MEMORIAL CITY REDEVELOPMENT AUTHORITY, TIRZ NO. 17,

City of Houston

Agenda and Agenda Materials
Meeting of the Board of Directors

December 6, 2022

JOINT MEETING OF THE BOARD OF DIRECTORS OF THE
TIRZ 17 REDEVELOPMENT AUTHORITY/MEMORIAL CITY REDEVELOPMENT AUTHORITY
and TAX REINVESTMENT ZONE NUMBER SEVENTEEN
HOUSTON, TEXAS

NOTICE is hereby given that the Board of Directors of the TIRZ 17 Redevelopment Authority (aka the Memorial City Redevelopment Authority) and the Tax Reinvestment Zone Number Seventeen, City of Houston, Texas, will hold a joint meeting on **Tuesday, December 6, 2022**, at **8:00 a.m.**, at Hawes Hill & Associates LLP, Spring Branch Conference Room, 9600 Long Point Road, Suite 250, Houston, Texas 77055 ***"Masks Suggested, Social Distancing Recommended"*** public is welcome to attend in person or via Zoom videoconference at: https://us02web.zoom.us/j/87335570270?pwd=YzYraVp2RU0wVExwd1lKTnl3L3J2UT09; or via teleconference at: (346) 248-7799; Meeting ID: **873 3557 0270**; Password: **361145;** open to the public, to consider, discuss, and adopt such orders, resolutions or motions, and take direct actions as may be necessary, convenient, or desirable, with respect to the following matters:

AGENDA

1. Establish quorum and call meeting to order.
2. Receive public comments. (In accordance with City of Houston procedures, a statement of no more than 3 minutes may be made on items of general relevance. However, if a person has spoken regarding a topic within the last 4 meetings, their time will be limited to 1 minute. There will be no yielding of time to another person. State law prohibits the Board Chair or members of the Board from deliberating a topic without an appropriate agenda item being posted in accordance with the Texas Open Meetings Law; therefore, questions or comments will not be addressed. Engaging in verbal attacks or comments intended to insult, abuse, malign or slander any individual shall be cause for termination of time privileges).

   Any public comments must be made in-person at the posted meeting location or submitted in writing by 5:00 p.m. Monday, December 5, 2022, to lclayton@haweshill.com and it will be read aloud during the public comment section.

3. Approve Minutes of the September 27, 2022, regular meeting.
4. Receive financial and bookkeeper's report, including approval of payment of invoices, review of investments, and project cash flow reports; and ratify payment of October invoices.
5. Annual review of Procedures for Continuing Disclosure Compliance.
6. Consider Annual Report and authorize filing of same with appropriate information depositories in accordance with the Authority's Continuing Disclosure of Information Agreement and as required by SEC Rule 15c2-12.
7. CIP Committee:
   a. Project update and recommendations from Gauge Engineering, LLC.
      i. Consider Task Order for Memorial Drive Phase 2, for design services.
   b. Project update from The Goodman Corporation.
   c. Project update from SWA.
8. Adjournment.

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Executive Director for Authority

*Persons with disabilities who plan to attend this meeting and would like to request auxiliary aids or services are requested to contact the Authority's Executive Director at (713) 595-1200 at least three business days prior to the meeting so that the appropriate arrangements can be made. The Board will conduct an in-person meeting at its physical meeting location. As an accommodation during the current levels of transmission during this COVID-19 virus epidemic emergency, the Board is making available a Zoom teleconference and/or videoconference option for members of the public to participate and to address the Board. Members of the Board may participate by videoconference in accordance with requirements of the Texas Open Meetings Act, provided a quorum of the Board meets in-person. Pursuant to V.T.C.A Government Code, Chapter 551, as amended, the Board of Directors may convene in closed session to receive advice from legal counsel and discuss matters relating to pending or contemplated litigation, personnel matters, gifts and donations, real estate transactions, the deployment, or specific occasions for the implementation of, security personnel or devices and or economic development negotiations.

AGENDA MEMORANDUM

TO: Memorial City Redevelopment Authority TIRZ No. 17 Board of Directors

FROM: Executive Director

SUBJECT: Agenda Item Materials

3. Approve Minutes of the September 27, 2022, regular meeting.

MINUTES OF THE JOINT MEETING OF THE
TIRZ 17 REDEVELOPMENT AUTHORITY/MEMORIAL CITY REDEVELOPMENT AUTHORITY and TAX REINVESTMENT ZONE NUMBER SEVENTEEN, CITY OF HOUSTON, TEXAS
BOARD OF DIRECTORS

September 27, 2022

ESTABLISH QUORUM AND CALL MEETING TO ORDER.

