrete or solid masonry, and machine screws, welded threaded studs, or spring-tension clamps on steel. Threaded studs driven by a powder charge and provided with lock washers and nuts may be used instead of expansion bolts and machine or wood screws. Do not weld conduit, pipe straps, or items other than threaded studs to steel structures. In partitions of light steel construction, use sheet metal screws.
 2. Holes cut to depth of more than 1-1/2 inches in reinforced concrete beams or to depth of more than 3/4 inch in concrete shall not cut the main reinforcing bars. Fill holes that are not used.
 3. Ensure that the load applied to any fastener does not exceed 25 percent of the proof test load. Use vibration- and shock- resistant fasteners for attachments to concrete slabs.

TESTS: Test pull-out resistance of one of each type, size, and anchorage material for the following fastener types:

- Expansion anchors.
- Toggle bolts.
- Powder-driven threaded studs.

Provide all jacks, jigs, fixtures, and calibrated indicating scales required for reliable testing. Obtain the structural Engineer's approval before transmitting loads to the structure. Test to 90 percent of rated proof load for fastener. If fastening fails test, revise all similar fastener installations and retest until satisfactory results are achieved.

Table 1: Spacing for Horizontal Raceway Supports

Horizontal Runs
MAXIMUM SPACING FOR RACEWAY SUPPORTS

Raceway Diameter (1)	No. of Condrs.	Location	RMC IMC (2,3)	EMT (2)
0.50, 0.75	1 or 2	Flat ceiling or wall.	5	5
0.50, 0.75	1 or 2	Where it is difficult to provide supports except at intervals fixed by construction.	7	7
0.50, 0.75	3 or more	Any location.	7	7
0.50 to 1.00	3 or more	Any location.	6	6
1.00 and up	1 or 2	Flat ceiling or wall.	6	6
1.00 and up	1 or 2	Where it is difficult to provide supports except at intervals fixed by construction.	10	10
1.00 and up	3 or more	Any location.	10	10
All	--	Concealed.	10	10

Notes:

1. Raceway diameter in inches.
2. Maximum spacing of supports in feet.
3. Maximum spacings for IMC above apply to straight runs only. Otherwise the maximums for EMT apply.
4. Rigid non-metallic conduit (RNM) is permitted only in diameters of 0.50 and 0.75 inches, in horizontal runs. The number of conductors per run is 1 or 2. The location is at a flat ceiling or wall. The maximum spacing for supports is 3 feet.

Abbreviations:

- EMT Electrical metallic tubing.
- IMC Intermediate metallic conduit.
- RMC Rigid metallic conduit.

Table 2: Spacing for Vertical Raceway Supports

Vertical Runs
MAXIMUM SPACING FOR RACEWAY SUPPORTS

Raceway Diameter (1)	No of Condrs.	Location	RMC IMC (2,3)	EMT (2)
0.50, 0.75	--	Exposed	7	7
1.00, 1.25	--	Exposed	8	8
1.50 and up	--	Exposed	10	10
Up to 2.00	--	Shaftway	14	10
2.50	--	Shaftway	16	10
3.00 and up	--	Shaftway	20	10
All	--	Concealed	10	10

Notes:

1. Raceway diameter in inches.
2. Maximum spacing of supports in feet.
3. Maximum spacings for IMC above apply to straight runs only. Otherwise the maximums for EMT apply.

Abbreviations:

- EMT Electrical metallic tubing.
- IMC Intermediate metallic conduit.
- RMC Rigid metallic conduit.

END OF SECTION 16190

8.56 SECTION 16195 - ELECTRICAL IDENTIFICATION

8.56.1 GENERAL

8.56.2 RELATED DOCUMENTS

Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

Requirements of the following Division 16 Sections apply to this section:

- "Basic Electrical Requirements."
- "Basic Electrical Materials and Methods."

8.56.3 SUMMARY

This Section includes identification of electrical materials, equipment, and installations. It includes requirements for electrical identification components including but not limited to the following:

- Buried electrical line warnings.
- Identification labeling for raceways, cables, and conductors.
- Operational instruction signs.
- Warning and caution signs.
- Equipment labels and signs.

Related Sections: The following Sections contain requirements that relate to this Section:

- Division 9 Section "Painting" for related identification requirements.
- Division 16 Section "Wires and Cables" for requirements for color coding of conductors for phase identification.

Refer to other Division 16 sections for additional specific electrical identification associated with specific items.

8.56.4 SUBMITTALS

General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.

Product Data for each type of product specified.

Schedule of identification nomenclature to be used for identification signs and labels.

Samples of each color, lettering style, and other graphic representation required for identification materials; samples of labels and signs.

Conductor schedule for inclusion in Project Maintenance Manual.

Proof copy of one line diagram sign for approval before production.

8.56.5 QUALITY ASSURANCE

Electrical Component Standard: Components and installation shall comply with NFPA 70 "National Electrical Code."

ANSI Compliance: Comply with requirements of ANSI Standard A13.1, "Scheme for the Identification of Piping Systems," with regard to type and size of lettering for raceway and cable labels.

8.56.6 PRODUCTS

PEAK SHAVING PROJECT #1902
 BID #2017-009-30
 7/3/2017

CONFORMED

8.56.7 MANUFACTURERS

Available Manufacturers: Subject to compliance with requirements, Manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

- American Labelmark Co.
- Calpico, Inc.
- Cole-Flex Corp.
- Emed Co., Inc.
- George-Ingraham Corp.
- Ideal Industries, Inc.
- Kraftbilt
- LEM Products, Inc.
- Markal Corp.
- National Band and Tag Co.
- Panduit Corp.
- Radar Engineers Div., EPIC Corp.
- Seton Name Plate Co.
- Standard Signs, Inc.
- W.H.Brady, Co.

8.56.8 ELECTRICAL IDENTIFICATION PRODUCTS

Adhesive Marking Labels for Raceway and Metal-clad Cable: Pre- printed, flexible, self-adhesive labels with legend indicating voltage and service (Emergency, Lighting, Power, Light, Power d.c., Air Conditioning, Communications, Control, Fire).

Label Size: as follows:

- Raceways 1-Inch and Smaller: 1-1/8 inches high by 4 inches long.
- Raceways Larger than 1-Inch: 1-1/8 inches high by 8 inches long.
- Color: Black legend on orange background.
- Colored Adhesive Marking Tape for Raceways, Wires, and Cables: Self-adhesive vinyl tape not less than 3 mils thick by 1 inch to 2 inches in width.

Underground Line Marking Tape: Permanent, bright-colored, continuous-printed, plastic tape compounded for direct-burial service not less than 6 inches wide by 4 mils thick. Printed legend indicative of general type of underground line below.

Aluminum, Wraparound, Cable Marker Bands: Bands cut from 0.014- inch thick, aluminum sheet, fitted with slots or ears for securing permanently around wire or cable jacket or around groups of conductors. Provide for legend application with stamped letters or numbers.

Plasticized Card Stock Tags: Vinyl cloth with preprinted and field-printed legends to suit the application. Orange background, except as otherwise indicated, with Eyelet for fastener.

Aluminum-Faced Card Stock Tags: Weather-resistant, 18-point minimum card stock faced on both sides with embossable aluminum sheet, 0.002 inches thick, and laminated with moisture-resistant acrylic adhesive. Pre-print legend to suit the application, and punch for tie fastener.

Brass or Aluminum Tags: Metal tags with stamped legend, punched for fastener. Dimensions: 2 inches by 2 inches by 19 gage.

Engraved, Plastic-Laminated Labels, Signs, and Instruction Plates: Engraving stock melamine plastic laminate, 1/16-inch minimum thick for signs up to 20 square inches, or 8 inches in length; 1/8-inch thick for larger sizes. Engraved legend in white letters on black face and punched for mechanical fasteners.

Baked-Enamel Warning and Caution Signs for Interior Use: Preprinted aluminum signs, punched for fasteners, with colors, legend, and size appropriate to the location.

Exterior Metal-Backed Butyrate Warning and Caution Signs: Weather-resistant, nonfading, preprinted cellulose acetate butyrate signs with 20-gage, galvanized steel backing, with colors, legend, and size appropriate to the location. Provide 1/4-inch grommets in corners for mounting.

Fasteners for Plastic-Laminated and Metal Signs: Self-tapping stainless steel screws or number 10/32 stainless steel machine screws with nuts and flat and lock washers.

Cable Ties: Fungus-inert, self-extinguishing, one-piece, self-locking nylon cable ties, 0.18-inch minimum width, 50-lb minimum tensile strength, and suitable for a temperature range from minus 50 deg F to 350 deg F. Provide ties in specified colors when used for color coding.

Heat Shrink Sleeves: Premanufactured heat shrinkable sleeves installed at each conductor end, yellow or orange color with indelible marking.

8.56.9 EXECUTION

8.56.10 INSTALLATION

Lettering and Graphics: Coordinate names, abbreviations, colors, and other designations used in electrical identification work with corresponding designations specified or indicated. Install numbers, lettering, and colors as approved in submittals and as required by code.

Install identification devices in accordance with manufacturer's written instructions and requirements of NEC.

Sequence of Work: Where identification is to be applied to surfaces that require finish, install identification after completion of finish work.

Identify Junction, Pull, and Connection Boxes: Code-required caution sign for boxes shall be pressure-sensitive, self-adhesive label indicating system voltage in black, preprinted on orange background. Install on outside of box cover. Also label box covers with identity of contained circuits. Use pressure-sensitive plastic labels at exposed locations and similar labels or plasticized card stock tags at concealed boxes.

Underground Electrical Line Identification: During trench backfilling, for exterior underground power, signal, and communications lines, install continuous underground plastic line marker, located directly above line at 6 to 8 inches below finished grade. Where multiple lines installed in a common trench or concrete envelope, do not exceed an overall width of 16 inches; install a single line marker. Install line marker for all underground cable and wiring, both direct-buried and in raceway.

Conductor Color Coding: Provide color coding for secondary service, feeder, and branch circuit conductors throughout the project secondary electrical system as follows:

<u>208/120 Volts</u>	<u>Phase</u>	<u>480/277 Volts</u>
Black	A	Brown
Red	B	Orange
Blue	C	Yellow
White	Neutral	Gray
Green	Ground	Green

Use conductors with color factory-applied the entire length of the conductors except as follows:

- The following field-applied color-coding method may be used in lieu of factory-coded wire for sizes larger than No. 8 AWG.
- Apply colored, pressure-sensitive plastic tape in half-lapped turns for a distance of 6 inches from terminal points and in boxes where splices or taps are made. Apply the last two laps of tape with no tension to

prevent possible unwinding. Use 1-inch-wide tape in colors as specified. Do not obliterate cable identification markings by taping. Tape locations may be adjusted slightly to prevent such obliteration.

- **Power Circuit Identification:** Securely fasten identifying metal tags or aluminum wraparound marker bands to cables, feeders, and power circuits in vaults, pull boxes, junction boxes, manholes, and switchboard rooms with 1/4-inch steel letter and number stamps with legend to correspond with designations on Drawings. If metal tags are provided, attach them with approximately 55-lb test monofilament line or one-piece self-locking nylon cable ties.

Tag or label conductors as follows:

- **Future Connections:** Conductors indicated to be for future connection or connection under another contract with identification indicating source and circuit numbers.
- **Multiple Circuits:** Where multiple branch circuits or control wiring or communications/signal conductors are present in the same box or enclosure (except for three-circuit, four-wire home runs), label each conductor or cable. Provide legend indicating source, voltage, circuit number, and phase for branch circuit wiring. Phase and voltage of branch circuit wiring may be indicated by mean of coded color of conductor insulation. For control and communications/signal wiring, use color coding and heat shrinkable sleeves at terminations and at intermediate locations where conductors appear in wiring boxes, troughs, and control cabinets. Use consistent letter/number conductor designations throughout on wire/cable marking tapes.
- **Match identification markings with designations used in panelboards shop drawings, Contract Documents, and similar previously established identification schemes for the facility's electrical installations.**

Apply warning, caution, and instruction signs and stencils as follows:

- **Install warning, caution, or instruction signs** where required by NEC, where indicated, or where reasonably required to assure safe operation and maintenance of electrical systems and of the items to which they connect. Install engraved plastic- laminated instruction signs with approved legend where instructions or explanations are needed for system or equipment operation. Install butyrate signs with metal backing for outdoor items.
- **Emergency Operating Signs:** Install engraved laminate signs with white legend on red background with minimum 3/8-inch high lettering for emergency instructions on power transfer, load shedding, or other emergency operations.
- **Install equipment/system circuit/device identification as follows:**

Apply equipment identification labels of engraved plastic- laminate on each major unit of electrical equipment in building, including central or master unit of each electrical system. This includes communication/signal/alarm systems, unless unit is specified with its own self-explanatory identification. Except as otherwise indicated, attach nameplates with stainless steel hardware, with 1/2-inch-high lettering on 1-1/2-inch-high label (2-inch-high where two lines are required), white lettering in black field. Text shall match terminology and numbering of the Contract Documents and shop drawings and shall identify source of electrical feed, voltage and phase ratings, and device served or controllable. Apply labels for each unit of the following categories of electrical equipment.

- Panelboards, electrical cabinets, and enclosures.
- Access doors and panels for concealed electrical items.
- Electrical switchgear and switchboards.
- Electrical substations.
- Motor control centers.
- Motor starters.
- Pushbutton stations.
- Power transfer equipment.
- Contactors.

- Disconnect switches.
- Control devices.
- Transformers.
- Inverters.
- Battery racks.
- Power generating units.
- Fire alarm master station or control panel.

Apply circuit/control/item designation labels of engraved plastic laminate for disconnect switches, breakers, pushbuttons, pilot lights, motor control centers, and similar items for power distribution and control components above, except panelboards and alarm/signal components, where labeling is specified elsewhere. For panelboards, provide framed, typed circuit schedules with explicit description and identification of items controlled by each individual breaker.

Install labels at locations indicated and at locations for best convenience of viewing without interference with operation and maintenance of equipment.

END OF SECTION 16195

8.57 SECTION 16200 – ENGINE GENERATOR

8.57.1 GENERAL

8.57.2 RELATED DOCUMENTS

Drawings and general provisions of the Contract, including the General and Supplementary Conditions and Division 1 Specifications Sections, apply to this Section.

8.57.3 SUMMARY

This section describes the setting and installation of the Owner supplied engine generators. The use of the term “generator” describes the pre-assembled engine generator package.

Related Sections: The following Section contains requirements that relate to this Section.

- Division 15: “Pipe Expansion Joints”
- Division 16: “Medium Voltage Cables” for cable terminations at generator.

8.57.4 QUALITY ASSURANCE

Comply with NFPA 70, “National Electrical Code”.

8.57.5 EXECUTION

8.57.6 INSTALLATION

The Contractor shall set in place the Owner-supplied engine generators.

The Contractor shall make connections between the generators and components of the fuel system, cooling system, and exhaust system, as indicated, that are external to the generators.

The Contractor shall perform all installation of the Owner supplied engine generators, and make connections between the generators and all power, control and accessory cables that are external to the generators.

Contractor shall install generators and accessory items according to manufacturer’s written installation instructions and the following specifications.

8.57.7 IDENTIFICATION

Identify field-installed wiring and components and provide warning signs according to Division 16 Section “Electrical Identification”.

8.57.8 GROUNDING

Connections: Ground generators to grounding system as indicated.

8.57.9 CONNECTIONS

Install 5 kV and control interconnections.

Tighten all electrical connectors and terminals according to manufacturer’s published torque-tightening values. Where these values are not indicated, use those specified in UL 486A and UL 486B.

8.57.10 CLEANING

Inspect exterior of installed generators. Remove paint splatters and other spots, dirt, and debris and thoroughly clean finish to restore a new appearance. Touch up scratches and mars of finish to match original finish.

8.57.11 PROTECTION

Temporary Heating: Apply temporary heat to generators according to manufacturer's recommendation throughout periods when generator environment is not controlled for temperature and humidity within the manufacturer's stipulated service conditions.

Protect generator finish and components during construction work by covering with tarpaulins or other appropriate cover.

END OF SECTION 16200

8.58 SECTION 16320 – MEDIUM VOLTAGE TRANSFORMERS

8.58.1 GENERAL

8.58.2 RELATED DOCUMENTS

Drawings and general provisions of the Contract, including the General and Supplementary Conditions and Division 1 Specifications Sections, apply to this Section.

8.58.3 SUMMARY

This section describes the setting and installation of the Owner supplied medium voltage transformers. The use of the term “medium voltage transformer” describes all transformers to be installed with medium voltage windings on either the primary or secondary. This comprises two (2) generator step-up transformers and one (1) station service transformer. Only one of the generator step-up transformers is to be placed in service. All are to be mounted in oil-spill containment areas as indicated on the drawings.

Related Sections: The following Section contains requirements that relate to this Section.

- Division 2: “Earthwork, Site Grading and Soil Erosion” for Oil Spill Containment construction.
- Division 3: Concrete Formwork, Reinforcement and Cast-in-Place Concrete” for Oil Spill Containment construction.
- Division 16: “Medium Voltage Cables”

8.58.4 QUALITY ASSURANCE

Comply with NFPA 70, “National Electrical Code”.

8.58.5 EXECUTION

8.58.6 INSTALLATION

The Contractor shall be responsible for construction of the Transformer Oil-Spill Containment System as indicated on the drawings. This shall include all excavation and backfill, concrete formwork, pads, reinforcement, masonry, drainage systems, and oil-stop valve installations necessary for proper oil-spill mitigation. The Containment area is to be in accordance with the drawings prior to installation of the transformers. All debris and excess materials resulting from construction shall also be cleared from the Containment area before placement of the transformers.

The Contractor shall set and anchor all owner supplied transformers as indicated on the drawings.

The Contractor shall make all 4.16 kV power connections and all auxiliary and control connections necessary for proper operation of the generator step-up transformer. This shall include the installation of all necessary raceway from switchgear to transformer.

As an alternate 480 Volt source to the building, the Owner will provide and make secondary connections to their existing 150 kVA pole-top transformer currently serving the WWTP Chlorine Building. The Owner will furnish, install, and terminate the secondary conductors and raceway from the alternate source to the building CT cabinet, also furnished by the Owner. The Contractor shall furnish, install, and terminate the remaining conductor and raceway from the CT cabinet to the building service entrance as shown on the Drawings.

The Contractor shall make all 480 Volt power connections and all connections necessary for proper operation of the 75 kVA station service transformer. This shall be the normal 480 Volt source to the building and shall include the installation of all necessary raceway from building service entrance ATS to the transformer. The Contractor will install underground conduits from the 75 kVA station service transformer primary compartment to the substation riser conduit. The steel riser conduit and primary conductors will be installed by others.

Contractor shall install transformers and accessory items according to manufacturer’s written installation instructions and the following specifications.

8.58.7 IDENTIFICATION

Identify field-installed wiring and components and provide warning signs according to Division 16 Section "Electrical Identification".

8.58.8 GROUNDING

Connections: Ground transformers to grounding system as indicated on the drawings and in Division 16 "Grounding".

8.58.9 CONNECTIONS

Install 4.16 kV and control interconnections.

Tighten all electrical connectors and terminals according to manufacturer's published torque-tightening values. Where these values are not indicated, use those specified in UL 486A and UL 486B.

8.58.10 CLEANING

Inspect exterior of installed transformers. Remove paint splatters and other spots, dirt, and debris and thoroughly clean finish to restore a new appearance. Touch up scratches and mars of finish to match original finish.

8.58.11 PROTECTION

Protect transformer finish and components during construction work by covering with tarpaulins or other appropriate cover.

END OF SECTION 16320

8.59 SECTION 16344 – MEDIUM VOLTAGE INDOOR SWITCHGEAR

8.59.1 GENERAL

8.59.2 RELATED DOCUMENTS

Drawings and general provisions of the Contract, including the General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

8.59.3 SUMMARY

This section describes the setting and installation of Owner furnished medium voltage switchgear including batteries and charger. The use of the term “switchgear” describes the pre-assembled switchgear package including breakers, controls, metering, buswork, related devices, switchboards, cubicles, and internal wiring.

Related Sections: The following Section contains requirements that relate to this Section.

- Division 16: Section “Medium Voltage Cables” for cable terminations at switchgear.
- Division 1: “Receipt and Installation of Owner Supplied Equipment”.

8.59.4 QUALITY ASSURANCE

Comply with NFPA 70, “National Electrical Code”.

8.59.5 EXECUTION

8.59.6 INSTALLATION

Placement: The General Contractor shall set in place the Owner-supplied medium voltage indoor switchgear.

The Electrical Contractor shall install the Owner-supplied medium voltage switchgear, and make connections between the switchgear and all power, control and accessory cables, as indicated, that are external to the switchgear. Switchgear and accessory items shall be installed according to the manufacturer’s written installation instructions or as specified.

Install switchgear and accessory items according to manufacturer’s written installation instructions and the following specifications.

Assemble switchgear shipping split wiring, adjust cubicles for level and proper door operation.

Anchor each switchgear assembly by tack welding or bolting to channel iron sills.

Sills: 2 inches (50 mm) minimum, selected to suit switchgear.

Level and grout flush onto the housekeeping pad.

Concrete Pad: 4 inches (100 mm) high, reinforced, with chamfered edges. Extend pad no more than 2 inches (50 mm) in any direction beyond switchgear footprint, except as otherwise indicated. Comply with Division 3 Section “Cast-in-Place Concrete”.

Temporary Lifting Provisions: Remove temporary lifting eyes, channels, and brackets, and temporary blocking of moving parts from switchgear units and components.

8.59.7 IDENTIFICATION

Identify field-installed wiring and components and provide warning signs according to Division 16 Section “Electrical Identification”.

8.59.8 GROUNDING

Connections: Ground switchgear ground bus to grounding system as indicated.

8.59.9 CONNECTIONS

Install 5 kV and control interconnections.

Tighten all electrical connectors and terminals (including internal switchgear connections) according to manufacturer's published torque-tightening values. Where these values are not indicated, use those specified in UL 486A and UL486B.

8.59.10 CLEANING

Inspect interior and exterior of installed switchgear. Remove paint splatters and other spots, dirt, and debris and thoroughly clean finish to provide new appearance. Touch up scratches and mars of finish to match original finish.

8.59.11 PROTECTION

Temporary Heating: Apply temporary heat to switchgear according to manufacturer's recommendation throughout periods when switchgear environment is not controlled for temperature and humidity within the manufacturer's stipulated service conditions. The temporary heating equipment shall be furnished by the Project Expediter and operated by the Electrical Contractor.

Protect switchgear finish and components during construction work by covering with tarpaulins or other appropriate cover.

END OF SECTION 16344

8.60 SECTION 16452 – GROUNDING

8.60.1 GENERAL

8.60.2 RELATED DOCUMENTS

Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

Requirements of the following Division 16 Sections apply to this Section:

- "Basic Electrical Requirements."
- "Basic Electrical Materials and Methods."

8.60.3 SUMMARY

This Section includes solid grounding of electrical systems and equipment. It includes basic requirements for grounding for protection of life, equipment, circuits, and systems. Grounding requirements specified in this Section may be supplemented in other sections of these Specifications.

Related Sections: The following sections contain requirements that relate to this Section:

- Division 16 Section "Wires and Cables."

8.60.4 SUBMITTALS

General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.

Product data for ground rods, connectors and connection materials, and grounding fittings.

Report of field tests and observations certified by the testing organization.

8.60.5 QUALITY ASSURANCE

Listing and Labeling: Provide products specified in this Section that are listed and labeled. The terms "listed" and "labeled" shall be defined as they are in the National Electrical Code, Article 100.

Listing and Labeling Agency Qualifications: A "Nationally Recognized Testing Laboratory" (NRTL) as defined in OSHA Regulation 1910.7.

Field-Testing Organization Qualifications: To qualify for acceptance, the independent testing organization must demonstrate, based on evaluation of organization-submitted criteria conforming to ASTM E 699, that it has the experience and capability to conduct satisfactorily the testing indicated.

Electrical Component Standard: Components and installation shall comply with NFPA 70, "National Electrical Code" (NEC).

8.60.6 PRODUCTS

8.60.7 MANUFACTURERS

Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated in the Work include, but are not limited to, the following:

- Anixter Bros., Inc.
- Bashlin Industries, Inc.
- Buckingham Mfg. Co.
- A.B. Chance Co.
- Dossert Corp.

- Engineered Products Co.
- Erico Products, Inc.
- Galvan Industries, Inc.
- GB Electrical, Inc.
- General Machine Products Co., Inc.
- Hastings Fiber Glass Products, Inc.
- Ideal Industries, Inc.
- Kearney-National.
- McGill Mfg.
- O-Z/Gedney Co.
- Post Glover Resistors, Inc.
- Racor, Inc.
- Thomas & Betts Corp.
- W.H. Salisbury & Co.
- Utilco Co.
- DMC Power

8.60.8 GROUNDING AND BONDING PRODUCTS

Products: Of types indicated and of sizes and ratings to comply with NEC. Where types, sizes, ratings, and quantities indicated are in excess of NEC requirements, the more stringent requirements and the greater size, rating, and quantity indications govern.

Conductor Materials: Copper.

8.60.9 WIRE AND CABLE CONDUCTORS

General: Comply with Division 16 Section "Wires and Cables." Conform to NEC Table 8, except as otherwise indicated, for conductor properties, including stranding.

Equipment Grounding Conductor: Green insulated.

Grounding Electrode Conductor: Bare Stranded cable.

Bare Copper Conductors: Conform to the following:

- Solid Conductors: ASTM B-3.
- Assembly of Stranded Conductors: ASTM B-8.
- Tinned Conductors: ASTM B-33.

8.60.10 MISCELLANEOUS CONDUCTORS

Ground Bus: Bare annealed copper bars of rectangular cross section.

Braided Bonding Jumpers: Copper tape, braided No. 30 gage bare copper wire, terminated with copper ferrules.

Bonding Strap Conductor/Connectors: Soft copper, 0.05 inch thick and 2 inches wide, except as indicated.

8.60.11 CONNECTOR PRODUCTS

General: Listed and labeled as grounding connectors for the materials used.

Pressure Connectors: High-conductivity-plated units.

Bolted Clamps: Heavy-duty units listed for the application.

Exothermic Welded Connections: Provided in kit form and selected for the specific types, sizes, and combinations of conductors and other items to be connected.

Swage Compression Connections: Swage ground connection system as manufactured by DMC Power may be installed as an alternative to exothermic welded connections.

8.60.12 GROUNDING ELECTRODES

Ground Rods: Copper-clad steel with high-strength steel core and electrolytic-grade copper outer sheath, molten welded to core.

Size: 3/4 inch by 10 feet.

8.60.13 GROUNDING RESISTOR

This section describes the configuration and installation of the Owner-supplied grounding resistor. The pre-assembled grounding resistor includes the 2400-Volt, 400-Amp resistor, pre-painted steel safety enclosure and elevating stand, lifting eye bolts or lugs, current transformer, NEMA bushing and bottom cable access.

Contractor shall set in place, install, and connect the Owner-supplied grounding resistor. The grounding resistor shall be installed according to the manufacturer's written installation instructions or as specified.

8.60.14 EXECUTION

8.60.15 APPLICATION

Equipment Grounding Conductor Application: Comply with NEC Article 250 for sizes and quantities of equipment grounding conductors, except where larger sizes or more conductors are indicated.

Install separate insulated equipment grounding conductors with circuit conductors for the following in addition to those locations where required by Code:

- Feeders and branch circuits.
- Busway Circuits: Install separate insulated equipment ground conductor from the ground bus in the switchgear, switchboard, or distribution panel to the equipment ground bar terminal on the busway.
- Computer Panel Circuits: Install separate insulated equipment ground wire in branch circuits from computer area power panels.
- Nonmetallic Raceways: Install an insulated equipment ground conductor in nonmetallic raceways unless they are designated for telephone or data cables.
- Air Duct Equipment Circuits: Install an insulated equipment grounding conductor to duct-mounted electrical devices operating at 120-V and above including air cleaners and heaters. Bond the conductor to each such unit and to the air duct.
- Water Heater, Heat Tracing, and Anti-Frost Heater Circuits: Install separate insulated equipment ground conductor to each electric water heater, heat tracing, and surface anti-frost heating cable. Bond this conductor to heater units, piping, and connected equipment and components.
- Underground Conductors: Bare, stranded copper except as otherwise indicated.
- Signal and Communications: For telephone, alarm, and communication systems, provide a #4 AWG minimum green insulated copper conductor in raceway from the grounding electrode system to each terminal cabinet or central equipment location.
- Separately derived systems required by NEC to be grounded shall be grounded in accordance with NEC paragraph 250-26.
- Metal Poles Supporting Outdoor Lighting Fixtures: Ground pole to a grounding electrode as indicated in addition to separate equipment grounding conductor run with supply branch circuit.
- Common Ground Bonding With Lightning Protection System: Bond electric power system ground directly to lightning protection system grounding conductor at closest point to electric service grounding electrode. Use bonding conductor sized same as system ground conductor and installed in conduit.

8.60.16 INSTALLATION

General: Ground electrical systems and equipment in accordance with NEC requirements except where the Drawings or Specifications exceed NEC requirements.

Ground Rods: Locate a minimum of one-rod length from each other and at least the same distance from any other grounding electrode. Interconnect ground rods with bare conductors buried at least 24 inches below grade. Connect bare-cable ground conductors to ground rods by means of exothermic welds or Swage compression connectors. Make these connections without damaging the copper coating or exposing the steel. Use 3/4-inch by 10-ft. ground rods. Drive rods until tops are 12 inches below finished floor or final grade except as otherwise indicated.

Metallic Water Service Pipe: Provide insulated copper ground conductors, sized as indicated, in conduit from the building main service equipment, or the ground bus, to main metallic water service entrances to the building. Connect ground conductors to the main metallic water service pipes by means of ground clamps. Where a dielectric main water fitting is installed, connect the ground conductor to the street side of the fitting. Do not install a grounding jumper around dielectric fittings. Bond the ground conductor conduit to the conductor at each end.

Route grounding conductors along the shortest and straightest paths possible without obstructing access or placing conductors where they may be subjected to strain, impact, or damage, except as indicated.

Bond interior metal piping systems and metal air ducts to equipment ground conductors of pumps, fans, electric heaters, and air cleaners serving individual systems.

8.60.17 CONNECTIONS

General: Make connections in such a manner as to minimize possibility of galvanic action or electrolysis. Select connectors, connection hardware, conductors, and connection methods so metals in direct contact will be galvanically compatible.

Use electroplated or hot-tin-coated materials to assure high conductivity and make contact points closer in order of galvanic series.

Make connections with clean bare metal at points of contact.

Coat and seal connections involving dissimilar metals with inert material such as red lead paint to prevent future penetration of moisture to contact surfaces.

Exothermic Welded or Swage Compression Connections: Use for connections to structural steel and for underground connections. Install at connections to ground rods and plate electrodes. Comply with manufacturer's written recommendations. Welds that are puffed up or that show convex surfaces indicating improper cleaning are not acceptable.

Terminate insulated equipment grounding conductors for feeders and branch circuits with pressure-type grounding lugs. Where metallic raceways terminate at metallic housings without mechanical and electrical connection to the housing, terminate each conduit with a grounding bushing. Connect grounding bushings with a bare grounding conductor to the ground bus in the housing. Bond electrically noncontinuous conduits at both entrances and exits with grounding bushings and bare grounding conductors.

Tighten grounding and bonding connectors and terminals, including screws and bolts, in accordance with manufacturer's published torque tightening values for connectors and bolts. Where manufacturer's torquing requirements are not indicated, tighten connections to comply with torque tightening values specified in UL 486A and UL 486B.

Compression-Type Connections: Use hydraulic compression tools to provide the correct circumferential pressure for compression connectors. Use tools and dies recommended by the manufacturer of the connectors. Provide embossing die code or other standard method to make a visible indication that a connector has been adequately compressed on the ground conductor.

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Moisture Protection: Where insulated ground conductors are connected to ground rods or ground buses, insulate the entire area of the connection and seal against moisture penetration of the insulation and cable.

8.60.18 UNDERGROUND DISTRIBUTION SYSTEM GROUNDING

Grounding System: Ground non-current-carrying metallic items associated with manholes, substations, and pad-mounted equipment by connecting them to bare underground cable and grounding electrodes arranged as indicated.

8.60.19 FIELD QUALITY CONTROL

Independent Testing Organization: Arrange and pay for the services of a qualified independent electrical testing organization to perform tests described below.

Tests: Subject the completed grounding system to a megger test at each location where a maximum ground resistance level is specified, at service disconnect enclosure ground terminal, and at ground test wells. Measure ground resistance without the soil being moistened by any means other than natural precipitation or natural drainage or seepage and without chemical treatment or other artificial means of reducing natural ground resistance. Perform tests by the 2-point method in accordance with Section 9.03 of IEEE 81, "Guide for Measuring Earth Resistivity, Ground Impedance and Earth Surface Potentials of a Grounding System." Ground/resistance maximum values shall be as follows:

Equipment rated over 1000 kVA: 3 Ohms

Deficiencies: Where ground resistances exceed specified values, and if directed, modify the grounding system to reduce resistance values. Where measures are directed that exceed those indicated the provisions of the Contract, covering changes will apply.

Report: Prepare test reports, certified by the testing organization, of the ground resistance at each test location. Include observations of weather and other phenomena that may affect test results. Describe measures taken to improve test results.

END OF SECTION 16452

8.61 SECTION 16460 – TRANSFORMERS

8.61.1 GENERAL

8.61.2 RELATED DOCUMENTS

Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

8.61.3 SUMMARY

This Section includes general-purpose and specialty dry-type transformers with windings rated 600 V or less.

8.61.4 SUBMITTALS

General: Submit the following according to the Conditions of the Contract and Division 1 Specification Sections.

Product data for each product specified, including dimensioned plans, sections, and elevations. Show minimum clearances and installed features and devices.

Wiring diagrams of products differentiating between manufacturer-installed and field-installed wiring.

Operation and maintenance data for materials and products to include in the "Operating and Maintenance Manual" specified in Division 1.

Field test reports of tests and inspections conducted according to Part 3 of this Section.

8.61.5 QUALITY ASSURANCE

Manufacturer Qualifications: A firm experienced in manufacturing components that comply with the requirements of these Specifications and that have a record of successful in-service performance.

Comply with NFPA 70 "National Electrical Code."

Comply with IEEE C2 "National Electrical Safety Code."

Listing and Labeling: Products are listed and labeled.

The Terms "Listed" and "Labeled": As defined in the "National Electrical Code," Article 100.

8.61.6 DELIVERY, STORAGE, AND HANDLING

Temporary Heating: Apply temporary heat according to manufacturer's recommendations within the enclosure of each ventilated type unit throughout periods during which equipment is not energized and is not in a space that is continuously under normal control of temperature and humidity.

8.61.7 PRODUCTS

8.61.8 MANUFACTURERS

Manufacturers: Subject to compliance with requirements, provide products by the following:

Transformers:

- Acme Electric Corp.
- Bryant Electric.
- Challenger Electrical Equipment Co.
- Federal Pacific Transformer Co.
- General Electric Co.

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- Hevi-Duty Electric.
- Line Power Mfg. Corp.
- MagneTek, Jefferson.
- Micron Industries Corp.
- Parker Electrical Mfg. Co.
- Rapid Power Technologies, Inc.
- ROMAC Supply Co.
- Siemens Energy & Automation, Inc.
- Square D Co.
- Westinghouse Electric Corp.

8.61.9 TRANSFORMERS, GENERAL

Transformers: Factory-assembled and -tested, air-cooled units of types specified, designed for 60-Hz service.

Cores: Grain-oriented, nonaging silicon steel.

Coils: Continuous windings without splices except for taps.

Internal Coil Connections: Brazed or pressure type.

8.61.10 GENERAL-PURPOSE, DRY-TYPE TRANSFORMERS

Comply with NEMA Standard ST 20 "Dry-Type Transformers for General Applications."

Transformers: Two-winding type, 3-phase units using 1 coil per phase in primary and secondary.

Windings: All copper.

Features and Ratings: As follows:

- Enclosure: Indoor, ventilated, drip-proof.

Insulation Class: 185 deg C class for transformers 15 kVA or smaller; 220 deg C class for transformers larger than 15 kVA.

Insulation Temperature Rise: 80 deg C maximum rise above 40 deg C.

Taps: For transformers 3 kVA and larger, full capacity taps in high-voltage winding are as follows:

- kVA through 25 kVA: Two 2.5-percent taps above and two 2.5 percent taps below rated high voltage.

Accessories: The following accessory items are required where indicated:

Wall-Mounting Brackets: Manufacturer's standard brackets for transformers up to 75 kVA.

8.61.11 FINISHES

Indoor Units: Manufacturer's standard paint over corrosion-resistant pretreatment and primer.

8.61.12 SOURCE QUALITY CONTROL

Factory Tests: Design and routine tests conform to referenced standards.

8.61.13 EXECUTION**8.61.14 INSTALLATION**

Arrange equipment to provide adequate spacing for access and for cooling air circulation.

Identify transformers and install warning signs according to Division 16 Section "Electrical Identification."

Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. Where manufacturer's torque values are not furnished, use those specified in UL 486A and UL 486B.

8.61.15 GROUNDING

Ground transformers and systems served by transformers according to Division 16 Section "Grounding."

8.61.16 FIELD QUALITY CONTROL

Test Objectives: To ensure transformer installation is operational within industry and manufacturer's tolerances, install according to Contract Documents, and suitable for energizing.

Schedule tests and provide notification at least one week in advance of test commencement.

Report: Submit a written report of observations and tests. Report defective materials and workmanship.

Tests: Include the following minimum inspections and tests according to the manufacturer's instructions. Conform to IEEE Standard Test Code C57.12.91 for dry-type units, test method, and data correction factors.

- Inspect accessible components for cleanliness, mechanical, and electrical integrity, for presence of damage or deterioration, and to ensure removal of temporary shipping bracing. Do not proceed with tests until deficiencies are corrected.
- Include internal inspection through access panels and covers.
- Inspect bolted electrical connections for tightness according to manufacturer's published torque values or, where not available, those of UL standards 486A and 486B.
- Insulation Resistance: Perform megohmmeter test of primary and secondary winding-to-winding and winding-to-ground. Use a minimum test voltage of 1,000 V d.c. Minimum insulation resistance is 500 megohms.
- Duration of Each Test: 10 minutes.
- Temperature Correction: Correct results for test temperature deviation from 20 deg C standard.
- Perform transformer turn ratios test for all transformers rated above 600 volts as indicated on drawings.
- Test Failures: Correct deficiencies identified by tests and retest. Verify that equipment meets the specified requirements.

8.61.17 ADJUSTING

After completing installation, cleaning, and testing, touch up scratches and mars on finish to match original finish.

Adjust transformer taps to provide optimum voltage conditions at utilization equipment throughout the normal operating cycle of the facility. Record voltages and tap settings to submit with test results.

Adjust buck-boost transformer connections to provide optimum voltage conditions at utilization equipment throughout the normal operating cycle of the facility.

Adjust voltage regulators to provide optimum voltage at equipment served throughout the normal operating cycle of the facility. Record adjustment settings to submit with test results.

END OF SECTION 16460

8.62 SECTION 16470 – PANELBOARDS

8.62.1 GENERAL

8.62.2 RELATED DOCUMENTS

Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

Requirements of the following Division 16 Sections apply to this Section:

- "Basic Electrical Requirements."
- "Basic Electrical Materials and Methods."

8.62.3 SUMMARY

This Section includes lighting and power panelboards and associated auxiliary equipment rated 600 V or less.

Related Sections: The following Division 16 Sections contain requirements that relate to this Section:

- "Overcurrent Protective Devices" for circuit breakers, fusible switches, fuses, and other devices used in panelboards.
- "Motor Controllers" for combination starters installed in panelboards.

8.62.4 DEFINITIONS

Overcurrent Protective Device (OCPD): A device operative on excessive current that causes and maintains the interruption of power in the circuit it protects.

8.62.5 SUBMITTALS

General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.

Product data for each type panelboard, accessory item, and component specified.

Panel schedules for installation in panelboards. Submit final versions after load balancing.

Maintenance data for panelboard components, for inclusion in Operating and Maintenance Manual specified in Division 1 and in Division 16 Section "Basic Electrical Requirements." Include instructions for testing circuit breakers.

8.62.6 QUALITY ASSURANCE

Listing and Labeling: Provide products specified in this Section that are listed and labeled.

The terms "listed" and "labeled" shall be defined as they are in the National Electrical Code, Article 100.

Electrical Component Standard: Components and installation shall comply with NFPA 70, "National Electrical Code."

NEMA Standard: Comply with NEMA PB1, "Panelboards."

UL Standards: Comply with UL 67, "Panelboards," and UL 50, "Enclosures for Electrical Equipment, Non-Environmental Considerations."

8.62.7 EXTRA MATERIALS

Keys: Furnish six spares of each type for panelboard cabinet locks.

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Touch-up Paint for surface-mounted panelboards: One half-pint container.

8.62.8 PRODUCTS

8.62.9 MANUFACTURERS

Manufacturers: Subject to compliance with requirements, provide products by the following:

- ABB Power Distribution, Inc.
- Asco Electrical Products Co., Inc.
- Crouse-Hinds Distribution Equipment.
- General Electric Co.
- Siemens Energy & Automation, Inc.
- Square D Co.
- Westinghouse Electric Corp.

8.62.10 PANELBOARDS, GENERAL REQUIREMENTS

Overcurrent Protective Devices (OCPDs): Provide type, rating, and features as indicated. Tandem circuit breakers shall not be used. Multipole breakers shall have common trip.

Enclosures: Cabinets, flush or surface mounted as indicated. NEMA Type 2 enclosure.

Front: Secured to box with concealed trim clamps except as indicated. Front for surface-mounted panels shall be same dimensions as box. Fronts for flush panels shall overlap box except as otherwise specified.

Directory Frame: Metal, mounted inside each panel door.

Bus: Hard drawn copper of 98 percent conductivity.

Main and Neutral Lugs: Compression type.

Equipment Ground Bus: Adequate for feeder and branch-circuit equipment ground conductors. Bonded to box.

Service Equipment Approval: Listed for use as service equipment for panelboards having main service disconnect.

Provision for Future Devices: Equip with mounting brackets, bus connections, and necessary appurtenances, for the OCPD ampere ratings indicated for future installation of devices.

8.62.11 LIGHTING AND APPLIANCE BRANCH CIRCUIT PANELBOARDS

Branch OCPDs: Bolt-on circuit breakers, replaceable without disturbing adjacent units.

- Double-Width Panels: Where more than 42 poles are indicated or where otherwise indicated, provide two panelboards under single front.
- Doors: In panel front, with concealed hinges. Secure with flush catch and tumbler lock, all keyed alike.

8.62.12 DISTRIBUTION PANELBOARDS

Doors: In panel front, omit single panelboard door in cabinet front for fusible switch panelboards except as indicated. Secure with vault-type with tumbler lock, all keyed alike.

Branch-Circuit Breakers: Where OCPDs are indicated to be circuit breakers, use bolt-on breakers except circuit breakers 225-ampere frame size and greater may be plug-in type where individual positive locking device requires mechanical release for removal.

- Motor Starter Branches: Conform to Division 16 Section "Motor Controllers" and provide units equipped for panelboard mounting. Include the following accessories and pilot devices as indicated:
 1. Individual control power transformers.
 2. Fuses for control power transformers.
 3. Pilot lights.
 4. Extra interlock contacts.
 5. Pushbuttons.
 6. Selector switches.
- Motor Starter Disconnects: Include overcurrent protection as indicated. Mount integral with or, in same panelboard, adjacent to motor starter. Mechanically interlock starter door with disconnect device. Provide auxiliary contacts on disconnect to deenergize control connections to starter.

8.62.13 IDENTIFICATION

General: Refer to Division 16 Section "Electrical Identification" for labeling materials.

Panelboard Nameplates: Engraved laminated plastic or metal nameplate for each panelboard mounted with stainless steel screws.

8.62.14 EXECUTION

8.62.15 INSTALLATION

General: Install panelboards and accessory items in accordance with NEMA PB 1.1, "General Instructions for Proper Installation, Operation and Maintenance of Panelboards Rated 600 Volts or Less" and manufacturers' written installation instructions.

