# University of Alabama System Board Rule 415 (2/2005) Board Submittal Checklist Criteria

# <u>\* Board Submittal Checklist</u> <u>Capital Project – Revised Scope and Budget Submittal</u> <u>(Revised Scope and Budget)</u>

Campus:	The University of Alabama
Project Name:	Central Campus Thermal Energy Connections
UA Project #:	UTL-16-949
Meeting Date:	September 5 – 6, 2019

1. Completed Board Submittal Checklist

- 2. Transmittal Letter to Chancellor from Campus President requesting the project be placed on the agendas for the forthcoming Physical Properties Committee and Board of Trustees (or Executive Committee) meetings
- 3. Resolution requesting approval of Revised Construction Budget, and Revised Project Budget
- 4. Campus correspondence/photographs providing supplemental project information
- Executive Summary of Proposed Capital Project with Contract Construction Budget and Project Budget (include all proposed project funding for movable equipment and furnishings)
  /2
- 6. Project Summary
- 7. Project Planning Report /2
- 8. Campus map(s) showing location of project site

Prepared by: Approved l

/1 Reference Tab 3I - Board Rule 415 Instructional Guide /2 Reference Tab 3E - Board Rule 415 Instructional Guide

/3 Reference Tab 3V - Board Rule 415 Instructional Guide

\* Basic documents required for this Board Submittal Package. Include other supporting materials, correspondence, etc., as may be required to fully describe or illustrate project being submitted for approval to Physical Properties Committee and Board of Trustees.



August 8, 2019

Chancellor Finis E. St. John IV The University of Alabama System 500 University Boulevard East Tuscaloosa, Alabama 35401

Dear Chancellor St. John:

I am pleased to send to you for consideration by the Board of Trustees at its September 6, 2019 meeting the following resolution:

Board Item - Action: Revised Scope and Budget Submittals: . Central Campus Thermal Energy Connections UA Project #UTL-16-949

Please contact us if you have questions or need additional information.

Sincerely,

Stuart R. Bell President

Enclosure



# RESOLUTION

## **CENTRAL CAMPUS THERMAL ENERGY CONNECTIONS**

WHEREAS, pursuant to Board Rule 415, on September 23, 2016, The Board of Trustees of The University of Alabama ("Board") approved a Stage I submittal for the Central Campus Thermal Energy Connections project ("Project") and authorized The University of Alabama ("University") to proceed with the connection of additional buildings according to the University's Master Plan for thermal energy distribution; and

WHEREAS, on September 23, 2016, in an effort to deliver the Project by April 2019, and based on the firm's previous programming experience and preliminary design work on the Project, the Board approved the waiver of the Consultant Selection process and authorized the University to proceed with design utilizing the services of Burns and McDonnell of Raleigh, North Carolina (Burns and McDonnell), for Package A and HHB Engineers, P.C. of Prattville, Alabama (HHB Engineers), for Package B; and

WHEREAS, on February 3, 2017, in order to align with shutdowns at seasonally appropriate times in different geographic areas of campus and to address the varying nature of construction, the Board approved the separation of construction into two packages: Package A – Campus Thermal Energy Expansion and Package B - Steam Replacement and Heating System Upgrades; and

WHEREAS, Package A – Campus Thermal Energy Expansion consisted of the replacement of existing steam service and aged chilled water generation systems with connections to the Central Thermal Energy System at Rodgers Library, Nott Hall, Gallalee Hall, Mary Harmon Bryant Hall, Smith Hall, and Lloyd Hall and the addition of a central plant, which will be located in the Tutwiler deck, to support the new Tutwiler Development; and

WHEREAS, Package B – Steam Replacement and Heating System Upgrade consisted of the replacement of the existing steam heating systems serving Bruno Library, Carmichael Hall, Bidgood Hall, Alston Hall, Bibb Graves Hall and McLure Library with a local heating hot water system; and

WHEREAS, Package C (originally included in Package A)– South Campus Energy Plant Infrastructure and Package D (originally included in Package A)- Thermal Piping at Judy Bonner Drive will support additional connectivity to the University's existing thermal energy system providing additional connectivity to support the new Tutwiler development, Bryant-Denny Stadium (BDS) and other projects proposed to be added to the system in the future; and

WHEREAS, on February 3, 2017, the Board approved a Revised Scope to provide additional thermal energy capacity for current and planned facilities including a central plant to support the new Tutwiler Development; and

WHEREAS, on February 3, 2017, the Board approved a Revised Budget from \$10,000,000 to \$20,974,000 to reflect the negotiated architect fees and Revised Scope; and

WHEREAS, on February 3, 2017, in order to efficiently service the campus and to facilitate Project completion by April 2019, the Board authorized the University to award the contracts for this Project to the lowest responsible bidders so long as the bids for the Project did not cause the total Project budget to exceed \$20,974,000; and