The Board of Directors of the TIRZ 17 Redevelopment Authority/Memorial City Redevelopment Authority and Tax Reinvestment Zone Number Seventeen, City of Houston, Texas, held a regular joint meeting at Hawes Hill & Associates LLP, 9600 Long Point Road, Spring Branch District Conference Room, Suite 250, Houston, Texas 77055, open to the public on Tuesday, September 27, 2022, at 8:00 a.m., and open to the public via videoconference, and the roll was called of the duly appointed members of the Board, to-wit:

Position 1 –Andy Iversen
Position 2 – John Rickel, *Vice-Chair*
Position 3 – David P. Durham, *Secretary*
Position 4 – Ann T. Givens, *Chair*
Position 5 – Zachary R. Hodges, *Asst. Secretary*
Position 6 – Brad Freels
Position 7 – Dan Moody III

and all of the above were present, with the exception of Directors Rickel and Hodges, thus constituting a quorum. A quorum of the Board was present in person and Director Iversen attended via videoconference. Also present were Linda Clayton, Hawes Hill & Associates, LLP; Sanjay Bapat, Allen Boone Humphries Robinson, LLP; Jennifer Landreville, ETI Bookkeeping Services; and Joseph Ellis, McCall Gibson Swedlund Barfoot PLLC. Others attending the meeting were Andrew Busker, COH - Economic Development Dept.; James Rains, District G; Council Member Amy Peck, District A; Ben Gillis, Gabrielle Luevano, and Bill Mosley, Memorial Management District; Karen Glynn and Laurie Rosenbaum, City of Bunker Hill; Bert Keller, Harris County Pct. 3; Muhammad Ali, Gauge Engineering; Bruce Nichols; and Lois Myers. Chair Givens called the meeting to order at 8:01 a.m.

RECEIVE PUBLIC COMMENTS.
There were no public comments.

APPROVE MINUTES OF THE JULY 26, 2022, REGULAR MEETING.
Upon a motion made by Director Durham, and seconded by Director Moody, the Board voted unanimously to approve the Minutes of the July 26, 2022, Board meeting, as presented.

APPROVE FY2022 ANNUAL FINANCIAL REPORT AND AUDIT FROM McCALL GIBSON SWEDLUND BARFOOT PLLC.
Mr. Ellis presented the FY2022 Annual Financial Report, included in the Board materials. He reviewed the Independent Auditor's Report and reported an unmodified/clean opinion. He went over pages 3-7, Management's Discussion and Analysis; page 10, Statement of Activities and Governmental Funds Statement of Revenues, Expenditures and Changes in Fund Balance; page 13, Notes to the Financial Statements; and page 28, Schedule of Revenues, Expenditures and Changes in

Fund Balance – Budget and Actual. Upon a motion made by Director Freels, and seconded by Director Durham, the Board voted unanimously to approve the FY2022 Annual Financial Report and Audit.

RECEIVE FINANCIAL AND BOOKKEEPER'S REPORT, INCLUDING APPROVAL OF PAYMENT OF INVOICES, REVIEW OF INVESTMENTS, AND PROJECT CASH FLOW REPORTS; AND RATIFY PAYMENT OF AUGUST INVOICES.

Ms. Landreville presented the Bookkeeper's Report and went over invoices, included in the Board materials. Upon a motion made by Director Moody, and seconded by Director Freels, the Board voted unanimously to accept the Bookkeeper's Report and approved payment of invoices; and ratified payment of August invoices.

CIP COMMITTEE:

a. **Project update and recommendations from Gauge Engineering LLC.**

Mr. Ali reported the City has approved the Design Concept Report and stated we can move into the design for Memorial Drive Phase II. He reported 60% construction plans have been submitted to the City for the W140 Basin Deepening project. He reported Gauge is recommending shifting the location of the pump station from the southwest corner to the northwest corner of the site. He stated this will allow access to the station and is a cost saving due to the outfall pipe. He provided an update on the Memorial Drive Phase I project. He reported the contractor is approximately 90% complete and he anticipates substantial completion at the end of this year.

i. **Consider Task Order for additional geotechnical analysis for W140 Deepening project.**

Mr. Ali reviewed Gauge Engineering Task Order for additional geotechnical analysis for the W140 Detention Pond, a copy is attached hereto as Exhibit "A". He reported moving the pump station to a new location will require additional geotechnical borings and analysis. He reported the task order is in the amount of $27,025.90, and Gauge is recommending for approval. Upon a motion made by Director Durham, and seconded by Director Moody, the Board voted unanimously to approve Gauge Engineering Task Order for additional geotechnical analysis for the W140 Detention Pond, in the amount of $27,025.90, as presented.

b. **Project update from The Goodman Corporation.** The Goodman Corporation's progress reports are in the board materials for review.

c. **Project update from SWA.** SWA Status report is included in the Board materials for review.