Mounting Heights: Top of trim 6'-2" above finished floor, except as indicated.

Mounting: Plumb and rigid without distortion of box. Mount flush panels uniformly flush with wall finish.

Circuit Directory: Typed and reflective of final circuit changes required to balance panel loads. Obtain approval before installing.

Install filler plates in unused spaces.

Auxiliary Gutter: Install where a panel is tapped to a riser at an intermediate location.

Wiring in Panel Gutters: Train conductors neatly in groups, bundle, and wrap with wire ties after completion of load balancing.

8.62.16 IDENTIFICATION

Identify field-installed wiring and components and provide warning signs in accordance with Division 16 Section "Electrical Identification."

8.62.17 GROUNDING

Connections: Make equipment grounding connections for panelboards as indicated.

Provide ground continuity to main electrical ground bus indicated.

8.62.18 CONNECTIONS

Tighten electrical connectors and terminals, including grounding connections, in accordance with manufacturer's published torque-tightening values. Where manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B.

8.62.19 FIELD QUALITY CONTROL

Pretesting: Upon completing installation of the system, perform the following preparations for independent tests:

- Make insulation resistance tests of panelboard buses, components, and connecting supply, feeder, and control circuits.
- Make continuity tests of circuits.
- Provide set of Contract Documents to test organization. Include full updating on final system configuration and parameters where they supplement or differ from those indicated in original Contract Documents.

8.62.19.1 Quality Control Program: Conform to the following:

Procedures: Make field tests and inspections and prepare panelboard for satisfactory operation in accordance with manufacturer's recommendations and these specifications.

Schedule tests with at least one week in advance notification.

Protective Device Ratings and Settings: Verify indicated ratings and settings to be appropriate for final system configuration and parameters. Where discrepancies are found, recommend final protective device ratings and settings. Use accepted ratings or settings to make the final system adjustments.

Visual and Mechanical Inspection: Include the following inspections and related work:

- Inspect for defects and physical damage, labeling, and nameplate compliance with requirements of up-to-date drawings and panelboard schedules.
- Exercise and perform of operational tests of all mechanical components and other operable devices in accordance with manufacturer's instruction manual.
- Check panelboard mounting, area clearances, and alignment and fit of components.
- Check tightness of bolted electrical connections with calibrated torque wrench. Refer to manufacturer's instructions for proper torque values.
- Perform visual and mechanical inspection and related work for overcurrent protective devices as specified in Division 16 Section "Overcurrent Protective Devices."

Electrical tests: Include the following items performed in accordance with manufacturer's instruction:

- Insulation resistance test of buses and portions of control wiring that disconnected from solid-state devices. Insulation resistance less than 100 megohms is not acceptable.
- Ground resistance test on system and equipment ground connections.
- Test main and subfeed overcurrent protective devices in accordance with Section "Overcurrent Protective Devices."

Retest: Correct deficiencies identified by tests and observations and provide retesting of panelboards by testing organization. Verify by the system tests that the total assembly meets specified requirements.

8.62.20 CLEANING

Upon completion of installation, inspect interior and exterior of panelboards. Remove paint splatters and other spots, dirt, and debris. Touch up scratches and mars of finish to match original finish.

END OF SECTION 16470

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8.63 SECTION 16250 – AUTOMATIC TRANSFER SWITCH

8.63.1 PART 1 – GENERAL

A Service Entrance Rated, Open Transition, Automatic Transfer Switch is to be installed for transferring between normal and alternate Station Service sources.

The normal and alternate sources shall be as specified on the Contract Drawings.

8.63.2 SUMMARY

Section includes:

- Specification for an Automatic Transfer Switch (ATS) for installation and operation on standby applications for emergency power systems as defined by the National Electrical Code (NEC)
- It is intended for the Automatic Transfer Switch to operate in the following modes:
 - The ATS shall continually monitor the condition of the normal supply voltage/frequency and shall automatically respond to a power failure condition by switching to the alternate supply using a break before make scheme.
 - The ATS shall automatically transfer the load to the alternate supply in the event of a normal supply failure and return the load to the normal supply upon restoration.
 - The ATS shall automatically perform an open transition power transfer with a neutral delay period between alternate supply and the normal supply once the normal power source has been restored.
- All work defined within this specification shall be the responsibility of the Automatic Transfer Switch manufacturer, unless specifically defined as provided and/or installed by others.

The automatic transfer switch shall be manufactured in accordance with this specification and applicable UL, CSA, NEMA, and ANSI standards.

Supplier shall be responsible for ensuring the compatibility of all components of the ATS.

The contractor shall furnish and install the Automatic Transfer Switch in accordance with local bylaws, the National Electrical Code (NEC), and these specifications, and contract drawings.

Include all components, commissioning and services specified or as required to provide and install a complete and operable automatic transfer switch.

The Automatic Transfer Switch package shall include the following main components:

- ATS Enclosure
- Power Switching Mechanism
- Automatic Transfer Switch Controller:
 - Operator Controls
 - Source Voltage & Frequency Sensors
 - ATS control logic c/w Integrated Time Delays, Inputs & Outputs

8.63.3 APPROVAL SUBMITTALS

Two sets of the following information shall be supplied for ATS approval submittal:

- ATS Physical Layout (Plan view)
 - ATS Ratings
 - Anchoring Details
 - Cable Entry/Exit Locations
 - Cable Connection Sizes
 - Nameplate Information
- ATS Schematic Drawings
 - Customer Input/output Electrical Connections
 - Device settings
- ATS Product Datasheets

The following shall be shipped with the equipment:

- Two sets of As - Built Drawings
- Hard copy of all Installation Guides.

8.63.4 CODES & STANDARDS

The Automatic Transfer Switch shall be designed, manufactured, tested and listed to the following safety standards:

- UL 1008 Edition 8 Automatic Transfer Switches For Use in Emergency Systems
- UL 869A Reference Standard Service Equipment
- CSA- C22.2 No 178.1-12 Automatic Transfer Switches

The ATS Controller shall be designed in accordance with the following performance standards:

- Immunity Testing:
 - EN 61000-4-2:2009, ESD
 - EN 61000-4-3: 2006 RF Immunity
 - EN 61000-4-4: 2006 EFT
 - EN 61000-4-5: 2006 Surge Voltage
 - EN 61000-4-6: 2009 RF Common Mode
 - EN 61000-4-11: 2004 Voltage Dips and Interruptions
 - EN 61000-4-8: 2010 Power Frequency Magnetic Field Immunity
 - ANSI C62.41.2: 2002 Surge 100kHz Ring Wave & Combination Wave, Category C

8.63.5 QUALITY ASSURANCE

The Transfer Switch shall be designed and manufactured in a facility, which is registered to an ISO 9001:2008 quality system. The supplier shall have a minimum of 30 years experience designing and manufacturing automatic transfer switches.

Only new materials and components shall be used and of current manufacture.

The unit shall be manufactured in accordance with this specification and applicable UL, CSA, and NEMA standards.

8.63.6 WARRANTY

The equipment shall be free of defects in material, workmanship and operation.

The Transfer Switch shall be warranted against defective components, workmanship and operational flaws for the period of one year from the date of startup, not to exceed 18 months after shipment.

Date of startup shall be when the manufacturer's representative completes the site startup or when the equipment is put into operation, whichever occurs first.

Date of shipment shall be shipment from the supplier or completion of manufacturer in the event the equipment is held at the owner's request.

8.63.7 PART 2 – PRODUCTS

MANUFACTURERS:

- Thomson Power Systems
- Eaton
- General Electric
- Others upon Engineer approval

RATINGS & CONSTRUCTION:

- Rating of the automatic transfer switch shall be 100 AMP, 480Y/277 VAC, 60 Hz, 3 Phase, 4 Wire.
- The automatic transfer switch shall be rated for Service Entrance applications and shall contain a 100 Amp standard or 100% rated over current device for each incoming source as indicated on the drawings.

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- The automatic transfer switch assembly shall be rated for 100% continuous load without de-rating. The automatic transfer switch shall be suitable for control of motors, electric discharge lamps, tungsten filament lamps, and electric heating equipment where the sum of motor full-load ampere ratings and the ampere ratings of other loads do not exceed the ampere rating of the switch and the tungsten load does not exceed 30 percent of the switch rating.
- Fault withstand current rating (WCR) of the complete assembly shall be 10K amps RMS. The interrupting and closing rating shall be equal to or exceed the required withstand rating. This rating shall be obtained with standard upstream over current protection devices.
- The automatic transfer switch must be listed or certified to the following safety standards:
 - UL 1008 Edition 8 Automatic Transfer Switches For Use in Emergency Systems
 - CSA- C22.2 No 178.1-12 Automatic Transfer Switches
- The complete ATS assembly shall be mounted in a NEMA 1 type enclosure for indoor use.
- All materials and parts used in the unit shall be new, of current manufacture, of best industrial grade, and free from defects and imperfections.
- The transfer switch mechanism shall provide a simple means of manual operation.
- All internal control devices used in the automatic transfer switch shall be capable of being de-energized and isolated from the system by use of an accessible isolation plug for servicing procedures as required.
- The automatic transfer switch design shall provide front accessible components and wiring for easy serviceability. Power or control connections, which are not readily serviceable while the transfer switch is mounted in its enclosure, are not acceptable.
- All power contacts used shall operate in a quick-make / quick-break manner, the speed of which shall be independent of supply voltage and / or speed of operation by manual means.
- The enclosure shall consist of a 14 gauge steel angle or channel framework and be of adequate strength and rigidity to endure normal conditions of use and to support all equipment mounted within. Bolt-on steel panels and hinged doors shall form the outer shell of the enclosure.
- The enclosure finish surface shall be free of nicks and abrasions and all sharp edges broken in preparation for painting the surface. The surface shall then be prepared with iron phosphate treatment and primer. The final coat to be UL approved electrostatically applied powder coat ASA 61 Grey.

AUTOMATIC TRANSFER SWITCH FEATURES:

- Transfer switch control power shall be obtained from the source being transferred to. The controls shall not require any connection to external power sources for normal automatic operation.
- A control circuit isolation plug shall be provided to isolate all control circuitry inside the transfer switch to facilitate maintenance procedures. When isolated, there shall be no voltage present on the control circuitry.
- The transfer switch shall have control plugs for all interconnection to provide superior serviceability. Separate plugs shall be provided for voltage sensing, and ATS controller. All plugs shall be keyed to prevent incorrect installation.
- Voltage/Frequency Sensing: The ATS controller shall provide the following voltage and frequency sensing control features for the normal and alternate supplies:
 - AC Voltage sensing shall be fully configurable to allow operation on 3 phase 3 wire or 3 phase 4 wire systems without use of additional potential transformers on systems 600VAC or below.
 - Phase Sequence & Phase Reversal Protection: Phase Sequence/Phase reversal protection shall be provided to inhibit transfer between alternate sources should an incorrect phase sequence condition exist between connected sources. The Transfer Switch controller shall provide capability to program either A-B-C or C-B-A phase rotation.
 - Under Voltage Sensing: Three phase under voltage sensing shall be provided for both normal and alternate supplies. Activation of an abnormal under voltage condition on any phase shall initiate a load transfer to the alternate source or shall inhibit a transfer to a source until its voltage levels are within normal limits. The under voltage sensor shall be user adjustable from 70-100% of nominal and shall be based on a falling (i.e. drop-out) voltage. The under voltage sensor shall be factory set for drop-out at 85% nominal voltage. The under voltage sensor shall reset (i.e. pick-up) 5% above the dropout setting and shall be adjustable. The under voltage sensor shall include an adjustable transient time delay feature.

- Over Voltage Sensing: Three phase over voltage sensing shall be provided for both normal and alternate supplies. Activation of an abnormal over voltage condition on any phase shall initiate a load transfer to the alternate source or shall inhibit a transfer to a source until its voltage levels are within normal limits. The over voltage sensor shall be user adjustable from 100-130% of nominal and shall be based on a rising (i.e. pick-up) voltage. The over voltage sensor shall be factory set for pick-up at 115% nominal voltage. The over voltage sensor shall reset (i.e. drop-out) 5% below the pick-up setting and shall be adjustable. The over voltage sensor shall include an adjustable transient time delay feature.
- Phase Unbalance/Phase Loss Sensing: Voltage phase unbalance/phase loss sensing shall be provided for the normal and alternate supplies. The voltage phase unbalance sensor shall be user adjustable from 3-30% of nominal and shall be factory set for pick-up at 5% nominal voltage. The voltage phase unbalance sensor shall include an adjustable transient time delay feature.
- Under Frequency Sensing: Under frequency sensing shall be provided for both normal and alternate supplies. Activation of an abnormal under frequency condition shall initiate a load transfer to the alternate source or shall inhibit a transfer to a source until its frequency levels are within normal limits. The under frequency sensor shall be user adjustable from 70-100% of nominal and shall be based on a falling (i.e. drop-out) frequency. The under frequency sensor shall be factory set for drop out at 80% nominal frequency. The under frequency sensor shall reset (i.e. pick-up) 10% above the dropout setting and shall be adjustable. The under frequency sensor shall include an adjustable transient time delay feature.
- Over Frequency Sensing: Over frequency sensing shall be provided for both normal and alternate supplies. Activation of an abnormal over frequency condition shall initiate a load transfer to the alternate source or shall inhibit a transfer to a source until its frequency levels are within normal limits. The over frequency sensor shall be user adjustable from 100-130% of nominal and shall be based on a rising (i.e. pick-up) frequency. The over frequency sensor shall be factory set at 115% nominal voltage. The over frequency sensor shall reset (i.e. drop-out) 5% below the pick-up setting and shall be adjustable. The over frequency sensor shall include an adjustable transient time delay feature.
- Time Delays: The following time delay functions shall be provided within the transfer switch controller:
 - Normal Source Return - A time delay for return to normal source shall be provided which permits a re-transfer back to the normal supply only after stable voltage and frequency condition exists for the specified time period. The time delay shall be user adjustable 0 - 60 minutes, factory set at two (2) minutes.
- ATS Status Indication: The transfer switch controller shall provide clearly visible status indication or lights showing the following ATS statuses:
 - Normal / Alternate Source available
 - ATS Position: Normal or Alternate Source Connected to Load
 - Current ATS Operating Mode (Auto/Off/Man/Test)

8.63.8 PART 3 - FACTORY TESTING

The automatic transfer switch shall be factory tested prior to delivery to the purchaser. The following tests shall be conducted by qualified factory personnel:

- Visual Inspection: Electrical and Mechanical inspections to verify installed components are of correct ratings; meet the requirements of the project specifications and to ensure regulatory and quality requirements are met.
- Mechanical Tests: As a minimum, the following mechanical tests shall be performed on the transfer switch:
 - Power Conductor Torque Verification
 - Verification of Mechanical Interlock
 - Manual ATS Mechanism Operation/Adjustment
 - All Mechanical Fasteners/Wire Connections Tight
- Electrical Tests: As a minimum, the following electrical tests shall be performed on the transfer switch:
 - Adjustment/Setting All Timers & Voltage Sensors
 - Verification of Electrical Interlock
 - Function Test-Normal Operation-3 Complete Cycles

- Mechanism Adjustment
- Dielectric Test
- Final Inspection: As a minimum, the following final inspection tasks shall be performed on the transfer switch:
 - Calibration Label/Equipment labels Installed & Correct
 - All safety/warning labels attached
 - All wiring straight, neatly bundled and adequately protected.
 - All options supplied as specified
 - Enclosure is clean, no paint imperfections
 - Final Documentation is Enclosed (Drawing, O&M Manual)
- The transfer switch manufacturer shall provide upon request of the project engineer, four (4) copies of certified Factory Test Reports for the transfer switch supplied.

END OF SECTION 16250

8.64 SECTION 16515 - INTERIOR LIGHTING

8.64.1 GENERAL

8.64.2 RELATED DOCUMENTS

Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

8.64.3 SUMMARY

This Section includes interior lighting fixtures, lamps, ballasts, emergency lighting units, and accessories.

8.64.4 DEFINITIONS

Emergency Lighting Unit: A fixture with integral emergency battery power supply and the means for controlling and charging the battery. They are also known as an emergency light set. Emergency units are available with integral lamps only.

Fixture: A complete lighting unit, exit sign, or emergency lighting unit. Fixtures include lamps and parts required to distribute the light, position and protect lamps, and connect lamps to the power supply. Internal battery powered exit signs and emergency lighting units also include a battery and the means for controlling and recharging the battery. Emergency lighting units are available with and without integral lamp heads and lamps.

Luminaire: Fixture.

Average Life: The time after which 50 percent will have failed and 50 percent will have survived under normal conditions.

8.64.5 SUBMITTALS

General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.

Product data describing fixtures, lamps, ballasts, and emergency lighting units. Arrange product data for fixtures in order of fixture designation. Include data on features and accessories and the following information:

- Outline drawings of fixtures indicating dimensions and principal features.
- Electrical ratings and photometric data with specified lamps and certified results of independent laboratory tests.
- Data on batteries and chargers of emergency lighting units.

Maintenance data for products for inclusion in Operating and Maintenance Manual specified in Division 1.

Shop drawings from manufacturers detailing nonstandard fixtures and indicating dimensions, weights, methods of field assembly, components, features, and accessories.

Coordination drawings for fixtures mounted on, in, or above the ceiling indicating coordination with ceiling grids and other equipment installed in the same space.

8.64.6 QUALITY ASSURANCE

Comply with NFPA 70 "National Electrical Code" for components and installation.

Lighting fixtures shall be of specification grade and listed or labeled by Underwriters Laboratories (UL) or an approved Nationally Recognized Testing Laboratory (NRTL).

LED fixtures shall comply with the following:

1. UL Standard 8750 "Light Emitting Diode Equipment for Use in Lighting Products",

PEAK SHAVING PROJECT #1902

BID #2017-009-30

7/3/2017

CONFORMED

2. ANSI C78.377 "Specifications for the Chromaticity of Solid State Lighting Products"

Listing and Labeling: Provide fixtures and emergency lighting units that are listed and labeled for their indicated use on the Project.

- The terms "Listed" and "Labeled": As defined in the National Electrical Code, Article 100.

Manufacturers Qualifications: Firms experienced in manufacturing fixtures that are similar to those indicated for this Project and that have a record of successful in-service performance.

Coordination of Fixtures with Ceiling: Coordinate fixtures mounting hardware and trim with the ceiling system.

8.64.7 EXTRA MATERIALS

Furnish extra materials matching products installed, as described below, packaged with protective covering for storage, and identified with labels describing contents. Deliver extra materials to the Owner.

- Complete Fixtures: A quantity equal to 10 percent of installed units of the following type:
 1. Lamps: 10 lamps for each 100 of each type and rating installed. Furnish at least 1 of each type.
 2. Plastic Diffusers and Lenses: 1 for each 100 of each type and rating installed. Furnish at least 1 of each type.
 3. Drivers: 1 for each 100 of each type and rating installed. Furnish at least 1 of each type.
 4. Globes and Guards: 1 for each 20 of each type and rating installed. Furnish at least 1 of each type.

8.64.8 PRODUCTS

Provide lighting products from the following manufacturers:

- Lithonia
- Surelites
- Encore
- Hubbell
- Superior Lighting
- Approved equals

8.64.9 FIXTURES, GENERAL

Comply with the requirements specified in the Articles below, and lighting fixture schedule on the contract drawings.

8.64.10 FIXTURE COMPONENTS, GENERAL

Metal Parts: Free from burrs and sharp corners and edges.

Sheet Metal Components: Steel, except as indicated. Components are formed and supported to prevent warping and sagging.

Doors, Frames, and Other Internal Access: Smooth operating and free from light leakage under operating conditions. Arrange to permit relamping without use of tools. Arrange doors, frames, lenses, diffusers, and other pieces to prevent accidental falling during relamping and when secured in the operating position.

Lenses, Diffusers, Covers, and Globes: 100 percent virgin acrylic plastic or water white, annealed crystal glass except as indicated.

- Plastic: Highly resistance to yellowing and other changes due to aging, exposure to heat and UV radiation.

- Lens Thickness: 0.125 inches, minimum.

8.64.11 LED FIXTURES

- Certification: By Electrical Testing Laboratory (ETL).
- Sound Rating: A rating, except as indicated otherwise.
- Voltage: Match connected circuits.

Provide lighting fixtures in accordance with the Fixture Schedule. Provide only LED fixtures with a DesignLights Consortium (DLC) listing, a U.S. Department of Energy (DOE) "LED Lighting Facts" label, or a U.S. Environmental Protection Agency (EPA) ENERGY STAR label, which have demonstrated third-party testing verification.

Recessed lighting fixtures shall be thermally protected. LED fixtures shall be modular and allow for separate replacement of LED lamps and drivers. User serviceable LED lamps and drivers shall be replaceable from the room side.

LED lamps shall have a color temperature of 3500 degrees K, a CRI of 80 minimum, and a lumen maintenance L70 rating of 50,000 hours minimum.

8.64.12 EXIT SIGNS

Conform to UL 924, "Emergency Lighting and Power Equipment," and the following:

- Sign Colors: Conform to local code.
- Minimum Height of Letters: Conform to local code.

Exit signs shall be of the LED type. Fluorescent, electro luminescent light panel, or self-powered luminous signs shall not be used.

LED's shall be wired in parallel to prevent multi-lamp failure, and shall be concealed within the sign by a clear panel and red optical diffuser. Power consumption shall not exceed 2 watts per face.

Exit signs shall have white die cast aluminum or polycarbonate housings with universal mounting brackets; brushed aluminum stencil faces with red letters and multidirectional knockout arrows.

Exit signs shall be provided with emergency battery packs and battery chargers when required. Batteries shall be maintenance-free nickel cadmium, and shall be mounted within the signs.

8.64.13 EMERGENCY LIGHTING UNITS

Conform to UL 924, "Emergency Lighting and Power Equipment" requirements for "Unit Equipment." Provide self-contained units with the following features and additional characteristics as indicated.

Emergency Lights shall be Battery-backed LED emergency lighting fixtures and shall consist of a normal LED fixture with some or all of the LEDs connected to a battery and charger.

The battery shall be nickel cadmium and sized for a minimum of 90 minutes of fixture operation.

The charger shall be solid-state and provide overload, short circuit, brownout and low battery voltage protection.

The battery and charger shall include self-diagnostic and self-exercising circuitry to exercise and test itself for 5 minutes every month and for 30 minutes every 6 months.

The fixture shall include a test/monitor module with LED status indicating lights mounted so as to be visible to the public.

The fixture shall not contain an audible alarm.

8.64.14 FINISH

Steel Parts: Manufacturer's standard finish applied over corrosion-resistant primer, free of streaks, runs, holidays, stains, blisters, and defects. Remove fixtures showing evidence of corrosion during project warranty period and replace with new fixtures.

Other Parts: Manufacturer's standard finish.

8.64.15 EXECUTION

8.64.16 INSTALLATION

Setting and Securing: Set units plumb, square, and level with ceiling and walls, and secure according to manufacturer's printed instructions and approved shop drawings.

Support for Recessed and Semi recessed Fixtures: Install units may be supported from suspended ceiling support system. Install ceiling system support rods or wires at a minimum of four rods or wires per fixture located not more than 6 inches from fixture corners.

- Fixtures Smaller Than Ceiling Grid: Install a minimum of four rods or wires for each fixture and locate at corner of the ceiling grid where the fixture is located. Do not support fixtures by ceiling acoustical panels.
- Fixtures of Sizes Less Than Ceiling Grid: Center in the acoustical panel. Support fixtures independently with at least two 3/4-inch metal channels spanning and secured to the ceiling tees.
- Install support clips for recessed fixtures, securely fastened to ceiling grid members, at or near each fixture corners.

8.64.17 FIELD QUALITY CONTROL

Inspect each installed fixture for damage. Replace damaged fixtures and components.

Provide instruments to make and record test results.

- Tests: Verify normal operation of each fixture after fixtures have been installed and circuits have been energized with normal power source. Interrupt electrical energy to demonstrate proper operation of emergency lighting installation. Include the following in tests of emergency lighting equipment.
- Duration of supply.
- Low battery voltage shut-down.
- Normal transfer to battery source and retransfer to normal.
- Low supply voltage transfer.

Replace or repair malfunctioning fixtures and components, then retest. Repeat procedure until all units operate properly.

8.64.18 ADJUSTING AND CLEANING

Clean fixtures upon completion of installation. Use methods and materials recommended by manufacturer.

Adjust amiable fixtures to provide required light intensities.

END OF SECTION 16515

8.65 SECTION 16525 - EXTERIOR LIGHTING

8.65.1 GENERAL

8.65.2 RELATED DOCUMENTS

Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

8.65.3 SUMMARY

This Section includes exterior lighting fixtures.

Related Sections: The following Division 16 Sections contain requirements that relate to this Section:

- "Interior Lighting" for interior fixtures, lamps, ballasts, emergency lighting units, and accessories.

8.65.4 DEFINITIONS

Fixture: A complete lighting unit. Fixtures include a lamp or lamps and parts required to distribute the light, position and protect lamps, and connect lamps to the power supply.

Lighting Unit: A fixture, or an assembly of fixtures with a common support, including a pole or bracket plus mounting and support accessories.

Luminaire: A fixture.

8.65.5 SUBMITTALS

General: Submit the following according to Conditions of Contract and Division 1 Specification Sections.

Product data describing fixtures, lamps, ballasts, poles, and accessories. Arrange product data for fixtures in order of fixture designation. Include data on features, poles, accessories, and the following:

- Outline drawings of fixtures and poles indicating dimensions and principal features.
- Electrical ratings and photometric data with certified results of independent laboratory tests.

Maintenance data for products for inclusion in Operating and Maintenance Manual specified in Division 1.

8.65.6 QUALITY ASSURANCE

Comply with NFPA 70 "National Electrical Code" for components and installation.

Listing and Labeling: Provide fixtures and accessories that are listed and labeled for their indicated use and location on the Project.

Special Listing and Labeling: Provide lighting units for use under water that are specifically listed and labeled for such use. Provide lighting units for hazardous (classified) locations that are listed and labeled for the specific hazard.

- The Terms "Listed" and "Labeled": As defined in the "National Electrical Code," Article 100.
- Listing and Labeling Agency Qualification: A "Nationally Recognized Testing Laboratory" (NRTL) as defined in OSHA Regulation 1910.7.

Manufacturers' Qualifications: Firms experienced in manufacturing lighting units that are similar to those indicated for this Project and that have a record of successful in-service performance.

8.65.7 EXTRA MATERIALS

Furnish extra materials matching products installed as described below, packaged with protective covering for storage, and identified with labels describing contents. Deliver extra materials to the Owner.

- Lamps: 10 lamps for each 100 of each type and rating installed. Furnish at least 1 of each type.
- Glass and Plastic Lenses, Covers, and Other Optical Parts: 1 for each 100 of each type and rating installed. Furnish at least 1 of each type.
- Drivers: 1 for each 100 of each type and rating installed. Furnish at least 1 of each type.
- Globes and Guards: 1 for each 20 of each type and rating installed. Furnish at least 1 of each type.

8.65.8 PRODUCTS

Provide lighting products from the following manufacturers:

- Lithonia
- Surelites
- Encore
- Hubbell
- Superior Lighting
- Approved equals

8.65.9 FIXTURES, GENERAL

Comply with the requirements specified in the Articles below, and lighting fixture schedule on the contract drawings.

8.65.10 FIXTURE COMPONENTS, GENERAL

Metal Parts: Free from burrs and sharp corners and edges.

Sheet Metal Components: Steel, except as indicated. Components are formed and supported to prevent warping and sagging.

Doors, Frames, and Other Internal Access: Smooth operating and free from light leakage under operating conditions. Arrange to permit relamping without use of tools. Arrange doors, frames, lenses, diffusers, and other pieces to prevent accidental falling during relamping and when secured in the operating position.

Lenses, Diffusers, Covers, and Globes: 100 percent virgin acrylic plastic or water white, annealed crystal glass except as indicated.

- Plastic: Highly resistance to yellowing and other changes due to aging, exposure to heat and UV radiation.
- Lens Thickness: 0.125 inches, minimum.

8.65.11 LED FIXTURES

- Certification: By Electrical Testing Laboratory (ETL).
- Sound Rating: A rating, except as indicated otherwise.
- Voltage: Match connected circuits.

Provide lighting fixtures in accordance with the Fixture Schedule. Provide only LED fixtures with a DesignLights Consortium (DLC) listing, a U.S. Department of Energy (DOE) "LED Lighting Facts" label, or a U.S. Environmental Protection Agency (EPA) ENERGY STAR label, which have demonstrated third-party testing verification.

LED lamps shall have a color temperature of 3500 to 4000 degrees K, a CRI of 80 minimum, and a lumen maintenance L70 rating of 50,000 hours minimum.

8.65.12 EXTERIOR WALL PACKS

Wall packs shall be of the LED type.

Wall packs should be installed at locations shown on the contract drawings.

LED's shall be wired in parallel to prevent multi-lamp failure.

Wall pack housing should be rated for damp or wet locations.

Wall packs should have photoelectric cell installed by the manufacturer.

8.65.13 FINISH

Metal Parts: Manufacturer's standard finish except as otherwise indicated. Finish applied over corrosion-resistant primer, free of streaks, runs, holidays, stains, blisters, and similar defects. Remove poles, fixtures, and accessories showing evidence of corrosion or finish failure during Project warranty period and replace with new items.

Other Parts: Manufacturer's standard finish except as otherwise indicated.

8.65.14 EXECUTION

8.65.15 INSTALLATION

Set units plumb, square, level, and secure according to manufacturer's written instructions and shop drawings.

8.65.16 FIELD QUALITY CONTROL

Inspect installed units for damage.

Provide advance notice of dates and times for field tests.

Provide instruments to make and record test results.

Tests: Verify normal operation of lighting units after installing fixtures and energizing circuits with normal power source. Include the following:

- Check for uniformity of illuminations.
- Written report of tests indicating actual illumination results.

Replace or repair damaged and malfunctioning units and retest.

8.65.17 ADJUSTING AND CLEANING

Clean components on completion of installation. Use methods and materials recommended by manufacturer.

END OF SECTION 16525

8.66 SECTION 16670 - LIGHTNING PROTECTION SYSTEMS

8.66.1 GENERAL

8.66.2 RELATED DOCUMENTS

Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

8.66.3 SUMMARY

This Section includes lightning protection systems for buildings and associated structures and includes requirements for lightning protection systems components.

Related Sections: The following Sections contain requirements that relate to this Section:

- Division 16 Section "Raceways" for raceways enclosing lightning protection system conductors.

8.66.4 SYSTEM DESCRIPTION

Protect entire building, including roof projections and roof-mounted equipment.

Building Construction: Metal-framed building less than 75 feet (23 m) in height with standing-seam metal roof.

Building Occupancy: Commercial.

8.66.5 SUBMITTALS

Product data for each component. Include data for roof adhesive when used. Submit accurate pictorial views of decorative air terminal components.

General: Submit the following according to Conditions of Contract and Division 1 Specification Sections.

Shop drawings detailing lightning protection system including, but not limited to, air terminal locations, conductor routing, and connections and grounding.

8.66.6 QUALITY ASSURANCE

Installer Qualifications: An experienced installation company that is listed with Underwriters Laboratories for lightning protection installation and a member in good standing of the Lightning Protection Institute shall accomplish this installation.

Listing and Labeling: Provide products specified in this Section that are listed and labeled by an organization concerned with product evaluations, and that can determine compliance with appropriate standards for the current production of listed items.

Listing and Labeling Agency Qualifications: A "Nationally Recognized Testing Laboratory" (NRTL) as defined in OSHA Regulation 1910.7.

Upon completion of the installation, the Contractor shall furnish the Master Label Certificate issued by Underwriters Laboratories, Inc. for this system.

8.66.7 SEQUENCING AND SCHEDULING

Coordinate installation of lightning protection system with the installation of other building systems and components, including electrical wiring, supporting structures and building materials, metal bodies requiring bonding to lightning protection systems, and building finishes.

8.66.8 PRODUCTS

8.66.9 MANUFACTURERS

Manufacturers: Subject to compliance with requirements, provide lightning protection components by one of the following:

- A-C Lightning Security, Inc.
- Approved Lightning Protection Co., Inc.
- East Coast Lightning Equipment.
- Harger Lightning Protection, Inc.
- Heary Bros. Lightning Protection.
- Independent Protection Company, Inc.
- Lightning Protection Corporation.
- Robbins Lightning, Inc.
- Sewell Manufacturing Company, Inc.
- Thompson Lightning Protection Co.
- West Dodd Lightning Conductor Corp.

8.66.10 LIGHTNING PROTECTION SYSTEM COMPONENTS

System Materials: Aluminum and Copper as shown on Contract Drawings, with solid air terminals. All lightning protection materials and components shall comply with UL 96, NFPA 780, and LPI-175.

Ground Rods: Division 16 Section "Grounding."

8.66.11 EXECUTION

8.66.12 INSTALLATION

Install lightning protection systems as indicated, according to manufacturer's written instructions.

Install components according to NFPA 780 and UL 96A.

Install conductors with direct paths from air terminals to ground connections. Avoid sharp bends and narrow loops. Where indicated, run conductors in nonmetallic raceway, Schedule 40, minimum.

Conceal down conductors.

Cable Connections: Use approved exothermic-welded connections for all conductor splices and connections between conductors and other components, except those above metal roofing.

Air Terminals on Metal Roofing: Use connectors and fasteners recommended by manufacturer of air terminals and approved by manufacturer of roofing material. Comply with manufacturer's installation instructions.

No penetrations shall be made into metal roofing. Use compression clamp-type connectors for all roof top installations.

No Copper products are to be in contact with metal roof, which is primarily aluminum.

No Aluminum products are to be in contact with earth.

Bond extremities of vertical metal bodies exceeding 60 feet (18 m) in length to the lightning protection system.

Bond ground terminals with counterpoise conductor located below grade.

Bond grounded media on building within 12 feet (4 m) of roof with counterpoise conductor.

Bond lightning protection system to grounded media on building at every 60 feet (18 m) with intermediate-level interconnection loop conductors.

8.66.13 CORROSION PROTECTION

Use no combination of materials to form an electrolytic couple that will accelerate corrosion in the presence of moisture, unless moisture is permanently excluded from the junction of such materials.

Use conductors with suitable protective coatings where conditions would cause deterioration or corrosion of conductors.

END OF SECTION 16670

9 DRAWINGS

The following drawings for the peak shaving project are included as a part of this specification:

<u>Dwg. No.</u>	<u>Title</u>
G-1	Cover Sheet
C-1	Site Plan
E-1	Overall One-Line Diagram
E-2	Relaying One Line Diagram (2 Sheets)
E-3	Substation Three Line Diagram
E-4	Substation Plan & Sections
E-5	Substation Bill of Materials
E-6	Transformer Oil Containment
E-7	Breaker 52L DC Elementary
E-8	Breaker 52P DC Elementary
E-9	Transformer Interconnections
E-10	Breaker 52L Interconnections
E-11	Breaker 52P Interconnections
E-12	VT Junction Box Interconnections
E-13	Generation Grounding Plan
E-14	Generation Grounding Details
E-15	Conduit Plan (2 Sheets)
E-16	Conduit and Cable Schedule
E-17	AC Station Service Diagram
E-18	Lighting and Receptacle Plan
E-19	Generator Terminations
E-20	Auxiliary Equipment Schematic
E-21	Building Lightning Protection Plan
A-1	Floor Plan
A-2	Wall Sections & Details
A-3	Sections and Roof Plan
A-4	Front & Rear Elevations
A-5	Right & Left Side Elevations
A-6	Reflected Ceiling Plan
S-1	Structural Site Plan
S-2	Foundation Plan
S-3	Structural Details
S-4	Structural Details
S-5	Substation Foundation Plan & Details
M-1	Mechanical Floor Plan
M-2	Mechanical Section & Details
M-3	Air & Fuel Piping Schematics



120 North Fraser Street • Georgetown, SC 29440 • (843) 545-4000

ACTION ITEM

DOC ID: 2332

Council Meeting Date:	13 July 2017
Department:	Electric
Issue Under Consideration:	Motion to Approve Purchase Order and Payment to Sumter Utilities in the Amount of \$360,000 for Distribution Construction Services
Amount Requested:	\$360,000.00
Is Item in Current Budget?	Yes, the FY2017/18 budget includes \$250,000 for contractor assistance in capital upgrades and \$300,000 for contractor assistance in general distribution service work.
If no, please explain:	
Financial Impact:	
Points to Consider:	We have used Sumter Utilities in recent years to assist us with system upgrades involving primary voltage work that is too large for our crews to handle or requires equipment that we do not have. It continues to be necessary to fund these upgrades on an annual basis because there are many sections of our distribution system that are very old and in poor condition. This work will help us maintain a safe and reliable distribution system. This work was advertised for bidding in the fall of 2016 and Sumter was the only bid we received. The same pricing remains in effect until November of this year, so the amount of \$360,000 represents two crews through October. Sumter will then let us know if there will be a price increase for 2018 and we can evaluate our options at that time.
Options:	Approve/disapprove
Staff Recommendation:	Staff recommends approval

Reviews:

Alan Loveless Completed 07/03/2017 11:44 AM
 Debra Bivens Completed 07/03/2017 12:02 PM
 Paul Gardner Completed 07/03/2017 12:20 PM
 Ann U. Mercer Completed 07/06/2017 12:02 PM
 Georgetown City Council Pending 07/13/2017 5:30 PM

Attachments:

1. 1 SKMBT_C22416110912080 (PDF)



Hourly Overhead & Underground Labor & Equipment Rates
for
On-System Crews
City of Georgetown

Effective: 11/01/16 until 10/31/17

<u>Description</u>	<u>Straight Time Hourly Billing Rate</u>	<u>Overtime Hourly Billing Rate</u>
<u>Labor</u>		
Foreman	\$ 58.75	\$ 85.18
A Lineman	\$ 53.00	\$ 76.85
B Lineman	\$ 44.50	\$ 64.52
Operator	\$ 30.25	\$ 43.86
Groundman	\$ 24.90	\$ 36.10
UG Foreman	\$ 47.00	\$ 68.15
UG Lineman	\$ 33.80	\$ 49.01
UG Operator	\$ 28.00	\$ 40.60
UG Groundman	\$ 24.90	\$ 36.10
<u>Equipment</u>		
	<u>Rate Per Hour</u>	
¾ & 1 ton Crew Pickup 4x4	\$ 12.00	
55' Bucket Truck, 4x2	\$ 21.50	
55' Bucket Truck Material Handler, 4x2	\$ 24.50	
Digger Derrick, 13k	\$ 25.85	
Pole Trailer Single Axle 15k	\$ 2.00	
Material Trailer	\$ 2.00	
Backyard Machine	\$ 18.00	
Tracked Excavator, 8k	\$ 14.00	
Equipment Trailer	\$ 3.35	
Wire Reel Trailer	\$ 2.00	
UG Puller	\$ 8.25	
Tensioner	\$ 6.00	
Puller	\$ 14.00	
Air Compressor	\$ 2.00	

Attachment: SKMBT_C22416110912080 (2332 : Motion to Approve Purchase Order and Payment to Sumter Utilities in the Amount of \$360,000)



120 North Fraser Street • Georgetown, SC 29440 • (843) 545-4000

ACTION ITEM

DOC ID: 2322

Council Meeting Date:	13 July 2017
Department:	Water Utilities
Issue Under Consideration:	Motion to Approve Purchase and Payment to Christopher Trucks for a Freightliner Dump Truck in the Amount of \$103,472.00
Amount Requested:	\$103,472.00
Is Item in Current Budget?	Yes
If no, please explain:	
Financial Impact:	None
Points to Consider:	• This dump truck is for the Water Distribution crew. • The truck will replace the current 1992 model year dump truck. • This item is in the CIP for current fiscal year for \$105,000. This item will be purchased through State Contract.
Options:	Approve or Disapprove
Staff Recommendation:	Approve

Reviews:

Will Cook Completed 06/23/2017 8:24 AM
 Debra Bivens Completed 06/26/2017 8:58 AM
 Paul Gardner Completed 06/30/2017 1:32 PM
 Ann U. Mercer Completed 07/06/2017 11:55 AM
 Georgetown City Council Pending 07/13/2017 5:30 PM

Attachments:

1. 1 Quote 2nd Georgetown.TA 14ft Dump 6.22.17 (PDF)



PO Box 8677, Greenville, SC 29604
 1601 White Horse Road • Greenville, SC 29605

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June 22, 2017
 City of Georgetown, SC
 Attn: Glenn Dixon

STATE CONTRACT #4400011602 **\$ 76,278.00**

ADD for Body:

-14ft. State Contract Body with options by Lee Transport Equipment	21,962.00
-Body installation fee	200.00

ADD:

-All items for tandem rear Axle dump truck operation above standard State Contract specs. Increase front axle to 14,700# and suspension to 14,600#; Full locking rear differentials for both rear axles; Front tow hooks; Hendrickson Haulmaax rear suspension; Longer Wheelbase with HD Double Channel reinforced frame rails; 11R 22.5 16 ply; front tires; 11R22.5 lug type tires on rear; HD steel wheels over standard; LED Marker lights & Day time lights; Power Windows & door locks; Tilt/Telescopic steering wheel; Increase engine HP & Torque to 1000 ft/lb; 1 year towing warranty, 5 year/100,000 mile engine warranty w/exhaust system...	
	6,934.00
	2,550.00

DEDUCTS:

-5 year/200,000 mile engine warranty	- 4,300.00
-Single passenger seat from 2-man seat	- 182.00
-Power connector and wiring under hood	- 270.00

SUB-TOTAL **\$103,172.00**

South Carolina Sales Tax	300.00
--------------------------	--------

TOTAL **\$103,472.00**

Has the 5 year/100,000 mile engine warranty w/exhaust system

Attachment: Quote 2nd Georgetown.TA 14ft Dump 6.22.17 (2322 : Freightliner Dump Truck Purchase)

(PLEASE NOTE: BE SURE TO REFERENCE STATE CONTRACT NUMBER ABOVE
ON YOUR PURCHASE ORDER TO CHRISTOPHER TRUCKS, INC.)

Attachment: Quote 2nd Georgetown.TA 14ft Dump 6.22.17 (2322 : Freightliner Dump Truck Purchase)



120 North Fraser Street • Georgetown, SC 29440 • (843) 545-4000

ACTION ITEM

DOC ID: 2323

Council Meeting Date:	13 July 2017
Department:	Engineering
Issue Under Consideration:	Motion to engage AECOM as the engineer of record to provide engineering services for the Historic District Water System Improvements and approve payment in the amount of \$63,200. The project consists in the replacement of approximately 8,700 linear feet of 6-in. and 10-in. water mains in the City's Historic District.
Amount Requested:	\$63,200.00
Is Item in Current Budget?	Yes
If no, please explain:	
Financial Impact:	The construction of this project is anticipated to be financed by the State Revolving Fund (SRF).
Points to Consider:	AECOM has been involved in the original preparation of design documents for this particular project. The fee includes an update of the original documents prepared back in 2012, permitting, bidding, construction administration and observations.
Options:	
Staff Recommendation:	Select AECOM to be the engineer of record

Reviews:

Orlando Arteaga Completed 06/29/2017 4:28 PM
 Finance Completed 06/30/2017 8:52 AM
 City Attorney Completed 06/30/2017 3:19 PM
 Paul Gardner Completed 06/30/2017 4:28 PM
 Ann U. Mercer Completed 07/06/2017 12:39 PM
 Georgetown City Council Pending 07/13/2017 5:30 PM

Attachments:

1. 1 Proposal Historic District Water System Improvements - City of Georgetown (PDF)

April 28, 2017

Mr. Will Cook
City of Georgetown
2377 Maybank Drive
Georgetown, SC 29442

**RE: Proposal for Professional Engineering Services for the Historic District Water System Improvements
City of Georgetown, South Carolina**

Dear Mr. Cook:

AECOM is pleased to submit this proposal to provide engineering services for the Historic District Water System Improvements for the City of Georgetown (City) in Georgetown, South Carolina.