WHEREAS, on February 3, 2017, the Board also required the proposed contract awards for this Project to be reviewed and approved by the Chairman of the Physical Properties Committee and the President pro tempore prior to executing a construction contract; and WHEREAS, in an effort to continue with the connection of additional buildings according to the University's Master Plan for thermal energy distribution and provide additional capacity at the East Quad Energy plant, the University is requesting approval for a Revised Scope to include three (3) additional Packages: Package E – Bryant Denny Stadium Thermal Connection, Package F – Tutwiler Thermal Piping Distribution, and Package G – East Quad Energy Plant Fitout and Parham/Burke Thermal Connections; and

WHEREAS, Package E – Bryant Denny Stadium Thermal Connection will connect BDS to the existing thermal energy system allowing BDS to remove the chillers throughout, which will yield significant operational and energy savings for the University; and

WHEREAS, Package F – Tutwiler Thermal Piping Distribution will extend the thermal piping from the newly installed connector point at the intersection of Judy Bonner Drive and Colonial Drive to the South Campus Energy Plant located in the Tutwiler Parking Deck to provide thermal energy for the new Tutwiler Hall and to provide interconnection to the future South Campus Energy Plant to the Central System as describe in Package C; and

WHEREAS, Package G – East Quad Energy Plant Fitout and Parham/Burke Thermal Connections will furnish and provide installation of the remaining chillers and cooling towers at the East Quad Energy Plant, extend the thermal piping to Martha Parham and Mary Burke, and connect the thermal energy piping at the existing valves located at the intersection Magnolia Drive and 6th Street providing hot and chilled water to the buildings and allowing decommissioning of the existing equipment; and

WHEREAS, upon completion of negotiations for engineering services with Burns and McDonnell, the University established a final fee in the amount of \$491,223 for completed Package A, a lump sum in the amount of \$180,000 for Package C, a lump sum in the amount of \$308,900 for Package D, 6.1% of the total cost of construction for Packages F and G and Equipment Increase, less a credit in the amount of \$115,970 for previous work performed; and

WHEREAS, upon completion of negotiations for engineering services with HHB Engineers, P.C., the University established a final fee in the amount of \$104,200 for Package B and a lump sum in the amount of \$67,000 for Package E; and

WHEREAS, the University is requesting approval for a Revised Budget from \$20,974,000 to \$32,974,000 to reflect the Revised Scope, final construction contract costs for Packages A and B, the final negotiated architect fees for Packages C through and including G and the revisions to associated soft cost; and

WHEREAS, the Project will be funded from 2017 General Revenue bonds in the amount of \$20,974,000, University Reserves in the amount of \$8,000,000, and University Construction, Renovation and Equipment Fund Quasi Endowment in the amount of \$4,000,000; and

WHEREAS, the Project location and program have been reviewed and are consistent with the Master Plan, University Design Standards and the principles contained therein; and

WHEREAS, the revised budget for the Project is as stipulated below:	
BUDGET:	REVISED
Package A – Campus Thermal Energy Expansion	\$ 7,042,197
Package B – Steam Replacement and Heating System Upgrade	\$ 1,985,432
Package C – South Campus Energy Plant Infrastructure	\$ 2,492,034
Package D – Thermal Piping at Judy Bonner Drive	\$ 1,721,300
Package E – Bryant Denny Stadium Thermal Connection	\$ 3,000,000
Package F – Tutwiler Thermal Piping Distribution	\$ 3,500,000
Package G – East Quad Energy Plant Fit-Out and Martha Parham/Mary Burke	\$ 6,819,840
Thermal Connections	
Equipment – OFCI Chillers & Cooling Towers, Piping	\$ 2,118,000
Landscaping	\$ 385,529
Telecommunication/Data	\$ 185,579
Contingency* (5%)	\$ 837,233
UA Project Management Fee** (3%)	\$ 897,047
Architect/Engineer Fee*** (6.3%)	\$ 1,745,261
Other Expenses	\$ 244,548
TOTAL PROJECT COST	\$ 32,974,000

\*Contingency is based on 5% of the total costs of construction for Packages D through and including Package G, Equipment Increase and Landscaping.

\*\*UA Project Management Fee is based on 3% of the total costs of construction for all Packages A through and including Package G, Landscaping, Equipment and Contingency.

\*\*\*Architect/Engineer Fee is based on the total sum of: the final contract cost for completed Package A in the amount of \$491,223, the final contract cost of \$104,200 for completed Package B, a lump sum in the amount of \$180,000 for Package C, a lump sum in the amount of \$308,900 for Package D, plus a lump sum in the amount of \$67,000 for Package E, 6.1% of the total cost of construction for Packages F and G and Equipment Increase, less a credit in the amount of \$115,970 for previous work performed.