ADJOURNMENT.

There being no further business to come before the Board, Chair Givens adjourned the meeting at 8:27 a.m.

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Secretary

List of Exhibits:

A. Gauge Engineering Task Order – additional geotechnical W140 Detention

AGENDA MEMORANDUM

TO: Memorial City Redevelopment Authority TIRZ No. 17 Board of Directors

FROM: Executive Director

SUBJECT: Agenda Item Materials

4. Receive financial and bookkeeper's report, including approval of payment of invoices, review of investments, and project cash flow reports; and ratify payment of October invoices.

Memorial City Redevelopment Authority / TIRZ No. 17
Cash Management Report
October 31, 2022

ETI BOOKKEEPING SERVICES
17111 ROLLING CREEK DRIVE SUITE 108
HOUSTON TX 77090
TELEPHONE 281 444 3384 FAX 281 440 8304

Fiscal Year End: June 30, 2023

Summary

Current Activity	General Operating Fund	Capital Projects Fund	Debt Service Fund	Total
Beginning Balance	18,987,458.36	153,919.69	831,231.23	19,972,609.28
Revenue	179,965.21	242.19	2,014.24	182,221.64
Expenditures	47,117.91	132,694.89	0.00	179,812.80
Ending Balance	19,120,305.66	21,466.99	833,245.47	19,975,018.12

NOTES:

Debt Service Payments due in Fiscal Year End 2023:

Date	Series	Principal	Interest	Total
9/1/2022	2016R	2,975,000.00	195,511.25	3,170,511.25
9/1/2022	2019	2,685,000.00	707,500.00	3,392,500.00
3/1/2023	2016R		159,662.50	159,662.50
3/1/2023	2019		640,375.00	640,375.00
			Total FYE 2022	**7,363,048.75**

General Operating Fund

BEGINNING BALANCE: **18,987,458.36**

REVENUE:

Checking Interest - Wells Fargo	33.93
Texpool Interest	47,209.91
Wells Fargo/TexSTAR (Surplus Funds) Interest	26.48
Due from Bond Series 2019 CPF	132,694.89
Voided Check(s)	0.00
Total Revenue:	**179,965.21**

DISBURSEMENTS:

Checks Presented At Last Meeting	47,028.88
Checks Written at/after Last Meeting	0.00
Bank Fee	89.03
Total Expenditures	**47,117.91**

Ending Balance: **19,120,305.66**

Location of Assets:

Institution	Investment Number	Interest Rate	
Wells Fargo Checking	*5490	0.5000	128,719.26
TexPool	*0001	2.9336	18,980,621.15
Wells Fargo/TexSTAR	TexSTAR Surplus Funds	2.8531	10,965.25
		Total	**19,120,305.66**

Memorial City Redevelopment Authority
Checks Presented
December 6, 2022

Num	Name	Description	Amount
3376	Allen Boone Humphries Robinson LLP	Legal Fees	-4,248.70
3377	Burton Accounting, P.L.L.C.	Auditing Fee	-3,000.00
3378	Equi-Tax, Inc	Tax Assessor/Collector	-262.20
3379	ETI Bookkeeping Services	Bookkeeping Fee	-2,265.55
3380	Gauge Engineering, LLC	Engineering Fee	-5,070.00
3381	Hawes Hill & Associates	Professional Consultant Fee	-20,000.00
3382	McCall Gibson Swedlund Barfoot PLLC	Auditing Fee	-3,500.00
3383	The Goodman Corporation Inc	Consultant Fee	-1,750.00
3384	Gauge Engineering, LLC	Engineering Fee - Capital Projects	-19,768.14
3385	SWA Group	Memorial Dr - Capital Projects	-10,333.88
3386	The Goodman Corporation Inc	Consultant Fee - Capital Projects	-9,070.10
Total			**-79,268.57**

Capital Projects Fund

BEGINNING BALANCE		**153,919.69**
REVENUE		
TexPool Interest	242.19	
Voided Check(s)	0.00	
Total Revenue		**242.19**
EXPENDITURES		
Checks Presented at Last Meeting	0.00	
Transfer to GOF	132,694.89	
Total Expenditures		**132,694.89**
ENDING BALANCE		**21,466.99**