PROPOSED SCOPE OF SERVICES

Project Description

The Project consists of providing Engineering Services related to Water System Improvements for the City of Georgetown. The water system improvements are to include the replacement of approximately 8,700 linear feet of 6" and 10" water line in the City's Historic District. The Project is to be funded under the South Carolina Drinking Water State Revolving Fund (DWSRF) program.

Task 1: Design and Plan Preparation

Task 1 consists of providing Engineering Services related to the water system improvements described above. It is assumed that all construction will occur either on City owner property or within existing easements or right-of-ways. If additional property and/or easements must be acquired, Engineering Services Related to this work can be provided described in additional services below.

Services provided by AECOM under Task 1, Design and Plan Preparation are to include:

- Conduct Project kickoff meeting in Georgetown, South Carolina.
- Modify the previously completed Preliminary Engineering Report (PER) in accordance with South Carolina R.61-58 and the requirements of the South Carolina DWSRF Program for the Historic District Water System Improvements only.
- Coordinate with SCDHEC and SRF
- AECOM shall field verify the site for the Project. In doing so, AECOM shall field locate existing utilities, structures, etc. as may have an impact in design. The City of Georgetown and AECOM acknowledge that there may be buried utilities, structures, etc. which may not be detected or whose depth or location cannot be determined by AECOM. All new features found during field verification will be added to the construction plans.
- Hydraulic modeling to verify line sizes.
- Update of construction plans and preparation of specifications for the items proposed for construction (City is to provide updated GIS and record drawings for any changes to the system since original plans were developed). The plans and specifications will describe the materials, process equipment and related items that enter into the Project. In updating such plans and preparing specifications, AECOM shall perform professional services as hereinafter provided which are normal civil, sanitary and other normal services incidental thereto. The City has determined that the line section on Lincoln St. can be removed from the plans.



Mr. Will Cook
April 28, 2017
Page 2 of 4

- Based on information contained in the design documents, AECOM shall submit an opinion of the probable cost for the Project including construction costs, contingencies and other related items. Since AECOM has no control over the cost of labor, materials, equipment, or the Contractor's methods of determining price or competitive bidding, AECOM cannot and does not guarantee that proposals, bids, or the Project construction cost will not vary from AECOM's opinion of the probable cost of the Project.
- AECOM shall provide the City of Georgetown one (1) copy of plans and specifications for the Project for review and approval at 90% and 100% submittal intervals. AECOM shall provide one (1) trip at the 90% project review with the City of Georgetown.

All permit fees shall be paid by the City of Georgetown. AECOM will provide the necessary number of documents to the various permitting and/or approval agencies listed above.

Compensation to AECOM (Task 1)..... Lump Sum, \$29,800.00

Task 2: Permitting

AECOM shall provide the City of Georgetown one (1) copy of plans and specifications for the Project for review and approval. Upon approval by the City of Georgetown, AECOM shall submit copies of the Project plans for review and approval by federal and state agencies listed below. AECOM shall work with these agencies and assist the City in efforts to obtain the necessary permits and/or approvals from these agencies:

Services provided by AECOM under Task 2, Permitting are to include:

- South Carolina Department of Health and Environmental Control – Construction Permit.
- South Carolina Department of Transportation – Highway Encroachment Permit.
- South Carolina Department of Health and Environmental Control – Erosion and Sediment Control.

All permit fees shall be paid by the City of Georgetown. AECOM will provide the necessary number of documents to the various permitting and/or approval agencies listed above.

Compensation to AECOM (Task 2)..... Lump Sum, \$4,150.00

Task 3: Bidding

Services provided by AECOM related to bidding are to include:

- Prepare an "Advertisement For Bids" and have the advertisement published in an area newspaper and/or other locations as appropriate. Cost for publishing will be paid by the City of Georgetown.
- During the advertisement period, AECOM shall prepare and distribute copies of plans and specifications to construction contractors, subcontractors, equipment suppliers, etc. for their use in preparing bids. The contractors, subcontractors, equipment suppliers, etc. will be charged for AECOM's cost of providing plans and specifications. AECOM shall answer questions of contractors, subcontractors, equipment suppliers, etc. and shall issue addendums to the plans and specifications as appropriate.
- AECOM shall coordinate with DHEC-SRF prior to issues of addendums.
- AECOM shall attend the bid opening and assist the City of Georgetown in opening and reading the contractor's bids.
- AECOM shall review bids received and shall prepare a recommendation of award to the City of Georgetown. Once the City has accepted the bids for the Project, AECOM will prepare contract documents and coordinate the completion of these by the contractor and the City.



Mr. Will Cook
April 28, 2017
Page 3 of 4

- Upon approval by the City of Georgetown, AECOM will prepare a "Notice to Proceed" to be sent to the contractor.

Compensation to AECOM (Task 3)..... Lump Sum, \$5,250.00

Task 4: Construction Administration

Services provided by AECOM related to Construction Administration are to include:

- Prior to commencement of construction of the Project, AECOM shall schedule and conduct a preconstruction conference to review Project schedules, requirements, conditions, etc.
- Prepare contract documents.
- Review and approve monthly payrolls from contractors and subcontractors.
- Review, for compliance with plans and specification, shop drawings, material and equipment submittals provided by the contractor for the Project.
- Conduct six (6) monthly progress meetings.
- Review and respond electronically to project related questions from the contractors at 3 hours per week for 26-week construction period.
- If a construction change order is required, prepare, approve and submit proposed change order request to the City of Georgetown for approval.
- Review the contractor's periodic requests for payment and make recommendations to the City of Georgetown concerning payments to the contractor.
- Submit authorization to operate package to DHEC for permit to operate on behalf of City.
- Visit the site (excluding visits coinciding with month progress meetings) to observe the progress and quality of the executed work of the Contractor and to determine, in general, if such work is proceeding in accordance with the Contract Documents. During the visit, and on the basis of on-site observations, AECOM will keep the City informed of the progress of the work, will endeavor to guard the City against defects and deficiencies in such work, and may recommend to the City disapproval or rejection of work failing to conform to the Contract Documents. It is understood that the City does not desire to have AECOM provide full-time inspection services. This scope includes two site visits per week for 26 weeks. If additional site visits are required, it is assumed that AECOM will be entitled to additional compensation for the additional services as agreed upon with the City.
- AECOM will conduct a walk-through inspection with the City and the Contractor to determine if the Project has reached substantial and/or final completion and prepare a punch list of work items remaining. AECOM will conduct one final inspection to determine if the work is acceptable, so that AECOM may recommend, in writing, final payment to the Contractor and may give written notice to the City and the Contractor that the work is acceptable.
- Prepare and furnish to the City of Georgetown two (2) complete sets of plans (1-full size and 1-half size copies), drawing and/or maps showing the project as constructed. These plans, drawings and/or maps shall be marked "Record Drawings." Furnish a set of electronic copy of plans of the "Record Drawings" in .pdf format. Record Drawings shall be prepared from information provided by the contractor. As-built survey is not included under this scope of services.

The compensation to AECOM for Construction Administration is based on 180-day construction period. If the project goes beyond the construction period, AECOM shall be entitled to additional compensation for Construction Administration and will be paid on an hourly basis, based on the AECOM hourly rate schedule that is current when the additional work is authorized.

Compensation to AECOM (Task 4)..... Lump Sum, \$24,000.00

Task 5: Construction Observation

The City will be responsible for construction observation during the construction period. If requested, AECOM can provide observation services or assistance during the construction period based on the AECOM hourly rate schedule that is current when the additional work is authorized.



Mr. Will Cook
April 28, 2017
Page 4 of 4

Task 6: Special Services

In addition to the foregoing services, the following special services may be required:

- Laboratory tests, well tests, specialized geological, hydraulic or other studies may be recommended by AECOM. The cost of such tests and/or studies shall be borne by the City of Georgetown; provided however, that the City of Georgetown shall be advised of and give consent to such tests and/or studies prior to their being made.
- Structural engineering services.
- Necessary preparation of sketches, maps, plats, etc., for easements, litigation, shall be provided by the City of Georgetown, if requested by the City of Georgetown.
- Redesign done by the City of Georgetown at the request of the City of Georgetown.
- Services during re-advertisement for bids for construction.
- Other meetings as required and/or requested by permitting agencies.
- Assistance in obtaining and administering other funding for the Project.
- Applications for encroachment permits within railroad rights-of-way.
- City and/or County Planning Commission or other planning authority approvals.
- Preparation of plans and specifications for other "Alternate" bid items.
- Assistance with administering "Liquidated Damages" or other construction penalties.
- Construction contract negotiations after bids are received.
- Other assistance or services as requested by the City of Georgetown and not specifically provided for herein.

For services provided under Task 6, compensation to AECOM shall be on an hourly basis based on the AECOM hourly rate schedule that is current when the work is authorized, or an agreed upon lump sum, and will require prior approval and a separate work authorization.

GRAND TOTAL (Base Proposal, Tasks 1 thru 4) Lump Sum, \$63,200.00

Thank you for the opportunity of submitting this proposal. Please call if you should have any questions or need additional information.

Best Regards,

AECOM


Bryan Fowler
Project Manager


R. Thomas Haselden, Jr., P.E., BCEE
Vice President, SC Water Leader



120 North Fraser Street • Georgetown, SC 29440 • (843) 545-4000

ACTION ITEM

DOC ID: 2324

Council Meeting Date:	13 July 2017
Department:	Engineering
Issue Under Consideration:	Motion to engage AECOM as the engineer of record to provide professional engineering services for the rehabilitation of the West End Sewer System and approve payment for a not to exceed amount of \$210,500. System consists of approximately 40,000 feet of sewer mains which will be under study to identify deficiencies and prepare recommendations for sewer system rehabilitation.
Amount Requested:	\$210,500
Is Item in Current Budget?	Yes
If no, please explain:	
Financial Impact:	The construction of the project is anticipated to be financed by State Revolving Funds (SRF) and CDBG funds.
Points to Consider:	The fee includes Phase I: sewer system evaluation, survey, testing, inspection, technical recommendations, preliminary engineering report; Phase II: design, permitting, coordination with SRF and CDBG, construction administration and observations of approximately 40,000 feet of sewer mains in the West End district. AECOM has prepared preliminary engineering report in 2012 and is familiar with the project tasks.
Options:	
Staff Recommendation:	Select AECOM as the engineer of record.

Reviews:

Orlando Arteaga Completed 06/30/2017 8:48 AM
 Finance Completed 06/30/2017 9:11 AM
 City Attorney Completed 06/30/2017 2:55 PM
 approved as to form
 Paul Gardner Completed 06/30/2017 4:18 PM
 Ann U. Mercer Completed 07/06/2017 12:43 PM
 Georgetown City Council Pending 07/13/2017 5:30 PM

Attachments:

1. 1 City of Georgetown West End Sewer SSES Proposal 5-5-17 (PDF)



AECOM
4106 Salt Point Parkway
Charleston, SC 29405
www.aecom.com

843.767.4602 tel
843.767.4723 fax

May 5, 2017

Will Cook
City of Georgetown
2377 Maybank Drive
Georgetown, SC 29442

**RE: Proposal for Professional Engineering Services for West End Sewer Rehabilitation Project
City of Georgetown, South Carolina**

Dear Mr. Cook:

AECOM is pleased to submit this proposal to provide engineering services for the rehabilitation of the West End Sewer System for the City of Georgetown (City) in Georgetown, South Carolina.

PROPOSED SCOPE OF SERVICES

Project Description

The Project consists of providing Engineering Services for conducting Sewer System Evaluation Survey (SSES) and preparing design plans and specifications for the rehabilitation of the West End sewer system of the City of Georgetown. The investigations of approximately 40,000 LF of sewer mains are intended to identify system deficiencies such as structural, operations and maintenance, and infiltration and inflow (I/I) related problems, and prepare recommendations for sewer system rehabilitation.

The City desires to perform the rehabilitation work in two phases. Phase I will be for the SSES which will be funded under the South Carolina Clean Water State Revolving Fund (CWSRF) program. Phase II will consist of the rehabilitation of the system based on the recommendations from Phase I, and will be funded by CWSRF and a Community Development Block Grant (CDBG). The following tasks outline proposed work to be completed by AECOM for this project.

PHASE I

Task 1: Project Initiation

Task 1.1 – Project Initiation

AECOM will conduct a Project kickoff meeting with City staff to review the proposed plan and schedule for system evaluation as well as discuss the logistics of implementation. A primary objective will be to develop a plan for coordination with City staff. Prior to the meeting, a data request will be submitted to the City. If available, these data will be reviewed and discussed at the initiation meeting.

Compensation to AECOM (Task 1)..... Lump Sum, \$2,500.00

Task 2: Basin Investigation**Task 2.1 – Existing System Information**

For the investigation, AECOM will use existing GIS data and City updated mapping for identification of system defects and recommend repair/rehabilitation efforts.

Task 2.2 – Smoke Testing and Manhole Inspection Verification

AECOM will smoke test the West End gravity sewer collection system which is estimated at 40,000 lf (linear feet) of sewer lines and conduct visual inspections of current manhole conditions. Smoke testing will enable field inspection staff to quickly identify and quantify sources of inflow and rain-induced infiltration entering the sewer collection system. AECOM will also conduct visual inspections of each manhole, during the smoke testing task, to verify inspections conducted previously represent current conditions. This scope of service includes smoke testing of all sewers within the project area less than 15-inches in diameter. AECOM will note, photograph, and provide mapping-grade GPS locations for defects. AECOM will notify the City of critical defects that need immediate attention. Smoke testing in areas with high water tables and/or standing water will limit the effectiveness of smoke testing. AECOM will attempt to schedule smoke testing during dryer weather; however, unforeseen weather events may require the schedule to be adjusted. The visual manhole inspections performed will identify any new or progressive changes that have occurred due to the flood and hurricane to provide up to date analysis of current conditions. Each manhole will be opened and a visual comparison will be performed based on existing inspection reports. Existing manhole inspection reports will be updated representing any new or progressive changes observed. New photographs will be taken to document findings.

Task 2.3 – Closed Circuit Television (CCTV) Inspection

This scope assumes 100% of the 40,000 LF of gravity sewer mains will require CCTV. Defects determined during inspection will be coded based on the National Association of Sewer Service Companies Pipeline Assessment Certification Program (NASSCO PACP) pipeline protocols. This will describe the type of defect as well as the severity of the defect. A CCTV inspection contractor will be retained under separate contract with the City (assumed 11 week duration). AECOM will assist the City in determining scope of work and opinion of probable costs for soliciting bids for performing the CCTV inspections. AECOM will provide oversight during the CCTV inspection related to the management, field inspection, QA/QC of data, etc. (12 hours per week for 11 weeks are included in this scope).

Task 2.4 – Dye Water Testing

Dye water testing can be used to assist in locating cross connections between storm water and sanitary sewer systems or to confirm connections from an identified smoke lead to the sanitary sewer where the connection is not known from the smoke test alone. Non-toxic dye will be used to investigate specific potential interconnections. Storm sewer cross-connections and area drains that are suspected of being connected to the sanitary sewer will be positively identified using the dye tracer procedure. Internal pipeline inspection will determine the exact source of the suspected interconnection and establish the best abatement option. This scope assumes five (5) dye tests will be performed as part of the project. AECOM

will notify the City of critical defects that need immediate attention. AECOM will note, photograph, and provide mapping-grade GPS locations for cross connections.

Compensation to AECOM (Task 2)..... Lump Sum, \$66,250.00

Task 3: Technical Memorandum and Recommendations

AECOM will compile and analyze the data collected and provide a detailed technical memorandum describing our findings from the evaluation. Based upon the findings, we will provide recommendations to address deficiencies that are detected.

Task 3.1 – Data Analysis

AECOM will analyze the results from manhole inspections, smoke testing, CCTV investigations, and dye water testing. AECOM will use the information collected to identify critical defects and factors associated with increased flows into the sanitary sewer system.

Task 3.2 – Summary Report

AECOM will compile and analyze the data collected and provide a detailed technical memorandum describing our findings from the evaluation. Based upon the findings, recommendations will be provided to address deficiencies that are detected.

Services provided by AECOM related to Sewer Assessment Results and Recommendations are to include:

- Analyze the results from smoke testing and CCTV investigations.
- AECOM will provide the City one (1) bound copy of all CCTV (NASSCO PACP) Reports from the contractor.
- AECOM will update the West End Manhole Inspection Reports (Vol II) collected in 2012 and incorporate into summary report and recommendations.
- AECOM will provide a draft summary report to the City detailing the field investigation, findings, rehabilitation recommendations, and recommendations for future evaluations. AECOM will meet with the City staff (1 meeting) to discuss the report and recommendations for rehabilitation and further actions.
- A Final Summary Report will include a list of recommended prioritized rehabilitation projects. The recommended rehabilitation approach will be determined based on the SSES information. AECOM will evaluate multiple rehabilitation methods and make recommendations based on cost and other factors such as Operations & Maintenance (O&M), community impacts, City standards, etc. In addition to the rehabilitation recommendation, information required for rehabilitation design will be delivered including sags observed, stationing of the required point repairs, manholes requiring lining, and other manhole rehabilitation work required. Preliminary Construction of Probable Cost for rehabilitation of the sewer mains and manholes will be prepared. A schedule of quantities will be developed, which will include, but not limited to the following types of sewer construction work as applicable:
 - o Cured-in-place structural pipe lining
 - o Pipe bursting replacement
 - o Rehabilitation of manholes using cementitious liners and/or epoxy liners
 - o Replacement of manhole covers and/or frames



- o Point repairs to replace sections of damaged or collapsed sewers
- o Open cut sewer pipe and manhole replacement

Compensation to AECOM (Task 3)..... Lump Sum, \$28,750.00

Task 4: Preliminary Engineering Report

Task 4.1 – Preliminary Engineering Report

AECOM had previously prepared a Preliminary Engineering Report (PER) for funding applications, which included multiple projects. The City desires to separate the remaining projects not completed into individual projects.

AECOM will modify the previously completed PER in accordance with South Carolina R.61-58 and the requirements of the South Carolina CWSRF Program, for the West End Sewer System Study and rehabilitation. The report will be updated to incorporate the recommendations from the Final Summary Report above and will be provided to the City for its use in preparing and submitting an application to the SCDHEC SRF program and CDBG program.

Compensation to AECOM (Task 4)..... Lump Sum, \$4,000.00

Task 5: Coordination with SRF and CDBG

For Phase I and Phase II, the City will be applying for a loan from the SCDHEC State Revolving Fund program. In addition, for Phase II, the City will be applying for a Department of Commerce Community Development Block Grant. AECOM will coordinate the requirements of the SRF program and the CDBG program with the SRF and CDBG staffs. SRF and CDBG program requirements will be incorporated into the project tasks as required.

Compensation to AECOM (Task 5)..... Lump Sum, \$13,000.00

(Note: Estimated time to complete Phase I is 6 months from date of notice to proceed.)

SUBTOTAL Phase I (Base Proposal, Tasks 1 thru 5).....Not-To-Exceed Lump Sum, \$114,500.00

PHASE II

Task 1: Rehabilitation Implementation

Task 1 consists of providing Engineering Services related to the rehabilitation of the sewer system as determined from the Sewer System Evaluation Survey (SSES) described above. It is assumed that all existing sewer mains are either on City owned property or within existing easements or right-of-ways. If



additional property and/or easements must be acquired, Engineering Services Related to this work can be provided described in additional services below.

Task 1.1 – Project Initiation

AECOM will conduct a Project kickoff meeting with City staff to determine a schedule and a plan for implementation of the recommended repair/rehabilitation projects identified in the Summary Report above.

Task 1.2 – Design Drawings and Specifications

AECOM will revise previously prepared contract documents for the City in order to invite bids for the construction of the sewer repairs and rehabilitation. This Scope of Services assumes that design drawings and specifications will be developed based on the assumption that 100% of the sewer in the project area (or approximately 40,000 feet) will require rehabilitation. AECOM will provide the City of Georgetown one (1) copy of plans and specifications for the Project for review and approval at 90% and 100% submittal intervals. It is assumed that work will be implemented under a single construction contract; if multiple construction contracts are required, the fees will be amended for the additional engineering services.

Standard specifications and Contract Documents are to be provided by the City. AECOM will provide bid forms to be incorporated into the City's standard proposal section, special provisions section (as applicable), contract exhibits, technical specifications as necessary, in addition to the ones provided by the City.

AECOM shall provide one (1) trip at the 90% project review with the City of Georgetown.

Task 1.3 – Prepare Final Cost Estimates

Based on information contained in the design documents, AECOM shall submit an opinion of the probable cost for the Project at the 90% and 100% review milestones, including construction costs, contingencies and other related items. Since AECOM has no control over the cost of labor, materials, equipment, or the Contractor's methods of determining price or competitive bidding, AECOM cannot and does not guarantee that proposals, bids, or the Project construction cost will not vary from AECOM's opinion of the probable cost of the Project.

Compensation to AECOM (Task 1)..... Lump Sum, \$39,250.00

Task 2: Permitting

AECOM shall work with these agencies and assist the City in efforts to obtain the necessary permits and/or approvals from these agencies:

Services provided by AECOM under Task 2, Permitting are to include:

- South Carolina Department of Transportation – Highway Encroachment Permit.
- South Carolina Department of Health and Environmental Control – Construction Permit.
- South Carolina Department of Health and Environmental Control – Stormwater Permit



All permit fees shall be paid by the City of Georgetown. AECOM will provide the necessary number of documents to the various permitting and/or approval agencies listed above.

Compensation to AECOM (Task 2)..... Lump Sum, \$4,500.00

Task 3: Bidding

Services provided by AECOM related to bidding are to include:

- AECOM shall answer questions of contractors, subcontractors, equipment suppliers, etc. and shall issue addendums to the plans and specifications as appropriate.
- AECOM shall attend the bid opening and assist the City of Georgetown in opening and reading the contractor's bids.
- AECOM shall review bids received and shall prepare a recommendation of award to the City of Georgetown. Once the City has accepted the bids for the Project, AECOM will prepare contract documents and coordinate the completion of these by the contractor and the City.

Compensation to AECOM (Task 3)..... Lump Sum, \$6,000.00

Task 4: Construction Administration

Services provided by AECOM related to Construction Administration are to include:

- Prior to commencement of construction of the Project, AECOM shall schedule and conduct a preconstruction conference to review Project schedules, requirements, conditions, etc.
- Review, for compliance with specification, shop drawings, material and equipment submittals provided by the contractor for the Project.
- If a construction change order is required, review and make recommendation to the City of Georgetown for approval.
- Review the contractor's periodic requests for payment and make recommendations to the City of Georgetown concerning payments to the contractor.
- Hold monthly progress meetings that will address critical schedule requirements, payment procedures, emergency procedures, schedule updates, coordination issues, change orders, quality assurance testing approvals, and any other issues related to completion of the project. 9 monthly progress meetings are budgeted.
- Visit the site (excluding visits coinciding with month progress meetings) to observe the progress and quality of the executed work of the Contractor and to determine, in general, if such work is proceeding in accordance with the Contract Documents. During the visit, and on the basis of on-site observations, AECOM will keep the City informed of the progress of the work, will endeavor to guard the City against defects and deficiencies in such work, and may recommend to the City disapproval or rejection of work failing to conform to the Contract Documents. It is understood that the City does not desire to have AECOM provide full-time inspection services. This scope includes ten (10) hours per week for 39 weeks. If additional site visits are required, it is assumed that AECOM will be entitled to additional compensation for the additional services as agreed upon with the City.
- Review and respond to project related questions from contractors at two (2) hours per week for a 39 week construction period.
- Review of all post-video inspections and reports from the contractor.

- AECOM will conduct a walk-through inspection with the City and the Contractor to determine if the Project has reached substantial and/or final completion and prepare a punch list of work items remaining. AECOM will conduct one final inspection to determine if the work is acceptable, so that AECOM may recommend, in writing, final payment to the Contractor and may give written notice to the City and the Contractor that the work is acceptable.

The compensation to AECOM for Construction Administration is based on a 9-month construction period. If the project goes beyond the construction period, AECOM shall be entitled to additional compensation for Construction Administration and will be paid on an hourly basis, based on the AECOM hourly rate schedule that is current when the additional work is authorized.

Compensation to AECOM (Task 4)..... Lump Sum, \$46,250.00

Task 6: Construction Observation

The City will be responsible for construction observation during the construction period. If requested, AECOM can provide observation services or assistance during the construction period based on the AECOM hourly rate schedule that is current when the additional work is authorized.

Task 7: Additional Services

The following additional services may be provided upon request by the City:

- Additional surveying outside original scope or for record drawings
- Additional SSES data collection including CCTV inspection
- Preparation of construction and bid documents for emergency sewer repairs (collapsed lines, sink holes, etc.) not included in the Phase II rehabilitation construction contract
- Inspections and/or admin services for emergency sewer repairs
- Pre-and/or post-rehabilitation flow monitoring
- Inspections in excess of the specific numbers listed in the specific tasks
- Flood study or Flood Impact Analysis
- Mapping or updating the system map
- Geotechnical services
- Preparation of easement plats
- Hydraulic capacity evaluations
- Professional Engineering services related to additional or extended design, bidding, and construction services
- Additional permitting (railroad, wetlands, etc.)
- Structural engineering services.
- Necessary preparation of sketches, maps, plats, etc., for easements, litigation, etc.
- Redesign requested by the City of Georgetown.
- Services during re-advertisement for bids for construction.
- Assistance in obtaining and administering other funding for the Project.
- Applications for encroachment permits within railroad rights-of-way.
- Preparation of plans and specifications for other "Alternate" bid items.
- Construction contract negotiations after bids are received.
- Additional meetings with the City and agencies beyond those scheduled in the specific tasks
- Preparation of an "Advertisement For Bids" and publishing in an area newspaper and/or other locations as appropriate.



- Printing and distribution of plans during bidding.
- Preparation of change orders during construction.
- Review and approve monthly payrolls from contractor and subcontractors.
- Other assistance or services as requested by the City of Georgetown and not specifically provided for herein.

For services provided under Task 6, compensation to AECOM shall be on an hourly basis based on the AECOM hourly rate schedule that is current when the work is authorized or an agreed upon lump sum. These services will require prior approval and a separate work authorization.

SUBTOTAL Phase II (Base Proposal, Tasks 1 thru 5).....Not-To-Exceed Lump Sum, \$96,000.00

TOTAL Phase I and IINot-To-Exceed Lump Sum, \$210,500.00

(Note: Proposed fees include travel and printing expenses.)

Thank you for the opportunity of submitting this proposal. Please call if you should have any questions or need additional information.

Best Regards,

AECOM


R. Thomas Haselden, Jr., P.E., BCEE
Vice President

 
Bryan Fowler
Project Manager



120 North Fraser Street • Georgetown, SC 29440 • (843) 545-4000

ACTION ITEM

DOC ID: 2331

Council Meeting Date:	13 July 2017
Department:	Engineering
Issue Under Consideration:	Motion to approve bid for construction of boat trailer parking lot at East Bay Park and to make payment to Gaster's Grading Co. Inc. for a not to exceed amount of \$593,250.00.
Amount Requested:	\$593,250.00
Is Item in Current Budget?	Yes
If no, please explain:	
Financial Impact:	None
Points to Consider:	A 5% contingency fee (\$28,250) has been added to the base bid price of \$565,000.
Options:	Approve or Disapprove
Staff Recommendation:	Approve bid and award contract to Gaster's Grading Co. Inc.

Reviews:

Orlando Arteaga Completed 07/03/2017 11:17 AM
 Finance Completed 07/03/2017 11:57 AM
 City Attorney Completed 07/03/2017 5:40 PM
 Paul Gardner Completed 07/05/2017 7:44 AM
 Ann U. Mercer Completed 07/06/2017 12:49 PM
 Georgetown City Council Pending 07/13/2017 5:30 PM

Attachments:

1. 1 Bid Tabulation Form - Project #1205-B (PDF)
2. 2 Bid Tabulation Summary - Project #1205-B (PDF)
3. 3 GASTERS GRADING BID (PDF)
4. 4 Gaster Contractor Subcontractor Qualifications (PDF)

TABULATION FORM

Bid: #1205-B

Date: 29 June 2017

Description: EAST BAY PARK IMPROVMENTS – BOAT TRAILER PARKING

Vendor	BID GRAND TOTAL	Bid Form	Ack. of Addenda	Subcontractor List	5% Bid Bond	NRMCA Previous Concrete Certification	Local Vendor Preference
Gaster's Grading	\$565,000.00	X	X	X	X	X	X
Green Wave Contracting	\$652,975.00	X	X	X	X	X	X
Greenwall Construction	719,177.00	X	X	X	X	X	X
Palmetto Corp	\$734,740.75	X	X	X	X	X	X

Reviewed and Prepared by Kevin J. Barnes, PE – Mead & Hunt, Inc.

Signature: 

BOAT TRAILER PARKING

ITEM NO.	TASK DESCRIPTION	QUANTITY	UNIT	1		2		3		4	
				Gaster's Grading Unit Price	Gaster's Grading Total Price	Green Wave Contracting Unit Price	Green Wave Contracting Total Price	Greenwall Construction Unit Price	Greenwall Construction Total Price	Palmetto Corp Unit Price	Palmetto Corp Total Price
1	MOBILIZATION, COORDINATION, AND PROTECTION OF EXISTING UTILITIES	1	LS	\$7,913.25	\$7,913.25	\$50,000.00	\$50,000.00	\$92,810.00	\$92,810.00	\$25,000.00	\$25,000.00
GRADING & DRAINAGE											
1	FINE GRADING (PAVING)	3,646	SY	\$4.75	\$17,318.50	\$1.50	\$5,469.00	\$4.73	\$17,245.58	\$5.50	\$20,053.00
2	REMOVE AND REPLACE CATCH BASIN	1	EA	\$3,200.00	\$3,200.00	\$4,000.00	\$4,000.00	\$4,725.00	\$4,725.00	\$3,800.00	\$3,800.00
3	PERIMETER DITCHES	1,365	LF	\$4.25	\$5,801.25	\$10.00	\$13,650.00	\$6.30	\$8,599.50	\$7.30	\$9,964.50
4	SWALES	816	LF	\$7.50	\$6,120.00	\$12.00	\$9,792.00	\$6.30	\$5,140.80	\$6.15	\$5,018.40
5	TEMPORARY CONSTRUCTION ENTRANCE	1	EA	\$1,750.00	\$1,750.00	\$2,500.00	\$2,500.00	\$2,625.00	\$2,625.00	\$6,000.00	\$6,000.00
6	HYDROSEEDING (EXCLUDES FIELDS AND SODDED AREAS)	2.0	AC	\$2,900.00	\$5,800.00	\$2,200.00	\$4,400.00	\$3,150.00	\$6,300.00	\$2,500.00	\$5,000.00
7	15" RCP	185	LF	\$39.00	\$7,215.00	\$40.00	\$7,400.00	\$39.90	\$7,381.50	\$57.00	\$10,545.00
8	15" STORM CHECK VALVE	1	EA	\$5,500.00	\$5,500.00	\$1,800.00	\$1,800.00	\$4,163.08	\$4,163.08	\$5,600.00	\$5,600.00
9	18" STORM CHECK VALVE	1	EA	\$6,500.00	\$6,500.00	\$2,000.00	\$2,000.00	\$4,710.64	\$4,710.64	\$6,700.00	\$6,700.00
10	15" FLARED END SECTION	1	EA	\$1,000.00	\$1,000.00	\$300.00	\$300.00	\$1,050.00	\$1,050.00	\$1,000.00	\$1,000.00
11	CLEAN AND GRADE EXISTING DITCH	40	LF	\$10.00	\$400.00	\$20.00	\$800.00	\$6.30	\$252.00	\$15.70	\$628.00
12	HAUL OFF STRIPPINGS / MUCK	1,514	CY	\$12.50	\$18,925.00	\$12.00	\$18,168.00	\$10.50	\$15,897.00	\$19.80	\$29,977.20
13	PLACE IMPORTED FILL	1,273	CY	\$16.50	\$21,004.50	\$20.00	\$25,460.00	\$14.18	\$18,051.14	\$25.20	\$32,079.60
SEDIMENT AND EROSION CONTROL											
1	CLEAR AND GRUB SITE	2.5	AC	\$1,400.00	\$3,500.00	\$4,000.00	\$10,000.00	\$2,415.00	\$6,037.50	\$1,350.00	\$3,375.00
2	SILT FENCE	1,136	LF	\$3.50	\$3,976.00	\$4.00	\$4,544.00	\$4.73	\$5,373.28	\$2.25	\$2,556.00
3	INLET PROTECTION	1	EA	\$125.00	\$125.00	\$200.00	\$200.00	\$1,575.00	\$1,575.00	\$150.00	\$150.00
4	ROCK CHECK DAMS	1	LS	\$800.00	\$800.00	\$8,000.00	\$8,000.00	\$23,100.00	\$23,100.00	\$1,100.00	\$1,100.00
5	TREE PROTECTION	12	EA	\$150.00	\$1,800.00	\$200.00	\$2,400.00	\$367.50	\$4,410.00	\$10.00	\$120.00
PAVING											
1	2" ASPHALTIC SURFACE COURSE IN PARKING LOT	379	TON	\$124.00	\$46,996.00	\$130.00	\$49,270.00	\$104.48	\$39,597.92	\$126.00	\$47,754.00
2	3" ASPHALTIC SURFACE COURSE (ENTRANCES ON SCDOT ROW)	56	TON	\$124.00	\$6,944.00	\$130.00	\$7,280.00	\$116.03	\$6,497.68	\$136.00	\$7,616.00
3	2" MILL AND OVERLAY ON EAST BAY STREET	255	SY	\$37.50	\$9,562.50	\$42.00	\$10,710.00	\$31.50	\$8,032.50	\$36.00	\$9,180.00
4	6" PERVIOUS CONCRETE PAVEMENT SURFACE	3,211	SY	\$58.00	\$186,238.00	\$57.00	\$183,027.00	\$60.48	\$194,201.28	\$80.00	\$256,880.00
5	8" GRADED AGGREGATE BASE COURSE (GABC)	1,867	TON	\$37.00	\$69,079.00	\$41.00	\$76,547.00	\$50.40	\$94,096.80	\$43.00	\$80,281.00
6	12" OPEN GRADED BASE COURSE (OGB, WASHED #57)	1,572	TON	\$49.00	\$77,028.00	\$53.00	\$83,316.00	\$73.50	\$115,542.00	\$67.00	\$105,324.00
7	PAVEMENT MARKINGS (STOP BAR, STRIPING, H.C. SPACES, ARROWS)	1	LS	\$3,300.00	\$3,300.00	\$7,500.00	\$7,500.00	\$2,976.75	\$2,976.75	\$3,000.00	\$3,000.00
8	PERVIOUS CONCRETE BORDER CURB	1,473	LF	\$14.25	\$20,990.25	\$18.00	\$26,514.00	\$10.50	\$15,466.50	\$20.25	\$29,828.25
9	NON-WOVEN GEOTEXTILE FABRIC	3,532	SY	\$1.75	\$6,181.00	\$4.00	\$14,128.00	\$1.31	\$4,626.92	\$1.90	\$6,710.80
MISC. COST											
1	SIGNAGE	2	EA	\$270.00	\$540.00	\$400.00	\$800.00	\$157.50	\$315.00	\$750.00	\$1,500.00
2	FUTURE BATHROOM WATER, SEWER, ELECTRIC	1	LS	\$11,500.00	\$11,500.00	\$18,000.00	\$18,000.00	\$4,725.00	\$4,725.00	\$12,000.00	\$12,000.00
3	CERTIFIED AS-BUILT SURVEY FOR INFILTRATION SYSTEM (PERVIOUS CONCRETE)	1	LS	\$7,992.75	\$7,992.75	\$5,000.00	\$5,000.00	\$3,675.00	\$3,675.00	\$6,000.00	\$6,000.00
BID TOTAL					\$565,000.00		\$652,975.00	Multiple Rounding Errors	\$719,200.37		\$734,740.75

Reviewed and Prepared by Kevin J. Barnes, P.E. - Mead & Hunt, Inc.

Signature:



 Corrected Miscalculations

 Typo

**SECTION 00311
BID FORM**

EAST BAY PARK IMPROVEMENTS-BOAT TRAILER PARKING, PROJECT #1205-B.
For the City of Georgetown, SC

Date: June 29, 2017

PROPOSAL OF Gaster's Grading Co. Inc

(hereinafter called "Bidder"), a South Carolina (State)

corporation/partnership/individual (Strike out inapplicable terms) doing business as

TO: City of Georgetown, SC

TO: Whom it may concern:

The Bidder, in compliance with your invitation for bids for the **EAST BAY PARK IMPROVEMENTS-BOAT TRAILER PARKING, PROJECT #1205-B** having examined the drawings and specifications with related documents and the site of the proposed work, and being familiar with all of the conditions surrounding the construction of the proposed project, including the availability of materials and labor, hereby proposes to furnish all labor, materials, and supplies, and to construct the project in accordance with the Contract Documents, within the time set forth therein, for the Lump Sum of:

Five hundred sixty five thousand Dollars \$ (565,000.00)

The lump sum price indicated above shall include all labor, materials, overhead, profit, insurance, taxes, fees, etc., to cover all expenses incurred in performing the work required under the Contract Documents, of which this proposal is a part.

The lump sum price indicated above shall also include the amounts indicted as Allowances, if any, and as described in the Division 1 Section "Allowances". Should actual cost vary from the Allowance listed, The Contract Sum shall be adjusted by Change Order.

Bidder hereby agrees to commence work under this contract on or before a date to be specified in written "Notice to Proceed" of the Owner and to fully complete the project within **Ninety (90)** consecutive calendar days after specified date on Notice to Proceed.

BID FORM
00311-1

Packet Pg. 411

Attachment: GASTERS GRADING BID (2331 : Approval of bid for East Bay Park boat trailer parking lot)

Bidder further agrees to pay as liquidated damages the sum of \$500.00 for each consecutive calendar day thereafter as hereinafter provided in Paragraph 19 of the General Conditions 00700.1.

The specifications and addenda are complementary of each other. What is called for by one shall be as binding as if called for by all. If a conflict between any of the above is discovered by the contractor, the problem shall be referred to the Owner as soon as possible for resolution by the Owner. Should a conflict occur which is not resolved before bid time and/or is necessary to comply with mandatory requirements (i.e., codes, ordinances, etc.), it shall be the contractor's responsibility to price and bid the more expensive method.

Bidder acknowledges receipt of the following addendum:

No.: 1 Dated: 6/7/17

No.: 2 Dated: 6/22/17

No.: Dated:

No.: Dated:

No.: Dated:

Bidder understands that the Owner reserves the right to reject any or all bids and to waive any informality in the bidding.

The Bidder agrees that this Bid shall be good and may not be withdrawn for a period of sixty (60) Calendar days after the scheduled closed time for receiving bids.

Item No.	Task Description	Quantity	Unit	Unit Price	Total Price
1	Mobilization, Coordination and Protection of Exst. Utilities	1	ls	7,913.25	7913.25
GRADING & DRAINAGE					
1	Fine Grading (paving)	3,646	sy	4.75	17,318.50
2	Remove and Replace Catch Basin	1	ea	3200.00	3,200.00
3	Perimeter Ditches	1,365	lf	4.25	5801.25
4	Swales	816	lf	7.50	6120.00
5	Temporary Construction Entrance	1	ea	1750.00	1,750.00
6	Hydroseeding (excludes fields and sodded areas)	2.0	ac	2900.00	5,800.00
7	15" RCP	185	lf	39.00	7,215.00
8	15" Storm Check Valve	1	ea	5,500.00	5,500.00
9	18" Storm Check Valve	1	ea	6,500.00	6,500.00
10	15" Flared End Section	1	ea	1,000.00	1,000.00
11	Clean and Grade Ex. Ditch	40	lf	10.00	400.00
12	Haul Off strippings / muck	1,514	cy	12.50	18,925.00
13	Place Imported Fill	1,273	cy	16.50	21,004.50
SEDIMENT AND EROSION CONTROL					
1	Clear and Grub Site	2.5	ac	1400.00	3,500.00
2	Silt Fence	1,136	lf	3.50	3,976.00
3	Inlet Protection	1	ea	125.00	125.00
4	Rock Check Dams	1	ls	800.00	800.00
5	Tree Protection	12	ea	150.00	1,800.00
PAVING					
1	2" Asphaltic Surface Course in Parking Lot	379	Ton	124.00	46,996.00
2	3" Asphaltic Surface Course (entrances on SCDOT ROW)	56	Ton	124.00	6,944.00
3	2" Mill and Overlay on East Bay Street	255	sy	37.50	9562.50
4	6" Pervious Concrete Pavement Surface	3,211	sy	58.00	186,238.00
5	8" Graded Aggregate Base Course (GABC)	1,867	Ton	37.00	69,079.00
6	12" Open Graded Base Course (OGBC, Washed #57)	1,572	Ton	49.00	77,028.00
7	Pavement Markings (stop bar, striping, H.C. spaces, arrows)	1	ls	3300.00	3,300.00
8	Perv. Concrete Border Curb	1,473	lf	14.25	20,990.25
9	Non-woven Geotextile Fabric	3,532	sy	1.75	6,181.00
MISC. COST					
1	Signage	2	ea	270.00	540.00
2	Future Bathroom Water, Sewer, Electric	1	ls	11,500.00	11,500.00
3	Certified as-built survey for infiltration system (pervious concrete)	1	ls	7992.75	7992.75
TOTAL BID PRICE					565,000.00

BID FORM
00311-4

SUBCONTRACTOR LIST

Subcontracting - If any part of the work covered by this RFB is to be subcontracted, the contractor shall identify the subcontracting organization at the time of the offer. All subcontractors must be approved by the City.

Sub-contractors (with contact information) to be utilized in project:

SUBCONTRACTOR	COMPANY NAME/ADDRESS	CONTACT NAME/ PHONE
GRADING & DRAINAGE	Gaster's Grading Co. Inc 374 Lake City Hwy Johnsenville SC 29555	Andrew Gaster 843-319-8393
ASPHALT PAVING	Palmetto Corp 3873 Hwy 701 North Conway SC 29526	Shawn Lee 843-446-0010
PERVIOUS CONCRETE PAVING	Surface Works 2260 Acie Ave Conway SC 29527	Jay Bird Harris 843-241-3573
PAVEMENT MARKINGS	Weaver Construction Services P.O. Box 3267 N. Myrtle Beach SC 29582	Daniel Weaver 843-241-4614

Attachment: GASTERS GRADING BID (2331 : Approval of bid for East Bay Park boat trailer parking lot)

The undersigned declares that his firm is (delete those not applicable): A corporation organized and existing under the laws of the State of South Carolina

A partnership consisting of:

The undersigned declares that the person or persons signing this proposal is fully authorized to sign the proposal on behalf of the firm listed and to fully bind the firm listed to all the conditions and provisions thereof.

It is agreed that no person or persons or company other than the firm listed below or as otherwise indicated hereinafter has any interest whatsoever in this proposal or the contract that may be entered into as a result thereof, and that in all respects the proposal is legal and fair, submitted in good faith, without collusion or fraud.

Respectfully Submitted:

Gaster's Grading Co. Inc

Contractor

(SEAL – if bid is by a Corporation)

By: Andrew B. Gaster

Andrew B. Gaster

(Type/Print Name)

President

(Title)

374 Lake City Hwy

(Street Address)

Johnsonville SC 29555

(City, State, Zip Code)

S.C. General Contractor's License No. 6116100

27-3122624
FID No. _____ and/or SSN _____

(END OF SECTION)

00350 BID BOND

KNOW ALL MEN BY THESE PRESENT:

That we, the undersigned GASTER'S GRADING CO., INC., as Principal, and OLD REPUBLIC SURETY COMPANY, as Surety, are hereby held and firmly bound unto the City of Georgetown, South Carolina, as Owner, in the penal sum of 5% OF PRINCIPAL'S BID -----Dollars _____Cents (\$ _____), for the payment of which, well and truly to be made, we hereby jointly and severally bind ourselves, successors and assigns.

Signed this 29th day of June, 2017.

The condition of the above obligation is such that:

WHEREAS, the Principal has submitted to CITY OF GEORGETOWN a certain Bid, attached hereby and by reference made a part hereof, to enter into a contract in writing for the East Bay Park Improvements - Boat Trailer Parking.