Work Completed – Actual Contract Amount

WHEREAS, officials at The University of Alabama have determined that the Board will incur certain costs in connection with the acquisition, construction and installation of the Project prior to the issuance of the Bonds, and the Board intends to allocate a portion of the proceeds of the Bonds to reimburse the Board for certain of the costs incurred in connection with the acquisition, construction and installation of the Project paid prior to the issuance of the Bonds; and

NOW, THEREFORE, BE IT RESOLVED by The Board of Trustees of The University of Alabama

- that:
- 1. The University of Alabama does hereby declare that it intends to allocate a portion of the proceeds of the Bonds to reimburse the Board for expenses incurred after the date that is no more than sixty days prior to the date of the adoption of this resolution but prior to the issuance of the Bonds in connection with the acquisition, construction and installment of the Project. This portion of this resolution is being adopted pursuant to the requirement of Treasury Regulations Section 1.150-2(e).
- 2. The Revised Scope and Budget for the Project is approved as stipulated above.
- 3. The funding portion for this project from "The University of Alabama Construction, Renovation and Equipment Fund" quasi endowment is approved.

4. The negotiated design fees for Packages F and G are approved; and

BE IT ALSO RESOLVED THAT the contracts to be competitively bid on the Project as aforementioned may be awarded by the University pursuant to Alabama bid law, and the hereinafter listed campus officials of the University are thereafter authorized to act for and in the name of The Board of Trustees of The University of Alabama in executing the contracts with such low bidders for the Project subject to compliance with all of the following provisions:

- 1. The University is granted approval to award all contracts for the Project to the lowest responsible bidders pursuant to Alabama bid law so long as the awards of such contracts for the Project do not cause the Project to exceed the total Project budget.
- 2. All proposed contracts awards for the Project must be reviewed and approved by the Chairman of the Physical Properties Committee and the President pro tempore prior to executing a construction contract.
- 3. If the awards of the contracts for the Project will cause an increase in the total Project budget, the University shall bring the matter before the Board of Trustees or the Executive Committee of the Board of Trustees for approval of the contracts and the revised budget for the Project.
- 4. The University will provide an ongoing report about the awards of the construction contracts for the Project to the Office of the Chancellor.
- 5. Stuart R. Bell, President, Matthew M. Fajack, Vice President for Financial and Operations and Treasurer, or those officers named in the most recent Board Resolution granting signature authority for The University of Alabama be, and each hereby are, authorized to act for and in the name of the Board of Trustees in executing the aforementioned Construction and Renovation and Demolition and Abatement contracts for the Project upon satisfaction of the conditions set out above.



Division of Finance and Operations Vice President

August 20, 2019

To:	Stuart R. Bell

From:

Matthew M. Fajack

Board Item - Action Revised Scope and Budget submittals: Subject: Central Campus Thermal Energy Connections UA Project #UTL-16-949

The University of Alabama ("University") is requesting approval for a Revised Scope and Budget for the Central Campus Thermal Energy Connections project ("Project"). The purpose of the revised scope is to continue with the connection of additional buildings according to the University's Master Plan for thermal energy distribution and to support Bryant-Denny Stadium, Martha Parham Hall, Mary Burke Hall and the New Tutwiler Residence Hall with thermal energy and provide additional capacity at the East Quad Energy Plant.

The scope of the Project is currently comprised of four (4) Packages: Package A – Campus Thermal Energy Expansion; and Package B – Steam Replacement and Heating System Upgrade; Package C (originally included in Package A) – South Campus Energy Plant Infrastructure; and Package D (originally included in Package A) – Thermal Piping at Judy Bonner Drive. The University proposes to include an additional three (3) packages: Package E – Bryant-Denny Stadium Thermal Connection; Package F – Tutwiler Thermal Piping Distribution; and, Package G – East Quad Energy Plant Fit-Out and Martha Parham/Mary Burke Thermal Connections. The scope of these packages is detailed in the enclosed Project Summary.

Additionally, the University has negotiated a final design fee of \$1,745,261 for the multiple packages with two design teams. Burns and McDonnell are designing packages A, C, D, F and G for a total design fee in the amount of \$1,574,061. HHB Engineers, P.C. are designing packages B and E for a total design fee in the amount of \$171,200.

The University is now requesting approval for a Revised Scope and Budget from \$20,974,000 to \$32,974,000 to reflect the cost of the Revised Scope, final construction contract amounts for Packages A and B and final negotiated architect fees for Packages C through and including G.

WHERE LEGENDS ARE MADE

271 Rose Administration Building | Box 870142 | Page 0105. 35f 8 8662 | 205-348-4530 | Fax 205-348-9633

Central Campus Thermal Energy Connections August 20, 2019 Page 2

This Project will be funded from 2017 General Revenue bonds in the amount of \$20,974,000, University Reserves in the amount of \$8,000,000, and University Construction, Renovation and Equipment Fund Quasi Endowment in the amount of \$4,000,000.