NOW, THEREFORE,

- (A) If said Bid shall be rejected, or
- (B) If said Bid shall be accepted and the Principal shall execute and deliver a contract in the Form of Contract attached hereto (properly completed in accordance with said Bid) and shall furnish a Bond for faithful performance of said contract, and for the payment of all persons performing labor furnishing materials in connection therewith, and shall in all other respects perform the agreement created by the acceptance of said Bid, then this obligation shall be void; otherwise the same shall remain in force and effect - it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall, in no event, exceed the penal amount of this obligation as herein stated.

The Surety, for value received, hereby stipulates and agrees that the obligations of said Surety and its Bond shall be in no way impaired or affected by an extension of the time within which the Owner may accept such Bid, and said Surety does hereby waive notice of any such extension.

IN WITNESS WHEREOF, the Principal and Surety have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers, the day and year first set forth above.

BID BOND

00350-1

GASTER;S GRADING CO., INC.

Principal

(Corporate Seal)

By: Andrew B. Gaster (I.S)

OLD REPUBLIC SURETY COMPANY

Surety

(Corporate Seal)

By: Sara Jo Kent (I.S)
Sara Jo Kent, Attorney-in-Fact

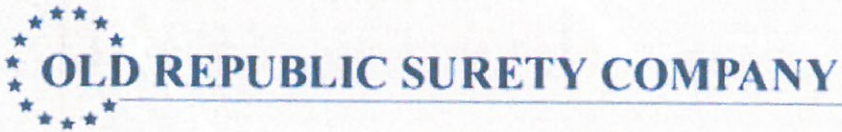
Important: Surety companies executing Bonds must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the state where the project is located.

Note: Bond must be countersigned by a South Carolina resident agent.

(END OF SECTION)

BID BOND

00350-2



POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS: That OLD REPUBLIC SURETY COMPANY, a Wisconsin stock insurance corporation, does make, constitute and appoint:

SARA JO KENT, KENNETH A. FINCH, OF COLUMBIA, SC

its true and lawful Attorney(s)-in-Fact, with full power and authority, not exceeding \$50,000,000, for and on behalf of the company as surety, to execute and deliver and affix the seal of the company thereto (if a seal is required), bonds, undertakings, recognizances or other written obligations in the nature thereof, (other than bail bonds, bank depository bonds, mortgage deficiency bonds, mortgage guaranty bonds, guarantees of installment paper and note guaranty bonds, self-insurance workers compensation bonds guaranteeing payment of benefits, asbestos abatement contract bonds, waste management bonds, hazardous waste remediation bonds or black lung bonds), as follows:

ALL WRITTEN INSTRUMENTS IN AN AMOUNT NOT TO EXCEED
TEN MILLION DOLLARS (\$10,000,000) ----- FOR ANY SINGLE OBLIGATION

and to bind OLD REPUBLIC SURETY COMPANY thereby, and all of the acts of said Attorneys-in-Fact, pursuant to these presents, are ratified and confirmed. This document is not valid unless printed on colored background and is multi-colored. This appointment is made under and by authority of the board of directors at a special meeting held on February 18, 1982. This Power of Attorney is signed and sealed by facsimile under and by the authority of the following resolutions adopted by the board of directors of the OLD REPUBLIC SURETY COMPANY on February 18, 1982.

RESOLVED that, the president, any vice-president, or assistant vice president, in conjunction with the secretary or any assistant secretary, may appoint attorneys-in-fact or agents with authority as defined or limited in the instrument evidencing the appointment in each case, for and on behalf of the company to execute and deliver and affix the seal of the company to bonds, undertakings, recognizances, and suretyship obligations of all kinds; and said officers may remove any such attorney-in-fact or agent and revoke any Power of Attorney previously granted to such person.

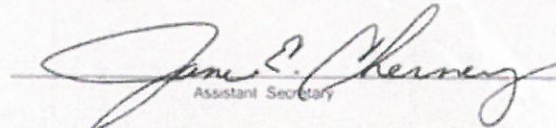
RESOLVED FURTHER, that any bond, undertaking, recognizance, or suretyship obligation shall be valid and binding upon the Company

- (i) when signed by the president, any vice president or assistant vice president, and attested and sealed (if a seal be required) by any secretary or assistant secretary; or
- (ii) when signed by the president, any vice president or assistant vice president, secretary or assistant secretary, and countersigned and sealed (if a seal be required) by a duly authorized attorney-in-fact or agent; or
- (iii) when duly executed and sealed (if a seal be required) by one or more attorneys-in-fact or agents pursuant to and within the limits of the authority evidenced by the Power of Attorney issued by the company to such person or persons.

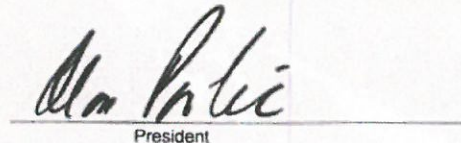
RESOLVED FURTHER, that the signature of any authorized officer and the seal of the company may be affixed by facsimile to any Power of Attorney or certification thereof authorizing the execution and delivery of any bond, undertaking, recognizance, or other suretyship obligations of the company; and such signature and seal when so used shall have the same force and effect as though manually affixed.

IN WITNESS WHEREOF, OLD REPUBLIC SURETY COMPANY has caused these presents to be signed by its proper officer, and its corporate seal to be affixed this 9TH day of FEBRUARY, 2017.

OLD REPUBLIC SURETY COMPANY


Assistant Secretary

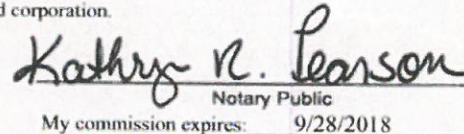



President

STATE OF WISCONSIN, COUNTY OF WAUKESHA-SS

On this 9TH day of FEBRUARY, 2017, personally came before me, Alan Pavlic and Jane E Cherney, to me known to be the individuals and officers of the OLD REPUBLIC SURETY COMPANY who executed the above instrument, and they each acknowledged the execution of the same, and being by me duly sworn, did severally depose and say: that they are the said officers of the corporation aforesaid, and that the seal affixed to the above instrument is the seal of the corporation, and that said corporate seal and their signatures as such officers were duly affixed and subscribed to the said instrument by the authority of the board of directors of said corporation.




Notary Public
My commission expires: 9/28/2018

CERTIFICATE

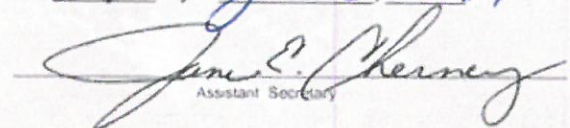
I, the undersigned, assistant secretary of the OLD REPUBLIC SURETY COMPANY, a Wisconsin corporation, CERTIFY that the foregoing and attached Power of Attorney remains in full force and has not been revoked; and furthermore, that the Resolutions of the board of directors set forth in the Power of Attorney, are now in force.

87-7363

(Expiration of notary commission does not invalidate this instrument)

Signed and sealed at the City of Brookfield, WI this 29th day of June 2017




Assistant Secretary

ADAMS EADDY & ASSOCIATES

THIS DOCUMENT HAS A COLORED BACKGROUND AND IS MULTI-COLORED ON THE FACE. THE COMPANY BACK OF THIS DOCUMENT AS A WATERMARK. IF THESE FEATURES ARE ABSENT, THIS DOCUMENT IS NOT VALID.



Attachment: GASTERS GRADING BID (2331 : Approval of bid for East Bay Park boat trailer parking lot)

Packet Pg. 420

MANDATORY VENDOR SUBMITTAL FORM

AN ORDINANCE TO AMEND
CHAPTER 2 ADMINISTRATION - ARTICLE IV
PROCUREMENT - JANUARY 19, 2017

SECTION 2-185 COMPETITIVE SEALED PROPOSALS LOCAL VENDOR PREFERENCE

ARTICLE IV.
PROCUREMENT
DIVISION 2. ETHICS IN CITY CONTRACTING

- I certify that [Company Name]
is a Resident Bidder of Georgetown City/County as defined in the City of Georgetown Ordinance
Chapter 2 Administration, Article IV Procurement, Section 2-185, and our principal place of
business is _____ [City and State].

⊙ I certify that [Company Name] Gaster's Grading Co Inc
is a Non-Resident Bidder of Georgetown City/County as defined in the City of Georgetown
Ordinance Chapter 2 Administration, Article IV Procurement, Section 2-185, and our principal
place of business is Johnsenville SC [City and State].


Signature of Company Officer

(END OF SECTION)

INFORMATION FOR BIDDERS
00100-8

**CITY OF GEORGETOWN, SOUTH CAROLINA
EAST BAY PARK IMPROVEMENTS PROJECT
BOAT TRAILER PARKING
PROJECT No. 1205-B**

CONTRACTOR/SUBCONTRACTOR QUALIFICATIONS

1.1 DESCRIPTION

- A. Information submitted will be used by the Owner to determine the competency and ability of the Contractor/Subcontractor to perform the scheduled work in a manner deemed satisfactory to the Owner. The Owner's decision shall be final.
- B. Any Subcontractor used by the General Contractor whose portion of this project exceeds 10% of the total bid shall be required to provide the same information as the General Contractor.
- C. The General Contractor/Subcontractor shall include with this section a detailed financial statement indicating the Contractor's/Subcontractor's financial resources. The information on that statement shall be certified by a Certified Public Accountant.
- D. The Contractor/Subcontractor shall certify by attaching his signature to this document as provided that all information contained herein is complete and all statements and answers are accurate and true. Providing misinformation, incomplete information, inaccurate information, or failure to certify the information, will subject bidder to disqualification.

1.2 QUALIFICATIONS

- A. Complete the following (attach additional sheets as required):

- 1. Name: Gaster's Grading Co. Inc
- 2. Address: P.O. Box 871 Johnsons Creek SC 29555
- 3. City, State, Zip: _____
- 4. Principal: Andrew Gaster

- B. Number of years your firm has been in business: 7 years

- C. List and describe a minimum of five (5) previous projects of similar size and nature completed in the last ten (10) years. (Attach additional sheets, if necessary):

- 1. Fairfield Inn Florence SC
- _____
- _____

CITY OF GEORGETOWN, SOUTH CAROLINA
EAST BAY PARK IMPROVEMENTS PROJECT
BOAT TRAILER PARKING
PROJECT No. 1205-B

2. Dollar General Murrell's Inlet SC

3. Home 2 Suites Hotel Florence SC

4. Bojangles Florence SC

5. Indigo Point Elderly Housing

D. List Owner, contact and telephone number for each of the five (5) projects referenced above. (Attach additional sheets, if necessary):

1. Fair Flo LLC Jay Ham 843-687-5845

2. Patton Development Tab Patton 864-444-3607

**CITY OF GEORGETOWN, SOUTH CAROLINA
EAST BAY PARK IMPROVEMENTS PROJECT
BOAT TRAILER PARKING
PROJECT No. 1205-B**

3. High Rise Hotels Mack Patel 843-229-6995

4. Bojangles Florence SC

Contractor: Primax Construction Gil Hunter

980-938-5483

5. Connelly Builders Tom Gaherty

803-513-1058

E. For the projects listed in Item C, list the original bid price, final construction costs, specified completion time, actual completion time and explanations for differences in costs and times as required. (Attach additional sheets, if necessary):

1. Original contract price: \$ 470,000.00

Final construction price: \$ 495,355.00

Specified completion time: _____

Actual completion time: _____

Explanation: My scope of the project was

completed ahead of schedule

2. Original contract price: \$ 515,000.00

Final construction price: \$ 522,274.00

Specified completion time: 90 days

CITY OF GEORGETOWN, SOUTH CAROLINA
EAST BAY PARK IMPROVEMENTS PROJECT
BOAT TRAILER PARKING
PROJECT No. 1205-B

Actual completion time: 90 days

Explanation: _____

3. Original contract price: 406,313.75

Final construction price: 413,352.85

Specified completion time: _____

Actual completion time: _____

Explanation: Sub was completed on time

4. Original contract price: 405,675.00

Final construction price: 422,824.71

Specified completion time: 90 Days

Actual completion time: 88 Days

Explanation: _____

5. Original contract price: 570,000.00

Final construction price: 656,086.25

**CITY OF GEORGETOWN, SOUTH CAROLINA
EAST BAY PARK IMPROVEMENTS PROJECT
BOAT TRAILER PARKING
PROJECT No. 1205-B**

Specified completion time: _____

Actual completion time: _____

Explanation: Job was completed on time

F. List the names, addresses and work of any portion of this project which will be subcontracted (more than 10% of the bid price). (Attach additional sheets, if necessary):

1. Surface Works

2260 Acie Ave.

Conway SC 29527

2. Palmetto Corp

P.O. Box 346

Conway SC 29528

3. _____

4. _____

**CITY OF GEORGETOWN, SOUTH CAROLINA
EAST BAY PARK IMPROVEMENTS PROJECT
BOAT TRAILER PARKING
PROJECT No. 1205-B**

5. _____

G. List equipment owned that is available for this project:

2016 Cat DGK2^{D120}, 2004 Cat 433E Roller, 2014
Cat 320 EL Excavator, 2001 420D Backhoe, 2012 305D
Mini Excavator, 2016 279D Skid Steer, 2012 G85C Lee Boy
motorgrader, 2016 KW Tri-axle Pump Truck Water Truck
2016 KW Low Boy

H. List equipment to be purchased, leased or rented to perform this work:

I. List superintendent(s), foreman or others in charge who will be assigned to this project. Provide resumes and qualifications (insert sheets as required):

Larry Cooper - Resume Attached
Robert M. Mcneil - Resume Attached

**CITY OF GEORGETOWN, SOUTH CAROLINA
EAST BAY PARK IMPROVEMENTS PROJECT
BOAT TRAILER PARKING
PROJECT No. 1205-B**

J. List and describe current projects, current statues of job and estimate schedule of completion. (Attach additional sheets, if necessary):

1. Tru Hotel - High Rise Hotels
60% Complete Completion mid 2018
2. Homewood Suites Hotel - High Rise Hotels
60% Complete Completion End 2017
3. Dollar General Little River
75% Complete Completion Date Aug. 30 2017
4. Dollar General Hwy 378 Conway
30% Complete Completion Date Sept 30 2017
5. RNR Tire Florence SC
40% Complete Completion Date Sept 30 2017

K. List past projects completed with Owner of project proposed in last ten (10) years. (Attach additional sheets, if necessary):

1. none

**CITY OF GEORGETOWN, SOUTH CAROLINA
EAST BAY PARK IMPROVEMENTS PROJECT
BOAT TRAILER PARKING
PROJECT No. 1205-B**

2. _____

3. _____

4. _____

5. _____

L. List past projects bid on with Owner of project proposed in last ten (10) years.
(Attach additional sheets, if necessary):

1. none _____

2. _____

**CITY OF GEORGETOWN, SOUTH CAROLINA
EAST BAY PARK IMPROVEMENTS PROJECT
BOAT TRAILER PARKING
PROJECT No. 1205-B**

3. _____

4. _____

5. _____

M. List all past projects completed with Architect/Engineer in past ten (10) years
(Attach additional sheets, if necessary):

1. Project Name: ~~None~~ Multiple Projects
Project Manager: (Engineer's): Ervin Engineering 843-662-4941
Bill Ervin
- Original contract price: _____
- Final construction price: _____
- Specified completion time: _____
- Actual completion time: _____
- Explanation: _____

**CITY OF GEORGETOWN, SOUTH CAROLINA
EAST BAY PARK IMPROVEMENTS PROJECT
BOAT TRAILER PARKING
PROJECT No. 1205-B**

2. Project Name: Multiple Projects
Project Manager: (Engineer's): Weaver Engineering
Bob Weaver 843-346-5800

Original contract price: _____

Final construction price: _____

Specified completion time: _____

Actual completion time: _____

Explanation: _____

3. Project Name: _____

Project Manager: (Engineer's): _____

Original contract price: _____

Final construction price: _____

Specified completion time: _____

Actual completion time: _____

Explanation: _____

**CITY OF GEORGETOWN, SOUTH CAROLINA
EAST BAY PARK IMPROVEMENTS PROJECT
BOAT TRAILER PARKING
PROJECT No. 1205-B**

4. Project Name: _____

Project Manager: (Engineer's): _____

Original contract price: _____

Final construction price: _____

Specified completion time: _____

Actual completion time: _____

Explanation: _____

5. Project Name: _____

Project Manager: (Engineer's): _____

Original contract price: _____

Final construction price: _____

Specified completion time: _____

Actual completion time: _____

Explanation: _____

**CITY OF GEORGETOWN, SOUTH CAROLINA
EAST BAY PARK IMPROVEMENTS PROJECT
BOAT TRAILER PARKING
PROJECT No. 1205-B**

N. List all projects involving litigation, arbitration and/or mediation in past ten (10) years (Attach additional sheets, if necessary):

1. Project Name: None

Owner: _____

Engineer: _____

Date: _____

Explanation: _____

Result: _____

2. Project Name: _____

Owner: _____

Engineer: _____

Date: _____

Explanation: _____

Result: _____

**CITY OF GEORGETOWN, SOUTH CAROLINA
EAST BAY PARK IMPROVEMENTS PROJECT
BOAT TRAILER PARKING
PROJECT No. 1205-B**

3. Project Name: _____

Owner: _____

Engineer: _____

Date: _____

Explanation: _____

Result: _____

4. Project Name: _____

Owner: _____

Engineer: _____

Date: _____

Explanation: _____

**CITY OF GEORGETOWN, SOUTH CAROLINA
EAST BAY PARK IMPROVEMENTS PROJECT
BOAT TRAILER PARKING
PROJECT No. 1205-B**

Result: _____

5. Project Name: _____

Owner: _____

Engineer: _____

Date: _____

Explanation: _____

Result: _____

O. Attach rate schedule for equipment, labor, overhead and profit.

P. Attach General Contractor/Subcontractor certified financial statement(s).

CITY OF GEORGETOWN, SOUTH CAROLINA
EAST BAY PARK IMPROVEMENTS PROJECT
BOAT TRAILER PARKING
PROJECT No. 1205-B

I hereby certify that as a duly authorized representative of Gaster's Grading Co. Inc
(bidder), the information provided is to the best of my knowledge accurate and that failure to
provide accurate information will result in disqualification of my bid.

Andrew B. Gask
Signature

Andrew B. Gask
Name (Print)

President
Title

6-29-17
Date

(Seal)

Julie Rogers
Notary Public of South Carolina (State)

My commission expires: 02/22/22

Attachment: Gaster Contractor Subcontractor Qualifications (2331 : Approval of bid for East Bay Park boat trailer parking lot)



120 North Fraser Street • Georgetown, SC 29440 • (843) 545-4000

ACTION ITEM

DOC ID: 2345

Council Meeting Date:	13 July 2017
Department:	Administration
Issue Under Consideration:	Motion to Approve Location of Gazebo to be Donated by the Georgetown Lions Club in Honor of its Centennial Year as an Organization Serving the Community
Amount Requested:	N/A
Is Item in Current Budget?	N/A
If no, please explain:	
Financial Impact:	N/A
Points to Consider:	
Options:	1. Approve 2. Disapprove
Staff Recommendation:	Staff recommends approval of this project.

Reviews:

Paul Gardner Completed 07/07/2017 8:52 AM

Ann U. Mercer Completed 07/07/2017 9:00 AM

Georgetown City Council Pending 07/13/2017 5:30 PM

Attachments:



120 North Fraser Street • Georgetown, SC 29440 • (843) 545-4000

ACTION ITEM

DOC ID: 2344

Council Meeting Date:	13 July 2017
Department:	Administration
Issue Under Consideration:	Motion to approve Second Semi-Annual Payment to SCMIRF in the amount of \$308,772.00 For Property, Liability And Vehicle Insurance and Two Quarterly Payments to SCMIT in the amount of \$143,636.00 For Workers Compensation Insurance.
Amount Requested:	SCMIRF \$308,772 (2 nd Semi-Annual Payment) SCMIT \$143,636 (Two Quarterly Payments)
Is Item in Current Budget?	Yes
If no, please explain:	
Financial Impact:	\$308,772 & \$143,636 – Total requested amount \$452,408
Points to Consider:	
Options:	1. Approve Payment 2. Do Not Approve Payment
Staff Recommendation:	Approve Payment

Reviews:

Paul Gardner Completed 07/06/2017 5:01 PM

Debra Bivens Completed 07/06/2017 5:05 PM

Ann U. Mercer Completed 07/07/2017 8:47 AM

Georgetown City Council Pending 07/13/2017 5:30 PM

Attachments:

1. 1 scmit smirf (PDF)

Ship To

120 N FRASER ST
GEORGETOWN, South Carolina 29440

Bill To

Requisition
No. 2018-00000008

DATE 07/06/2017

VENDOR 330 - SCMIRF

DELIVER BY
SHIP VIA
FREIGHT TERMS
PAGE 1 of 1
ORIGINATOR Lois Bell

Contact

SCMIRF
SC MUNICIPAL INSURANCE RISK AND
FINANCING FUND
PO BOX 12220

REFERENCE #SCMIRF 2ND SEMI ANNUAL BILLING

QUANTITY	UNIT	DESCRIPTION	UNIT COST	TOTAL COST
1.0000	Each	Semi Annual billing - SCMirf 2nd Semi Annual billing 0010.20.600.110 - SCMIRF Property/Liab Ins 111,435.81 0030.19.600.110 - SCMIRF Property/Liab Ins 128,727.05 0031.15.600.110 - SCMIRF Property/Liab Ins 9,232.28 0031.16.600.110 - SCMIRF Property/Liab Ins 7,194.39 0031.41.600.110 - SCMIRF Property/Liab Ins 14,821.06 0032.18.600.110 - SCMIRF Property/Liab Ins 15,809.13 0032.34.600.110 - SCMIRF Property/Liab Ins 6,638.60 0033.40.600.110 - SCMIRF Property/Liab Ins 2,562.81 0035.31.600.110 - SCMIRF Property/Liab Ins 12,350.88	308,772.0000	308,772.00
				\$308,772.00

Attachment: scmit smirf (2344 : Motion to Approve SCMIRF/SCMIT Invoice)

Special Instructions

SCMIRF 2ND SEMI ANNUAL BILLING - COUNCIL APPROVED 6.16.2016 DOCUMENTATION ATTACHED - BUS LIC .INS NA - INVOICE ATTACHED

INVOICE

SC Muni Ins Risk & Fin Fund
1411 Gervais Street
PO Box 12109
Columbia, SC 29211

Invoice # 870653
Due Date: 7/1/2017
Customer # GEORGE2210
Invoice Date: 6/1/2017
Partic. ID SCMIRF

Bill to:

City of Georgetown
P O Drawer 939
Georgetown, SC 29442-0939

Customer - Due on the 15th

Invoice Description: SCMIRF 2nd SemiAnnual billing-

External Ref. Number	Transactional Description	Total
	SCMIRF 2nd SemiAnnual billing-	\$308,772.00
Total Amount Due		\$308,772.00

OKSA
6.5.17

2nd Semi-Annual Billings are due on July 1, 2017. To avoid late penalties, payments must be received by July 20, 2017. If you are a member that utilizes automatic bank draft, your account will be drafted on July 20, 2017. Thanks!

Please refer to the invoice number on your remittance check. Please return the bottom portion with your remittance check.

Invoice #	870653	Partic. ID	SCMIRF
Invoice Date:	6/1/2017	Customer #	GEORGE2210
Due Date:	7/1/2017		City of Georgetown

Invoice Description: SCMIRF 2nd SemiAnnual billing-

Total Amount Due **\$308,772.00**

Total Amount Remitted:

Remit to:

SC Muni Ins Risk & Fin Fund, P. O. Box 12220, Columbia, SC 29211

Attachment: scmit smirf (2344 : Motion to Approve SCMIRF/SCMIT Invoice)

Ship To

120 N FRASER ST
GEORGETOWN, South Carolina 29440

Bill To

Requisition
No. 2018-00000007

DATE 07/06/2017

VENDOR 7475 - SCMIT

DELIVER BY
SHIP VIA
FREIGHT TERMS
PAGE 1 of 1
ORIGINATOR Lois Bell

Contact

SC MUNICIPAL INSURANCE TRUST
PO BOX 12220
COLUMBIA, SC 29211-2220

REFERENCE #2017 3rd 4th SCMIT QUARTERLY BILLING

QUANTITY	UNIT	DESCRIPTION	UNIT COST	TOTAL COST
1.0000	Each	3rd quarter 2017 - Workman's Comp 0010.01.408.125 - SCMIT Worker's Comp Ins. 1,414.81 0010.04.408.125 - SCMIT Worker's Comp Ins. 775.63 0010.05.05.408.125 - SCMIT Worker's Comp Ins. 19,742.77 0010.05.07.408.125 - SCMIT Worker's Comp Ins. 172.36 0010.09.408.125 - SCMIT Worker's Comp Ins. 682.27 0010.10.408.125 - SCMIT Worker's Comp Ins. 423.73 0010.11.408.125 - SCMIT Worker's Comp Ins. 10,779.88 0010.12.408.125 - SCMIT Worker's Comp Ins. 4,840.53 0010.13.408.125 - SCMIT Worker's Comp Ins. 172.36 0010.14.408.125 - SCMIT Worker's Comp Ins. 1,206.54 0030.19.408.125 - SCMIT Worker's Comp Ins. 12,000.79 0031.15.408.125 - SCMIT Worker's Comp Ins. 2,384.36 0031.16.408.125 - SCMIT Worker's Comp Ins. 2,147.36 0031.41.408.125 - SCMIT Worker's Comp Ins. 653.54 0032.18.408.125 - SCMIT Worker's Comp Ins. 3,978.72 0032.34.408.125 - SCMIT Worker's Comp Ins. 861.82 0033.40.408.125 - SCMIT Worker's Comp Ins. 2,721.90 0035.31.408.125 - SCMIT Worker's Comp Ins. 6,858.62	71,818.0000	71,818.00
1.0000	Each	4th Quarter SCMIT 2017 billing - Workmans comp 3rd & 4th quarter 0010.01.408.125 - SCMIT Worker's Comp Ins. 1,414.81 0010.04.408.125 - SCMIT Worker's Comp Ins. 775.63 0010.05.05.408.125 - SCMIT Worker's Comp Ins. 19,742.77 0010.05.07.408.125 - SCMIT Worker's Comp Ins. 172.36 0010.09.408.125 - SCMIT Worker's Comp Ins. 682.27 0010.10.408.125 - SCMIT Worker's Comp Ins. 423.73 0010.11.408.125 - SCMIT Worker's Comp Ins. 10,779.88 0010.12.408.125 - SCMIT Worker's Comp Ins. 4,840.53 0010.13.408.125 - SCMIT Worker's Comp Ins. 172.36 0010.14.408.125 - SCMIT Worker's Comp Ins. 1,206.54 0030.19.408.125 - SCMIT Worker's Comp Ins. 12,000.79 0031.15.408.125 - SCMIT Worker's Comp Ins. 2,384.36 0031.16.408.125 - SCMIT Worker's Comp Ins. 2,147.36 0031.41.408.125 - SCMIT Worker's Comp Ins. 653.54 0032.18.408.125 - SCMIT Worker's Comp Ins. 3,978.72 0032.34.408.125 - SCMIT Worker's Comp Ins. 861.82 0033.40.408.125 - SCMIT Worker's Comp Ins. 2,721.90 0035.31.408.125 - SCMIT Worker's Comp Ins. 6,858.62	71,818.0000	71,818.00
				\$143,636.00

Attachment: scmit smirf (2344 : Motion to Approve SCMIRF/SCMIT Invoice)

Special Instructions

SCMIT QUARTERLY BILLING - APPROVED BY MAYOR COUNCIL 01.19.2017 - DOCUMENTATION ATTACHED - BUS LIC .
INS NA - INVOICE ATTACHED

INVOICE

SC Muni Insurance Trust
1411 Gervais Street
PO Box 12109
Columbia, SC 29211

Invoice # 870773
Due Date: 7/1/2017
Customer # GEORGE2210
Invoice Date: 6/1/2017
Partic. ID SCMIT

Bill to:

City of Georgetown
P O Drawer 939
Georgetown, SC 29442-0939

Customer - Due on the 1st

Invoice Description: SCMIT 3rd Qtr 2017 Billing

External Ref. Number	Transactional Description	Total
	SCMIT 3rd Qtr 2017 Billing	\$71,818.00
	Total Amount Due	\$71,818.00

3rd Quarter Billings are due July 1, 2017. To avoid late penalties, payments must be received by July 20, 2017. If you are a member utilizing automatic bank draft, your account will be drafted on July 20, 2017. Thanks!

Please refer to the invoice number on your remittance check. Please return the bottom portion with your remittance check.

Invoice #	870773	Partic. ID	SCMIT
Invoice Date:	6/1/2017	Customer #	GEORGE2210
Due Date:	7/1/2017		City of Georgetown

Invoice Description: SCMIT 3rd Qtr 2017 Billing

Total Amount Due **\$71,818.00**

Total Amount Remitted :

Remit to:

SC Muni Insurance Trust, P. O. Box 12220, Columbia, SC 29211

ok sn
6.7.17

Attachment: scmit smirf (2344 : Motion to Approve SCMIRF/SCMIT Invoice)

**Georgetown City Council**

120 North Fraser Street
Georgetown, SC 29442

SCHEDULED**MONTHLY REPORT (ID # 2346)**

Meeting: 07/13/17 05:30 PM
Department: Police Department
Category: Report
Prepared By: Johnnie Deas
Initiator: Kelvin Waites
Sponsors:
DOC ID: 2346

GPD - June 2017 Monthly Report

MAYOR
JACK, M. SCOVILLE, Jr.



POLICE CHIEF
KELVIN WAITES

City of Georgetown

POLICE DEPARTMENT
OFFICE 843-545-4300
FAX 843-520-5848

July 7, 2017

Honorable Mayor Jack M. Scoville, Jr.
And the Members of City Council
City of Georgetown, South Carolina

Dear Mayor Scoville and Council Members:

The Following is a list of activities that the police were involved in during the month of June 2017:

During the month of June the Georgetown Police department sent 23 survey letters to the citizens who had some type of contact with an employee from the department. Out of 23 letters the department received 2 positive feedback.

The Police Community Advisory Board met on June 13th. See attached minutes from the advisory board meeting.

On June 14th Chief Waites attended the 15th Judicial Circuit's Chief's Meeting at the Horry County Police Department. Retired Chief Warren Gall was honored for his service and leadership to the Myrtle Beach Police Department.

On June 15th Officer Teresa Walker was honored by the South Strand Optimist Club for her years of service for working with the kids of Georgetown.

On June 16th Chief Waites and Cpt. Pierce met with Todd Williams from the Municipal Association. Mr. Williams is the law enforcement liaison for the Municipal Association who came to Georgetown to physically inspect our policies and procedures. Mr. Williams spoke highly of the department by saying that we have our "I's dotted and T's crossed", before he left the two hour meeting.

On June 20th the Georgetown Police Department hosted the Georgetown City Economic Roundtable Breakfast. It was well attended.

Honorable Mayor and City Council Members
July 7, 2017
Page Two

On June 21st the Georgetown Police Department held a hiring process to fill 1 vacant position. We offered a job to a gentleman named Quentin Livingston who recently worked for the Georgetown County Sheriff's Office.

On Friday June 23rd the Georgetown Police Department hosted the city's "Emotional Intelligence Training" for supervisors from all departments across the city.

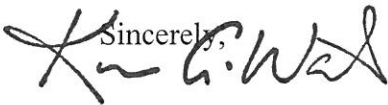
On June 25th Chief Waites and Officer Shelley Brantley took part in the Church of God "Public Safety Appreciation" church service.

On Friday June 30th Chief Waites, along with Officer Teresa Walker met with representatives from Tidelands Hospital to discuss the possibility of the police department participating on a board that will target how Tidelands can better make the community aware of the services and programs that they have to offer.

On Friday June 30th the police department also worked with the Electric Department to get the cameras reinstalled in Ben Cooper Park so that the park could open the following day.

During the month of June the police department has been meeting/coordinating with a community group to put on a self-defense class for females attending college for the first time or going back to college. This event will take place at the Georgetown Police Department on July 22, 2017 @ 1 pm.

I would also like to take this opportunity to thank Mayor and Council on behalf of all of the employees at the Georgetown Police Department for making it possible for us to receive raises. It is very much appreciated.

Sincerely,


Kelvin Waites
Chief of Police
KW: pc

Attachments

GEORGETOWN POLICE DEPARTMENT 2017 YEAR-TO-DATE ACTIVITY REPORT

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
SPEEDING CITATIONS	47	67	74	71	56	55						
OTHER TRAFFIC CITATIONS	107	128	111	93	115	83						
WARNING - SPEEDING	102	86	121	110	91	78						
WARNING - OTHER	195	150	134	82	114	103						
PARKING CITATIONS	19	17	14	13	5	12						
TOTALS	470	448	454	369	381	331	0	0	0	0	0	0

TOTAL CITATIONS

2,453

STATE ACCIDENTS	44	38	51	55	46	45						
PARKING LOT ACCIDENTS	13	8	11	4	7	13						
TOTALS	57	46	62	59	53	58	0	0	0	0	0	0

TOTAL ACCIDENTS

335

Police-Community Advisory Board

June 13, 2017 at 6:00 PM

Minutes

ATTENDANCE:

Board Member Present:

Ms. Harold Jean Brown
Mr. David Essex
Mr. Fred Keith
Ms. Carol McCants
Ms. Deborah Smith

Board Member Absent

Irene Mobley

Police Department Personnel Present:

Mrs. Patrice Coachman
Major Johnnie Deas
Police Chaplain Betty Clark

The Police-Community Advisory Board (P-CAB) meeting of the Georgetown Police Department was held at the City of Georgetown Law Enforcement Center with Major Johnnie Deas presiding.

Major Johnnie Deas opened the meeting by welcoming everyone in attendance and introducing our Police Chaplain Pastor Betty Deas Clark to the advisory board members and asked her to give a little background on herself. Major Johnnie Deas then asked the members to introduce themselves to Police Chaplain Pastor Betty Deas Clark. She told the board members that this is the first time the department has ever had a female Chaplain.

Major Deas then gave an update on the officers who are on light duty status. She told the board members that Officer Smith is no longer on light duty and will return to his assigned patrol shift this week. She told them that Cpl. James Burroughs remains on light duty and that he will be attending the SCASRO 2017 Conference this week.

Member Essex asked who funds the SRO trainings. Major Deas responded that the yearly SRO conference is funded by SCASRO.

Major Deas then informed the board members about a disciplinary situation where an officer was demoted. She told the board members that the officer returned to the department a couple of hours later and submitted his resignation because did not agree about his demotion.

Major Deas also told the board members that Lt. Kyle Walton will be retiring in August of this year. She said that the department wishes him the best in his future endeavors.

Major Deas told the board members about a complaint that was file against an officer. She said the Complainant said that the officer was insensitive to his/her family during their time of bereavement. She then told them that after investigating the complaint the officer was cleared of any wrong doing and that he was following protocol.

Major Deas then told the P-CAB the department completed its annual physicals and stress test without any injuries or emergencies.

Major Deas informed the P-CAB members that we finished installing printers in all the patrol vehicles.

Major Deas then thanked the P-CAB members for their help & support the Courtney Baynes-Dorsey Scholarship Fund dinner sale. She told them that we met our goals and that Maya Morris is the recipient of the \$500 Scholarship.

Major Deas informed the P-CAB members the department is hosting a Defensive Tactical Training on July 22nd for young girls who will be leaving for college soon.

Member Essex asked what's the age limit for someone to attend the training, Major Deas responded college age.

Major Deas then talked about National Night Out. She told the P-CAB members that the department will meet again on June 22nd to continue planning for this event.

Major Deas told the P-CAB members that Chief Waites was invited to speak at a Father's Place graduation on June 16th.

Major Deas told the P-CAB members that Cpl. Sparkman and Officer Walker assisted the City of Myrtle Beach during the Atlanta Beach Bike Festival. She said that the event was a success with minimal fatalities.

Member Essex asked who pays the officer when they work off duty events. Major responded that the City of Myrtle Beach reimburses the department for the hours the officer works.

Member Essex asked about the Mutual Aid Agreement with other agencies. He asked do the City have to reimburse the agencies who assisted with barricade hostage situation. Major Deas responded 'No'.

Member Brown said that she is extremely happy that the trucks no longer comes down Merriman Road.

Member Brown asked will we be assisting Andrews Police Department while that are under staff, Major Deas responded that the Sheriff's Department will assist Andrews Police Department. After a productive meeting, Major Deas thanked everyone for coming and adjourned the meeting.

Minutes recorded by Patrice Coachman

**Georgetown City Council**

120 North Fraser Street
Georgetown, SC 29442

SCHEDULED**MONTHLY REPORT (ID # 2339)**

Meeting: 07/13/17 05:30 PM

Department: Municipal Court

Category: Report

Prepared By: Cindy Owens

Initiator: Cindy Owens

Sponsors:

DOC ID: 2339

June 2017 Municipal Court Report

Municipal Court Report June 2017

18.B.1

Cases Disposed

Disposition	# of Cases Disposed	Fine Amounts
Paid	61	\$8,450.00
Served Time	16	\$ 17,165.00
Scheduled Time Payment	32	\$ 18,914.02
NRVC	31	\$ 3,228.00
Bench Warrant	23	\$ 20,127.50
Parking Tickets Paid	6	\$ 60.00
Nolle Prosequi/Dismissed/ Not Guilty	55	
Transferred to General Sessions Court	34	
Voided	2	
Fine Suspended	1	\$ 2,125.00
Total	261	\$70,069.52

Actual fine revenue collected in June \$26,037.93

Bond hearings held	26
Warrants Prepared	34
Bench Warrants Issued	40
Payments posted	138
Tickets entered	233
Expungements processed	55
Cases Filed & scheduled for court	264
Tickets transmitted to DMV	215
Juror notices prepared	0

Attachment: Municipal court report (2339 : June 2017 Municipal Court Report)

Municipal Court Report June 2017

18.B.1

Throughout the month of June 64 defendants were seen in bond court with a total of 100 charges.

Court staff is required to complete 2 hours of Notifiers and Support Staff training through the SC Victim's Ombudsmen's Office every two years. We completed that training online in June.

In June, we started scanning some old documents, saving them on a database and shredding the documents in order to clear room in our storage areas. This will also allow us to research old cases and documents in a more timely manner when needed.

Attachment: Municipal court report (2339 : June 2017 Municipal Court Report)



Georgetown Municipal Court

2222 Highmarket Street

Georgetown, SC 29440

843-545-4020

Customer Service Survey

The goal of Georgetown Municipal Court is to provide each customer with exceptional service. Your opinion of our service is very important. Please take a moment to complete this survey and let us know of your experience at municipal court. Please indicate your level of satisfaction by answering the following questions. When you have completed the survey, please: a) mail back to municipal court in the envelope provided, b) hand deliver to 2222 Highmarket Street, Georgetown, or c) email to covens@coqsc.com. Thank you for your assistance.

1. What type of contact did you have with the Municipal Court?

- ☒ a. In Person
- b. By Phone
- c. By Mail
- d. Making payment on sc.gov

2. Staff was helpful, knowledgeable and professional.

- ☒ a. Strongly Agree
- b. Agree
- c. Disagree
- d. Strongly Disagree

3. Staff responded to your issue in a timely manner.

- ☒ a. Strongly Agree
- b. Agree
- c. Disagree
- d. Strongly Disagree

4. Staff provided clear and concise information.

- ☒ a. Strongly Agree
- b. Agree
- c. Disagree
- d. Strongly Disagree

5. Staff was courteous.

- ☒ a. Strongly Agree
- b. Agree
- c. Disagree
- d. Strongly Disagree

6. Was your business with Municipal Court as a:

- a. Attorney
- b. Defendant
- c. Victim
- d. Witness

☒ e. Juror

7. Overall how would you rate the level of assistance you received from the Municipal Court staff?

- ☒ a. Excellent
- b. Good
- c. Fair
- d. Poor

8. If you know the name of the staff who provided you with especially outstanding service, please let us know his/her name.

Name: _____

9. Suggestions or comments to improve our service to you:

Thanks Judge O'Donnell. My Eyes were opened to law and issues. Interesting experience.

Thank you for taking the time to provide us with your input.

Robin Poai

5-4-17

Signature

Date

**Georgetown City Council**

120 North Fraser Street
Georgetown, SC 29442

SCHEDULED**MONTHLY REPORT (ID # 2330)**

Meeting: 07/13/17 05:30 PM

Department: Fire Department

Category: Report

Prepared By: Amy Skidmore

Initiator: Charles W. Cribb

Sponsors:

DOC ID: 2330

June 2017 Fire Report

The FIRE Report

A monthly report of Fire Department activities to City Council

JULY
2017



Fire Prevention Bureau

2017

JUNE

Inspections	63
Violations Found	26
Buildings without Violations	18
Buildings Cleared of Violations	17
Violations Corrected	35
Violations Not Corrected	12
3rd Party Inspection Review	0

Assemblies Inspected:	8
Business Inspected:	36
Educational Buildings Inspected:	0
Hazardous Buildings Inspected:	0
Factories Inspected:	0
Institutional Inspected:	2
Mercantile Inspected:	11
Residential Inspected:	4
Storage Buildings Inspected:	0

Construction Meetings:	0
Plans Review:	5
Test Conducted:	0
Compliance Issues:	0
Complaints Reviewed:	0
Business License:	7
Citation Issued:	0

Public Education

Programs	3
Participants	90

Suppression Division

A Brief Look at Emergency Responses

JUNE 2017

- Five Medical Calls; Three Public Service Calls
- Five Medical Calls; One Electrical Arching; Four Public Service Calls
- Seven Medical Calls; One MVA; One Detector Activation; One Alarm Activation; One Scorch; One Public Service Call
- Eight Public Service Calls; One Trash Fire; Three Public Service Calls
- Eight Medical Calls; One System Malfunction; One Smoke Scare
- Six Medical Calls; One Alarm Activation; One Public Service Call
- Five Medical Calls; Two Public Service Calls
- Eleven Medical Calls; Two MVA's
- Ten Medical Calls; One Public Service Call
- One Medical Call; Two Alarm Activations; Two Public Service Calls
- One Medical call; Two Public Service Calls
- Three Medical Calls; One False Alarm; One Mutual Aid; One Public Service Calls
- One Medical Call; One Gas Spill; One Detector Activation
- Six Medical Calls; One MVA; Two Public Service Calls
- Seven Medical Calls; One Equipment Fire; One Alarm Activation; Two False Alarms; One Smoke Scare; Eight Public Service Calls
- Four Medical Calls; One MVA; One Smoke Scare; Three Public Service Calls
- Six Medical Calls; One False Alarm; One Alarm Malfunction; One MVA; Three Public Service Calls
- Five Medical Calls; One Alarm Activation
- Six Medical Calls; One Overheated Motor
- Six Medical Calls; One Power Line Down; One Flood Assessment; One Public Service
- Four Medical Calls; Two Public Service Calls
- Three Medical Calls; One Detector Activation; One MVA; One Public Service Activation
- Thirteen Medical Calls; One MVA; One Public Service Calls
- Two Medical Calls; One Watercraft Rescue
- Five Medical Calls; One False Alarm; One Public Service Call
- Seven Medical Calls; Two MVA's
- Seven Medical Calls; One Public Service Call
- Four Medical Calls; One Public Service Call
- Ten Medical Calls; One Dumpster Fire; One Detector Activation; Three Public Service Calls
- Three Medical Calls; One Vehicle Fire; Two Public Service Calls

Attachment: SKMBT_C22417070309160 (2330 : June 2017 Fire Report)



Total Call Volume **JUNE** **Year to Date**
2017 2016 2017 2016
 As defined by the National Fire Incident Report System

Fires	5	4	25	20
Rescue Calls/EMS	180	192	1142	974
Hazardous Conditions	9	10	221	213
Service Calls	44	29	219	170
Good Intent Calls	12	6	56	52
False Alarms	17	12	80	72
Weather/Flood	1	0	0	1
Special Incident Type	6	6	43	44
Total Calls	274	259	1787	1546

Save/Loss Analysis

	Losses	Property Values
JUNE 2017	\$ 101	\$ 3042
JUNE 2016	\$ 46,003	\$ 475,703
Year to Date	\$ 344,602	\$ 8,020,142

Property values are estimates based on the Georgetown County Assessor's Office 2006 Market Values.