This Project location and program have been reviewed and are consistent with the Campus Master Plan, University Design Standards, and the principles contained therein. I have attached a Resolution, Executive Summary, Project Summary, Project Planning Report and Location map for your review. Subject to your approval, I recommend this item be forwarded to the Chancellor for inclusion as an Action Item on the agenda of the Physical Properties Committee at the Board of Trustees meeting scheduled for September 5 – 6, 2019.

MMF/ccj

pc w/atchmts:

Michael Rodgers Michael Lanier Tim Leopard Sommer Coleman Steven Mercado

#### **EXECUTIVE SUMMARY** PROPOSED CAPITAL PROJECT BOARD OF TRUSTEES SUBMITTAL

	DOINE OF TRUSTELS SUDMI			
	Meeting Date: September 5	- 6, 2019		
CAMPUS:	The University of Alabama, Tuscaloosa, Alabama			
PROJECT NAME:	Central Campus Thermal Energy Com	nections		
PROJECT LOCATION:	Various Areas of Campus			
ARCHITECT:	Packages A, C, D, F, G: Burns and McDon	nell, Raleigh,	North Carolina	
	Package B, E: HHB Engineers, P.C., Pratt	ville, Alabama	1	
THIS SUBMITTAL:	PREV	/IOUS APPRO	OVALS:	
Stage I	Septe	ember 23, 201	.6	
Stage II	Septe	ember 23, 201	6	
Stage III	<u>Not a</u>	pplicable		
Scope and Budget I	Revision Febr	uary 3, 2017		
Stage IV NTE	Febr	uary 3, 2017		
🛛 Revised Scope and	Budget			
PROJECT TYPE	SPACE CATEGORIES	PER	CENTAGE	GSF
Campus Infrastructure			100%	N/A
	TOTAL		100%	N/A
BUDGET			Current	Revised
Package A – Campus Thermal E	nergy Expansion	\$	15,626,000	\$ 7,042,197
Package B – Steam Replacemen	t and Heating System Upgrade	\$	1,500,000	\$ 1,985,432
Package C – South Campus Ener	rgy Plant Infrastructure (originally in Packag	e A) \$	-	\$ 2,492,034
Package D - Thermal Piping at J	udy Bonner Drive (originally in Package A)	\$	-	\$ 1,721,300
Package E – Bryant Denny Stad	ium Thermal Connection	\$	-	\$ 3,000,000
Package F - Tutwiler Thermal F	Piping Distribution	\$	-	\$ 3,500,000
Package G - East Quad Energy I Thermal Connections	Plant Fit-Out and Martha Parham/Mary Burl	ke \$	-	\$ 6,819,840
Equipment – OFCI Chillers & Co	ooling Towers, Piping	\$	800,000	\$ 2,118,000
Landscaping		\$	385,529	\$ 385,529
Telecommunication/Data		\$	115,374	\$ 185,579
Contingency* (5%)		\$	915,576	\$ 837,233
UA Project Management Fee**	(3%)	\$	576,813	\$ 897,047
Architect/Engineer Fee*** (~5	.96%/6.3%)	\$	1,054,708	\$ 1,745,261
Other Expenses		\$	-	\$ 244,548
TOTAL PROIECT COST		\$	20.974.000	\$ 32.974.000

\*Contingency is based on 5% of the total costs of construction for Packages through and including Package G, Equipment and Landscaping. \*\*UA Project Management Fee is based on 3% of the total costs of construction for all Packages A through and including Package G, Landscaping, Equipment and

\*\*\*Architect/Engineer Fee is based on 3% of the total costs of construction for all Packages A through and including Package G, Landscaping, Equipment and Contingency. \*\*\*Architect/Engineer Fee is based on the total sum of: the final contract cost for completed Package A in the fee amount of \$491,223, the final contract cost of \$104,200 for completed Package B, a lump sum in the amount of \$180,000 for Package C, a lump sum in the amount of \$308,900 for Package D, a lump sum in the amount of \$67,000 for Package E, 6.1% of the total cost of construction for Packages F and G and Equipment Increase, less a credit in the amount of \$115,970 for previous work performed. Work Completed – Actual Contract Amount

ESTIMATED ANNUAL OPERATING AND MAINTENANCE (O&M) COSTS:	
(Utilities, Housekeeping, Maintenance, Insurance, Other)	
Per GSF: gsf x \$/gsf:	\$ N/A*
TOTAL ESTIMATED ANNUAL O&M COSTS:	\$ N/A*

\*Project replaces existing local utility infrastructure with centralized equipment. Central utility O&M costs are neither assigned at a facility level nor by GSF.

#### FUNDING SOURCE:

Capital Outlay:

ipital Outlay:	
2017 General Revenue Bonds	\$ 20,974,000
University Reserves	\$ 8,000,000
University Construction, Renovation and Equipment Fund Quasi Endowment	\$ 4,000,000
O&M Costs:	\$ N/A*

### **NEW EQUIPMENT REQUIRED:**

Installation of (2) Chillers and (3) Cooling Towers at East Quad Energy Plant

Installation of (1) 1,200 Ton Chiller w/Associated Cooling Tower and Pumps for Package A

### **RELATIONSHIP & ENHANCEMENT OF CAMPUS PROGRAMS:**

The Central campus Thermal Energy Connections project ("Project") will improve the teaching, learning, and working environments of campus constituents by providing an increased range of control and reliable and efficient thermal energy to facilities by replacing systems which have reached the end of their functional service life. By centralizing equipment in the energy plants, the Project will free campus exterior space currently occupied by existing equipment for other uses, including, but not limited to, parking, landscaping and hardscape improvements. Furthermore, reducing the cost to provide heating and cooling to buildings will support The University of Alabama ("University") in maintaining a competitive cost of attendance.

Package A (complete) – Campus Thermal Energy Expansion of the Project will allow the University to heat and cool buildings more efficiently and reduce the quantity of equipment that requires maintenance thereby reducing HVAC system downtime and increasing occupant comfort. Removal of localized equipment such as cooling towers and air-cooled chillers will lower ambient noise nearby key facilities and improve campus appearance. Rodgers Library, Smith Hall, Lloyd Hall, Mary Harmon Bryant Hall, Nott Hall and Gallalee Hall will be connected to the system and additional capacity in the East Quad Energy Plant will be provided for other current and planned facilities as prioritized including a central plant to support the Tutwiler development.

Package B (complete) – Steam Replacement and Heating System Upgrade of this Project will provide heating systems with inherent redundant capacity, ensuring building heating during the coldest periods of the year to Bruno library, Carmichael Hall, Bidgood Hall, Alston Hall, Bibb Grave Hall and McLure Library. It will also extend the available heating period as the campus steam system operations season is not continuous; therefore, the University will be able to provide heat during off season cold spells. The Project will also provide the availability of "reheat" during the cooling periods which is advantageous as it provides enhanced moisture control during the cooling season.

Package C (complete, originally included in package A) – South Campus Energy Plant Infrastructure will provide additional connectivity to the University's existing thermal energy system. The additional connectivity will support the new Tutwiler development, Bryant-Denny Stadium (BDS) and other projects added to the system in the future. A future project will be required to complete the plant fit-out when load beyond Tutwiler and BDS is added. The plant will be located in the Tutwiler Parking Deck under the ramp to the second level and when completed will provide approximately 4,000 tons of additional cooling. The connection of this plant to the system is included in Package F.

Package D (in closeout, originally included in Package A)– Thermal Piping at Judy Bonner Drive will consist of installation of owner-furnished thermal piping down Judy Bonner Drive across Colonial Drive and stub out for future extensions to Tutwiler and BDS. This piping will include approximately 1,600 lf of 24" chilled water and approximately 500 lf of 14" hot water.

Package E – Bryant Denny Stadium (BDS) Thermal Connection will connect BDS to the existing thermal energy system allowing BDS to remove the chillers throughout the stadium. This package will yield significant operational and energy savings for the University due to load diversity within the system and not having to run numerous independent air-cooled chillers at the stadium at all times and load conditions.

Package F – Tutwiler Thermal Piping Distribution will extend the thermal piping from the newly installed connector point at the intersection of Judy Bonner Drive and Colonial Drive to the South Campus Energy Plant located in the Tutwiler Parking Deck to provide thermal energy for the new Tutwiler Hall and to provide interconnection to the future South Campus Energy Plant to the Central System as described in Package C.

Package G – East Quad Energy Plant Fit-Out and Parham/Burke Thermal Connections will furnish and install the remaining chillers and cooling towers at the East Quad Energy Plant. In addition, the thermal piping will be extended to Martha Parham Hall and Mary Burke Hall. The thermal energy piping will connect at the existing valves located at the intersection of Magnolia Drive and 6<sup>th</sup> Street. Hot and chilled water will be provided to the buildings which will allow for the decommissioning of the existing equipment and the future installation of a 4-pipe system in the Residence Halls to enhance resident comfort.

These packages will address significant campus deferred maintenance liability by replacing numerous independent systems which are nearing or have surpassed expected service life.