Mutual Aid Calls

	JUNE	YTD
To Georgetown County Fire	1	3
To Midway Fire	0	2
To other Departments	0	3
From Georgetown County Fire	1	4
From Midway	1	4
From other Departments	0	1

	JUNE	YTD
Staff Training Hours	884.00	6199.92

**Georgetown City Council**

120 North Fraser Street
Georgetown, SC 29442

SCHEDULED**MONTHLY REPORT (ID # 2337)**

Meeting: 07/13/17 05:30 PM

Department: Public Works

Category: Report

Prepared By: Natrona Simmons

Initiator: Tim Chatman

Sponsors:

DOC ID: 2337

June 2017 Public Works Department Report



**JUNE, 2017
PUBLIC WORKS DEPT.
CITY COUNCIL MONTHLY REPORT**

RESIDENTIAL SANITATION

1. Crews completed work orders requests for roll-out carts repairs, new roll out cart deliveries and/or replacements; recycle bins; and collected yard waste, brown and white goods.
2. Crews collected yard waste, brown and white goods, dead animals along city right of ways.
3. Delivered roll out carts, barricades and tents for special events and emergency assistance.

STREETS and GROUND MAINTENANCE

1. Grounds Maintenance Crews supported residential sanitation crews with garbage collections.
2. Crews completed work orders for sidewalk, curbside collections and street maintenance.
3. Grounds Maintenance completed maintenance of City Parks, Welcome Sign areas and right of ways.

**Georgetown City Council**

120 North Fraser Street
Georgetown, SC 29442

SCHEDULED**MONTHLY REPORT (ID # 2328)**

Meeting: 07/13/17 05:30 PM

Department: Fleet Services

Category: Report

Prepared By: Glenn Dixon

Initiator: Glenn Dixon

Sponsors:

DOC ID: 2328

June 2017 Fleet Services Report



FLEET SERVICES DEPARTMENT

JUNE 2017 MONTHLY REPORT

• Repairs	64
• PM Services	10
• Tires repaired or replaced	34
• Services past due	31

Drawer 939
Georgetown, SC 29442

**Georgetown City Council**

120 North Fraser Street
Georgetown, SC 29442

SCHEDULED**MONTHLY REPORT (ID # 2338)**

Meeting: 07/13/17 05:30 PM

Department: Electric

Category: Report

Prepared By: Alan Loveless

Initiator: Alan Loveless

Sponsors:

DOC ID: 2338

June 2017 Electric Utility Department Report

JACK M. SCOVILLE, JR.
Mayor

PAUL GARDNER
City Administrator



ALAN J. LOVELESS, P.E.
Director of Electric Utility

ELECTRIC UTILITY DEPARTMENT
OFFICE: (843) 545-4600
FAX: (843) 527-7591

July 5, 2017

Following is a brief summary of major activities in the Electric Utility Department for May and June 2017:

Peak shaving operation was successful both months and we had both units running when Santee Cooper hit their system peaks for the month. All equipment and construction bids for the permanent construction project have now been approved except for the general construction contract. This contract for the construction of the facility was re-advertised and seven bids were received. This resulted in a bid that was much closer to what our engineering consultant estimated. A recommendation will be made to City Council in July to award this contract so that we may begin construction in August.

The Electric Department's FEMA submittal for Hurricane Matthew was completed during February. My understanding is that our submittals for tree work and use of temporary generation have been approved. Our submittal for the utilities category (repairs to the distribution system) is still under review.

Budget deadlines were met during February along with our FEMA deadlines. CIP and operating budgets were submitted. Budget issues were discussed at the retreat in late February. Council's attention and receptiveness to discuss these issues is greatly appreciated. The budget process continues with upcoming meetings with Administration and additional Council discussions.

The contractor crew has completed the rebuild of a pole line on Prince Street between Washington Street and Merriman Road. This pole line was in poor condition and carries three distribution feeders for a block and then two feeders for the second block. This will improve reliability for a large number of customers served by these three feeders. Work has now commenced on rebuilding some of the system on the 100 block of Screven Street. This work will include the replacement of some poles that are leaning or in poor condition, and a re-configuration of these lines will eliminate some street crossings and will clean things up to some degree from an aesthetic standpoint.

Three calls have been received in that past couple of months concerning customer-side solar generation. It appears that this is gaining customer interest and therefore we have started the process of discussing our

philosophy concerning rates and connection issues. A meeting was held with Santee Cooper staff to obtain input and information on their rates and connection protocol. This could be a time-consuming process over the next few months. Rate issues are important so that we prevent all customers from subsidizing solar installations for a few customers. Progress will be slow on this.....Santee Cooper continues to assist in providing information.

Discussions are complete with Santee Cooper regarding the replacement of a lightning arrester in the Georgetown Substation that failed in August. Though the arrester needs to be replaced, there is still lightning protection at the nearby transformer in the same substation, so the risk to us has been minimal. Santee Cooper will work with us to replace all three arresters at this location. It will require an outage for the entire Georgetown Substation (all customers north of the bridge) for approximately 2 hours. This will be coordinated for a late night this spring when temperatures are mild and customer inconvenience will be as low as possible. This work was completed on Sunday morning, June 4th at 2:00 am. The work went very well and Santee Cooper also performed some maintenance on some gang-operated switches during the time that the switches were de-energized.

We are currently advertising three vacant positions in the Electric Department: Line Crew Supervisor, Electric Engineering Technician, and a Line Technician. A decision has finally been reached on the Line Crew Supervisor position and we will now move with haste to fill the Line Technician positions. We have been down to three line technicians for a couple of months and our three technicians have all performed very admirably during a frustrating time.

Cooper continues to provide us with replacement water nodes as warranty replacements to allow us to do a better job of staying ahead of failed nodes prior to billing reads. They have, however, fallen a couple of months behind on their shipments and we are facing increased re-reads.

Meetings continue with representatives of Tideland's Health concerning electric service to the new surgical wing being constructed at the hospital. The hospital's contractor has placed conduit for our feed to the new transformer for this addition. The target date for energizing this service has changed from early June to July 12th. A transformer has been acquired for this service.

Work has been completed on the Broad Street revitalization project. All decorative poles and LED lights included in the project plan have been installed. We are in the process of having the project planner re-survey the residents of Broad St. between Highmarket and Front to see if they are more receptive to the decorative poles/lights than they were during the initial planning process. Fourteen responses have been received, with 11 in favor and 3 opposed.

SCDOT has started their construction on the 17-521 resurfacing project. Our involvement will be minimal until the DOT portion of the project is complete. At that time, we can begin the conversion of our overhead facilities to underground. Contractor forces will have to be used for this project.

There has been no additional information received about the development of commercial property across from Wal Mart adjacent to the new credit union.

Light fixtures have been received for replacement of parking lot lights at the Police Department and for new lights to be placed in conjunction with the Ben Cooper Park improvements. We will start the replacement at PD

as soon as scheduling allows. Work at Ben Cooper Park will be coordinated toward the end of the upgrade project. Both of these projects were completed in late June.

Information has been requested from manufacturers for new LED streetlight fixtures to begin our CIP project of replacing all streetlights in the City. We will probably narrow down to a couple of choices and obtain some sample fixtures for evaluation. We are requesting a color temperature rating of 3000K to avoid complaints about the whiteness of the light and to be in line with recent AMA recommendations regarding blue light in LED fixtures. I visited the Cree Lighting facility in Durham NC during April to discuss their lighting offerings and to see installations at night.

We continue to work with a couple of customers in Maryville regarding electrical noise that is interfering with their hobby of amateur radio operation. These customers have been patient and understand that it is difficult for us to devote time to this with a limited workforce. The customers have obtained equipment which is designed to locate the sources of noise. We have performed maintenance work on the poles that they have pinpointed, but this work did not eliminate the noise. I've asked the telephone and cable TV companies to inspect their equipment on these poles. We will continue to attempt to assist these customers as time allows.

Safety meetings were held in May and June with topics covering heat stress, a year-end review, and annual pole-top and bucket rescue training.

Other statistics of interest for June:

• Cut-on – regular	178
• Cut-off – regular	87
• Cut-off – non-pay	153
• Non-pay restores	139
• Re-read orders	372
• CNP finals	32
• Accidents – lost time	0
• Accidents – first aid/property damage	1
• PUPS locates	211
• Total orders worked	982

**Georgetown City Council**

120 North Fraser Street
Georgetown, SC 29442

SCHEDULED**MONTHLY REPORT (ID # 2336)**

Meeting: 07/13/17 05:30 PM

Department: Water Utilities

Category: Report

Prepared By: Will Cook

Initiator: Will Cook

Sponsors:

DOC ID: 2336

June 2017 Water Utilities Report

JUNE 2017 WATER UTILITIES REPORT

Water Treatment Plant

• WTP Filtered Water Total	28.515 MG
• Average Daily Flow Finished Water	0.951 MGD
• King Well	7.257 MG
• Maryville Well	7.653 MG

Wastewater Treatment Plant

• Influent Flow Total	133.081 MG
• Average Daily Influent Flow	4.436 MGD
• Effluent Flow Total	120.442 MG
• Average Daily Effluent Flow	4.015 MGD
• Rainfall Total	6.61 inches

Water Distribution

- Completed 64 work orders
- Repaired 51 water leaks
- Replaced 4 water meters
- Completed 208 locates

Wastewater Collection

- Completed 27 work orders
- Responded to 19 backups
- Routine line cleaning
- Completed 208 locates

Maintenance

- Completed 35 work orders
- Completed 9 work orders on pump stations throughout City
- Completed 14 work orders for the WWTP
- Completed 1 work orders for the WTP

Stormwater

- Completed 15 work orders
- Completed 208 locates
- Routine line and ditch cleaning

Customer Surveys

- We received a score of 4.94 out of 5 this month.

**Georgetown City Council**

120 North Fraser Street
Georgetown, SC 29442

SCHEDULED**MONTHLY REPORT (ID # 2325)**

Meeting: 07/13/17 05:30 PM

Department: Engineering

Category: Report

Prepared By: Orlando Arteaga

Initiator: Orlando Arteaga

Sponsors:

DOC ID: 2325

June 2017 Engineering Report



**City of Georgetown
Engineering Monthly Report
June 2017**

Engineering - Orlando Arteaga, PE

Date: June 30, 2017

CAPITAL IMPROVEMENT PROJECTS

1. Ben Cooper Park- Landscaping and Bathhouse (Phase 3)

- Contractor: CP&G
- Bid Amount: \$231,671
- Bid date: 2/28/2017
- Construction Start: 4/12/2017
- Substantial Completion: 6/30/2017 (Actual)
- Construction Finish: 6/12/2017 (Planned)
- Scope: New landscaping, sod, irrigation, perimeter fence, light posts, sidewalks, and bathhouse.
- Status: Project is 98% complete and has reached substantial completion. Bathhouse building complete with the exception of permanent shower. Permanent stainless steel plumbing fixtures are on backorder but will arrive within a week. Chain link perimeter fence, landscaping and irrigation are complete. Punch list work remains.

**2. Drainage Improvements Project for Congdon, Highmarket, Lynch/Duke Streets
Phase I and Phase II**

- Engineer: AECOM
- Design Start: 4/12/2016
- Design Completion: 12/6/2016
- Re-bid date: 12/8/16
- Contractor: Green Wave Contracting, Inc.
- Phase I Bid Amount: ~~\$1,874,257.60~~ \$1,967,970.48-Revised
- Phase II Bid Amount: ~~\$308,323.50~~ \$323,739.68-Revised
- Scope of Work: New 60", 48", 42", 36", 24", 18" storm drain pipe, catch basins, manholes, yard inlets, headwalls, junction chambers, ditch excavation, sidewalk, curb/gutter and street restoration.
- City Council approved revised bid amounts for both Phase I and Phase II on 5/18/2017.
- CSX permit approved on 5/12/2017.
- SCDOT Encroachment permit approved on 5/18/2017.



**City of Georgetown
Engineering Monthly Report
June 2017**

Engineering - Orlando Arteaga, PE

Date: June 30, 2017

- Phase I contract approved by SC Department of Commerce (CDBG) on 6/5/2017.
- Phase II contract approved by RIA on 5/23/2017.
- Notice of Award dated 6/6/2017.
- Pre-construction Meeting scheduled for 7/6/2017.

3. East Bay Park - Bathrooms

- Architect: Tych & Walker
- Design Fee: \$10,000
- Design Start: 2/2/2017
- Design Finish: 6/5/2017
- Scope: New 700 S.F. bathroom facilities at East Bay Park
- Design is 100% complete
- Bid Date: July 19, 2107 (Revised)

4. East Bay Park - Boat Trailer Parking

- Engineer: Mead & Hunt, Inc.
- Design Fee: \$69,515 (Revised)
- Design Start: 7/5/2016
- Design Finish: 3/31/2017
- Bid Due Date: 6/29/2017
- Scope of Work: New trailer boat parking (35 spaces including 2 handicap parking space) and some drainage improvements.
- Status: Design is 100% complete.
- SCDHEC permit approved on 6/2/2017.
- SCDOT permit approved on 6/23/2017.

Attachment: Engineering Monthly Report_June 2017 (2325 : June 2017 Engineering Monthly Report)



**City of Georgetown
Engineering Monthly Report
June 2017**

Engineering - Orlando Arteaga, PE

Date: June 30, 2017

5. East Bay Park – Recreational Walking Trail

- Engineer: Cagle Consulting Engineers, LLC
- Design Fee: \$9,750
- Design Start: 2/8/2017
- Design Finish: 5/30/2017
- Design is 90% complete
- Scope of Work: Six-foot wide, one-mile long walking trail around East Bay Park.
- Status: Engineer completed 90% design.
- SCDHEC for permit approval is pending.

6. Georgetown Fire Station #2

- Design-BUILDER: Coastal Structures Corporation
- Architect: Tych & Walker Architects, LLP
- Design Start: 5/24/2016
- Design Finish: Sitework design complete as of 1/20/2017. Architectural design finish date revised due to value engineering of project. Date TBD.
- Sitework Construction Start: 4/11/2017
- Sitework Construction Finish: 6/11/2017 (Planned)
- Pre-Construction Meeting: 6/20/2017
- Notice to Proceed: 6/21/2017
- Building Construction Start: 7/10/2017 (Planned)
- Building Construction Finish: 2/18/2017 (Planned)
- Scope of work: New 8,000 SF Fire Station Building
- Status: USDA has approved contract. Pre-construction meeting held with contractor, City and USDA representative.

Attachment: Engineering Monthly Report_June 2017 (2325 : June 2017 Engineering Monthly Report)



**City of Georgetown
Engineering Monthly Report
June 2017**

Engineering - Orlando Arteaga, PE

Date: June 30, 2017

7. North Side Water Storage Tank

- Engineer: WK Dickson
- Design Fee: \$74,710
- Design Start: 11/17/2016
- Design Finish: 7/5/2017 (Planned)
- Bid Ad: 6/27/2017
- Bid Date: 7/25/2017
- Design status: 100% complete
- Scope: New elevated water storage tank with a capacity of 250,000 gallons located behind Middle School. Project includes open cut, HDD and Jack & Bore trenching for a 12-in. water main. Agencies involved: DHEC and SCDOT.
- Status: Bid documents have been released for bidding. Permit application filed to SCDOT and SCDHEC on

PRIVATE DEVELOPMENT PROJECTS

None reviewed this month

SCDOT ENCROACHMENT PERMITS

One (1) permit filed.

Attachment: Engineering Monthly Report_June 2017 (2325 : June 2017 Engineering Monthly Report)

**Georgetown City Council**

120 North Fraser Street
Georgetown, SC 29442

SCHEDULED**MONTHLY REPORT (ID # 2326)**

Meeting: 07/13/17 05:30 PM

Department: Housing and Community Development

Category: Report

Prepared By: Rick Martin

Initiator: Rick Martin

Sponsors:

DOC ID: 2326

June 2017 Housing & Community Development Report

**Housing & Community Development
Monthly Report
June 2017**

18.I.1

Building Official

Inspections and Permits

Checked areas for non-permitted as well as permitted work, site conditions, and responded to calls.

Monthly Report:

Business License	8
Stop Work	1
Re-Inspection	1
Footings	8
Rough Inspections	38
Electrical	15
Mobile Home	1
On-site	18
CO	8
CC	0
TRC	0
Plan Review & Sign	4
City Alarm System	1
Total	101

Review Meetings/On-site visits

Safety inspections

Other Meeting

Weekly Staff Meeting

Monthly Safety Meeting

Monthly Council Meeting

Council Workshops

Monthly Updates on Projects for March

Honorable Mayor & Council:

- Construction continues at the Georgetown Hospital, the new Surgical Wing, and the new medical temporary office
 - Renovations continue at the new dialysis center at 1120 N. Fraser Street
 - Construction continues for the new Dollar General on Church St.
 - Construction is ongoing for the S. Island Assisted Living, the Maritime Museum, and the Maryville Fire Station.
 - Updates continue on the Historic District Guidelines
 - The Ben Cooper Park playground has been completed.
 - We had a building department audit from ISO and should be getting their approval soon.
 - Janet is extremely busy with overgrown lots, helping with signage and ARB.
 - Cindy is busy with Keep Georgetown Beautiful and working on our parks and entrances and areas around City Hall as well as Morgan Park. She is doing site visits on the main corridors and Front Street each Monday and Friday.
 - Matt is working with all departments as well as Planning and Zoning as well as beginning to work with the Planning Commission on the Land Use Element primarily with the Hi District, as well the COG
 - Debra is doing an excellent job as our office manager issuing permits, scheduling and recording meetings as the Board Secretary, scheduling inspections and meetings for the office
 - Debra, Janet, Cindy, and Matt have worked extremely hard to make sure that all request were handled efficiently and that our citizen's needs were met in a timely manner.
- thank you for your support.

Packet Pg. 475

Attachment: June 2017 Report (2326 : June 2017 Monthly Report)

Thanks Again,
Rick Martin

Code Enforcement

Overgrown Lots/Trash Violations/Business Licenses/Streets & Sanitation

Total Letters Issued for Overgrown Lots	29
Total Letters Issued for Neglect of Structures	0
Total letters issued for Yard Debris/Solid Waste/Construction Debris/Inoperable Vehicles/Electronic Devices	3
Total Letter Issued for Vision Clearance	1
Total Work Orders Sent to Streets and Sanitation	2
Total Letters Sent for Dilapidated Structures	3
Total Letters sent for Sign Violations	0
Total Referrals for Water and Sewer	0
Total Citations Issued for Overgrown Lots	0
Total Citations Issued for Trash Violations	0
Total Citations Issued for Business Licenses	1
Total Citations Issued for Dilapidated Structures	0
Total Citations Issued for Hospitality Taxes	3
Total Violations Issued for Signage	0

Total Demolitions

Total Dilapidated Structures Removed 2	1814 Prince Street 1816 Prince Street
--	--

Permits

Total Letters Issued for Encroachments	0
Total Citations Issued for Encroachments	0

Complaints

Total Complaints	4
Total referrals to Electric-Tree Crew	2

Administrative Assistant II

Board & Commissions:

ARB:

1. 315 Prince St. requesting approval for 2 new gates
2. 1003 Front St. requesting approval for a new door
3. 328 Highmarket St. requesting approval for a new addition
4. 727 & 729 Front St. requesting approval for alterations.

ARB (On-Site):

None

BZA:

None

Planning Commission:

1. Review and recommend for adoption a rezoning request, for approximately 2.42 acres, from the property owner at 1040 North Fraser Street (TMS # 05-0004-002-00-00) to rezone from Planned Development (PD) to General Commercial (GC).

CAB (Community Appearance Board):

None

CBA (Construction Board of Appeals):

Consideration for Demolition:

None

TRC:

None

FOIA:

None

Permit Valuation Report:

Commercial Addition	0
Commercial Alteration	0
Commercial Electric	1
Commercial Gas	0
Commercial Mechanical	1
Commercial New Build	0
Commercial Plumbing	0
Commercial Roofing	0
Demolition	1
Mobile Home	1
Residential Addition	4
Residential Alteration	8
Residential Electrical	3
Residential Gas	1
Residential Mechanical	6
Residential New Build	1
Residential Plumbing	1
Residential Roofing	2

Administrative Assistant's Daily Duties:

- Daily operation of the front desk
- Transcribing minutes for the Board(s) meetings
- Daily scheduling of inspections
- Preparing timesheets
- Put the packets together for Board meetings

Community Planner/GIS Technician

- Out on vacation for one week in June.
- Sign Permits: Church St Laundromat
- Temporary Sign Permits: Gentle Dentistry, The Georgetown Agency

- Entered Council agenda items into Minute Traq for June meeting. We had two agenda items, one for second reading of a scrivener's error, and a first reading on the Winyah Fishing Village Planned Development and annexation.
- Met with WRCOG to discuss the Comprehensive Plan update that is ongoing. We decided to put this update on hold for two months to see what the outcome of the Steel Mill sell/purchase will be. There is no reason to write out industrial uses if it is going to reopen.
- Got the new parcel owners for last 6 months from Gtown County and entered them in GIS so my system would be up to date with the correct parcel owners.
- Sent an information packet and letter to 321 East Bay Street about our new Short-Term Vacation Rental ordinance. They had another wedding at this rental house which we cannot allow in a residentially zoned area.
- Worked on the PC packets and held meeting for June. We only had one agenda item for a rezoning from a Planned Development (PD) to General Commercial (GC). The motion and vote towards the end of the meeting was very confusing for board members, staff, and the public in attendance. Because the motion was made to deny the request for rezoning, a no vote would mean that the commission member was in favor of rezoning. The votes were 3 No and 2 Yes. But that is where the confusion set in. Then they said they would redo the vote to make it clear, same motion and same vote. Then one commission member said lets rephrase the motion to make it in the affirmative, so he made a motion to approve the rezoning request as submitted, and the vote came out 3 No and 2 Yes. So someone changed their vote and this means that the rezoning request is denied. I will have to get city attorney advice on this vote before the July 13th Council meeting.
- Accepted a BZA application for the July meeting. We haven't had a BZA meeting since December 2016.
- Attended a commission/board training at Horry County Government building on floodplain regulations and management. This 3 hour course not only got me the 3 hours credit for board training, but also 3 hours CEC's for my CFM certification.
- I have been helping out with the phones and doing permits while Debra is was on leave for her husband's untimely death.
- Continue to work on both Hazard Mitigation Grant Programs (HMGP) that are currently being reviewed. We hope to get an answer on the 2016 application soon.
- Set a time and date with the ISO Specialist to hold our 5-year cycle visit for the CRS program. It will be all day on Thursday, September 28, 2017.

Keep Georgetown Beautiful

- Commercial Code Enforcement: Sent Letters and made calls to unmaintained locations on Corridors. Did follow up on those not meeting initial deadlines.
- Maryville Code Enforcement: Sent letters to overgrown lots and followed up on deadlines.
- Attended Economic Development Roundtable Meeting.
- Corresponded with North Inlet –Winyah Bay National Estuarine Research Reserve at Hobcaw Barony about erecting a Marine Debris Sculpture at East Bay Boat Landing.
- Assisted with issues at Kaminski House
- Planted flowers with Keep Georgetown Beautiful Board volunteers in planter boxes in front of fence.
- Began Work on couple of Palmetto Pride Grant projects.
- Inventoried, ordered and replaced Doggie Bags at Dispensers.
- Placed ad for Movies in the Park.
- Showed Sing for Movies in the Park on June 9th.
- Perused City for appearance issues. Addressed some of these issues.

- Attended and assisted with Planning Commission Meeting.
- Issued permits, filled out inspection and tree investigation forms.
- Various other projects and duties as related to Keep Georgetown Beautiful and Housing and Community Development.

FRIENDS OF THE KAMINSKI HOUSE REPORT – June 2017



Summer campers from the Georgetown Parks & Recreation camp and the YMCA camp visited the Kaminski House Museum in early June. Despite the rainy weather, the campers had a fun time learning about Georgetown's history and learning how to write with a quill pen and start a fire with a flint and steel.



The Kaminski House Sun Porch was restored in June. Work was done on all of the windows and the space was repainted to its original green color.

Museum staff have been busy in June planning for the new fiscal year and completing lots of tasks for the end of the current year.

Robin Gabriel, Executive Director

**Georgetown City Council**

120 North Fraser Street
Georgetown, SC 29442

SCHEDULED**MONTHLY REPORT (ID # 2340)**

Meeting: 07/13/17 05:30 PM

Department: Administration

Category: Report

Prepared By: Paul Gardner

Initiator: Paul Gardner

Sponsors:

DOC ID: 2340

Economic Development Monthly Report

ECONOMIC DEVELOPMENT MONTHLY REPORT TO THE MAYOR AND CITY COUNCIL

PREPARED BY: GLORIA BROMELL TINUBU, DIRECTOR

JUNE 30, 2017

Overview: Economic Development Department organizes its activities into City-wide and five economic development districts (EDDs) patterned after the five Fire Districts named after neighborhoods, namely, Maryville, West End, Historic, North Highmarket/Airport, and Willowbank. Hence, city-wide activities has implications for all EDDs.

1. City-wide

- **Coastal Carolina University Student Intern:** Arranged for Tedra Hendricks (CCU student) to work as an Economic Development Intern, effective June 6 through August 5. For the month of June, she helped to collect and analyze city-wide statistical data as well as data for Main Street Georgetown. She staffed the West End Redevelopment Sub-Committee meeting and designed and coordinated a Front Street Scavenger Hunt for 15 businesses for the STEM Academy of Georgetown County Schools.
- **rTown Mobile App:** Completed agreement for a 6-months trial of a mobile app that will easily and affordably promote and support businesses located in the City as well as events. The app will have images, hours of operation, website, and directions for all City of Georgetown businesses, museums, and other tourist attractions with links to the websites of the Georgetown Business Association, Georgetown Chamber, etc. rTown is expected to be up and running before end of July.
- **Eclipse Planning Committee:** At the June 5 meeting, I volunteered to reached out to the City to pull together a Public Awareness/Public Safety Committee. Our City Administrator called a meeting with me, the Police Chief, and the Fire Chief. The following was decided:
 - The City will institute “major event parking” starting Sunday night
 - Designated Viewing Areas are: East Bay Park, Morgan Park, and Harbor Walk
 - Hydration Stations will be set up downtown
 - Extra port-o-potties in East Bay and downtown
 - Mobile Command Center will be set up at Front and Broad Streets
 - City will purchase additional viewing glasses
 - Medics will be at all viewing stations
 - Big tent and fans will be placed at East Bay for cooling station
 - Arrangements made with Georgetown Public Schools to provide satellite parking at Georgetown High and Middle Schools and will pick up from local hotels
 - Special provisions for scientists and advanced amateurs at viewing stations
 - Captain Nelson Brown and Suzanne Abed-El-Latif, will be points of contact for public safety and public awareness

ECONOMIC DEVELOPMENT MONTHLY REPORT TO THE MAYOR AND CITY COUNCIL

PREPARED BY: GLORIA BROMELL TINUBU, DIRECTOR

JUNE 30, 2017

- Updates from other Eclipse Planning Committee participating entities:
Georgetown County Library – Dr. Rubbo, Associate Professor of Astronomy at Coastal Carolina University, will speak at the Strand Theater on Aug. 20 at 6:00pm on the 20th and is free to the public. Dr. Rubbo has also agreed to be in Francis Marion Park on Aug. 21 during the eclipse to answer questions from the public.

Georgetown County Chamber of Commerce – The ultimatespf.com site is now up and available for individual organizations to post events by first posting on Facebook. The Facebook posts will link to the Hammock Coast site and then be posted on the Ultimate SPF site.

Georgetown County Government – The County is advising residents of the eclipse and safety concerns in their newsletters. They have also requested 4 articles from Dr. Rubbo on topics related to the eclipse which they will share with news organizations.

Hopsewee Plantation – They will have plenty to offer besides viewing the eclipse sky including drinks and dining, dancing to live music provided by the popular area band, **Coastal Reaction**, sweetgrass basket classes, plantation house tours, and a livestream of the eclipse from NASA.

Georgetown Business Association (GBA) – The GBA will provide 8,000 pairs of viewing glasses to visitors and will help facilitate Dr. Rubbo's presence in Francis Marion Park on Aug. 21.

SC Maritime Museum – Next meeting on July 10 at 5:30pm at the SC Maritime Museum.

- GBA Planning meeting: Continue to have organizing sessions with the President and Vice-President.
- Georgetown County Schools: In depth meeting with LaParisena Singleton, Director of Career and Technology Education (CATE) to discuss the various programs offered and need for internship opportunities with City of Georgetown Businesses. Program areas offered at Georgetown High School include Graphic Communication, Health Science, Welding, Culinary Arts, and Building and Construction.

ECONOMIC DEVELOPMENT MONTHLY REPORT TO THE MAYOR AND CITY COUNCIL

PREPARED BY: GLORIA BROMELL TINUBU, DIRECTOR

JUNE 30, 2017

- One Georgetown Economic Development Roundtable: The first in a series of quarterly roundtables was launched on June 20 with roughly 40 people in attendance (See attached). Currently assembling a city-wide group of residents and businesses to explore a Fraser Street Prototyping Festival which will be designed to unite the City's five diverse neighborhoods which are all connected to Fraser Street. The Festival be designed to encourage neighborhoods to work with designers, artists, architects, and others to build a more connected Georgetown, that is, "One Georgetown." It's envisioned as a collaborative would include the City, the Georgetown Cultural Arts Council, Bunnelle Foundation, The Mitney Project, Georgetown UN Center, to name a few. The Festival could be launched in 2018 and go on display as a part of the City's 290th anniversary in 2019.

City-Wide Business Licenses: 2011 – 2017

Overview: The growth in businesses licenses is generally used as an indicator of positive business climate within a city. To assess the City of Georgetown's business climate, I examined business license data going back as far as our system currently allows, which is from 2011 to 2017.

For 2011, our business climate was quite positive, with 72 licenses, the lowest number of non-renewals for the period (5), and the second highest net gain. While 2012 was a bad year, 2013 saw business licenses and net gains higher than the 2011 levels.

While 2014 had the highest number of business licenses for the period, it also clocked the second highest number of non-renewals and marked the decline in net licenses that would continue through 2016. In fact, between 2014 and 2016, we witness a 34% decline in the number of business licenses and a 75% increase in non-renewals. Data from January to May 2017, suggests that this decline in business licenses, hence a deterioration in our business climate will continue unless the City takes immediate, strategic, comprehensive action.

Three initiatives currently underway have the potential for improving the City's business climate:

- 1) rTown Mobile App;
- 2) Economic Development Roundtable to increase communications and elicit recommendations from local businesses;
- 3) CommunityWorks Business lending fair to be launched August/September 2017.

ECONOMIC DEVELOPMENT MONTHLY REPORT TO THE MAYOR AND CITY COUNCIL

PREPARED BY: GLORIA BROMELL TINUBU, DIRECTOR

JUNE 30, 2017

City of Georgetown Business Licenses, 2011 - 2017			
Year	Started	Closed	Net
2011	72	5	67
2012	66	17	49
2013	81	6	75
2014	88	24	64
2015	77	22	55
2016	58	42	16
2017*	24	15	9

* As of May 31, 2017

Overview: The growth in building permits and improvement value in a city are generally indicators of economic vitality. Looking at the last two years, 2015 to 2016, if not for the \$23,116,931 of commercial addition by Tideland's Health, there would have been a decline (46%) in commercial improvement value during the period.

City-Wide Commercial & Residential Improvement Value January 2015 – May 2017

City-Wide Commercial and Residential Improvement Value, January 2015 through May 2017			
Type of Improvement	2015	2016	2017
Commercial Addition	395,200	23,126,931	427,500
Commercial Alteration	5,352,010	3,350,400	1,723,238
Commercial New Construction	2,834,500	1,260,623	1,039,000
Total Commercial	8,581,710	27,737,954	3,189,738
Residential Addition	257,450	391,411	67,600
Residential Alteration	886,154	725,077	314,057
Residential New Construction	306,977	282,000	502,000
Total Residential	1,450,581	1,398,488	883,657
Total Improvement Value	10,032,291	29,136,442	4,073,395

ECONOMIC DEVELOPMENT MONTHLY REPORT TO THE MAYOR AND CITY COUNCIL

PREPARED BY: GLORIA BROMELL TINUBU, DIRECTOR

JUNE 30, 2017

2. Historic Economic Development District

Main Street Georgetown officially recognized as a 2017 Main Street America Accredited Program!

Overview: Main Street is defined as east of Fraser Street, south of Prince Street, and west of Meeting Street.

The following two tables were compiled and submitted to Main Street South Carolina at the June 21 – 23 Retreat. They contain monthly data on business licenses and improvement values for 2015, 2016, and through May 2017.

As the data suggests, prior to the flood of 2015 and Hurricane Matthew of 2016, Main Street exhibited a positive business climate with 18 starts and 11 net gains. However, 2016 witnessed 9 starts, 11 closures, with a net of -2. For this year, so far, Main Street is realizing a net gain of 3 business licenses.

While Main Street Georgetown businesses account for roughly 11% of all businesses in 2015, they were responsible for 23% of business licenses and 32% of non-renewals for the year.

In addition, Main Street Businesses accounted for 17% of commercial improvement value, 27% of residential improvement value, and 18% total improvement value.

Between 2015 and 2016, Main Street experienced a 64% decline in commercial improvement value, a 70% decrease in residential improvement value, and a 66% decline in total improvement value.

However, there is some positive news to report. As of May 2017, commercial improvement has already exceeded the respective improvement values for both 2015 and 2016.

ECONOMIC DEVELOPMENT MONTHLY REPORT TO THE MAYOR AND CITY COUNCIL

PREPARED BY: GLORIA BROMELL TINUBU, DIRECTOR

JUNE 30, 2017

Main Street Business Licenses: January 2015 – May 2017

Main Street Georgetown											
Business Starts, Closings, and Net Gains - January 2015 through May 2017											
Month	2015				2016				2017		
	Start	Close	Net		Start	Close	Net		Start	Close	Net
January	0	0	0		0	0	0		0	0	0
February	0	1	-1		0	0	0		2	0	2
March	1	0	1		0	0	0		2	1	1
April	3	0	3		1	0	1		0	1	-1
May	5	0	5		1	2	-1		2	1	1
June	1	3	-2		3	2	1				
July	2	2	0		0	1	-1				
August	1	0	1		1	1	0				
September	2	1	1		2	2	0				
October	1	0	1		0	1	-1				
November	1	0	1		1	2	-1				
December	1	0	1		0	0	0				
Total	18	7	11		9	11	-2		6	3	3

Main Street Commercial and Residential Improvement Value, January 2015 – April 2017

Main Street Georgetown						
Commercial & Residential Improvement Value - January 2015 through 2017						
Month	2015			2016		2017
	Commercial	Residential		Commercial	Residential	
January	150,800	0		4,000	0	7,500
February	0	30,000		10,500	6,200	25,500
March	10,000	-		0	1,500	574,850
April	28,500	250,000		0	25,500	1,000,388
May	15,000	4,300		14,968	3,500	0
June	0	30,000		175,000	0	
July	0	42,000		3,000	0	
August	3,000	0		0	20,000	
September	1,164,000	0		0	2,000	
October	24,500	0		129,098	0	
November	0	38,000		0	6,500	
December	38,000	0		175,000	53,000	
Total	1,433,800	394,300		511,566	118,200	1,608,238
						16,000

Attachment: Economic Development June Report.submittal (2340 : ED Monthly)

ECONOMIC DEVELOPMENT MONTHLY REPORT TO THE MAYOR AND CITY COUNCIL

PREPARED BY: GLORIA BROMELL TINUBU, DIRECTOR
JUNE 30, 2017

3. West End Economic Development District

Overview: The West End is defined as west of Fraser Street and the south side of Highmarket Street to the city limits.

West End Redevelopment Sub-Committee: Held meetings on June 12 and 26 which resulted in the following general recommendations were made for areas of focus:

- Expand study area to include all of West End as defined above.
- Housing development
- Funding (especially from Georgetown County/Bailey Bill)
- Historic sites, markers, and cultural significance
- Business development
- Workforce development
- Internships and apprenticeships for students
- Public transportation to high wage areas like Berkeley and Charleston counties
- Additional parking around Michael Johnson and Howard Center
- For greater safety, more sidewalks, lighting, and cameras
- Reduce and/or monitor speed limits
- Eliminate gang graffiti on houses
- Encourage ministers/churches to engage in redevelopment efforts

Examined possible partnerships with the Mitney Project and other entities to construct new housing and redevelop existing housing stock

- Gave potential new executive director tour of the West End
- Identified potential grants/funding sources

4. Willowbank Economic Development District

Overview: Willowbank is defined as the area east of Fraser Street and the north side of Church Street to the city limits. It is where Tidelands Health is located and could be promoted as a veterans and/or health care cluster.

- Met with Bethel AME and potential consultants/developers for the Carolinian/Waterfront Inn property on June 12 and 27.

ECONOMIC DEVELOPMENT MONTHLY REPORT TO THE MAYOR AND CITY COUNCIL

PREPARED BY: GLORIA BROMELL TINUBU, DIRECTOR

JUNE 30, 2017

5. Business Retention and Expansion

- Assist with Business Loans
- Conduct Business Survey
- Review of local preference and targeted hire policies

6. Business Attraction

- Working to locate office space for Sports Medicine firm
- Working with local property owner to identify potential tenant

7. Attended and/or Participated

- SC Department of Commerce Waccamaw Region Advisory Board Meeting
- June 21 – 23: Main Street SC Retreat – delivered 2.5 years of monthly data to Beppie LeGrand, Director of Main Street SC.
- Georgetown County Schools STEM Academy – provided talk on social skills needed for employment and entrepreneurship at closing ceremony. Offered opportunity for students to gain economic development experience and 5 students volunteered to become interns.
- Economic Vitality Committee and had a follow-up meeting with the chair to discuss areas of focus as well as reviewed an upcoming business survey.

8. Economic Development Strategy

- The Main Street Approach is an ideal “Transformation Strategy” for the City’s commercial districts. A Transformation Strategy is a statement that guides our revitalization efforts and is based on a solid grasp of the City’s economy and its position in the regional market.
- In order to construct a viable economic development strategy, a new market study needs to be undertaken immediately (the last study was done right at the beginning of the Great Recession, some 8 years ago)
- A survey of local leaders, key stakeholders, and area residents will be conducted July - September and will be used as an input into the development of our Transformation Strategies.
- A review of existing business mix and community assets will enable us to identify Transformation Strategies that will guide the City’s revitalization efforts. For example, it may make sense for the Willowbank to have a Transformation Strategy that focuses on Health, whereas, the Historic District might focus on Arts, Entertainment, and Culinary.

**Georgetown City Council**

120 North Fraser Street
Georgetown, SC 29442

SCHEDULED**MONTHLY REPORT (ID # 2335)**

Meeting: 07/13/17 05:30 PM

Department: Finance

Category: Report

Prepared By: Debra Bivens

Initiator: Debra Bivens

Sponsors:

DOC ID: 2335

June 2017 Finance & IT Departmental Reports

June 2017 Finance and IT Departments Report

Statistics:

New Business Licenses Issued: Affordable Chiropractic Care, Break Free Muzic, C & D Landscaping, FI & CS LLC, Grace Cleaning Service, Harold Long Home Improvement, Hotel Tonight, Piedmont Service Group, Rice Birds Two.

Projects Progress:

Grants: Please see the attached schedule for the detail on each grant award.

Interim Audit FY 2016/17: We are fully involved in the year-end closing process. The Auditors have completed the interim review and internal control risk assessments. Staff will continue the closing process in order to be prepared for Auditor field work in the fall.

General Fund Revenues: The top two (2) revenue sources in the general fund are property taxes and business license fees, at \$3,045,966 and \$2,410,122 respectively.

Short Term Vacation Rentals: To date we have made contact with all known proprietors engaged in the short term rental business. A total of eight (8) locations have been identified.

CIP Project Scheduling: Now that the budget has been approved, it is time to start the process of implementing CIP projects to coincide with our Revenue Sources. Meetings will be scheduled with each department to determine the appropriate project start date.

Upcoming Procurement Projects:

- Fire Station II
- Drainage Project (Phase I & Phase II)
- East Bay Park Improvements
- Peak Shaving Project
- Electric Distribution Contractor
- North Side Water Storage Tank

Attached are the Budget Performance Reports for June 2017.