ATTACHMENT NO. 1 Project: Central Campus Thermal Energy Connections BOT Submittal: Revised Scope and Budget Meeting Date: September 5 – 6, 2019

### **Project Summary**

### **CENTRAL CAMPUS THERMAL ENERGY CONNECTIONS**

The University of Alabama ("University") currently operates two interconnected central thermal energy plants, which generate hot water for campus heating and chilled water for cooling to various campus buildings. Over the last six years and in conjunction with capital projects, the service area of the central system has been expanded to provide efficient and reliable heating and cooling to many buildings on the campus. The Central Campus Thermal Energy Connections project ("Project") is a continuation of this service area expansion based on the University's Energy Master Plan, with the goal of eliminating antiquated systems that are at the end of their functional system life expectancy, with a focus on decommissioning deteriorating existing steam systems as quickly as possible.

Package A (complete) – Campus Thermal Energy Expansion consisted of the replacement of existing steam service, boilers, and antiquated chilled water generation systems at various campus buildings by interconnecting to the Central Thermal Energy Plant. Campus thermal energy capacity was increased accordingly, and capacity provided for current and planned projects as prioritized including providing central plant capacity for the new Tutwiler Development.

Package B (complete) – Steam Replacement and Heating System Upgrade consisted of the replacement of the existing steam heating systems serving Morgan Hall, Bruno Library, Carmichael Hall, Bidgood Hall, Alston Hall and other campus buildings with local heating hot water systems. The piping configuration of these local heating hot water systems were configured to allow for connection to the future B.B. Comer Central Energy Plant upon its completion. This package also extended the available heating period as the Campus steam system operational season is not continuous; therefore, the University will be able to provide heat during off season cold spells. The Project will also provide the availability of "reheat" during cooling periods which is advantageous as it provides enhanced moisture control during the cooling season.

Package C (complete, originally included in Package A) – South Campus Energy Plant Infrastructure will provide additional connectivity to the University's existing thermal energy system. The additional connectivity will support the new Tutwiler development, Bryant-Denny Stadium (BDS) and other projects added to the system in the future. A future project will be required to complete the plant fit-out when load beyond Tutwiler and BDS is added. The plant will be located in the Tutwiler Parking Deck under the ramp to the second level and when completed will provide approximately 4,000 tons of additional cooling.

Package D (in closeout, originally included in Package A) – Thermal Piping at Judy Bonner Drive will consist of installation of owner-furnished thermal piping down Judy Bonner Drive across Colonial Drive and stub out for future extensions to Tutwiler and BDS. This piping will include approximately 1,600 lf of 24" chilled water and approximately 500 lf of 14" hot water.

The University proposes to include an additional three (3) packages: Package E – Bryant Denny Stadium Thermal Connection; Package F – Tutwiler Thermal Piping Distribution; and, Package G – East Quad Energy Plant Fit-Out and Martha Parham/Mary Burke Thermal Connections.

Package E – Bryant Denny Stadium Thermal Connection will connect BDS to the existing thermal energy system allowing BDS to remove the chillers throughout the stadium. This package will yield significant operational and energy savings for the University due to load diversity within the system and not having to run numerous independent air-cooled chillers at the stadium at all times and load conditions.

Package F – Tutwiler Thermal Piping Distribution will extend the thermal piping from the newly installed connector point at the intersection of Judy Bonner Drive and Colonial Drive to the South Campus Energy Plant located in the Tutwiler Parking Deck to provide thermal energy for the new Tutwiler Hall and to provide interconnection to the future South Campus Energy Plant to the Central System as described in Package C.

Package G – East Quad Energy Plant Fit-Out and Parham/Burke Thermal Connections will furnish and install the remaining chillers and cooling towers at the East Quad Energy Plant. In addition, the thermal piping will be extended to Martha Parham Hall and Mary Burke Hall. The thermal energy piping will connect at the existing valves located at the intersection of Magnolia Drive and 6th Street to provide hot and chilled water to the buildings which will allow for the decommissioning of the existing equipment. This will also allow both buildings to be converted to a 4-pipe system for greater temperature control, enhancing occupant comfort, and energy savings.

All of these packages will address significant campus deferred maintenance liability by replacing numerous independent systems which are nearing or have surpassed expected service life.

#### THE UNIVERSITY OF ALABAMA SYSTEM PROJECT PLANNING REPORT DATE: SEPTEMBER 5 - 6, 2019

INITIAL REPORT INTERIM REPORT X FINAL REPORT 2 REPORT NO.

#### TO: OFFICE OF THE CHANCELLOR BOARD OF TRUSTEES OF THE UNIVERSITY OF ALABAMA

#### FROM: OFFICE OF THE PRESIDENT THE UNIVERSITY OF ALABAMA

2. LOCATION:   Various Areas of Campus     3. ARCHITECT/ENGINEER:   Packages A, C, D, F, G: Burns and McDonnell, Raleigh, North Carolina Package B, E: HHB Engineers, P.C., Prattville, Alabama     4. PROJECT STATUS:   PACKAGES A & D A. SCHEMATIC DESIGN:   PACK INTITATED A. SCHEMATIC DESIGN:   PACK INTITATED DATE INITIATED   PACKAGES A & D A. October 2016 D: December 2018 D: December 2018 D: December 2016 D: December 2016 D: January 2019 November 16 D: January 2019 D: Gentrath 2018 D: February 2019 D: February 2019 DC: March 2018 D: February 2019 November 17 D: February 2019 November 10 DOCUMENTS:   C: April 2018 D: February 2017 D: February 2019 November 17 D: February 2019 D: February 2019 D: April 2019 November 16 D: Parti 2019 November 16 D: January 2017 D: G: March 2018 D: February 2019 D: February 2019 D: April 2019 November 17 D: G: March 2018 D: April 2019 November 2016 D: April 2019 November 2016 D: April 2019 November 2016 D: January 2017 D: February 2019 D: February 201	1. PROJECT:	Central Campus Thermal E	nergy Connections				
3. ARCHITECT/ENGINEER:   Packages A, C, D, F, G: Burns and McDonnell, Raleigh, North Carolina Package B, E: HHB Engineers, P.C., Prattville, Alabama     4. PROJECT STATUS:   PACKAGES A & D   PACKAGE B   PACKAGES C, E - G     A. SCHEMATIC DESIGN:   DATE INITIATED   PACKAGES A & D   PACKAGE B   PACKAGES C, E - G     B. PRELIMINARY DESIGN:   DATE INITIATED   A: November 2016   C: January 2019   November -16   E-G: June 2019     B. PRELIMINARY DESIGN:   DATE INITIATED   A: November 2016   C: January 2019   November -16   E-G: June 2019     B. PRELIMINARY DESIGN:   DATE INITIATED   A: November 2016   C: January 2018   E-G: June 2019     B. PRELIMINARY DESIGN:   DATE INITIATED   A: November 2016   C: January 2018   E-G: June 2019     B. PRELIMINARY DESIGN:   DATE INITIATED   A: Isourary 2019   November -16   E-G: June 2019     B. COMPLETE   IO0%   IO0%   IO0%   IO0%   E-G: June 2019     B. PRELIMINARY DESIGN:   DATE INITIATED   A: January 2017   C: April 2018   E-G: June 2019     C. CONSTRUCTION   DATE INITIATED   A: January 2017   E-G: August 2019   C: April 2018   E-G: 20%   E-G: 20%   E-G: 20%	2. LOCATION:	Various Areas of Campus					
4. PROJECT STATUS: A. SCHEMATIC DESIGN: DATE INITIATED B. PRELIMINARY DESIGN: DATE INITIATED C. CONSTRUCTION C. CONSTRUCTION DATE INITIATED C. CONSTRUCTION DATE INITIATED A: March 2017 C. CONSTRUCTION DATE INITIATED A: March 2017 D: February 2019 S. COMPLETE * DATE COMPLETE * DATE COMPLETE * DATE COMPLETE * DATE COMPLETE * DATE COMPLETE * DATE OMPLETE * DATE OMPLETE * DATE COMPLETE * DATE OMPLETE * DATE COMPLETE * DATE COMPLETE	3. ARCHITECT/ENGINEER:	Packages A, C, D, F, G: Bur	ns and McDonnell, Raleigh,	North C	arolina		
4. PROJECT STATUS: A. SCHEMATIC DESIGN: DATE INITIATED A. SCHEMATIC DESIGN: DATE INITIATED B. COMPLETE * DATE COMPLETED * DATE COMPLETED * DATE COMPLETED * DATE INITIATED B. PRELIMINARY DESIGN: DATE INITIATED C. January 2019 B. PRELIMINARY DESIGN: DATE INITIATED C. C. January 2019 B. PRELIMINARY DESIGN: DATE INITIATED C. C. January 2019 C. January 2019 C. January 2019 C. January 2019 November-16 C. January 2018 E-G: June 2019 C. January 2019 C. January 2019 C. March 2018 C. March 2018 C. March 2018 D. February 2019 C. CONSTRUCTION DATE INITIATED A. January 2017 D. February 2019 S. COMPLETE D. SCHEDULED BID DATE: D. SCHEDULED BID SCHEDED BID SCHED		Package B, E : HHB Engine	ers, P.C., Prattville, Alabama	a			
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	D. SCHEDULED BID DATE:		A: April 27, 2017				C: TBD
D: April 23, 2019 May 16, 2017 E-G: November 2019			D: April 23, 2019	N	lay 16, 2017	E-G:	November 2019
5. CURRENT PROJECT BUDGET: CURRENT REVISED	5. CURRENT PROJECT BUDGET	:			CURRENT		REVISED
A. PACKAGE A- CAMPUS THERMAL ENERGY EXPANSION \$ 15,626,000 \$ 7,042,197	A. PACKAGE A- CAMPUS T	HERMAL ENERGY EXPANS	SION	\$	15,626,000	\$	7,042,197
B. PACKAGE B - STEAM REPLACEMENT AND HEATING SYSTEM UPGRADE \$ 1,500,000 \$ 1,985,432	B. PACKAGE B - STEAM REI	PLACEMENT AND HEATIN	G SYSTEM UPGRADE	\$	1,500,000	\$	1,985,432
C. PACKAGE C - SOUTH CAMPUS ENERGY PLANT INFRASTRUCTURE \$ - \$ 2,492,034	C. PACKAGE C - SOUTH CA	MPUS ENERGY PLANT INF	FRASTRUCTURE	\$	-	\$	2,492,034
D. PACKAGE D - THERMAL PIPING AT JUDY BONNER DRIVE \$ - \$ 1,721,300	D. PACKAGE D - THERMAL	D. PACKAGE D - THERMAL PIPING AT JUDY BONNER DRIVE			-	\$	1,721,300
E. PACKAGE E - BRYANT DENNY STADIUM THERMAL CONNECTION \$ - \$ 3,000,000	E. PACKAGE E - BRYANT DI	ENNY STADIUM THERMAI	L CONNECTION	\$	-	\$	3,000,000
F. PACKAGE F - TUTWILER THERMAL PIPING DISTRIBUTION \$ - \$ 3,500,000	F. PACKAGE F - TUTWILER	THERMAL PIPING DISTRI	BUTION	\$	-	\$	3,500,000
G. PACKAGE G - EAST QUAD ENERGY PLANT FIT-OUT AND PARHAM/BURKE	G. PACKAGE G - EAST QUA	D ENERGY PLANT FIT-OU	T AND PARHAM/BURKE				
THERMAL CONNECTIONS <u>\$ - \$ 6,819,840</u>	THERMAL CONNECTIONS			\$	-	\$	6,819,840
H. EQUIPMENT - OFCI CHILLERS, COOLING TOWERS, PIPING \$ 800,000 \$ 2,118,000	H. EQUIPMENT - OFCI CHI	H. EQUIPMENT - OFCI CHILLERS, COOLING TOWERS, PIPING			800,000	\$	2,118,000
I. LANDSCAPING \$ 385,529 \$ 385,529	I. LANDSCAPING			\$	385,529	\$	385,529
J. TELECOMMUNICATION/DATA \$ 115,374 \$ 185,579	J. TELECOMMUNICATION/	DATA		\$	115,374	\$	185,579
K. CONTINGENCY* (5%) \$ 915,576 \$ 837,233	K. CONTINGENCY* (5%)			\$	915,576	\$	837,233
L. UA PROJECT MANAGEMENT FEE** (3%) \$ 576,813 \$ 897,047	L. UA PROJECT MANAGEM	ENT FEE** (3%)		\$	576,813	\$	897,047
M. ARCHITECT/ ENGINEER FEE*** \$ 1,054,708 \$ 1,745,261	M. ARCHITECT/ ENGINEER	FEE***		\$	1,054,708	\$	1,745,261
N. OTHER EXPENSES \$ 244,548	N. OTHER EXPENSES					\$	244,548
O. TOTAL PROJECT COST \$ 20,974,000 \$ 32,974,000	O. TOTAL PROJECT COST			\$	20,974,000	\$	32,974,000