Ref	Grantor	Program	Award Amount	Match Amount	Expenditures	Balance	Award #	Status
FEDERAL GRANTS								
1	US Department of Agriculture	Rural Business Enterprise Grant	44,000.00	-	44,819.94	-	00-01	
2	Bureau of Justice Assistance	Bullet Proof Vest Grant 2015 Regular Solicitation	1,896.68	-	1,896.68	-	-	Closed
3	SC Department of Commerce	Highmarket & Duke Drainage Improvements (CDBG)	1,000,000.00	1,045,258.00	85,685.00	1,959,573.00	CDBG #4-CI-15-012	
4	SC Department of Archives & History	FY 2015 Federal Historic Preservation Grant: NAPC Scholarship	2,000.00	-	340.00	-	-	Closed
5	SC Department of Archives & History	FY 2016 Federal Historic Preservation Grant: COG Design Guidelines	24,225.00	24,225.00	30,132.50	18,317.50	-	
6	Federal Highway Administration	East Bay Park Recreational Trail (SCPRT)	77,758.60	19,439.65	6,325.00	90,873.25	P28051500715	
7	SC Department of Commerce	Ladder Fire Truck	500,000.00	340,000.00	12,000.00	828,000.00	CDBG #4-CE-16-003	
STATE GRANTS								
8	SC Rural Infrastructure Authority	N. Congdon St & CSX Drainage Ditch Improvement Project	159,365.00	133,720.00	40,565.00	252,520.00	#R-16-1094	
9	SC Parks, Recreation, & Tourism	Ben Cooper Park Improvements - Phase I (SCPARD)	51,418.17	12,854.54	64,272.71	-	2017050	
10	SC Parks, Recreation, & Tourism	Ben Cooper Park Improvements - Phase II (SCPARD)	8,371.53	2,092.88	10,464.41	-	2017051	
11	SC Department of Public Safety	Body Warn Cameras	20,090.00	-	20,090.00	-	-	Closed
12	SC Muni Insurance Trust	2017 Public Works Equipment	2,000.00	2,000.00	2,114.95	1,885.05	-	
13	SC Muni Insurance Trust	2017 Law Enforcement Reduction Liability	4,000.00	-	4,000.00	-	-	Closed
14	SC Muni Insurance Trust	2017 Soft Body Armor	2,000.00	2,000.00	3,124.92	875.08	-	
OTHER GRANTS								
15	National Paper Company	Outdoor Classroom at Morgan Park	15,000.00	-	15,000.00	-	-	Closed
16	Go to Pride	Keep South Carolina Beautiful 2016	8,000.00	-	8,000.00	-	-	Closed
17	Go to Pride	Keep South Carolina Beautiful 2017	8,000.00	-	4,634.89	3,365.11	-	
TOTAL			1,928,124.98	1,581,590.07	353,466.00	3,155,408.99		

CITY OF GEORGETOWN
SALE OF ASSETS - FY 2016/2017
Account #0010-00-391-001

G/L Date	Gov Deal #	Asset #	Dept.	Description	Amount	Sales Tax	Total Proceeds	GovDeals Fee	Notations
-	-	-	-	No Activity	-	-	-	-	
				Total July	-	-	-	-	
-	-	-	-	No Activity	-	-	-	-	
				Total August	-	-	-	-	
09/21/16	489	10068	Public Works	2000 Ford F150	521.00	36.47	557.47	39.07	Billy Barbare; Rec# 2017-12754
09/12/16	491	12163	Public Works	2009 John Deere Mower	1,151.99	80.64	1,232.63	86.40	Wes Redick; Rec# 2017-00294
09/14/16	492	10709	Waste Management	2008 Ford F750	1,675.00	117.25	1,792.25	125.62	Sonny Nguyen; Rec# 2017-11669
09/23/16	493	12126	Waste Management	2008 Crain Carrier	2,642.00	184.94	2,826.94	198.15	Auto Wholesalers; Rec# 2017-00327
09/23/16	494	12179	Waste Management	2009 Crain Carrier	2,802.77	196.19	2,998.96	210.21	Auto Wholesalers; Rec# 2017-00327
09/14/16	495	10173	H & C Dev.	2002 Ford Explorer	975.00	68.25	1,043.25	73.12	Strand Classic Cars; Rec# 2017-11677
				Total September	9,767.76	683.74	10,451.50	732.57	
-	-	-	-	No Activity	-	-	-	-	
				Total October	-	-	-	-	
-	-	-	-	No Activity	-	-	-	-	
				Total November	-	-	-	-	
12/30/16	484	10172	Police	2001 Ford Crown Victoria Veh. # 626	500.00	\$ 35.00	572.50	37.50	Isaac Williams; Rec#2017-28174
12/14/16	485	10162	Police	2002 Dodge Durango Veh. #616	1,450.00	\$ 101.50	1,660.25	108.75	Kendrick Geddis; Rec# 2017-25712
12/15/16	486	10175	Police	2002 Ford Crown Victoria Veh. #629	226.00	\$ 15.82	258.77	16.95	Strand Classic Cars; Rec# 2017-25922
12/14/16	487	10169	Police	1998 Ford Crown Victoria Veh. #623	481.00	exempt	517.07	36.07	East Coast Sport & Import; Rec# 2017-25801
12/14/16	488	10178	Police	2003 Dodge Durango Veh. #632	2,252.50	157.68	2,579.11	168.94	Kendrick Geddis; Rec# 2017-25712
12/16/16	490	10648	Public Works	1997 Ford Ranger Veh. #1212	301.00	21.07	344.64	22.57	Delton Grissett; Rec#2017-26151
12/14/16	497	10171	Police Dept.	2001 Ford Crown Victoria Veh. #625	1,601.00	112.07	1,833.14	120.07	Kendrick Geddis; Rec# 2017-25712
				Total December	6,811.50	443.14	7,765.48	510.85	
-	496	10822	Water Department	Alamo Buck Hog	-	-	-	-	no bids
-	499	10717	Waste Management	2005 Sideload (Body only)	-	-	-	-	sold for scrap
				Total January	-	-	-	-	
02/13/17	498	11013	Wastewater Dept.	1997 Ford LNT 8000	7,025.00	491.75	8,043.62	526.87	CC&D Trucking Inc; Rec#2017-00733
02/13/17	500	10643	Electric	2000 Chevrolet CS1065	1,200.00	84.00	1,374.00	90.00	Gregory Colvin; Rec#2017-35013
02/13/17	500	10643	Electric	2000 Chevrolet CS1065	(1,200.00)	(84.00)	(1,374.00)	(90.00)	Gregory Colvin; Rec#2017-35013; Refund
				Total February	7,025.00	491.75	8,043.62	526.87	
-	-	-	-	No Activity	-	-	-	-	
				Total March	-	-	-	-	
04/21/17	501	-	Water Department	Lot of cylinders, circuit boards, photo cell, etc.	1,000.00	70.00	1,145.00	75.00	Robert Brown; Rec#2017-46126
-	502	-	Wastewater Dept.	Electric brush aerator	-	-	-	-	no bids
04/19/17	503	-	Water Department	HP 3745 deskjet printer	15.00	1.05	18.55	2.50	Herman Vanderhorst; Rec#2017-45703
-	504	-	Water Department	Incubator 120V	-	-	-	-	no bids
04/19/17	505	-	Water Department	Tekmar Dohrmann analyzer	1,000.00	70.00	1,145.00	75.00	Steven Kim; Rec#2017-46441
				Total April	2,015.00	141.05	2,308.55	152.50	
-	507	12191	Finance	Backup battery	-	-	-	-	no bids
				Total May	-	-	-	-	
-	506	-	Water Department	24" Plotter	-	-	-	-	no bids
				Total June	-	-	-	-	
-	-	-	-	No Activity	-	-	-	-	
				TOTAL PER G/L	25,619.26	1,759.68	28,569.15	1,922.79	

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Budget Performance Report

18.K.4

Fiscal Year to Date 06/30/17

Exclude Rollup Account

		Amended	Current Month	YTD	YTD	Budget - YTD	% Used/	
Account	Account Description	Budget	Transactions	Encumbrances	Transactions	Transactions	Rec'd	Prior Year Total
Fund 0010 - General Fund								
REVENUE								
	Department 00 - Revenue							
	Property Taxes							
311.001	Property Taxes - Real	2,975,000.00	15,195.18	.00	3,045,966.47	(70,966.47)	102	3,011,900.07
311.003	Property Taxes - Vehicles	260,000.00	20,813.51	.00	264,443.10	(4,443.10)	102	285,882.62
311.005	Prop Tax-Penalties & Cost	31,000.00	.00	.00	.00	31,000.00	0	39,263.69
	Property Taxes Totals	\$3,266,000.00	\$36,008.69	\$0.00	\$3,310,409.57	(\$44,409.57)	101%	\$3,337,046.38
	Licenses and Permits							
321.001	Business Licenses	2,509,000.00	1,378,619.46	.00	2,410,122.46	98,877.54	96	2,656,965.32
321.002	Business Lic - Penalties	13,000.00	2,967.25	.00	12,425.38	574.62	96	13,102.00
322.001	Cable TV Franchise	52,000.00	1,596.60	.00	100,726.48	(48,726.48)	194	80,929.13
322.002	S.C. Electric & Gas Co.	42,000.00	39,536.78	.00	39,536.78	2,463.22	94	44,094.25
323.001	Electrical Permits	3,500.00	277.00	.00	5,976.00	(2,476.00)	171	3,763.00
323.002	Plumbing Permits	500.00	187.00	.00	6,030.00	(5,530.00)	1206	665.00
323.003	Gas Permits	600.00	.00	.00	853.00	(253.00)	142	642.00
323.004	Building Permits	67,000.00	5,046.00	.00	151,114.55	(84,114.55)	226	63,297.00
323.005	Yard Sale Permits	100.00	12.00	.00	81.00	19.00	81	75.00
323.006	Mobile Home Permits	100.00	.00	.00	375.00	(275.00)	375	225.00
323.007	Demolition & Clearance	1,500.00	150.00	.00	36,934.00	(35,434.00)	2462	1,675.00
323.008	Mechanical Permits	6,000.00	1,168.00	.00	6,922.00	(922.00)	115	7,318.00
323.010	Bus Lic Inspection Fee	1,000.00	100.00	.00	1,300.00	(300.00)	130	1,250.00
323.014	Construct Parking Permit	50.00	.00	.00	.00	50.00	0	50.00
323.015	Reinspection Fee	500.00	.00	.00	150.00	350.00	30	300.00
323.016	Permit Not Posted On-Site	.00	75.00	.00	75.00	(75.00)	+++	.00
323.018	Moving Permit	.00	.00	.00	100.00	(100.00)	+++	.00
323.019	Stop Work Order Fee	300.00	.00	.00	120.00	180.00	40	504.00
323.020	Board of Appeals Fee	500.00	150.00	.00	600.00	(100.00)	120	600.00
323.021	Zoning Fees	1,000.00	5.00	.00	755.00	245.00	76	1,100.00
323.022	Plan Review Fee	13,000.00	1,112.50	.00	61,479.50	(48,479.50)	473	11,302.50
323.023	Sign Permit Fee	4,500.00	75.00	.00	4,510.00	(10.00)	100	5,839.00

Attachment: Budget Performance Report - June 2017 (2335 : June 2017 Finance & IT Departmental



Budget Performance Report

18.K.4

Fiscal Year to Date 06/30/17

Exclude Rollup Account

		Amended	Current Month	YTD	YTD	Budget - YTD	% Used/	
Account	Account Description	Budget	Transactions	Encumbrances	Transactions	Transactions	Rec'd	Prior Year Total
323.024	Planning Commission Fees	200.00	150.00	.00	300.00	(100.00)	150	150.00
323.025	ARB Fees	900.00	90.00	.00	1,005.00	(105.00)	112	1,050.00
323.026	Plat Approval Fees	300.00	20.00	.00	460.00	(160.00)	153	240.00
323.027	Special Events Permit	500.00	284.00	.00	659.00	(159.00)	132	511.00
323.028	Miscellaneous permits	500.00	75.00	.00	795.91	(295.91)	159	525.00
364.000	Housing Authority FILOT	36,000.00	43,024.87	.00	43,024.87	(7,024.87)	120	38,336.50
	<i>Licenses and Permits Totals</i>	\$2,754,550.00	\$1,474,721.46	\$0.00	\$2,886,430.93	(\$131,880.93)	105%	\$2,934,508.70
	<i>Impact Fees</i>							
324.008	Fire Impact Fee	50,000.00	1,842.29	.00	205,904.26	(155,904.26)	412	44,761.06
	<i>Impact Fees Totals</i>	\$50,000.00	\$1,842.29	\$0.00	\$205,904.26	(\$155,904.26)	412%	\$44,761.06
	<i>Fines and Forfeitures</i>							
351.001	Police Fines	170,000.00	3,736.01	.00	167,620.71	2,379.29	99	148,245.42
351.003	Parking Fines	4,000.00	50.00	.00	1,170.00	2,830.00	29	2,985.00
351.005	Safe Street Fees	150.00	.00	.00	.00	150.00	0	.00
351.008	Victim's Asst. Fees-(%)	15,000.00	1,186.83	.00	18,734.99	(3,734.99)	125	17,623.88
351.009	Victim's Asst. Flat Fees	7,000.00	490.56	.00	8,806.38	(1,806.38)	126	6,772.52
351.012	Traffic Education Program Fees	1,100.00	140.00	.00	980.00	120.00	89	1,260.00
	<i>Fines and Forfeitures Totals</i>	\$197,250.00	\$5,603.40	\$0.00	\$197,312.08	(\$62.08)	100%	\$176,886.82
	<i>Charges for Services</i>							
344.005	SRO Reimbursement	65,000.00	.00	.00	70,578.00	(5,578.00)	109	69,419.00
351.010	Misc Police Revenue	1,500.00	68.00	.00	4,691.75	(3,191.75)	313	2,382.50
363.001	Fees for GIS/B&P Documents	.00	.00	.00	22.50	(22.50)	+++	10.00
363.005	FOIA Fees	750.00	3.00	.00	109.75	640.25	15	476.00
	<i>Charges for Services Totals</i>	\$67,250.00	\$71.00	\$0.00	\$75,402.00	(\$8,152.00)	112%	\$72,287.50
	<i>State Shared</i>							
311.004	Inventory Tax	132,978.00	.00	.00	99,733.59	33,244.41	75	132,978.12
311.006	Homestead Exemption Tax	125,000.00	.00	.00	131,476.18	(6,476.18)	105	125,610.84
311.007	Manufacturer's Tax Reduce	14,500.00	.00	.00	30,684.98	(16,184.98)	212	26,931.87
311.008	Motor Carrier Lieu of Tax	6,000.00	204.91	.00	10,825.81	(4,825.81)	180	9,156.56
335.001	Local Government Fund	185,000.00	.00	.00	158,104.97	26,895.03	85	200,572.44
351.007	Sunday Liquor Sales	15,000.00	.00	.00	9,030.00	5,970.00	60	17,350.00

Attachment: Budget Performance Report - June 2017 (2335 : June 2017 Finance & IT Departmental



Budget Performance Report

18.K.4

Fiscal Year to Date 06/30/17

Exclude Rollup Account

Account	Account Description	Amended Budget	Current Month Transactions	YTD Encumbrances	YTD Transactions	Budget - YTD Transactions	% Used/ Rec'd	Prior Year Total
	<i>State Shared Totals</i>	\$478,478.00	\$204.91	\$0.00	\$439,855.53	\$38,622.47	92%	\$512,599.83
	<i>Local Grants</i>							
332.008	Other Local Grants	7,000.00	.00	.00	11,866.52	(4,866.52)	170	9,614.33
	<i>Local Grants Totals</i>	\$7,000.00	\$0.00	\$0.00	\$11,866.52	(\$4,866.52)	170%	\$9,614.33
	<i>Federal Grants</i>							
335.004	Fema Recovery	.00	138,858.92	.00	162,739.86	(162,739.86)	+++	103,405.75
	<i>Federal Grants Totals</i>	\$0.00	\$138,858.92	\$0.00	\$162,739.86	(\$162,739.86)	+++	\$103,405.75
	<i>Investment Earnings</i>							
361.001	Investment Earnings	16,000.00	.00	.00	33,438.89	(17,438.89)	209	14,952.17
361.002	Invest Earnings-Restrict	.00	.00	.00	.00	.00	+++	(50,000.00)
	<i>Investment Earnings Totals</i>	\$16,000.00	\$0.00	\$0.00	\$33,438.89	(\$17,438.89)	209%	(\$35,047.83)
	<i>Miscellaneous</i>							
362.000	Rents and Royalties	26,000.00	.00	.00	32,538.30	(6,538.30)	125	26,083.15
364.001	Steel Mill FILOT	.00	.00	.00	22,155.07	(22,155.07)	+++	26,754.33
368.000	Work Comp Reimbursement	2,000.00	33,581.83	.00	34,954.13	(32,954.13)	1748	1,964.76
369.000	Cash Over & Short	50.00	(100.00)	.00	(411.30)	461.30	-823	18.95
369.002	Miscellaneous Revenue	3,000.00	877.79	.00	22,062.53	(19,062.53)	735	2,881.65
369.003	Insurance Proceeds	35,000.00	232.75	.00	16,042.36	18,957.64	46	45,031.12
369.005	Set-off Debt Collection Fees	1,500.00	.00	.00	1,025.00	475.00	68	2,632.17
369.013	Returned Check Fees	5,000.00	240.00	.00	3,900.00	1,100.00	78	4,200.00
370.000	Overpayments	.00	.00	.00	15,558.00	(15,558.00)	+++	.00
	<i>Miscellaneous Totals</i>	\$72,550.00	\$34,832.37	\$0.00	\$147,824.09	(\$75,274.09)	204%	\$109,566.13
	<i>Operating Transfers In</i>							
392.001	From Electric Fund	1,400,000.00	116,666.63	.00	1,399,999.56	.44	100	1,399,999.56
392.003	From Accom Tax Fund	29,000.00	.00	.00	27,817.93	1,182.07	96	29,874.56
392.009	From Hospitality Fund	108,000.00	9,000.00	.00	108,000.00	.00	100	108,000.00
	<i>Operating Transfers In Totals</i>	\$1,537,000.00	\$125,666.63	\$0.00	\$1,535,817.49	\$1,182.51	100%	\$1,537,874.12
	<i>Sale of Assets</i>							
391.001	Sale of Assets	5,000.00	.00	.00	9,260.90	(4,260.90)	185	809.61
	<i>Sale of Assets Totals</i>	\$5,000.00	\$0.00	\$0.00	\$9,260.90	(\$4,260.90)	185%	\$809.61
	Department 00 - Revenue Totals	\$8,451,078.00	\$1,817,809.67	\$0.00	\$9,016,262.12	(\$565,184.12)	107%	\$8,804,312.40

Attachment: Budget Performance Report - June 2017 (2335 : June 2017 Finance & IT Departmental



Budget Performance Report

18.K.4

Fiscal Year to Date 06/30/17

Exclude Rollup Account

		Amended	Current Month	YTD	YTD	Budget - YTD	% Used/	
Account	Account Description	Budget	Transactions	Encumbrances	Transactions	Transactions	Rec'd	Prior Year Total
	REVENUE TOTALS	\$8,451,078.00	\$1,817,809.67	\$0.00	\$9,016,262.12	(\$565,184.12)	107%	\$8,804,312.40
	EXPENSE							
	Department 01 - Administration							
	Personal Services							
400.101	Regular Pay	327,493.00	26,797.99	.00	347,569.15	(20,076.15)	106	325,080.93
401.103	Overtime	6,000.00	397.31	.00	2,210.00	3,790.00	37	6,107.32
405.114	FICA	24,333.00	2,003.36	.00	26,004.72	(1,671.72)	107	24,181.31
406.116	Retirement	37,189.00	3,094.41	.00	38,318.92	(1,129.92)	103	35,953.59
408.125	SCMIT Worker's Comp Ins.	3,000.00	.00	.00	5,236.85	(2,236.85)	175	2,426.44
410.001	Health Claims Cost	36,228.00	1,534.72	.00	21,091.96	15,136.04	58	32,375.36
410.002	Health Claim Costs-Retire	230.00	.00	.00	.00	230.00	0	.00
	Personal Services Totals	\$434,473.00	\$33,827.79	\$0.00	\$440,431.60	(\$5,958.60)	101%	\$426,124.95
	Supplies							
500.101	Supplies and Materials	4,500.00	268.36	.00	6,133.67	(1,633.67)	136	5,105.79
500.102	Equipment	2,000.00	.00	.00	1,375.59	624.41	69	237.56
500.103	Furniture	8,500.00	.00	.00	.00	8,500.00	0	1,119.76
500.105	Printing and Binding	.00	.00	.00	84.53	(84.53)	+++	.00
	Supplies Totals	\$15,000.00	\$268.36	\$0.00	\$7,593.79	\$7,406.21	51%	\$6,463.11
	Other Services & Charges							
610.111	Communications- Landline	5,000.00	63.49	.00	5,112.35	(112.35)	102	5,114.84
610.112	Postage	500.00	49.69	.00	677.06	(177.06)	135	624.42
610.1110	Communications- Wireless	3,800.00	266.26	.00	2,648.50	1,151.50	70	2,853.22
620.114	Advertising	300.00	52.00	.00	182.00	118.00	61	399.75
640.124	Travel Expense	5,750.00	764.45	.00	2,795.51	2,954.49	49	4,541.77
650.127	Electricity	6,184.00	658.34	.00	6,306.85	(122.85)	102	6,524.28
650.128	Water	1,125.00	51.27	.00	632.92	492.08	56	1,095.09
650.129	Wastewater	1,480.00	69.17	.00	848.77	631.23	57	1,443.53
650.130	Sanitation	562.00	78.59	.00	810.08	(248.08)	144	623.88
650.133	Stormwater	373.00	43.31	.00	484.44	(111.44)	130	413.88
650.134	Security Lights	1,703.00	157.50	.00	1,890.00	(187.00)	111	1,890.00
650.1271	Electricity- Sales Tax	291.00	31.15	.00	292.39	(1.39)	100	298.82

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Budget Performance Report

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Exclude Rollup Account

		Amended	Current Month	YTD	YTD	Budget - YTD	% Used/	
Account	Account Description	Budget	Transactions	Encumbrances	Transactions	Transactions	Rec'd	Prior Year Total
610.112	Postage	100.00	11.83	.00	140.88	(40.88)	141	24.68
610.1110	Communications- Wireless	3,500.00	336.57	.00	5,964.82	(2,464.82)	170	4,199.27
620.114	Advertising	500.00	156.00	.00	1,283.75	(783.75)	257	484.25
640.124	Travel Expense	14,500.00	.00	.00	8,952.07	5,547.93	62	4,179.99
670.156	Equipment Rental/Lease	11,000.00	810.00	.00	9,720.00	1,280.00	88	9,720.00
685.180	Membership Dues and Fees	1,200.00	.00	.00	.00	1,200.00	0	.00
685.182	Other Operating Expenses	1,400.00	.00	.00	1,817.77	(417.77)	130	1,776.39
685.186	Training	3,100.00	50.00	.00	1,425.00	1,675.00	46	585.82
685.1801	Subscriptions	1,500.00	.00	.00	1,360.20	139.80	91	1,347.20
686.187	Professional Services	150.00	.00	.00	309.84	(159.84)	207	1,336.74
686.1895	Employee wellness services	2,700.00	237.57	.00	1,178.94	1,521.06	44	46.87
	<i>Other Services & Charges Totals</i>	\$40,450.00	\$1,623.14	\$0.00	\$32,724.43	\$7,725.57	81%	\$24,484.28
	<i>Other Objects</i>							
795.001	IT Internal Allocations	4,000.00	6,639.28	.00	9,287.20	(5,287.20)	232	9,321.63
	<i>Other Objects Totals</i>	\$4,000.00	\$6,639.28	\$0.00	\$9,287.20	(\$5,287.20)	232%	\$9,321.63
	Sub Department 02 - Mayor and Council Totals	\$212,402.00	\$22,257.04	\$0.00	\$217,276.84	(\$4,874.84)	102%	\$205,601.06
	Department 01 - Administration Totals	\$507,243.00	\$51,707.03	\$0.00	\$521,988.39	(\$14,745.39)	103%	\$490,720.40
	Department 04 - Finance							
	<i>Personal Services</i>							
400.101	Regular Pay	447,748.00	38,106.50	.00	442,826.44	4,921.56	99	440,657.44
401.103	Overtime	3,000.00	83.39	.00	1,707.67	1,292.33	57	2,585.73
401.106	Contract Labor	.00	.00	.00	.00	.00	+++	4,455.00
405.114	FICA	32,516.00	2,703.13	.00	32,081.94	434.06	99	32,182.17
406.116	Retirement	50,954.00	4,349.66	.00	51,059.22	(105.22)	100	48,134.50
408.125	SCMIT Worker's Comp Ins.	2,000.00	.00	.00	2,870.94	(870.94)	144	1,330.23
410.001	Health Claims Cost	52,395.00	4,721.52	.00	55,495.46	(3,100.46)	106	46,857.00
410.002	Health Claim Costs-Retire	5,000.00	.00	.00	.00	5,000.00	0	982.28
	<i>Personal Services Totals</i>	\$593,613.00	\$49,964.20	\$0.00	\$586,041.67	\$7,571.33	99%	\$577,184.35
	<i>Supplies</i>							
500.101	Supplies and Materials	8,000.00	108.93	.00	5,549.31	2,450.69	69	8,250.77
500.102	Equipment	1,500.00	.00	.00	160.50	1,339.50	11	.00

Attachment: Budget Performance Report - June 2017 (2335 : June 2017 Finance & IT Departmental



Budget Performance Report

18.K.4

Fiscal Year to Date 06/30/17

Exclude Rollup Account

		Amended	Current Month	YTD	YTD	Budget - YTD	% Used/	
Account	Account Description	Budget	Transactions	Encumbrances	Transactions	Transactions	Rec'd	Prior Year Total
650.1271	Electricity- Sales Tax	1,040.00	108.02	.00	1,213.45	(173.45)	117	1,087.09
660.133	Repairs & Maint. Services	30,350.00	2,185.21	6,168.00	15,755.63	8,426.37	72	21,289.04
660.139	Fleet Services Materials	33,000.00	2,309.75	.00	22,589.41	10,410.59	68	28,231.77
660.145	Gasoline & Oil	50,000.00	4,993.42	.00	53,976.97	(3,976.97)	108	54,061.60
660.1391	Fleet Services Labor	39,000.00	8,479.56	.00	43,130.80	(4,130.80)	111	43,108.47
670.156	Equipment Rental/Lease	7,200.00	281.10	.00	6,329.05	870.95	88	4,541.81
682.1721	Prisoner Housing	183,000.00	15,727.50	9,800.00	143,462.89	29,737.11	84	172,593.10
685.180	Membership Dues and Fees	1,225.00	.00	.00	1,916.00	(691.00)	156	835.00
685.182	Other Operating Expenses	13,450.00	104.48	.00	13,993.70	(543.70)	104	14,816.81
685.184	Continuing Education	.00	.00	.00	.00	.00	+++	4,836.71
685.186	Training	11,000.00	.00	.00	6,173.00	4,827.00	56	12,831.99
685.187	Special Projects	4,000.00	.00	.00	2,200.00	1,800.00	55	241.77
685.189	Reserve Program	3,500.00	.00	.00	.00	3,500.00	0	1,134.43
685.1801	Subscriptions	6,675.00	287.21	.00	4,783.03	1,891.97	72	4,747.20
685.1861	Law Enforce Accreditation	600.00	.00	.00	.00	600.00	0	.00
686.186	Legal Services	.00	.00	.00	.00	.00	+++	198.80
686.187	Professional Services	.00	.00	.00	103.28	(103.28)	+++	46.57
686.189	Employee Medical	13,400.00	8,219.00	.00	11,052.66	2,347.34	82	11,017.00
686.194	Other Prof/Tech Services	53,000.00	13,250.00	.00	53,000.00	.00	100	53,000.00
686.195	Repair/Maint Svc Contract	31,500.00	181.30	.00	25,949.00	5,551.00	82	24,687.12
686.1895	Employee wellness services	15,000.00	1,289.67	.00	16,007.96	(1,007.96)	107	18,406.07
687.203	Contract Services	45,000.00	399.95	.00	42,303.18	2,696.82	94	54,200.00
	<i>Other Services & Charges Totals</i>	\$644,630.00	\$65,664.53	\$15,968.00	\$567,145.44	\$61,516.56	90%	\$625,069.80
	<i>Other Objects</i>							
795.001	IT Internal Allocations	32,000.00	28,224.12	.00	54,703.56	(22,703.56)	171	55,903.12
795.010	911 Expense Billing	(1,700.00)	(157.30)	.00	(2,863.10)	1,163.10	168	(2,078.10)
	<i>Other Objects Totals</i>	\$30,300.00	\$28,066.82	\$0.00	\$51,840.46	(\$21,540.46)	171%	\$53,825.02
	<i>Capital Outlay</i>							
900.4300	Other Equipment	.00	.00	.00	.00	.00	+++	35,939.74
	<i>Capital Outlay Totals</i>	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	+++	\$35,939.74
	Sub Department 05 - Police Staff Services Totals	\$2,964,181.00	\$294,088.89	\$15,968.00	\$3,119,817.74	(\$171,604.74)	106%	\$2,906,447.09

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Budget Performance Report

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Fiscal Year to Date 06/30/17

Exclude Rollup Account

		Amended	Current Month	YTD	YTD	Budget - YTD	% Used/	
Account	Account Description	Budget	Transactions	Encumbrances	Transactions	Transactions	Rec'd	Prior Year Total
660.1391	Fleet Services Labor	600.00	66.54	.00	2,375.41	(1,775.41)	396	629.59
670.156	Equipment Rental/Lease	7,500.00	223.15	.00	11,024.42	(3,524.42)	147	7,309.87
685.180	Membership Dues and Fees	860.00	.00	.00	1,372.93	(512.93)	160	982.50
685.182	Other Operating Expenses	1,500.00	79.03	.00	1,690.59	(190.59)	113	2,037.83
685.184	Continuing Education	840.00	.00	.00	154.65	685.35	18	1,730.46
685.186	Training	3,580.00	.00	.00	1,548.23	2,031.77	43	1,634.84
685.192	KGB Operations	7,000.00	778.15	.00	5,962.69	1,037.31	85	5,381.33
685.1801	Subscriptions	50.00	.00	.00	39.00	11.00	78	39.00
685.1921	KGB grant expenses	7,000.00	596.82	.00	8,501.41	(1,501.41)	121	9,614.33
686.187	Professional Services	100.00	.00	.00	103.28	(3.28)	103	46.57
686.191	Contract Services/Studies	92,000.00	24,820.00	(7,341.25)	77,716.51	21,624.74	76	69,967.03
686.195	Repair/Maint Svc Contract	1,200.00	.00	.00	196.50	1,003.50	16	1,301.13
686.1895	Employee wellness services	1,000.00	169.69	.00	1,382.86	(382.86)	138	827.47
	<i>Other Services & Charges Totals</i>	\$139,341.00	\$27,872.63	(\$7,341.25)	\$126,561.64	\$20,120.61	86%	\$117,492.47
	<i>Other Objects</i>							
795.001	IT Internal Allocations	12,000.00	5,928.71	.00	19,168.44	(7,168.44)	160	19,951.60
	<i>Other Objects Totals</i>	\$12,000.00	\$5,928.71	\$0.00	\$19,168.44	(\$7,168.44)	160%	\$19,951.60
	Department 09 - Housing and Community Dev. Totals	\$466,672.00	\$59,449.66	(\$7,341.25)	\$468,725.25	\$5,288.00	99%	\$442,178.94
	Department 10 - Municipal Court							
	<i>Personal Services</i>							
400.101	Regular Pay	98,960.00	8,735.08	.00	101,477.51	(2,517.51)	103	96,155.14
401.103	Overtime	4,700.00	85.01	.00	4,882.24	(182.24)	104	4,425.37
401.105	On-call pay	.00	600.00	.00	5,100.00	(5,100.00)	+++	.00
405.114	FICA	7,436.00	696.02	.00	8,161.24	(725.24)	110	7,271.34
406.116	Retirement	11,516.00	1,094.68	.00	12,414.26	(898.26)	108	10,665.45
408.125	SCMIT Worker's Comp Ins.	1,000.00	.00	.00	1,568.40	(568.40)	157	726.72
410.001	Health Claims Cost	20,100.00	1,334.84	.00	16,972.08	3,127.92	84	17,570.67
	<i>Personal Services Totals</i>	\$143,712.00	\$12,545.63	\$0.00	\$150,575.73	(\$6,863.73)	105%	\$136,814.69
	<i>Supplies</i>							
500.101	Supplies and Materials	3,000.00	.00	.00	3,235.32	(235.32)	108	2,162.30
500.102	Equipment	2,000.00	.00	.00	1,720.63	279.37	86	1,679.15

Attachment: Budget Performance Report - June 2017 (2335 : June 2017 Finance & IT Departmental



Budget Performance Report

18.K.4

Fiscal Year to Date 06/30/17

Exclude Rollup Account

		Amended	Current Month	YTD	YTD	Budget - YTD	% Used/	
Account	Account Description	Budget	Transactions	Encumbrances	Transactions	Transactions	Rec'd	Prior Year Total
650.129	Wastewater	2,170.00	187.66	.00	2,485.20	(315.20)	115	2,358.84
650.130	Sanitation	852.00	78.76	.00	945.12	(93.12)	111	945.12
650.133	Stormwater	711.00	90.90	.00	838.80	(127.80)	118	788.40
650.134	Security Lights	1,633.00	151.00	.00	1,812.00	(179.00)	111	1,812.00
650.1271	Electricity- Sales Tax	2,652.00	76.89	.00	982.95	1,669.05	37	3,374.49
660.103	Emergency Preparedness	5,000.00	424.77	.00	424.77	4,575.23	8	3,316.03
660.133	Repairs & Maint. Services	40,000.00	1,261.15	(410.05)	37,568.31	2,841.74	93	36,692.24
660.139	Fleet Services Materials	30,000.00	6,818.32	.00	31,149.56	(1,149.56)	104	34,026.22
660.145	Gasoline & Oil	20,000.00	2,195.94	.00	18,043.59	1,956.41	90	18,669.61
660.1391	Fleet Services Labor	15,000.00	1,614.52	.00	15,093.67	(93.67)	101	15,939.54
660.1392	Fleet Svcs- Outside Vends	20,000.00	1,291.83	.00	12,473.39	7,526.61	62	16,265.15
670.156	Equipment Rental/Lease	9,000.00	171.73	.00	9,164.87	(164.87)	102	8,405.94
682.169	Laundry & Linen	2,500.00	780.47	.00	1,757.47	742.53	70	910.49
685.180	Membership Dues and Fees	1,355.00	.00	.00	729.00	626.00	54	563.00
685.182	Other Operating Expenses	5,000.00	504.24	.00	10,072.42	(5,072.42)	201	4,368.78
685.184	Continuing Education	.00	.00	.00	.00	.00	+++	75.00
685.186	Training	18,290.00	96.81	.00	16,065.39	2,224.61	88	14,446.83
685.1801	Subscriptions	12,720.00	1,196.26	.00	11,812.56	907.44	93	12,756.77
686.187	Professional Services	.00	.00	.00	154.92	(154.92)	+++	46.57
686.189	Employee Medical	15,000.00	160.00	.00	16,546.45	(1,546.45)	110	11,335.00
686.195	Repair/Maint Svc Contract	70,994.00	4,789.73	2,975.00	59,694.03	8,324.97	88	70,331.92
686.1895	Employee wellness services	8,000.00	984.22	.00	9,097.28	(1,097.28)	114	8,928.79
	<i>Other Services & Charges Totals</i>	\$352,225.00	\$27,496.17	\$2,564.95	\$328,321.80	\$21,338.25	94%	\$336,305.23
	<i>Other Objects</i>							
795.001	IT Internal Allocations	16,000.00	14,389.89	.00	30,277.56	(14,277.56)	189	31,054.33
	<i>Other Objects Totals</i>	\$16,000.00	\$14,389.89	\$0.00	\$30,277.56	(\$14,277.56)	189%	\$31,054.33
	<i>Capital Outlay</i>							
900.3000	Buildings & Improvements	.00	179,592.24	(239,344.92)	241,938.92	(2,594.00)	+++	9,950.00
	<i>Capital Outlay Totals</i>	\$0.00	\$179,592.24	(\$239,344.92)	\$241,938.92	(\$2,594.00)	+++	\$9,950.00
	Department 11 - Fire Totals	\$2,411,421.00	\$400,151.02	(\$236,779.97)	\$2,630,179.07	\$18,021.90	99%	\$2,381,664.96
	Department 12 - Public Works							

Attachment: Budget Performance Report - June 2017 (2335 : June 2017 Finance & IT Departmental



Budget Performance Report

18.K.4

Fiscal Year to Date 06/30/17

Exclude Rollup Account

		Amended	Current Month	YTD	YTD	Budget - YTD	% Used/	
Account	Account Description	Budget	Transactions	Encumbrances	Transactions	Transactions	Rec'd	Prior Year Total
650.1271	Electricity- Sales Tax	3.00	.20	.00	3.71	(.71)	124	4.20
660.133	Repairs & Maint. Services	10,000.00	743.86	.00	7,770.91	2,229.09	78	10,064.18
660.134	Radio Repairs	.00	.00	.00	.00	.00	+++	39.96
660.139	Fleet Services Materials	25,000.00	1,493.56	.00	27,806.15	(2,806.15)	111	23,843.41
660.145	Gasoline & Oil	29,000.00	1,696.58	.00	17,336.22	11,663.78	60	24,965.26
660.1391	Fleet Services Labor	40,000.00	4,739.56	.00	44,167.96	(4,167.96)	110	42,143.08
663.142	Street Sign Maintenance	4,000.00	8.99	.00	4,071.03	(71.03)	102	7,202.02
663.144	Sidewalk Repairs	.00	.00	.00	15,426.92	(15,426.92)	+++	.00
663.148	Maintenance of Parks	30,000.00	7,060.37	.00	25,419.68	4,580.32	85	23,445.04
670.156	Equipment Rental/Lease	5,000.00	206.29	.00	3,645.00	1,355.00	73	2,962.31
685.180	Membership Dues and Fees	200.00	.00	.00	290.00	(90.00)	145	189.00
685.182	Other Operating Expenses	3,000.00	189.76	.00	16,127.48	(13,127.48)	538	4,093.06
685.186	Training	1,100.00	.00	.00	2,182.00	(1,082.00)	198	251.79
685.192	KGB Operations	.00	.00	.00	.00	.00	+++	(15.00)
686.187	Professional Services	1,000.00	.00	.00	2,510.17	(1,510.17)	251	1,501.72
686.189	Employee Medical	1,800.00	.00	.00	759.56	1,040.44	42	455.00
686.195	Repair/Maint Svc Contract	12,000.00	169.33	.00	15,064.25	(3,064.25)	126	20,253.57
686.1895	Employee wellness services	3,505.00	441.20	.00	4,565.60	(1,060.60)	130	4,552.31
687.203	Contract Services	20,000.00	.00	.00	28,896.00	(8,896.00)	144	77,281.61
	<i>Other Services & Charges Totals</i>	\$200,252.00	\$17,787.92	\$0.00	\$229,327.38	(\$29,075.38)	115%	\$257,848.32
	<i>Other Objects</i>							
700.105	Matched Expenses	.00	.00	.00	.00	.00	+++	2,000.00
795.001	IT Internal Allocations	3,000.00	2,099.76	.00	4,747.68	(1,747.68)	158	4,883.84
	<i>Other Objects Totals</i>	\$3,000.00	\$2,099.76	\$0.00	\$4,747.68	(\$1,747.68)	158%	\$6,883.84
	Department 12 - Public Works Totals	\$1,033,137.00	\$74,691.82	\$0.00	\$1,001,840.86	\$31,296.14	97%	\$1,104,225.22
	Department 13 - Information Technology							
	<i>Personal Services</i>							
400.101	Regular Pay	68,200.00	5,951.40	.00	70,968.11	(2,768.11)	104	67,662.84
405.114	FICA	4,988.00	430.53	.00	5,213.96	(225.96)	105	4,962.94
406.116	Retirement	7,843.00	682.35	.00	8,183.93	(340.93)	104	7,394.84
408.125	SCMIT Worker's Comp Ins.	350.00	.00	.00	637.98	(287.98)	182	295.62

Attachment: Budget Performance Report - June 2017 (2335 : June 2017 Finance & IT Departmental



Budget Performance Report

18.K.4

Fiscal Year to Date 06/30/17

Exclude Rollup Account

		Amended	Current Month	YTD	YTD	Budget - YTD	% Used/	
Account	Account Description	Budget	Transactions	Encumbrances	Transactions	Transactions	Rec'd	Prior Year Total
	<i>Other Objects Totals</i>	(\$333,548.00)	(\$23,038.72)	\$0.00	(\$277,241.39)	(\$56,306.61)	83%	(\$294,312.90)
	<i>Capital Outlay</i>							
900.3950	Computer Software	7,000.00	.00	.00	9,618.48	(2,618.48)	137	9,725.43
900.4300	Other Equipment	5,000.00	.00	.00	.00	5,000.00	0	.00
	<i>Capital Outlay Totals</i>	\$12,000.00	\$0.00	\$0.00	\$9,618.48	\$2,381.52	80%	\$9,725.43
	Department 13 - Information Technology Totals	\$400.00	\$1,120.25	\$0.00	\$29,321.67	(\$28,921.67)	7330%	\$30,968.46
	Department 14 - Fleet Services							
	<i>Personal Services</i>							
400.101	Regular Pay	131,550.00	17,047.35	.00	130,526.99	1,023.01	99	129,328.40
401.103	Overtime	2,748.00	670.88	.00	3,538.57	(790.57)	129	2,065.18
405.114	FICA	9,364.00	1,276.64	.00	9,447.92	(83.92)	101	9,217.26
406.116	Retirement	15,095.00	2,026.41	.00	15,240.39	(145.39)	101	14,145.52
408.125	SCMIT Worker's Comp Ins.	3,500.00	.00	.00	9,324.56	(5,824.56)	266	2,210.62
410.001	Health Claims Cost	28,329.00	1,271.22	.00	21,900.10	6,428.90	77	25,059.37
	<i>Personal Services Totals</i>	\$190,586.00	\$22,292.50	\$0.00	\$189,978.53	\$607.47	100%	\$182,026.35
	<i>Supplies</i>							
500.101	Supplies and Materials	9,000.00	108.32	.00	6,630.02	2,369.98	74	9,058.67
500.102	Equipment	1,500.00	(661.04)	.00	816.52	683.48	54	1,810.44
500.105	Printing and Binding	400.00	10.10	.00	154.37	245.63	39	49.73
501.101	Uniforms and Clothing	5,300.00	322.04	.00	5,501.43	(201.43)	104	4,010.22
515.121	Safety Supplies	750.00	89.06	.00	481.94	268.06	64	667.78
	<i>Supplies Totals</i>	\$16,950.00	(\$131.52)	\$0.00	\$13,584.28	\$3,365.72	80%	\$15,596.84
	<i>Other Services & Charges</i>							
610.111	Communications- Landline	1,500.00	42.63	.00	1,517.13	(17.13)	101	1,616.94
610.112	Postage	200.00	.00	.00	.00	200.00	0	25.36
610.1110	Communications- Wireless	800.00	53.95	.00	589.08	210.92	74	691.68
640.124	Travel Expense	500.00	.00	.00	.00	500.00	0	.00
650.127	Electricity	7,878.00	633.01	.00	9,902.19	(2,024.19)	126	9,103.80
650.128	Water	364.00	32.37	.00	398.30	(34.30)	109	401.64
650.129	Wastewater	480.00	42.80	.00	525.75	(45.75)	110	529.80
650.130	Sanitation	400.00	36.90	.00	442.80	(42.80)	111	442.80

Attachment: Budget Performance Report - June 2017 (2335 : June 2017 Finance & IT Departmental



Budget Performance Report

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Fiscal Year to Date 06/30/17

Exclude Rollup Account

		Amended	Current Month	YTD	YTD	Budget - YTD	% Used/	
Account	Account Description	Budget	Transactions	Encumbrances	Transactions	Transactions	Rec'd	Prior Year Total
650.133	Stormwater	117.00	10.84	.00	130.08	(13.08)	111	130.08
650.134	Security Lights	460.00	42.57	.00	510.84	(50.84)	111	510.84
650.1271	Electricity- Sales Tax	471.00	33.53	.00	488.62	(17.62)	104	487.90
660.139	Fleet Services Materials	1,500.00	.00	.00	889.43	610.57	59	737.03
660.145	Gasoline & Oil	1,700.00	219.23	.00	1,524.78	175.22	90	1,353.33
660.1391	Fleet Services Labor	1,000.00	.00	.00	591.25	408.75	59	398.75
662.140	Building Repairs	4,000.00	.00	.00	.00	4,000.00	0	7,220.51
685.182	Other Operating Expenses	200.00	.00	.00	3,475.99	(3,275.99)	1738	184.44
685.186	Training	250.00	.00	.00	.00	250.00	0	51.00
685.1801	Subscriptions	50.00	.00	.00	.00	50.00	0	.00
686.189	Employee Medical	200.00	.00	.00	147.55	52.45	74	165.00
686.195	Repair/Maint Svc Contract	5,700.00	.00	.00	8,133.44	(2,433.44)	143	2,406.60
686.1895	Employee wellness services	1,000.00	101.82	.00	1,124.37	(124.37)	112	1,223.98
	<i>Other Services & Charges Totals</i>	\$28,770.00	\$1,249.65	\$0.00	\$30,391.60	(\$1,621.60)	106%	\$27,681.48
	<i>Other Objects</i>							
735.122	Services Billed	(235,636.00)	(32,503.57)	.00	(261,866.27)	26,230.27	111	(265,710.29)
795.001	IT Internal Allocations	.00	1,821.92	.00	1,821.92	(1,821.92)	+++	1,781.09
	<i>Other Objects Totals</i>	(\$235,636.00)	(\$30,681.65)	\$0.00	(\$260,044.35)	\$24,408.35	110%	(\$263,929.20)
	Department 14 - Fleet Services Totals	\$670.00	(\$7,271.02)	\$0.00	(\$26,089.94)	\$26,759.94	-3894%	(\$38,624.53)
	Department 20 - General Government							
	<i>Personal Services</i>							
410.001	Health Claims Cost	1,000.00	.00	.00	.00	1,000.00	0	333.36
410.002	Health Claim Costs-Retire	35,000.00	(5,802.98)	.00	31,875.24	3,124.76	91	130,651.60
	<i>Personal Services Totals</i>	\$36,000.00	(\$5,802.98)	\$0.00	\$31,875.24	\$4,124.76	89%	\$130,984.96
	<i>Supplies</i>							
500.103	Furniture	1,000.00	.00	.00	.00	1,000.00	0	.00
510.106	Cleaning & Sanitation Sup	2,200.00	97.93	.00	2,081.86	118.14	95	2,972.68
	<i>Supplies Totals</i>	\$3,200.00	\$97.93	\$0.00	\$2,081.86	\$1,118.14	65%	\$2,972.68
	<i>Other Services & Charges</i>							
600.110	SCMIRF Property/Liab Ins	250,000.00	9,742.53	.00	266,910.56	(16,910.56)	107	266,692.79
600.112	Survivors Health Ins	500.00	(103.30)	.00	83.90	416.10	17	230.24