\*\*UA Project Management Fee is based on 3% of the total costs of construction for all Packages A through and including Package G, Landscaping, Equipment and Contingency. \*\*\*Architect/Engineer Fee is based on the total sum of: the final contract cost for completed Package A in the fee amount of \$491,223, the final contract cost of \$104,200 for completed

Package B, a lump sum in the amount of \$180,000 for Package C, a lump sum in the amount of \$308,900 for Package D, a lump sum in the amount of \$308,900 for Package D, a lump sum in the amount of \$67,000 for Package E, 6.1% of the total cost of construction for Packages F and G and Equipment Increase, less a credit in the amount of \$115,970 for previous work performed. Work Completed. Actual Final Contract Amount

6. FUNDING/RESOURCES:

#### 2017 GENERAL REVENUE BONDS - \$20,974,000 UNIVERSITY RESERVES - \$8,000,000

	UNIVERSIII RESERVES - \$8,000,000
	UNIVERSITY CONSTRUCTION, RENOVATION AND EQUIPMENT QUASI ENDOWMENT -
	\$4,000,000
7. REMARKS	No contingency is included on previously completed work or purchased equipment
* FINAL AGENCY APPROVAL	SUBMITTED BY:

# **CENTRAL CAMPUS THERMAL ENERGY CONNECTIONS**

# **LOCATION MAP**