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Budget Performance Report

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Exclude Rollup Account

		Amended	Current Month	YTD	YTD	Budget - YTD	% Used/	
Account	Account Description	Budget	Transactions	Encumbrances	Transactions	Transactions	Rec'd	Prior Year Total
600.1051	Employee Wellness & Safety	23,300.00	2,481.23	.00	19,991.41	3,308.59	86	16,304.23
600.1052	Unemployment Insurance	7,000.00	.00	.00	.00	7,000.00	0	626.07
620.114	Advertising	200.00	.00	.00	.00	200.00	0	280.00
640.124	Travel Expense	.00	.00	.00	.00	.00	+++	151.78
650.133	Stormwater	715.00	65.71	.00	788.52	(73.52)	110	788.52
660.133	Repairs & Maint. Services	85,000.00	.00	.00	59,303.35	25,696.65	70	10,270.38
662.140	Building Repairs	2,000.00	.00	.00	.00	2,000.00	0	.00
685.180	Membership Dues and Fees	3,500.00	.00	.00	3,606.41	(106.41)	103	3,931.85
685.182	Other Operating Expenses	15,000.00	856.22	.00	114,688.21	(99,688.21)	765	12,695.54
685.187	Special Projects	5,000.00	.00	.00	2,552.97	2,447.03	51	(14,100.00)
686.186	Legal Services	50,000.00	9,895.07	16,946.55	118,757.14	(85,703.69)	271	93,700.83
686.187	Professional Services	1,000.00	.00	.00	950.00	50.00	95	1,274.00
686.189	Employee Medical	250.00	.00	.00	.00	250.00	0	.00
686.190	Consulting Services	1,000.00	.00	.00	.00	1,000.00	0	.00
686.192	Elections	6,500.00	.00	.00	506.11	5,993.89	8	7,340.94
686.194	Other Prof/Tech Services	5,000.00	.00	.00	.00	5,000.00	0	4,650.00
686.195	Repair/Maint Svc Contract	19,000.00	98.53	.00	13,035.88	5,964.12	69	20,566.11
686.199	Internal Engineering	.00	2,852.39	.00	31,519.64	(31,519.64)	+++	14,102.62
686.1871	Audit Services	40,000.00	.00	5,500.00	34,500.00	.00	100	36,100.00
686.1895	Employee wellness services	4,000.00	.00	.00	1,861.62	2,138.38	47	2,318.60
687.203	Contract Services	18,000.00	.00	.00	15,007.29	2,992.71	83	.00
	<i>Other Services & Charges Totals</i>	\$536,965.00	\$25,888.38	\$22,446.55	\$684,063.01	(\$169,544.56)	132%	\$477,924.50
	<i>Other Objects</i>							
700.105	Matched Expenses	.00	.00	.00	.00	.00	+++	46,858.48
795.995	GF Cost Distribution	(112,788.00)	(9,399.00)	.00	(112,788.00)	.00	100	(112,788.00)
	<i>Other Objects Totals</i>	(\$112,788.00)	(\$9,399.00)	\$0.00	(\$112,788.00)	\$0.00	100%	(\$65,929.52)
	<i>Capital Outlay</i>							
900.3000	Buildings & Improvements	5,000.00	.00	.00	.00	5,000.00	0	.00
	<i>Capital Outlay Totals</i>	\$5,000.00	\$0.00	\$0.00	\$0.00	\$5,000.00	0%	\$0.00
	Department 20 - General Government Totals	\$468,377.00	\$10,784.33	\$22,446.55	\$605,232.11	(\$159,301.66)	134%	\$545,952.62
	EXPENSE TOTALS	\$8,416,608.00	\$949,473.55	(\$205,706.67)	\$8,889,802.39	(\$267,487.72)	103%	\$8,406,517.87

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Budget Performance Report

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Fiscal Year to Date 06/30/17

Exclude Rollup Account

		Amended	Current Month	YTD	YTD	Budget - YTD	% Used/	
Account	Account Description	Budget	Transactions	Encumbrances	Transactions	Transactions	Rec'd	Prior Year Total
	Fund 0010 - General Fund Totals							
	REVENUE TOTALS	8,451,078.00	1,817,809.67	.00	9,016,262.12	(565,184.12)	107%	8,804,312.40
	EXPENSE TOTALS	8,416,608.00	949,473.55	(205,706.67)	8,889,802.39	(267,487.72)	103%	8,406,517.87
	Fund 0010 - General Fund Totals	\$34,470.00	\$868,336.12	\$205,706.67	\$126,459.73	(\$297,696.40)		\$397,794.53
	Fund 0011 - Debt Service							
	REVENUE							
	Department 00 - Revenue							
	Property Taxes							
311.002	Property Taxes -Debt Mill	128,778.00	1,544.92	.00	131,915.94	(3,137.94)	102	19.02
	Property Taxes Totals	\$128,778.00	\$1,544.92	\$0.00	\$131,915.94	(\$3,137.94)	102%	\$19.02
	Department 00 - Revenue Totals	\$128,778.00	\$1,544.92	\$0.00	\$131,915.94	(\$3,137.94)	102%	\$19.02
	REVENUE TOTALS	\$128,778.00	\$1,544.92	\$0.00	\$131,915.94	(\$3,137.94)	102%	\$19.02
	EXPENSE							
	Department 21 - Debt Service							
	Other Services & Charges							
681.130	GO Bond Principal	119,246.00	.00	.00	.00	119,246.00	0	.00
681.140	GO Bond Interest	9,532.00	.00	.00	.00	9,532.00	0	.00
	Other Services & Charges Totals	\$128,778.00	\$0.00	\$0.00	\$0.00	\$128,778.00	0%	\$0.00
	Department 21 - Debt Service Totals	\$128,778.00	\$0.00	\$0.00	\$0.00	\$128,778.00	0%	\$0.00
	EXPENSE TOTALS	\$128,778.00	\$0.00	\$0.00	\$0.00	\$128,778.00	0%	\$0.00
	Fund 0011 - Debt Service Totals							
	REVENUE TOTALS	128,778.00	1,544.92	.00	131,915.94	(3,137.94)	102%	19.02
	EXPENSE TOTALS	128,778.00	.00	.00	.00	128,778.00	0%	.00
	Fund 0011 - Debt Service Totals	\$0.00	\$1,544.92	\$0.00	\$131,915.94	(\$131,915.94)		\$19.02
	Fund 0012 - Capital Projects Reserve Fund							
	EXPENSE							
	Department 26 - Special Projects							
	Capital Outlay							
900.903	Sidewalk Program	75,000.00	3,500.00	.00	75,450.00	(450.00)	101	68,652.07

Attachment: Budget Performance Report - June 2017 (2335 : June 2017 Finance & IT Departmental



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Exclude Rollup Account

		Amended	Current Month	YTD	YTD	Budget - YTD	% Used/	
Account	Account Description	Budget	Transactions	Encumbrances	Transactions	Transactions	Rec'd	Prior Year Total
900.904	Street Re-Surfacing Program	50,000.00	7,714.00	.00	50,980.05	(980.05)	102	44,720.77
900.918	Ladder One	200,000.00	.00	28,000.00	12,000.00	160,000.00	20	.00
900.3000	Buildings & Improvements	31,500.00	.00	.00	14,200.00	17,300.00	45	.00
900.4100	Vehicles	115,518.00	.00	.00	116,211.00	(693.00)	101	130,629.00
900.4200	Heavy Equipment	48,000.00	7,209.00	15,995.92	7,209.00	24,795.08	48	.00
900.4300	Other Equipment	191,817.00	22,546.38	35,000.00	148,919.65	7,897.35	96	238,847.87
900.6000	Other Improvements	21,700.00	7,071.52	.00	13,539.52	8,160.48	62	.00
900.9002	Harborwalk Fire Protection	.00	.00	.00	302,509.00	(302,509.00)	+++	.00
Capital Outlay Totals		\$733,535.00	\$48,040.90	\$78,995.92	\$741,018.22	(\$86,479.14)	112%	\$482,849.71
Department 26 - Special Projects Totals		\$733,535.00	\$48,040.90	\$78,995.92	\$741,018.22	(\$86,479.14)	112%	\$482,849.71
EXPENSE TOTALS		\$733,535.00	\$48,040.90	\$78,995.92	\$741,018.22	(\$86,479.14)	112%	\$482,849.71
Fund 0012 - Capital Projects Reserve Fund Totals								
REVENUE TOTALS		.00	.00	.00	.00	.00	+++	.00
EXPENSE TOTALS		733,535.00	48,040.90	78,995.92	741,018.22	(86,479.14)	112%	482,849.71
Fund 0012 - Capital Projects Reserve Fund Totals		(\$733,535.00)	(\$48,040.90)	(\$78,995.92)	(\$741,018.22)	\$86,479.14		(\$482,849.71)
Fund 0017 - Federal Grants								
REVENUE								
Department 00 - Revenue								
Federal Grants								
331.000	Federal Grants	.00	25,446.25	.00	25,786.25	(25,786.25)	+++	.00
Federal Grants Totals		\$0.00	\$25,446.25	\$0.00	\$25,786.25	(\$25,786.25)	+++	\$0.00
City Funding								
331.069	Match Revenue	.00	.00	.00	.00	.00	+++	46,858.48
City Funding Totals		\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	+++	\$46,858.48
Department 00 - Revenue Totals		\$0.00	\$25,446.25	\$0.00	\$25,786.25	(\$25,786.25)	+++	\$46,858.48
REVENUE TOTALS		\$0.00	\$25,446.25	\$0.00	\$25,786.25	(\$25,786.25)	+++	\$46,858.48
EXPENSE								
Department 69 - Federal Grants								
Supplies								
500.101	Supplies and Materials	.00	.00	.00	650.36	(650.36)	+++	.00

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		Amended	Current Month	YTD	YTD	Budget - YTD	% Used/	
Account	Account Description	Budget	Transactions	Encumbrances	Transactions	Transactions	Rec'd	Prior Year Total
	<i>Supplies Totals</i>	\$0.00	\$0.00	\$0.00	\$650.36	(\$650.36)	+++	\$0.00
	<i>Other Services & Charges</i>							
685.186	Training	.00	.00	.00	50.00	(50.00)	+++	.00
686.191	Contract Services/Studies	.00	1,620.00	9,158.75	15,066.25	(24,225.00)	+++	.00
	<i>Other Services & Charges Totals</i>	\$0.00	\$1,620.00	\$9,158.75	\$15,116.25	(\$24,275.00)	+++	\$0.00
	Department 69 - Federal Grants Totals	\$0.00	\$1,620.00	\$9,158.75	\$15,766.61	(\$24,925.36)	+++	\$0.00
	EXPENSE TOTALS	\$0.00	\$1,620.00	\$9,158.75	\$15,766.61	(\$24,925.36)	+++	\$0.00
	Fund 0017 - Federal Grants Totals							
	REVENUE TOTALS	.00	25,446.25	.00	25,786.25	(25,786.25)	+++	46,858.48
	EXPENSE TOTALS	.00	1,620.00	9,158.75	15,766.61	(24,925.36)	+++	.00
	Fund 0017 - Federal Grants Totals	\$0.00	\$23,826.25	(\$9,158.75)	\$10,019.64	(\$860.89)		\$46,858.48
	Fund 0020 - State Accommodations Tax							
	REVENUE							
	Department 00 - Revenue							
	<i>State Shared</i>							
318.001	Accommodations Tax	105,000.00	.00	.00	81,358.80	23,641.20	77	122,491.13
	<i>State Shared Totals</i>	\$105,000.00	\$0.00	\$0.00	\$81,358.80	\$23,641.20	77%	\$122,491.13
	<i>Investment Earnings</i>							
361.001	Investment Earnings	175.00	.00	.00	567.75	(392.75)	324	388.00
	<i>Investment Earnings Totals</i>	\$175.00	\$0.00	\$0.00	\$567.75	(\$392.75)	324%	\$388.00
	Department 00 - Revenue Totals	\$105,175.00	\$0.00	\$0.00	\$81,926.55	\$23,248.45	78%	\$122,879.13
	REVENUE TOTALS	\$105,175.00	\$0.00	\$0.00	\$81,926.55	\$23,248.45	78%	\$122,879.13
	EXPENSE							
	Department 33 - State Accommodations Tax							
	<i>Other Services & Charges</i>							
620.114	Advertising	1,175.00	52.00	.00	52.00	1,123.00	4	156.00
683.173	Tourism Related	51,000.00	11,015.00	.00	44,034.21	6,965.79	86	62,270.44
683.174	Tourism Advertise/Promote	24,000.00	.00	.00	16,907.65	7,092.35	70	29,247.34
	<i>Other Services & Charges Totals</i>	\$76,175.00	\$11,067.00	\$0.00	\$60,993.86	\$15,181.14	80%	\$91,673.78
	<i>Other Objects</i>							

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		Amended	Current Month	YTD	YTD	Budget - YTD	% Used/	
Account	Account Description	Budget	Transactions	Encumbrances	Transactions	Transactions	Rec'd	Prior Year Total
750.124	Transfers to General Fund	29,000.00	.00	.00	27,817.93	1,182.07	96	29,874.56
	<i>Other Objects Totals</i>	\$29,000.00	\$0.00	\$0.00	\$27,817.93	\$1,182.07	96%	\$29,874.56
	Department 33 - State Accommodations Tax Totals	\$105,175.00	\$11,067.00	\$0.00	\$88,811.79	\$16,363.21	84%	\$121,548.34
	EXPENSE TOTALS	\$105,175.00	\$11,067.00	\$0.00	\$88,811.79	\$16,363.21	84%	\$121,548.34
	Fund 0020 - State Accommodations Tax Totals							
	REVENUE TOTALS	105,175.00	.00	.00	81,926.55	23,248.45	78%	122,879.13
	EXPENSE TOTALS	105,175.00	11,067.00	.00	88,811.79	16,363.21	84%	121,548.34
	Fund 0020 - State Accommodations Tax Totals	\$0.00	(\$11,067.00)	\$0.00	(\$6,885.24)	\$6,885.24		\$1,330.79
	Fund 0022 - Local Hospitality/ATax							
	REVENUE							
	Department 00 - Revenue							
	<i>Fees</i>							
324.001	Hospitality Fee	650,000.00	62,435.99	.00	718,186.24	(68,186.24)	110	680,550.93
324.002	Accommodation Fees	190,000.00	21,618.28	.00	194,862.22	(4,862.22)	103	202,021.25
	<i>Fees Totals</i>	\$840,000.00	\$84,054.27	\$0.00	\$913,048.46	(\$73,048.46)	109%	\$882,572.18
	<i>State Grants</i>							
332.015	DBA State Grant	.00	57,913.92	.00	87,913.92	(87,913.92)	+++	.00
	<i>State Grants Totals</i>	\$0.00	\$57,913.92	\$0.00	\$87,913.92	(\$87,913.92)	+++	\$0.00
	<i>Federal Grants</i>							
331.000	Federal Grants	.00	.00	.00	24,300.00	(24,300.00)	+++	16,200.00
	<i>Federal Grants Totals</i>	\$0.00	\$0.00	\$0.00	\$24,300.00	(\$24,300.00)	+++	\$16,200.00
	<i>Investment Earnings</i>							
361.001	Investment Earnings	4,000.00	.00	.00	13,437.67	(9,437.67)	336	10,198.83
	<i>Investment Earnings Totals</i>	\$4,000.00	\$0.00	\$0.00	\$13,437.67	(\$9,437.67)	336%	\$10,198.83
	<i>Miscellaneous</i>							
367.001	Operating Contributions	.00	.00	.00	35,000.00	(35,000.00)	+++	(35,000.00)
369.002	Miscellaneous Revenue	.00	.00	.00	.00	.00	+++	61,899.12
	<i>Miscellaneous Totals</i>	\$0.00	\$0.00	\$0.00	\$35,000.00	(\$35,000.00)	+++	\$26,899.12
	<i>Operating Transfers In</i>							
394.002	Transfer from fund balance	328,944.00	.00	.00	.00	328,944.00	0	.00

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		Amended	Current Month	YTD	YTD	Budget - YTD	% Used/	
Account	Account Description	Budget	Transactions	Encumbrances	Transactions	Transactions	Rec'd	Prior Year Total
	<i>Operating Transfers In Totals</i>	\$328,944.00	\$0.00	\$0.00	\$0.00	\$328,944.00	0%	\$0.00
	Department 00 - Revenue Totals	\$1,172,944.00	\$141,968.19	\$0.00	\$1,073,700.05	\$99,243.95	92%	\$935,870.13
	REVENUE TOTALS	\$1,172,944.00	\$141,968.19	\$0.00	\$1,073,700.05	\$99,243.95	92%	\$935,870.13
	EXPENSE							
	Department 08 - Winyah Auditorium							
	<i>Other Services & Charges</i>							
650.127	Electricity	4,910.00	576.75	.00	7,467.22	(2,557.22)	152	5,907.87
	<i>Other Services & Charges Totals</i>	\$4,910.00	\$576.75	\$0.00	\$7,467.22	(\$2,557.22)	152%	\$5,907.87
	<i>Other Objects</i>							
750.133	Trsf to Winyah Aud Fund	.00	.00	.00	.00	.00	+++	35,000.00
	<i>Other Objects Totals</i>	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	+++	\$35,000.00
	Department 08 - Winyah Auditorium Totals	\$4,910.00	\$576.75	\$0.00	\$7,467.22	(\$2,557.22)	152%	\$40,907.87
	Department 23 - Old Hospitality Fees							
	<i>Other Services & Charges</i>							
620.1141	Advertising- Other	.00	312.00	.00	448.50	(448.50)	+++	.00
685.182	Other Operating Expenses	.00	.00	.00	1,568.02	(1,568.02)	+++	3,920.12
685.1871	Way-finding project	.00	.00	.00	.00	.00	+++	527.90
	<i>Other Services & Charges Totals</i>	\$0.00	\$312.00	\$0.00	\$2,016.52	(\$2,016.52)	+++	\$4,448.02
	<i>Other Objects</i>							
750.124	Transfers to General Fund	108,000.00	9,000.00	.00	108,000.00	.00	100	108,000.00
	<i>Other Objects Totals</i>	\$108,000.00	\$9,000.00	\$0.00	\$108,000.00	\$0.00	100%	\$108,000.00
	<i>Capital Outlay</i>							
900.905	Park Improvements	400,000.00	4,033.48	65,522.00	77,585.48	256,892.52	36	.00
	<i>Capital Outlay Totals</i>	\$400,000.00	\$4,033.48	\$65,522.00	\$77,585.48	\$256,892.52	36%	\$0.00
	Department 23 - Old Hospitality Fees Totals	\$508,000.00	\$13,345.48	\$65,522.00	\$187,602.00	\$254,876.00	50%	\$112,448.02
	Department 24 - New Hospitality Fees							
	<i>Other Services & Charges</i>							
683.174	Tourism Advertise/Promote	59,582.00	2,531.23	.00	35,586.12	23,995.88	60	13,365.34
685.180	Membership Dues and Fees	7,500.00	.00	.00	7,500.00	.00	100	17,500.00
685.182	Other Operating Expenses	.00	.00	.00	28,423.26	(28,423.26)	+++	35,856.40
685.187	Special Projects	32,000.00	.00	.00	18,812.97	13,187.03	59	22,125.90

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Account	Account Description	Budget	Transactions	Encumbrances	Transactions	Transactions	Rec'd	Prior Year Total
685.1871	Way-finding project	8,500.00	.00	.00	4,336.06	4,163.94	51	.00
686.195	Repair/Maint Svc Contract	12,000.00	.00	.00	18,714.00	(6,714.00)	156	29,404.13
	<i>Other Services & Charges Totals</i>	\$119,582.00	\$2,531.23	\$0.00	\$113,372.41	\$6,209.59	95%	\$118,251.77
	<i>Capital Outlay</i>							
900.905	Park Improvements	250,000.00	85,690.76	(3,297.53)	379,695.05	(126,397.52)	151	216,406.77
900.4300	Other Equipment	52,900.00	1,005.80	.00	53,312.29	(412.29)	101	.00
	<i>Capital Outlay Totals</i>	\$302,900.00	\$86,696.56	(\$3,297.53)	\$433,007.34	(\$126,809.81)	142%	\$216,406.77
	Department 24 - New Hospitality Fees Totals	\$422,482.00	\$89,227.79	(\$3,297.53)	\$546,379.75	(\$120,600.22)	129%	\$334,658.54
	Department 29 - Kaminski House							
	<i>Other Services & Charges</i>							
600.110	SCMIRF Property/Liab Ins	10,000.00	.00	.00	13,024.00	(3,024.00)	130	13,024.00
650.127	Electricity	2,446.00	164.23	.00	2,103.86	342.14	86	2,391.41
650.133	Stormwater	.00	75.60	.00	151.20	(151.20)	+++	.00
650.1271	Electricity- Sales Tax	106.00	7.31	.00	93.53	12.47	88	102.76
685.182	Other Operating Expenses	35,000.00	.00	.00	36,460.00	(1,460.00)	104	43.00
687.203	Contract Services	190,000.00	.00	.00	190,000.00	.00	100	190,000.00
	<i>Other Services & Charges Totals</i>	\$237,552.00	\$247.14	\$0.00	\$241,832.59	(\$4,280.59)	102%	\$205,561.17
	Department 29 - Kaminski House Totals	\$237,552.00	\$247.14	\$0.00	\$241,832.59	(\$4,280.59)	102%	\$205,561.17
	EXPENSE TOTALS	\$1,172,944.00	\$103,397.16	\$62,224.47	\$983,281.56	\$127,437.97	89%	\$693,575.60
	Fund 0022 - Local Hospitality/ATax Totals							
	REVENUE TOTALS	1,172,944.00	141,968.19	.00	1,073,700.05	99,243.95	92%	935,870.13
	EXPENSE TOTALS	1,172,944.00	103,397.16	62,224.47	983,281.56	127,437.97	89%	693,575.60
	Fund 0022 - Local Hospitality/ATax Totals	\$0.00	\$38,571.03	(\$62,224.47)	\$90,418.49	(\$28,194.02)		\$242,294.53
	Fund 0030 - Electric Utility Fund							
	REVENUE							
	Department 00 - Revenue							
	<i>Operating Revenues</i>							
301.000	Sale Of Utilities	12,500,000.00	968,420.22	.00	10,683,832.96	1,816,167.04	85	11,178,332.26
301.002	New Turn Ons	5,000.00	395.00	.00	4,245.00	755.00	85	4,070.00
301.004	Security Lights	275,000.00	22,177.00	.00	261,911.00	13,089.00	95	260,897.46

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Account	Account Description	Budget	Transactions	Encumbrances	Transactions	Transactions	Rec'd	Prior Year Total
301.012	Restores	9,000.00	5,763.25	.00	79,947.38	(70,947.38)	888	10,800.00
302.000	Other Operating Revenues	.00	.00	.00	4,106.09	(4,106.09)	+++	.00
302.001	Penalties	225,000.00	9,383.54	.00	119,904.77	105,095.23	53	134,682.67
302.002	Pole Rental	200,000.00	.00	.00	186,230.00	13,770.00	93	199,787.37
302.003	Fiber Rental	32,000.00	1,000.00	.00	26,000.00	6,000.00	81	41,584.00
	<i>Operating Revenues Totals</i>	\$13,246,000.00	\$1,007,139.01	\$0.00	\$11,366,177.20	\$1,879,822.80	86%	\$11,830,153.76
	<i>Federal Grants</i>							
335.004	Fema Recovery	.00	126,865.64	.00	126,865.64	(126,865.64)	+++	23,431.57
	<i>Federal Grants Totals</i>	\$0.00	\$126,865.64	\$0.00	\$126,865.64	(\$126,865.64)	+++	\$23,431.57
	<i>Investment Earnings</i>							
306.001	Investment Earnings	16,000.00	.00	.00	43,951.90	(27,951.90)	275	26,593.02
361.003	Fv Chg In Investments	.00	.00	.00	.00	.00	+++	(9.31)
	<i>Investment Earnings Totals</i>	\$16,000.00	\$0.00	\$0.00	\$43,951.90	(\$27,951.90)	275%	\$26,583.71
	<i>Miscellaneous</i>							
301.001	Revenue from Energu Efficiency Program	45,000.00	5,533.78	.00	61,265.25	(16,265.25)	136	44,892.12
307.002	Sale Of Scrap	700.00	.00	.00	14,784.00	(14,084.00)	2112	337.10
369.002	Miscellaneous Revenue	3,000.00	125.58	.00	3,225.93	(225.93)	108	2,903.76
	<i>Miscellaneous Totals</i>	\$48,700.00	\$5,659.36	\$0.00	\$79,275.18	(\$30,575.18)	163%	\$48,132.98
	<i>Operating Transfers In</i>							
394.002	Transfer from fund balance	(575,445.00)	.00	.00	.00	(575,445.00)	0	.00
	<i>Operating Transfers In Totals</i>	(\$575,445.00)	\$0.00	\$0.00	\$0.00	(\$575,445.00)	0%	\$0.00
	Department 00 - Revenue Totals	\$12,735,255.00	\$1,139,664.01	\$0.00	\$11,616,269.92	\$1,118,985.08	91%	\$11,928,302.02
	REVENUE TOTALS	\$12,735,255.00	\$1,139,664.01	\$0.00	\$11,616,269.92	\$1,118,985.08	91%	\$11,928,302.02
	EXPENSE							
	Department 19 - Electric							
	<i>Personal Services</i>							
400.101	Regular Pay	662,120.00	43,465.56	.00	607,379.84	54,740.16	92	564,202.27
401.103	Overtime	25,000.00	2,517.66	.00	32,494.09	(7,494.09)	130	23,044.49
401.105	On-call pay	.00	1,200.00	.00	10,400.00	(10,400.00)	+++	.00
401.106	Contract Labor	60,000.00	.00	.00	.00	60,000.00	0	139,200.00
401.107	Labor Billed	.00	.00	.00	(79.10)	79.10	+++	(1,792.83)

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Exclude Rollup Account

		Amended	Current Month	YTD	YTD	Budget - YTD	% Used/	
Account	Account Description	Budget	Transactions	Encumbrances	Transactions	Transactions	Rec'd	Prior Year Total
610.1110	Communications- Wireless	5,000.00	665.48	.00	8,437.86	(3,437.86)	169	8,141.99
620.114	Advertising	600.00	208.00	.00	1,258.27	(658.27)	210	137.07
640.124	Travel Expense	5,300.00	.00	.00	1,697.37	3,602.63	32	3,550.91
650.127	Electricity	18,203.00	2,096.19	.00	23,047.77	(4,844.77)	127	21,034.33
650.128	Water	1,007.00	104.74	.00	1,351.00	(344.00)	134	1,191.54
650.129	Wastewater	1,406.00	145.54	.00	1,864.02	(458.02)	133	1,655.88
650.130	Sanitation	1,824.00	168.66	.00	2,023.92	(199.92)	111	2,023.92
650.133	Stormwater	469.00	43.38	.00	520.56	(51.56)	111	520.56
650.134	Security Lights	9,182.00	849.00	.00	10,188.00	(1,006.00)	111	10,188.00
650.1271	Electricity- Sales Tax	3,046.00	45,998.90	.00	49,512.24	(46,466.24)	1625	3,010.83
660.133	Repairs & Maint. Services	25,000.00	.00	.00	1,392.51	23,607.49	6	3,636.07
660.139	Fleet Services Materials	16,000.00	5,124.37	.00	18,065.61	(2,065.61)	113	17,636.23
660.140	Hydraulic Repair	12,000.00	.00	.00	4,077.17	7,922.83	34	3,270.62
660.145	Gasoline & Oil	17,000.00	1,713.50	.00	17,175.15	(175.15)	101	16,445.31
660.1391	Fleet Services Labor	20,000.00	3,218.12	.00	22,530.20	(2,530.20)	113	22,624.75
662.140	Building Repairs	2,000.00	.00	.00	.00	2,000.00	0	.00
663.145	Sub-Station Maintenance	3,000.00	.00	.00	3,758.30	(758.30)	125	.00
663.146	Transformers Repairs	6,000.00	.00	.00	3,654.20	2,345.80	61	3,491.05
664.101	Community Education	1,500.00	.00	.00	.00	1,500.00	0	.00
670.156	Equipment Rental/Lease	3,800.00	344.68	.00	2,760.79	1,039.21	73	3,162.23
670.157	Equipment Lease	260,810.00	.00	52,160.68	234,723.06	(26,073.74)	110	313,050.39
682.170	Infrared Test	800.00	.00	.00	565.00	235.00	71	565.00
682.171	Safety Testing/Compliance	3,500.00	.00	.00	615.67	2,884.33	18	1,595.69
682.172	Ground Maint. Expenses	1,000.00	.00	.00	9.63	990.37	1	.00
682.173	Tree Crew Maintenance	14,000.00	1,469.91	.00	10,092.22	3,907.78	72	13,507.00
685.180	Membership Dues and Fees	16,915.00	.00	.00	15,492.80	1,422.20	92	16,042.99
685.182	Other Operating Expenses	22,000.00	1,767.39	.00	179,276.26	(157,276.26)	815	23,559.59
685.183	Depreciation	385,880.00	.00	.00	359,751.12	26,128.88	93	357,261.33
685.186	Training	8,350.00	.00	.00	1,506.00	6,844.00	18	204.23
685.187	Special Projects	2,500.00	.00	.00	49.06	2,450.94	2	4,832.99
685.190	Landfill Fees	1,500.00	357.85	.00	856.25	643.75	57	963.55

Attachment: Budget Performance Report - June 2017 (2335 : June 2017 Finance & IT Departmental



Budget Performance Report

18.K.4

Fiscal Year to Date 06/30/17

Exclude Rollup Account

		Amended	Current Month	YTD	YTD	Budget - YTD	% Used/	
Account	Account Description	Budget	Transactions	Encumbrances	Transactions	Transactions	Rec'd	Prior Year Total
	<i>Investment Earnings</i>							
306.001	Investment Earnings	15,000.00	.00	.00	19,784.06	(4,784.06)	132	25,945.88
	<i>Investment Earnings Totals</i>	\$15,000.00	\$0.00	\$0.00	\$19,784.06	(\$4,784.06)	132%	\$25,945.88
	<i>Miscellaneous</i>							
369.002	Miscellaneous Revenue	12,000.00	(2,145.00)	.00	1,655.52	10,344.48	14	8,458.21
	<i>Miscellaneous Totals</i>	\$12,000.00	(\$2,145.00)	\$0.00	\$1,655.52	\$10,344.48	14%	\$8,458.21
	<i>Operating Transfers In</i>							
394.002	Transfer from fund balance	602,440.00	.00	.00	.00	602,440.00	0	.00
	<i>Operating Transfers In Totals</i>	\$602,440.00	\$0.00	\$0.00	\$0.00	\$602,440.00	0%	\$0.00
	<i>Sale of Assets</i>							
391.001	Sale of Assets	500.00	.00	.00	2,015.00	(1,515.00)	403	56.25
	<i>Sale of Assets Totals</i>	\$500.00	\$0.00	\$0.00	\$2,015.00	(\$1,515.00)	403%	\$56.25
	Department 00 - Revenue Totals	\$2,509,440.00	(\$839,803.75)	\$0.00	\$2,176,062.30	\$333,377.70	87%	\$1,896,105.37
	REVENUE TOTALS	\$2,509,440.00	(\$839,803.75)	\$0.00	\$2,176,062.30	\$333,377.70	87%	\$1,896,105.37
	EXPENSE							
	Department 15 - Water Distribution							
	<i>Personal Services</i>							
400.101	Regular Pay	138,900.00	10,111.57	.00	144,874.51	(5,974.51)	104	132,389.06
401.103	Overtime	14,000.00	932.43	.00	15,445.97	(1,445.97)	110	17,936.10
401.105	On-call pay	.00	600.00	.00	5,200.00	(5,200.00)	+++	.00
405.114	FICA	11,506.00	893.97	.00	12,088.94	(582.94)	105	10,878.47
406.116	Retirement	17,908.00	1,416.09	.00	18,920.34	(1,012.34)	106	16,192.99
408.125	SCMIT Worker's Comp Ins.	6,000.00	.00	.00	8,825.52	(2,825.52)	147	4,089.25
410.001	Health Claims Cost	19,447.00	4,473.58	.00	20,124.00	(677.00)	103	16,374.76
410.002	Health Claim Costs-Retire	13,350.00	(3,604.56)	.00	8,308.08	5,041.92	62	8,060.88
410.003	OPEB cost	4,000.00	.00	.00	.00	4,000.00	0	3,104.35
	<i>Personal Services Totals</i>	\$225,111.00	\$14,823.08	\$0.00	\$233,787.36	(\$8,676.36)	104%	\$209,025.86
	<i>Supplies</i>							
500.101	Supplies and Materials	5,260.00	131.30	.00	2,198.94	3,061.06	42	4,501.86
500.102	Equipment	3,950.00	.00	.00	1,286.01	2,663.99	33	5,237.49
501.101	Uniforms and Clothing	3,800.00	130.06	.00	3,126.80	673.20	82	3,338.79

Attachment: Budget Performance Report - June 2017 (2335 : June 2017 Finance & IT Departmental



Budget Performance Report

18.K.4

Fiscal Year to Date 06/30/17

Exclude Rollup Account

		Amended	Current Month	YTD	YTD	Budget - YTD	% Used/	
Account	Account Description	Budget	Transactions	Encumbrances	Transactions	Transactions	Rec'd	Prior Year Total
513.112	Asphalt/Concrete/Gravel	27,650.00	6,520.27	8,356.00	18,973.64	320.36	99	27,007.70
514.110	Water Dist System Supply	32,750.00	.00	.00	32,284.82	465.18	99	45,618.05
515.121	Safety Supplies	300.00	.00	.00	.00	300.00	0	.00
523.136	Hydrant Replacement	8,000.00	.00	.00	5,751.92	2,248.08	72	7,340.20
532.148	Small Hand Tools	865.00	.00	.00	607.05	257.95	70	358.10
	<i>Supplies Totals</i>	\$82,575.00	\$6,781.63	\$8,356.00	\$64,229.18	\$9,989.82	88%	\$93,402.19
	<i>Other Services & Charges</i>							
515.129	Permit Fees Due To Others	870.00	.00	.00	599.08	270.92	69	593.79
600.110	SCMIRF Property/Liab Ins	20,000.00	.00	.00	17,645.72	2,354.28	88	16,581.22
610.112	Postage	300.00	83.73	.00	947.26	(647.26)	316	61.72
610.1110	Communications- Wireless	720.00	53.95	.00	581.90	138.10	81	609.64
620.114	Advertising	500.00	393.10	.00	566.09	(66.09)	113	125.24
640.124	Travel Expense	1,230.00	.00	.00	402.23	827.77	33	1,886.64
650.127	Electricity	6,778.00	501.99	.00	6,369.93	408.07	94	6,750.38
650.128	Water	17,789.00	1,305.10	.00	17,510.20	278.80	98	22,191.26
650.129	Wastewater	15,378.00	591.62	.00	13,347.69	2,030.31	87	17,312.88
650.130	Sanitation	605.00	55.96	.00	671.52	(66.52)	111	671.52
650.133	Stormwater	2,659.00	296.23	.00	3,050.76	(391.76)	115	2,949.96
650.1271	Electricity- Sales Tax	315.00	23.63	.00	294.32	20.68	93	307.89
660.133	Repairs & Maint. Services	20,000.00	27.05	.00	18,911.14	1,088.86	95	21,524.20
660.139	Fleet Services Materials	10,000.00	212.55	.00	8,428.60	1,571.40	84	9,558.12
660.145	Gasoline & Oil	9,500.00	555.34	.00	6,222.55	3,277.45	66	7,988.37
660.1391	Fleet Services Labor	9,000.00	925.49	.00	8,767.09	232.91	97	7,972.90
670.156	Equipment Rental/Lease	560.00	.00	.00	.00	560.00	0	87.75
685.180	Membership Dues and Fees	360.00	.00	.00	60.00	300.00	17	60.00
685.182	Other Operating Expenses	9,140.00	723.70	.00	9,119.97	20.03	100	8,610.61
685.183	Depreciation	275,175.00	.00	.00	280,579.89	(5,404.89)	102	273,212.60
685.186	Training	2,580.00	.00	.00	1,924.00	656.00	75	482.10
685.187	Special Projects	60,000.00	.00	.00	.00	60,000.00	0	1,483.20
686.187	Professional Services	3,860.00	.00	.00	750.54	3,109.46	19	3,555.86
686.189	Employee Medical	360.00	45.00	.00	105.00	255.00	29	275.00

Attachment: Budget Performance Report - June 2017 (2335 : June 2017 Finance & IT Departmental



Budget Performance Report

18.K.4

Fiscal Year to Date 06/30/17

Exclude Rollup Account

		Amended	Current Month	YTD	YTD	Budget - YTD	% Used/	
Account	Account Description	Budget	Transactions	Encumbrances	Transactions	Transactions	Rec'd	Prior Year Total
686.191	Contract Services/Studies	2,040.00	.00	.00	1,956.37	83.63	96	1,869.28
686.195	Repair/Maint Svc Contract	2,520.00	.00	.00	2,246.03	273.97	89	2,665.83
686.199	Internal Engineering	.00	1,426.19	.00	15,759.84	(15,759.84)	+++	7,051.31
686.1895	Employee wellness services	1,920.00	101.82	.00	1,731.90	188.10	90	2,143.54
687.202	Utility Billing Services	7,000.00	120.86	.00	6,022.89	977.11	86	5,958.92
	<i>Other Services & Charges Totals</i>	\$481,159.00	\$7,443.31	\$0.00	\$424,572.51	\$56,586.49	88%	\$424,541.73
	<i>Other Objects</i>							
702.106	Interest- Bonds	120,095.00	.00	.00	110,441.52	9,653.48	92	15,571.32
702.110	Bond Principal	297,920.00	.00	.00	292,564.95	5,355.05	98	290,379.64
703.109	Agents Fee	3,000.00	.00	.00	4,475.00	(1,475.00)	149	1,343.75
720.001	Provision for Bad Debts	8,000.00	666.67	.00	8,000.04	(.04)	100	7,029.42
795.995	GF Cost Distribution	75,415.00	6,284.58	.00	75,414.96	.04	100	75,412.56
7999.9999	Principal Reclassified	(297,920.00)	.00	.00	(234,232.02)	(63,687.98)	79	(290,379.64)
	<i>Other Objects Totals</i>	\$206,510.00	\$6,951.25	\$0.00	\$256,664.45	(\$50,154.45)	124%	\$99,357.05
	<i>Inter-Dept. Allocations</i>							
795.999	Allocation G&A Services	86,000.00	6,635.50	.00	59,394.24	26,605.76	69	61,688.98
	<i>Inter-Dept. Allocations Totals</i>	\$86,000.00	\$6,635.50	\$0.00	\$59,394.24	\$26,605.76	69%	\$61,688.98
	<i>Capital Outlay</i>							
900.906	SCDOT US 17/521 Improvements	.00	.00	(8,066.23)	.00	8,066.23	+++	601,758.01
900.907	High Service Pumps & Drives	.00	.00	(166,777.20)	135,641.20	31,136.00	+++	33,222.80
900.908	Maryville Water Line Improvements	.00	.00	.00	.00	.00	+++	.00
900.915	CIP Projects - Current Year	.00	.00	.00	.00	.00	+++	.00
900.3500	Water Distribution	326,500.00	32,505.85	46,738.00	263,009.88	16,752.12	95	5,118.61
900.4300	Other Equipment	22,000.00	.00	.00	23,251.49	(1,251.49)	106	.00
9999.9999	Assets Reclassified	(353,000.00)	.00	.00	(739,396.72)	386,396.72	209	(640,099.42)
	<i>Capital Outlay Totals</i>	(\$4,500.00)	\$32,505.85	(\$128,105.43)	(\$317,494.15)	\$441,099.58	9902%	\$0.00
	Department 15 - Water Distribution Totals	\$1,076,855.00	\$75,140.62	(\$119,749.43)	\$721,153.59	\$475,450.84	56%	\$888,015.81
	Department 16 - Filtration							
	<i>Personal Services</i>							
400.101	Regular Pay	201,840.00	16,889.66	.00	170,272.14	31,567.86	84	189,770.86
401.103	Overtime	6,000.00	1,252.86	.00	11,185.47	(5,185.47)	186	5,522.59

Attachment: Budget Performance Report - June 2017 (2335 : June 2017 Finance & IT Departmental



Budget Performance Report

18.K.4

Fiscal Year to Date 06/30/17

Exclude Rollup Account

		Amended	Current Month	YTD	YTD	Budget - YTD	% Used/	
Account	Account Description	Budget	Transactions	Encumbrances	Transactions	Transactions	Rec'd	Prior Year Total
660.139	Fleet Services Materials	2,000.00	.00	.00	3,819.55	(1,819.55)	191	2,022.03
660.145	Gasoline & Oil	1,100.00	151.74	.00	1,364.86	(264.86)	124	934.95
660.1391	Fleet Services Labor	2,000.00	214.68	.00	1,974.23	25.77	99	1,959.86
662.140	Building Repairs	.00	.00	.00	.00	.00	+++	3,000.00
670.156	Equipment Rental/Lease	3,020.00	316.28	.00	3,239.40	(219.40)	107	2,642.54
685.180	Membership Dues and Fees	1,350.00	.00	.00	1,230.00	120.00	91	1,004.00
685.182	Other Operating Expenses	1,000.00	.00	.00	155.64	844.36	16	1,024.94
685.183	Depreciation	200.00	.00	.00	174.03	25.97	87	189.84
685.186	Training	1,060.00	25.00	.00	710.00	350.00	67	506.00
685.1801	Subscriptions	100.00	.00	.00	.00	100.00	0	.00
686.187	Professional Services	25.00	.00	.00	51.67	(26.67)	207	23.28
686.189	Employee Medical	60.00	.00	.00	45.00	15.00	75	45.00
686.195	Repair/Maint Svc Contract	6,520.00	.00	.00	3,263.39	3,256.61	50	6,013.67
686.1895	Employee wellness services	480.00	237.57	.00	1,529.88	(1,049.88)	319	635.07
	<i>Other Services & Charges Totals</i>	\$69,216.00	\$1,800.07	\$0.00	\$58,363.43	\$10,852.57	84%	\$70,609.50
	<i>Other Objects</i>							
795.001	IT Internal Allocations	80,000.00	19,874.29	.00	96,664.69	(16,664.69)	121	101,532.26
	<i>Other Objects Totals</i>	\$80,000.00	\$19,874.29	\$0.00	\$96,664.69	(\$16,664.69)	121%	\$101,532.26
	<i>Inter-Dept. Allocations</i>							
795.999	Allocation G&A Services	(298,311.00)	(33,177.50)	.00	(296,971.13)	(1,339.87)	100	(308,444.88)
	<i>Inter-Dept. Allocations Totals</i>	(\$298,311.00)	(\$33,177.50)	\$0.00	(\$296,971.13)	(\$1,339.87)	100%	(\$308,444.88)
	Department 41 - General & Administrative Totals	\$0.00	\$11.23	\$0.00	\$5,551.43	(\$5,551.43)	+++	\$5,561.68
	Department 42 - Engineering Services							
	<i>Personal Services</i>							
400.101	Regular Pay	127,000.00	10,569.03	.00	113,845.16	13,154.84	90	46,880.07
405.114	FICA	9,150.00	726.45	.00	7,987.83	1,162.17	87	3,333.59
406.116	Retirement	14,300.00	1,193.64	.00	12,978.87	1,321.13	91	5,062.12
408.125	SCMIT Worker's Comp Ins.	500.00	.00	.00	.00	500.00	0	.00
410.001	Health Claims Cost	15,000.00	1,297.68	.00	13,988.52	1,011.48	93	5,451.24
	<i>Personal Services Totals</i>	\$165,950.00	\$13,786.80	\$0.00	\$148,800.38	\$17,149.62	90%	\$60,727.02
	<i>Supplies</i>							

Attachment: Budget Performance Report - June 2017 (2335 : June 2017 Finance & IT Departmental



Budget Performance Report

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Fiscal Year to Date 06/30/17

Exclude Rollup Account

		Amended	Current Month	YTD	YTD	Budget - YTD	% Used/	
Account	Account Description	Budget	Transactions	Encumbrances	Transactions	Transactions	Rec'd	Prior Year Total
500.101	Supplies and Materials	325.00	.00	.00	365.19	(40.19)	112	460.88
500.102	Equipment	2,000.00	.00	.00	1,087.02	912.98	54	239.67
500.103	Furniture	900.00	.00	.00	900.00	.00	100	.00
500.105	Printing and Binding	500.00	.00	.00	619.32	(119.32)	124	392.69
501.101	Uniforms and Clothing	500.00	.00	.00	501.33	(1.33)	100	260.21
515.121	Safety Supplies	200.00	.00	.00	.00	200.00	0	.00
515.124	Department Supplies	150.00	.00	.00	238.86	(88.86)	159	.00
	<i>Supplies Totals</i>	\$4,575.00	\$0.00	\$0.00	\$3,711.72	\$863.28	81%	\$1,353.45
	<i>Other Services & Charges</i>							
610.112	Postage	150.00	.00	.00	21.22	128.78	14	133.08
610.1110	Communications- Wireless	1,560.00	.00	.00	.00	1,560.00	0	.00
620.114	Advertising	150.00	.00	.00	.00	150.00	0	.00
640.124	Travel Expense	925.00	.00	.00	804.14	120.86	87	.00
685.180	Membership Dues and Fees	350.00	.00	.00	334.00	16.00	95	220.00
685.184	Continuing Education	600.00	.00	.00	.00	600.00	0	.00
685.186	Training	900.00	.00	.00	1,045.00	(145.00)	116	.00
686.187	Professional Services	10,000.00	.00	.00	1,306.47	8,693.53	13	8,079.57
686.189	Employee Medical	100.00	.00	.00	.00	100.00	0	.00
686.1895	Employee wellness services	500.00	475.14	.00	2,486.78	(1,986.78)	497	.00
	<i>Other Services & Charges Totals</i>	\$15,235.00	\$475.14	\$0.00	\$5,997.61	\$9,237.39	39%	\$8,432.65
	<i>Other Objects</i>							
735.122	Services Billed	.00	(14,261.94)	.00	(157,598.25)	157,598.25	+++	(70,513.12)
	<i>Other Objects Totals</i>	\$0.00	(\$14,261.94)	\$0.00	(\$157,598.25)	\$157,598.25	+++	(\$70,513.12)
	Department 42 - Engineering Services Totals	\$185,760.00	\$0.00	\$0.00	\$911.46	\$184,848.54	0%	\$0.00
	EXPENSE TOTALS	\$2,564,440.00	\$142,570.56	(\$88,931.46)	\$1,858,476.91	\$794,894.55	69%	\$2,238,014.40
	Fund 0031 - Water Utility Fund Totals							
	REVENUE TOTALS	2,509,440.00	(839,803.75)	.00	2,176,062.30	333,377.70	87%	1,896,105.37
	EXPENSE TOTALS	2,564,440.00	142,570.56	(88,931.46)	1,858,476.91	794,894.55	69%	2,238,014.40
	Fund 0031 - Water Utility Fund Totals	(\$55,000.00)	(\$982,374.31)	\$88,931.46	\$317,585.39	(\$461,516.85)		(\$341,909.03)
	Fund 0032 - Wastewater Fund							

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Budget Performance Report

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Fiscal Year to Date 06/30/17

Exclude Rollup Account

		Amended	Current Month	YTD	YTD	Budget - YTD	% Used/	
Account	Account Description	Budget	Transactions	Encumbrances	Transactions	Transactions	Rec'd	Prior Year Total
	REVENUE							
	Department 00 - Revenue							
	<i>Operating Revenues</i>							
301.000	Sale Of Utilities	2,200,000.00	204,799.10	.00	2,320,441.75	(120,441.75)	105	2,060,070.00
301.002	New Turn Ons	3,500.00	310.00	.00	3,455.00	45.00	99	3,155.00
301.009	New Service Taps	10,000.00	.00	.00	1,000.00	9,000.00	10	14,042.16
301.014	Fixed Charges - Andrews	120,000.00	10,119.80	.00	121,437.60	(1,437.60)	101	121,437.60
301.015	Fixed Charges - GCWSD	225,000.00	19,241.87	.00	230,902.44	(5,902.44)	103	230,902.44
301.016	Fixed Charges - COG	300,000.00	27,651.27	.00	331,815.24	(31,815.24)	111	331,815.24
301.017	Volume Charges - Andrews	280,000.00	13,206.16	.00	215,490.23	64,509.77	77	250,545.17
301.018	Volume Charges - GCWSD	350,000.00	24,545.35	.00	255,859.20	94,140.80	73	357,834.62
301.019	Volume Charges - COG	1,025,000.00	84,754.53	.00	932,990.08	92,009.92	91	1,269,021.54
301.026	Fixed- Elim Georgetown	(300,000.00)	(27,651.27)	.00	(331,815.24)	31,815.24	111	(331,815.24)
301.029	Volume-Elim-Georgetown	(1,025,000.00)	(84,754.53)	.00	(932,990.08)	(92,009.92)	91	(1,269,021.54)
302.001	Penalties	35,000.00	2,490.88	.00	32,442.93	2,557.07	93	34,038.49
303.006	Septic Tank Dumping	60,000.00	2,080.00	.00	12,585.00	47,415.00	21	14,350.00
	<i>Operating Revenues Totals</i>	\$3,283,500.00	\$276,793.16	\$0.00	\$3,193,614.15	\$89,885.85	97%	\$3,086,375.48
	<i>Impact Fees</i>							
324.017	Wastewater Impact Fee	19,000.00	.00	.00	6,900.00	12,100.00	36	18,600.00
	<i>Impact Fees Totals</i>	\$19,000.00	\$0.00	\$0.00	\$6,900.00	\$12,100.00	36%	\$18,600.00
	<i>Investment Earnings</i>							
306.001	Investment Earnings	3,000.00	.00	.00	5,581.71	(2,581.71)	186	4,686.37
	<i>Investment Earnings Totals</i>	\$3,000.00	\$0.00	\$0.00	\$5,581.71	(\$2,581.71)	186%	\$4,686.37
	<i>Miscellaneous</i>							
369.002	Miscellaneous Revenue	3,000.00	(900.00)	.00	1,388.00	1,612.00	46	6,586.36
	<i>Miscellaneous Totals</i>	\$3,000.00	(\$900.00)	\$0.00	\$1,388.00	\$1,612.00	46%	\$6,586.36
	<i>Operating Transfers In</i>							
394.002	Transfer from fund balance	(194,596.00)	.00	.00	.00	(194,596.00)	0	.00
	<i>Operating Transfers In Totals</i>	(\$194,596.00)	\$0.00	\$0.00	\$0.00	(\$194,596.00)	0%	\$0.00
	<i>Sale of Assets</i>							
391.001	Sale of Assets	.00	.00	.00	7,025.00	(7,025.00)	+++	.00

Attachment: Budget Performance Report - June 2017 (2335 : June 2017 Finance & IT Departmental



Budget Performance Report

18.K.4

Fiscal Year to Date 06/30/17

Exclude Rollup Account

		Amended	Current Month	YTD	YTD	Budget - YTD	% Used/	
Account	Account Description	Budget	Transactions	Encumbrances	Transactions	Transactions	Rec'd	Prior Year Total
	<i>Sale of Assets Totals</i>	\$0.00	\$0.00	\$0.00	\$7,025.00	(\$7,025.00)	+++	\$0.00
	Department 00 - Revenue Totals	\$3,113,904.00	\$275,893.16	\$0.00	\$3,214,508.86	(\$100,604.86)	103%	\$3,116,248.21
	REVENUE TOTALS	\$3,113,904.00	\$275,893.16	\$0.00	\$3,214,508.86	(\$100,604.86)	103%	\$3,116,248.21
	EXPENSE							
	Department 18 - Wastewater Collections							
	<i>Personal Services</i>							
400.101	Regular Pay	253,350.00	13,330.25	.00	188,472.23	64,877.77	74	239,630.14
401.103	Overtime	12,000.00	2,208.09	.00	13,452.95	(1,452.95)	112	19,115.63
401.105	On-call pay	.00	599.98	.00	4,733.16	(4,733.16)	+++	.00
405.114	FICA	19,100.00	1,047.73	.00	14,133.14	4,966.86	74	17,808.64
406.116	Retirement	29,300.00	1,550.70	.00	22,200.95	7,099.05	76	27,306.01
408.125	SCMIT Worker's Comp Ins.	6,500.00	1,935.96	.00	19,726.94	(13,226.94)	303	5,087.57
410.001	Health Claims Cost	70,600.00	4,166.43	.00	57,237.38	13,362.62	81	62,858.77
410.002	Health Claim Costs-Retire	90.00	.00	.00	.00	90.00	0	56.60
410.003	OPEB cost	3,000.00	.00	.00	.00	3,000.00	0	3,104.35
	<i>Personal Services Totals</i>	\$393,940.00	\$24,839.14	\$0.00	\$319,956.75	\$73,983.25	81%	\$374,967.71
	<i>Supplies</i>							
500.101	Supplies and Materials	8,200.00	231.67	.00	5,693.27	2,506.73	69	6,886.92
500.102	Equipment	11,650.00	4,879.20	.00	9,590.15	2,059.85	82	9,450.52
501.101	Uniforms and Clothing	8,900.00	510.38	.00	4,897.58	4,002.42	55	6,908.62
512.108	Chemicals	4,700.00	54.54	.00	54.54	4,645.46	1	5,038.73
513.112	Asphalt/Concrete/Gravel	20,600.00	5,073.79	7,149.44	31,639.12	(18,188.56)	188	28,159.07
514.111	WW Collection Syst Supply	6,400.00	.00	.00	6,073.64	326.36	95	7,458.16
515.121	Safety Supplies	900.00	.00	.00	.00	900.00	0	744.28
532.148	Small Hand Tools	510.00	.00	.00	592.09	(82.09)	116	29.91
532.1481	Small Hand Tools - Maintenance	850.00	14.57	.00	558.18	291.82	66	1,128.71
	<i>Supplies Totals</i>	\$62,710.00	\$10,764.15	\$7,149.44	\$59,098.57	(\$3,538.01)	106%	\$65,804.92
	<i>Other Services & Charges</i>							
600.110	SCMIRF Property/Liab Ins	36,000.00	.00	.00	30,216.09	5,783.91	84	30,313.54
610.112	Postage	500.00	75.81	.00	717.21	(217.21)	143	133.98
610.1110	Communications- Wireless	2,160.00	186.48	.00	1,747.96	412.04	81	2,188.09

Attachment: Budget Performance Report - June 2017 (2335 : June 2017 Finance & IT Departmental



Budget Performance Report

18.K.4

Fiscal Year to Date 06/30/17

Exclude Rollup Account

		Amended	Current Month	YTD	YTD	Budget - YTD	% Used/	
Account	Account Description	Budget	Transactions	Encumbrances	Transactions	Transactions	Rec'd	Prior Year Total
620.114	Advertising	500.00	.00	.00	14.93	485.07	3	124.46
640.124	Travel Expense	750.00	.00	.00	42.68	707.32	6	4,490.82
650.127	Electricity	66,445.00	6,430.98	.00	70,009.48	(3,564.48)	105	69,499.42
650.133	Stormwater	628.00	539.37	.00	1,659.24	(1,031.24)	264	696.60
650.134	Security Lights	1,309.00	121.00	.00	1,452.00	(143.00)	111	1,452.00
650.1271	Electricity- Sales Tax	2,871.00	244.00	.00	2,718.04	152.96	95	2,865.52
660.133	Repairs & Maint. Services	60,000.00	324.76	2,735.83	42,379.01	14,885.16	75	110,770.02
660.139	Fleet Services Materials	16,000.00	6,336.54	.00	34,594.59	(18,594.59)	216	14,651.92
660.145	Gasoline & Oil	20,000.00	1,209.03	.00	14,836.26	5,163.74	74	17,538.08
660.1391	Fleet Services Labor	24,000.00	3,672.99	.00	26,170.16	(2,170.16)	109	22,815.45
670.156	Equipment Rental/Lease	6,000.00	.00	.00	.00	6,000.00	0	9,822.77
685.180	Membership Dues and Fees	525.00	.00	.00	175.00	350.00	33	225.00
685.182	Other Operating Expenses	7,700.00	573.08	.00	9,832.67	(2,132.67)	128	6,866.82
685.183	Depreciation	283,990.00	.00	.00	241,321.17	42,668.83	85	254,632.20
685.186	Training	1,400.00	.00	.00	640.50	759.50	46	161.79
685.187	Special Projects	.00	.00	.00	(817.90)	817.90	+++	15,311.61
686.187	Professional Services	5,500.00	.00	.00	2,050.86	3,449.14	37	.00
686.189	Employee Medical	480.00	.00	.00	432.55	47.45	90	275.00
686.191	Contract Services/Studies	2,040.00	.00	.00	1,956.95	83.05	96	1,869.82
686.195	Repair/Maint Svc Contract	6,300.00	.00	.00	2,246.23	4,053.77	36	2,666.07
686.199	Internal Engineering	.00	1,426.19	.00	15,759.84	(15,759.84)	+++	7,051.31
686.1895	Employee wellness services	2,700.00	67.88	.00	2,197.67	502.33	81	3,763.58
687.202	Utility Billing Services	6,000.00	109.42	.00	5,464.82	535.18	91	5,395.20
	<i>Other Services & Charges Totals</i>	\$553,798.00	\$21,317.53	\$2,735.83	\$507,818.01	\$43,244.16	92%	\$585,581.07
	<i>Other Objects</i>							
702.106	Interest- Bonds	7,361.00	.00	.00	6,763.54	597.46	92	7,716.95
702.110	Bond Principal	18,978.00	.00	.00	17,380.58	1,597.42	92	18,622.09
720.001	Provision for Bad Debts	7,500.00	625.00	.00	7,500.00	.00	100	9,335.02
795.995	GF Cost Distribution	70,000.00	5,833.33	.00	69,999.96	.04	100	69,414.96
7999.9999	Principal Reclassified	(18,978.00)	.00	.00	.00	(18,978.00)	0	(18,622.09)
	<i>Other Objects Totals</i>	\$84,861.00	\$6,458.33	\$0.00	\$101,644.08	(\$16,783.08)	120%	\$86,466.93

Attachment: Budget Performance Report - June 2017 (2335 : June 2017 Finance & IT Departmental



Budget Performance Report

18.K.4

Fiscal Year to Date 06/30/17

Exclude Rollup Account

		Amended	Current Month	YTD	YTD	Budget - YTD	% Used/	
Account	Account Description	Budget	Transactions	Encumbrances	Transactions	Transactions	Rec'd	Prior Year Total
	<i>Inter-Dept. Allocations</i>							
795.999	Allocation G&A Services	70,000.00	8,294.38	.00	74,242.81	(4,242.81)	106	77,111.22
	<i>Inter-Dept. Allocations Totals</i>	\$70,000.00	\$8,294.38	\$0.00	\$74,242.81	(\$4,242.81)	106%	\$77,111.22
	<i>Capital Outlay</i>							
900.906	SCDOT US 17/521 Improvements	.00	.00	(8,390.10)	.00	8,390.10	+++	727,048.86
900.911	Sewer Improvement Projects	170,000.00	35,628.79	(6,434.92)	63,965.61	112,469.31	34	184,693.22
900.915	CIP Projects - Current Year	.00	.00	.00	.00	.00	+++	.00
900.3700	Wastewater Collection Sys	.00	.00	(7,311.69)	1,316.53	5,995.16	+++	134,672.33
900.4200	Heavy Equipment	100,000.00	.00	.00	103,472.00	(3,472.00)	103	.00
900.4300	Other Equipment	35,000.00	6,033.06	.00	16,599.34	18,400.66	47	.00
9999.9999	Assets Reclassified	(305,000.00)	.00	.00	(143,691.63)	(161,308.37)	47	(1,052,083.61)
	<i>Capital Outlay Totals</i>	\$0.00	\$41,661.85	(\$22,136.71)	\$41,661.85	(\$19,525.14)	+++	(\$5,669.20)
	Department 18 - Wastewater Collections Totals	\$1,165,309.00	\$113,335.38	(\$12,251.44)	\$1,104,422.07	\$73,138.37	94%	\$1,184,262.65
	Department 34 - Regional Wastewater Plant							
	<i>Personal Services</i>							
400.101	Regular Pay	222,900.00	23,182.79	.00	277,868.18	(54,968.18)	125	237,930.09
401.103	Overtime	10,000.00	1,734.16	.00	15,111.37	(5,111.37)	151	9,195.09
401.105	On-call pay	.00	799.98	.00	6,933.16	(6,933.16)	+++	.00
405.114	FICA	16,200.00	1,760.87	.00	20,952.01	(4,752.01)	129	17,266.46
406.116	Retirement	24,900.00	2,802.68	.00	33,477.10	(8,577.10)	134	26,460.44
408.125	SCMIT Worker's Comp Ins.	2,000.00	.00	.00	3,189.96	(1,189.96)	159	1,478.03
410.001	Health Claims Cost	50,400.00	4,626.78	.00	59,471.83	(9,071.83)	118	48,509.33
	<i>Personal Services Totals</i>	\$326,400.00	\$34,907.26	\$0.00	\$417,003.61	(\$90,603.61)	128%	\$340,839.44
	<i>Supplies</i>							
500.101	Supplies and Materials	5,500.00	490.32	.00	7,079.05	(1,579.05)	129	7,979.33
500.102	Equipment	6,550.00	.00	.00	6,584.42	(34.42)	101	4,643.79
501.101	Uniforms and Clothing	4,250.00	966.62	.00	3,846.01	403.99	90	3,661.18
512.108	Chemicals	88,400.00	7,988.91	18,365.09	69,950.10	84.81	100	102,699.10
512.109	Laboratory Supplies	18,000.00	.00	937.84	17,137.96	(75.80)	100	19,059.05
515.121	Safety Supplies	1,200.00	.00	.00	879.50	320.50	73	1,001.16
532.148	Small Hand Tools	510.00	125.65	.00	178.96	331.04	35	832.78

Attachment: Budget Performance Report - June 2017 (2335 : June 2017 Finance & IT Departmental



Budget Performance Report

18.K.4

Fiscal Year to Date 06/30/17

Exclude Rollup Account

		Amended	Current Month	YTD	YTD	Budget - YTD	% Used/	
Account	Account Description	Budget	Transactions	Encumbrances	Transactions	Transactions	Rec'd	Prior Year Total
	<i>Other Objects</i>							
702.106	Interest- Bonds	231,240.00	.00	.00	205,916.46	25,323.54	89	4,542.64
702.110	Bond Principal	544,746.00	.00	.00	525,768.00	18,978.00	97	513,311.88
703.109	Agents Fee	4,500.00	.00	.00	4,475.00	25.00	99	5,843.75
795.995	GF Cost Distribution	46,500.00	3,875.00	.00	46,500.00	.00	100	46,393.44
7999.9999	Principal Reclassified	(544,746.00)	.00	.00	(525,768.00)	(18,978.00)	97	(513,311.88)
	<i>Other Objects Totals</i>	\$282,240.00	\$3,875.00	\$0.00	\$256,891.46	\$25,348.54	91%	\$56,779.83
	<i>Inter-Dept. Allocations</i>							
795.999	Allocation G&A Services	107,590.00	8,294.38	.00	74,242.81	33,347.19	69	77,111.22
	<i>Inter-Dept. Allocations Totals</i>	\$107,590.00	\$8,294.38	\$0.00	\$74,242.81	\$33,347.19	69%	\$77,111.22
	<i>Capital Outlay</i>							
900.909	Headworks Modifications - Phase I	.00	.00	(26,200.00)	15,923.00	10,277.00	+++	731,596.09
900.910	SBR Reactor #3 Modifications	1,195,000.00	125,518.52	(1,440,355.67)	1,658,307.83	977,047.84	18	543,644.59
900.915	CIP Projects - Current Year	.00	.00	.00	.00	.00	+++	.00
9999.9999	Assets Reclassified	(1,195,000.00)	.00	.00	(1,548,712.31)	353,712.31	130	(1,269,571.48)
	<i>Capital Outlay Totals</i>	\$0.00	\$125,518.52	(\$1,466,555.67)	\$125,518.52	\$1,341,037.15	+++	\$5,669.20
	Sub Department 17 - Wastewater Treatment							
	<i>Personal Services</i>							
410.003	OPEB cost	2,000.00	.00	.00	.00	2,000.00	0	4,966.96
	<i>Personal Services Totals</i>	\$2,000.00	\$0.00	\$0.00	\$0.00	\$2,000.00	0%	\$4,966.96
	<i>Other Services & Charges</i>							
685.183	Depreciation	543,215.00	.00	.00	496,353.43	46,861.57	91	533,700.65
	<i>Other Services & Charges Totals</i>	\$543,215.00	\$0.00	\$0.00	\$496,353.43	\$46,861.57	91%	\$533,700.65
	Sub Department 17 - Wastewater Treatment Totals	\$545,215.00	\$0.00	\$0.00	\$496,353.43	\$48,861.57	91%	\$538,667.61
	Department 34 - Regional Wastewater Plant Totals	\$2,073,595.00	\$241,319.71	(\$1,433,240.95)	\$2,211,514.51	\$1,295,321.44	38%	\$1,765,559.46
	EXPENSE TOTALS	\$3,238,904.00	\$354,655.09	(\$1,445,492.39)	\$3,315,936.58	\$1,368,459.81	58%	\$2,949,822.11
	Fund 0032 - Wastewater Fund Totals							
	REVENUE TOTALS	3,113,904.00	275,893.16	.00	3,214,508.86	(100,604.86)	103%	3,116,248.21
	EXPENSE TOTALS	3,238,904.00	354,655.09	(1,445,492.39)	3,315,936.58	1,368,459.81	58%	2,949,822.11
	Fund 0032 - Wastewater Fund Totals	(\$125,000.00)	(\$78,761.93)	\$1,445,492.39	(\$101,427.72)	(\$1,469,064.67)		\$166,426.10

Attachment: Budget Performance Report - June 2017 (2335 : June 2017 Finance & IT Departmental



Budget Performance Report

18.K.4

Fiscal Year to Date 06/30/17

Exclude Rollup Account

		Amended	Current Month	YTD	YTD	Budget - YTD	% Used/	
Account	Account Description	Budget	Transactions	Encumbrances	Transactions	Transactions	Rec'd	Prior Year Total
Fund 0033 - Stormwater Utility Fund								
REVENUE								
	Department 00 - Revenue							
	Operating Revenues							
301.000	Sale Of Utilities	500,000.00	49,654.42	.00	501,216.18	(1,216.18)	100	491,262.64
302.001	Penalties	6,000.00	543.07	.00	6,136.04	(136.04)	102	6,613.56
	<i>Operating Revenues Totals</i>	\$506,000.00	\$50,197.49	\$0.00	\$507,352.22	(\$1,352.22)	100%	\$497,876.20
	<i>Investment Earnings</i>							
361.001	Investment Earnings	3,500.00	.00	.00	8,482.58	(4,982.58)	242	8,477.93
	<i>Investment Earnings Totals</i>	\$3,500.00	\$0.00	\$0.00	\$8,482.58	(\$4,982.58)	242%	\$8,477.93
	<i>Miscellaneous</i>							
369.002	Miscellaneous Revenue	.00	.00	.00	.00	.00	+++	.07
	<i>Miscellaneous Totals</i>	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	+++	\$0.07
	<i>Capital Contributions</i>							
371.002	Capital Contrib-Grants	.00	.00	.00	13,000.00	(13,000.00)	+++	19,800.00
	<i>Capital Contributions Totals</i>	\$0.00	\$0.00	\$0.00	\$13,000.00	(\$13,000.00)	+++	\$19,800.00
	<i>Operating Transfers In</i>							
394.002	Transfer from fund balance	402,311.00	.00	.00	.00	402,311.00	0	.00
	<i>Operating Transfers In Totals</i>	\$402,311.00	\$0.00	\$0.00	\$0.00	\$402,311.00	0%	\$0.00
	Department 00 - Revenue Totals	\$911,811.00	\$50,197.49	\$0.00	\$528,834.80	\$382,976.20	58%	\$526,154.20
	REVENUE TOTALS	\$911,811.00	\$50,197.49	\$0.00	\$528,834.80	\$382,976.20	58%	\$526,154.20
EXPENSE								
	Department 40 - Storm Water Utility Exp.							
	Personal Services							
400.101	Regular Pay	197,400.00	14,807.23	.00	200,697.72	(3,297.72)	102	187,633.65
401.103	Overtime	6,000.00	1,957.50	.00	8,736.19	(2,736.19)	146	12,802.92
401.105	On-call pay	.00	200.00	.00	2,200.00	(2,200.00)	+++	.00
405.114	FICA	14,600.00	1,123.86	.00	14,630.30	(30.30)	100	13,751.57
406.116	Retirement	22,500.00	1,895.61	.00	23,939.20	(1,439.20)	106	21,278.76
408.125	SCMIT Worker's Comp Ins.	7,000.00	87.30	.00	10,518.27	(3,518.27)	150	5,011.73
410.001	Health Claims Cost	50,000.00	3,706.92	.00	51,388.64	(1,388.64)	103	46,650.19

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Budget Performance Report

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Fiscal Year to Date 06/30/17

Exclude Rollup Account

		Amended	Current Month	YTD	YTD	Budget - YTD	% Used/	
Account	Account Description	Budget	Transactions	Encumbrances	Transactions	Transactions	Rec'd	Prior Year Total
410.002	Health Claim Costs-Retire	13,250.00	(3,027.83)	.00	14,549.69	(1,299.69)	110	10,456.46
410.003	OPEB cost	4,000.00	.00	.00	.00	4,000.00	0	4,346.09
	<i>Personal Services Totals</i>	\$314,750.00	\$20,750.59	\$0.00	\$326,660.01	(\$11,910.01)	104%	\$301,931.37
	<i>Supplies</i>							
500.101	Supplies and Materials	2,660.00	.00	.00	1,776.11	883.89	67	2,021.73
500.102	Equipment	5,600.00	.00	.00	2,304.22	3,295.78	41	513.51
501.101	Uniforms and Clothing	4,750.00	137.36	.00	4,091.00	659.00	86	4,485.88
513.112	Asphalt/Concrete/Gravel	5,460.00	328.20	.00	3,507.05	1,952.95	64	3,015.94
514.112	SW Collection Syst Supply	5,500.00	.00	.00	2,198.87	3,301.13	40	6,964.61
515.121	Safety Supplies	600.00	.00	.00	.00	600.00	0	258.94
532.148	Small Hand Tools	230.00	.00	.00	28.91	201.09	13	.00
	<i>Supplies Totals</i>	\$24,800.00	\$465.56	\$0.00	\$13,906.16	\$10,893.84	56%	\$17,260.61
	<i>Other Services & Charges</i>							
600.110	SCMIRF Property/Liab Ins	6,000.00	.00	.00	4,898.31	1,101.69	82	4,602.81
610.111	Communications- Landline	1,200.00	.00	.00	1,168.43	31.57	97	1,138.19
610.112	Postage	100.00	26.14	.00	281.52	(181.52)	282	29.00
610.1110	Communications- Wireless	660.00	53.95	.00	589.08	70.92	89	547.06
620.114	Advertising	250.00	.00	.00	356.15	(106.15)	142	2.57
640.124	Travel Expense	390.00	21.34	.00	51.39	338.61	13	339.80
650.127	Electricity	1,587.00	170.01	.00	1,637.85	(50.85)	103	1,907.97
650.128	Water	319.00	29.18	.00	350.16	(31.16)	110	365.16
650.129	Wastewater	170.00	15.68	.00	188.16	(18.16)	111	188.16
650.133	Stormwater	.00	907.20	.00	1,814.40	(1,814.40)	+++	.00
650.134	Security Lights	865.00	80.00	.00	960.00	(95.00)	111	960.00
650.1271	Electricity- Sales Tax	30.00	1.36	.00	13.25	16.75	44	25.24
660.133	Repairs & Maint. Services	14,750.00	3,794.22	.00	14,355.26	394.74	97	17,413.60
660.139	Fleet Services Materials	11,000.00	4,163.14	.00	18,681.16	(7,681.16)	170	11,004.34
660.145	Gasoline & Oil	10,000.00	2,019.70	.00	15,428.82	(5,428.82)	154	8,192.12
660.1391	Fleet Services Labor	25,000.00	3,456.06	.00	25,510.45	(510.45)	102	23,960.51
670.156	Equipment Rental/Lease	280.00	.00	.00	.00	280.00	0	.00
685.180	Membership Dues and Fees	190.00	.00	.00	125.00	65.00	66	25.00

Attachment: Budget Performance Report - June 2017 (2335 : June 2017 Finance & IT Departmental



Budget Performance Report

18.K.4

Fiscal Year to Date 06/30/17

Exclude Rollup Account

		Amended	Current Month	YTD	YTD	Budget - YTD	% Used/	
Account	Account Description	Budget	Transactions	Encumbrances	Transactions	Transactions	Rec'd	Prior Year Total
685.182	Other Operating Expenses	2,400.00	191.03	.00	3,137.63	(737.63)	131	2,383.38
685.183	Depreciation	411,050.00	.00	.00	377,401.29	33,648.71	92	396,896.42
685.186	Training	150.00	.00	.00	74.00	76.00	49	51.00
686.187	Professional Services	2,500.00	.00	.00	507.11	1,992.89	20	2,312.39
686.189	Employee Medical	300.00	.00	.00	.00	300.00	0	559.00
686.195	Repair/Maint Svc Contract	3,370.00	.00	.00	3,047.66	322.34	90	2,456.31
686.199	Internal Engineering	.00	2,852.39	.00	31,519.64	(31,519.64)	+++	14,102.62
686.1895	Employee wellness services	2,100.00	203.63	.00	2,472.89	(372.89)	118	2,553.98
687.202	Utility Billing Services	2,200.00	37.74	.00	1,884.42	315.58	86	1,860.44
687.203	Contract Services	2,000.00	.00	.00	.00	2,000.00	0	1,824.00
	<i>Other Services & Charges Totals</i>	\$498,861.00	\$18,022.77	\$0.00	\$506,454.03	(\$7,593.03)	102%	\$495,701.07
	<i>Other Objects</i>							
720.001	Provision for Bad Debts	1,400.00	116.67	.00	1,400.04	(.04)	100	1,579.23
795.995	GF Cost Distribution	42,000.00	3,500.00	.00	42,000.00	.00	100	41,360.52
	<i>Other Objects Totals</i>	\$43,400.00	\$3,616.67	\$0.00	\$43,400.04	(\$0.04)	100%	\$42,939.75
	<i>Inter-Dept. Allocations</i>							
795.999	Allocation G&A Services	30,000.00	3,317.74	.00	29,697.03	302.97	99	30,844.41
	<i>Inter-Dept. Allocations Totals</i>	\$30,000.00	\$3,317.74	\$0.00	\$29,697.03	\$302.97	99%	\$30,844.41
	<i>Capital Outlay</i>							
900.912	Oakley Street Improvements	.00	.00	.00	.00	.00	+++	13,122.51
900.915	CIP Projects - Current Year	.00	.00	.00	.00	.00	+++	.00
900.1000	Infrastructure Improvemts	1,527,300.00	2,157.50	(7,170.44)	23,532.78	1,510,937.66	1	68,585.82
900.4100	Vehicles	.00	.00	.00	.00	.00	+++	21,847.00
900.4200	Heavy Equipment	225,000.00	.00	.00	185,211.49	39,788.51	82	.00
900.4300	Other Equipment	.00	.00	.00	.00	.00	+++	23,448.41
950.962	Drainage Improvements	.00	.00	(1,005.00)	13,347.50	(12,342.50)	+++	27,187.50
9999.9999	Assets Reclassified	(1,752,300.00)	.00	.00	(219,934.27)	(1,532,365.73)	13	(154,191.24)
	<i>Capital Outlay Totals</i>	\$0.00	\$2,157.50	(\$8,175.44)	\$2,157.50	\$6,017.94	+++	\$0.00
	Department 40 - Storm Water Utility Exp. Totals	\$911,811.00	\$48,330.83	(\$8,175.44)	\$922,274.77	(\$2,288.33)	100%	\$888,677.21
	EXPENSE TOTALS	\$911,811.00	\$48,330.83	(\$8,175.44)	\$922,274.77	(\$2,288.33)	100%	\$888,677.21

Attachment: Budget Performance Report - June 2017 (2335 : June 2017 Finance & IT Departmental



Budget Performance Report

18.K.4

Fiscal Year to Date 06/30/17

Exclude Rollup Account

		Amended	Current Month	YTD	YTD	Budget - YTD	% Used/	
Account	Account Description	Budget	Transactions	Encumbrances	Transactions	Transactions	Rec'd	Prior Year Total
Fund 0033 - Stormwater Utility Fund Totals								
	REVENUE TOTALS	911,811.00	50,197.49	.00	528,834.80	382,976.20	58%	526,154.20
	EXPENSE TOTALS	911,811.00	48,330.83	(8,175.44)	922,274.77	(2,288.33)	100%	888,677.21
Fund 0033 - Stormwater Utility Fund Totals		\$0.00	\$1,866.66	\$8,175.44	(\$393,439.97)	\$385,264.53		(\$362,523.01)
Fund 0035 - Waste Management Fund								
	REVENUE							
	Department 00 - Revenue							
	Charges for Services							
344.001	Refuse Col Chge-Resident	780,000.00	65,419.14	.00	779,521.77	478.23	100	759,010.63
344.002	Refuse Col Chge-Comm	125,000.00	11,098.83	.00	131,880.54	(6,880.54)	106	128,590.53
344.003	Sanitation Fee Penalties	15,000.00	1,460.87	.00	16,499.39	(1,499.39)	110	15,897.93
	Charges for Services Totals	\$920,000.00	\$77,978.84	\$0.00	\$927,901.70	(\$7,901.70)	101%	\$903,499.09
	Miscellaneous							
369.002	Miscellaneous Revenue	200.00	.00	.00	664.20	(464.20)	332	189.00
	Miscellaneous Totals	\$200.00	\$0.00	\$0.00	\$664.20	(\$464.20)	332%	\$189.00
	Operating Transfers In							
394.002	Transfer from fund balance	(47,291.00)	.00	.00	.00	(47,291.00)	0	.00
	Operating Transfers In Totals	(\$47,291.00)	\$0.00	\$0.00	\$0.00	(\$47,291.00)	0%	\$0.00
	Sale of Assets							
391.001	Sale of Assets	.00	.00	.00	6,585.79	(6,585.79)	+++	.00
	Sale of Assets Totals	\$0.00	\$0.00	\$0.00	\$6,585.79	(\$6,585.79)	+++	\$0.00
	Department 00 - Revenue Totals	\$872,909.00	\$77,978.84	\$0.00	\$935,151.69	(\$62,242.69)	107%	\$903,688.09
	REVENUE TOTALS	\$872,909.00	\$77,978.84	\$0.00	\$935,151.69	(\$62,242.69)	107%	\$903,688.09
	EXPENSE							
	Department 31 - Residential Sanitation							
	Personal Services							
400.101	Regular Pay	202,000.00	19,972.02	.00	226,173.16	(24,173.16)	112	200,757.63
401.103	Overtime	20,460.00	1,309.75	.00	21,203.61	(743.61)	104	18,860.63
401.109	Seasonal City employee labor	58,000.00	.00	.00	.00	58,000.00	0	.00
405.114	FICA	15,560.00	1,473.03	.00	17,320.82	(1,760.82)	111	15,299.74
406.116	Retirement	23,760.00	2,451.52	.00	27,995.17	(4,235.17)	118	23,401.03

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Exclude Rollup Account

		Amended	Current Month	YTD	YTD	Budget - YTD	% Used/	
Account	Account Description	Budget	Transactions	Encumbrances	Transactions	Transactions	Rec'd	Prior Year Total
408.125	SCMIT Worker's Comp Ins.	15,000.00	297.60	.00	29,606.25	(14,606.25)	197	17,878.08
410.001	Health Claims Cost	46,200.00	3,786.16	.00	49,821.44	(3,621.44)	108	43,847.10
410.002	Health Claim Costs-Retire	14,300.00	(4,231.20)	.00	8,478.96	5,821.04	59	8,238.48
410.003	OPEB cost	5,000.00	.00	.00	.00	5,000.00	0	5,587.83
	<i>Personal Services Totals</i>	\$400,280.00	\$25,058.88	\$0.00	\$380,599.41	\$19,680.59	95%	\$333,870.52
	<i>Supplies</i>							
500.101	Supplies and Materials	1,500.00	397.12	.00	5,580.37	(4,080.37)	372	3,823.18
500.102	Equipment	.00	.00	.00	(224.70)	224.70	+++	.00
501.101	Uniforms and Clothing	19,000.00	1,482.27	.00	22,809.28	(3,809.28)	120	26,924.95
515.121	Safety Supplies	2,000.00	.00	.00	784.77	1,215.23	39	1,601.85
	<i>Supplies Totals</i>	\$22,500.00	\$1,879.39	\$0.00	\$28,949.72	(\$6,449.72)	129%	\$32,349.98
	<i>Other Services & Charges</i>							
600.110	SCMIRF Property/Liab Ins	26,000.00	.00	.00	23,606.32	2,393.68	91	22,182.24
610.111	Communications- Landline	300.00	5.32	.00	141.66	158.34	47	140.05
610.112	Postage	150.00	52.91	.00	500.63	(350.63)	334	39.01
610.1110	Communications- Wireless	500.00	.00	.00	.00	500.00	0	.00
620.114	Advertising	2,100.00	677.16	.00	1,545.46	554.54	74	1,362.09
650.127	Electricity	881.00	70.03	.00	1,079.70	(198.70)	123	1,026.28
650.128	Water	364.00	32.38	.00	398.63	(34.63)	110	401.96
650.129	Wastewater	563.00	50.20	.00	616.78	(53.78)	110	621.60
650.130	Sanitation	399.00	36.92	.00	443.04	(44.04)	111	443.04
650.133	Stormwater	326.00	30.15	.00	361.80	(35.80)	111	361.80
650.134	Security Lights	475.00	43.89	.00	526.68	(51.68)	111	526.68
650.1271	Electricity- Sales Tax	3.00	.19	.00	3.46	(.46)	115	4.21
660.133	Repairs & Maint. Services	4,000.00	.00	.00	.00	4,000.00	0	2,246.67
660.136	Container Repairs	5,000.00	.00	.00	4,915.30	84.70	98	5,202.65
660.139	Fleet Services Materials	50,000.00	3,915.92	.00	35,363.84	14,636.16	71	66,644.96
660.145	Gasoline & Oil	32,000.00	3,245.66	.00	30,523.71	1,476.29	95	34,733.25
660.1362	Roll-Out Purchases	20,000.00	.00	.00	21,064.55	(1,064.55)	105	29,328.93
660.1391	Fleet Services Labor	64,500.00	8,165.46	.00	64,834.70	(334.70)	101	75,766.75
660.1392	Fleet Svcs- Outside Vends	2,000.00	330.00	.00	1,966.25	33.75	98	2,158.75

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Budget Performance Report

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Exclude Rollup Account

		Amended	Current Month	YTD	YTD	Budget - YTD	% Used/	
Account	Account Description	Budget	Transactions	Encumbrances	Transactions	Transactions	Rec'd	Prior Year Total
685.182	Other Operating Expenses	2,500.00	229.23	.00	3,106.47	(606.47)	124	3,044.39
685.183	Depreciation	69,020.00	.00	.00	123,244.34	(54,224.34)	179	56,275.31
685.190	Landfill Fees	26,000.00	.00	.00	1,363.57	24,636.43	5	22,775.80
686.189	Employee Medical	1,800.00	.00	.00	45.00	1,755.00	2	480.00
686.195	Repair/Maint Svc Contract	2,800.00	.00	.00	2,117.50	682.50	76	4,035.00
686.1895	Employee wellness services	3,000.00	67.88	.00	3,095.57	(95.57)	103	5,924.35
687.202	Utility Billing Services	4,000.00	76.38	.00	3,814.56	185.44	95	3,765.83
687.203	Contract Services	5,000.00	5,137.81	.00	61,639.01	(56,639.01)	1233	1,512.00
	<i>Other Services & Charges Totals</i>	\$323,681.00	\$22,167.49	\$0.00	\$386,318.53	(\$62,637.53)	119%	\$341,003.60
	<i>Other Objects</i>							
720.001	Provision for Bad Debts	1,500.00	125.00	.00	1,500.00	.00	100	5,396.55
730.120	Recycling Labor	37,000.00	5,811.02	.00	32,089.21	4,910.79	87	33,760.52
730.122	Recycling Operating	12,000.00	2,361.49	.00	9,780.00	2,220.00	82	9,050.56
795.001	IT Internal Allocations	7,000.00	555.67	.00	5,851.56	1,148.44	84	6,205.52
795.995	GF Cost Distribution	77,200.00	6,433.33	.00	77,199.96	.04	100	77,175.96
7999.9999	Principal Reclassified	(48,252.00)	.00	.00	.00	(48,252.00)	0	.00
	<i>Other Objects Totals</i>	\$86,448.00	\$15,286.51	\$0.00	\$126,420.73	(\$39,972.73)	146%	\$131,589.11
	<i>Capital Outlay</i>							
900.4100	Vehicles	40,000.00	21,033.88	.00	50,652.88	(10,652.88)	127	.00
900.4200	Heavy Equipment	140,000.00	.00	.00	140,756.00	(756.00)	101	321,077.00
900.4300	Other Equipment	38,500.00	.00	.00	17,954.60	20,545.40	47	.00
9999.9999	Assets Reclassified	(178,500.00)	.00	.00	(133,329.60)	(45,170.40)	75	(321,077.00)
	<i>Capital Outlay Totals</i>	\$40,000.00	\$21,033.88	\$0.00	\$76,033.88	(\$36,033.88)	190%	\$0.00
	Department 31 - Residential Sanitation Totals	\$872,909.00	\$85,426.15	\$0.00	\$998,322.27	(\$125,413.27)	114%	\$838,813.21
	EXPENSE TOTALS	\$872,909.00	\$85,426.15	\$0.00	\$998,322.27	(\$125,413.27)	114%	\$838,813.21
	Fund 0035 - Waste Management Fund Totals							
	REVENUE TOTALS	872,909.00	77,978.84	.00	935,151.69	(62,242.69)	107%	903,688.09
	EXPENSE TOTALS	872,909.00	85,426.15	.00	998,322.27	(125,413.27)	114%	838,813.21
	Fund 0035 - Waste Management Fund Totals	\$0.00	(\$7,447.31)	\$0.00	(\$63,170.58)	\$63,170.58		\$64,874.88
Fund 0086 - Seized and Forfeited								

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Budget Performance Report

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Exclude Rollup Account

		Amended	Current Month	YTD	YTD	Budget - YTD	% Used/	
Account	Account Description	Budget	Transactions	Encumbrances	Transactions	Transactions	Rec'd	Prior Year Total
	<i>Capital Outlay</i>							
900.4300	Other Equipment	.00	.00	.00	9,865.40	(9,865.40)	+++	.00
	<i>Capital Outlay Totals</i>	\$0.00	\$0.00	\$0.00	\$9,865.40	(\$9,865.40)	+++	\$0.00
	Department 05 - Police Totals	\$33,000.00	\$939.78	\$0.00	\$17,600.09	\$15,399.91	53%	\$14,894.34
	EXPENSE TOTALS	\$33,000.00	\$939.78	\$0.00	\$17,600.09	\$15,399.91	53%	\$14,894.34
	Fund 0086 - Seized and Forfeited Totals							
	REVENUE TOTALS	33,000.00	4,000.00	.00	4,000.00	29,000.00	12%	35,241.11
	EXPENSE TOTALS	33,000.00	939.78	.00	17,600.09	15,399.91	53%	14,894.34
	Fund 0086 - Seized and Forfeited Totals	\$0.00	\$3,060.22	\$0.00	(\$13,600.09)	\$13,600.09		\$20,346.77
	Grand Totals							
	REVENUE TOTALS	30,034,294.00	2,694,698.78	.00	28,804,418.48	1,229,875.52	96%	28,315,678.16
	EXPENSE TOTALS	30,913,359.00	2,162,929.47	662,790.12	29,211,467.69	1,039,101.19	97%	28,598,966.77
	Grand Totals	(\$879,065.00)	\$531,769.31	(\$662,790.12)	(\$407,049.21)	\$190,774.33		(\$283,288.61)

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