Location of Assets:

Institution	Investment Number	Interest Rate	Current Balance
TexPool	*0005	2.9336	21,466.99
		Total	**21,466.99**

Memorial City Redevelopment Authority
Bonds Series 2019
Use and Distribution

Total 2019 Capital Projects Fund		**32,367,772**
Construction Costs:		
Project #	**Project Name**	
1717	Town & Country W. Drain/Mobility	3,500
1722	Town & Country Blv Signalizatn	1,984
1725	Parks & Green Space Improvements	13,930
1731A	Detention Basin & W-140 Bridge	3,932
1732A	N Gessner Drainage & Mobility	291,996
1734	W-140 Channel Improvements	5,224,447
1735A	Detention Basin A	38,565
1737	MetroNational - Detention / Roads	9,040,378
1737A	TC Blvd Partners	605,160
1738A	Memorial Dr Drain & Mobility 1	11,169,699
1738B	Memorial Dr Drain & Mobility 2	262,458
1741	W140 Detention Expansion	313,409
1737	MetroNational - Detention/Roads	5,335,542.11
Total Less Construction Costs Paid To Date		**32,305,002**

Total	62,771
Interest Earned	91,392
Total Bank Balance	**154,162**

Memorial City Redevelopment Authority
Bond Series 2019
$42,950,709.37

Date	Check Num.	Payee	Reference	Expense Category	Payment Breakdown	Amount Paid	Balance
		Proceeds					**42,950,709.37**
12/20/2019	Wire	Assured Guaranty Municipal Corp	Policy 219833-N	Bond Insurance	208,878.93	323,823.92	42,626,885.45
			Policy 219833-R	Surety Policy	114,944.99		42,626,885.45
12/20/2019	Wire	Masterson Advisors LLC	Inv# 19-310	Financial Advisor		169,834.20	42,457,051.25
12/20/2019	Wire	Allen Boone Humphries Robinson LLP	MEM001-02	Bond Counsel		275,136.95	42,181,914.30
12/20/2019	Wire	Norton Rose Fulbright	Matter 1001092371	Disclosure Counsel		100,000.00	42,081,914.30
12/20/2019	Wire	Standard & Poor's Financial Services	Inv# 11381704	Bond Rating		31,500.00	42,050,414.30
12/20/2019	Wire	Public Finance Partners		Bond Expenses		2,500.00	42,047,914.30
12/20/2019	Wire	Orrick, Herrington & Sutcliffe LLP		Bond Expenses		1,775.00	42,046,139.30
12/20/2019	Wire	Attorney General Fee		Attorney General Fee		9,500.00	42,036,639.30
12/20/2019	Wire	Bank of New York Mellon		Paying Agent Fee		750.00	42,035,889.30
12/20/2019	Wire	Wells Fargo Bank		Redemption of Series 2011	4,383,252.99	9,668,116.99	32,367,772.31
				Redemption of Series 2011A	5,281,364.00		
				Trustee Admin Fee	2,500.00		
				Bond Call Fees	1,000.00		
1/28/2020	3044	Allen Boone Humphries Robinson LLP	Inv# 108391	1717 Town & Country W Drain		263.75	32,367,508.56
			Inv#108067	1738A Memorial Dr Drain & Mobility 1	330.00	3,481.25	32,364,027.31
				1735A Detention Basin A	525.00		
				1717 Town & Country W Drain	1,182.50		
				1722 Town & Country Blc Signalization	1,443.75		
1/28/2020	3045	Charter Title Company	Inv# 1038003895®	1717 Town & Country W Drain		819.00	32,363,208.31
1/28/2020	3048	Gauge Engineering, LLC	Proj#1007 Inv# 012	1735A Detention Basin A	7,445.00	164,586.00	32,198,622.31
			Proj#1005 Inv# 014	1734 W140 Channel Improvements	157,141.00		
1/28/2020	3050	Lockwood, Andrews & Newman, Inc.	Inv#120-11972-000-20	1738A Memorial Dr Drain & Mobility 1	902.16	21,191.49	32,177,430.82
			Inv#120-11972-000-19	1738A Memorial Dr Drain & Mobility 1	20,289.33		
1/28/2020	3051	Reytec Construction Resources, Inc.	Proj#1005 Pay Est 13	1734 W140 Channel Improvements	272,373.55	561,384.45	31,616,046.37
			Proj#1005 Pay Est 14	1734 W140 Channel Improvements	289,010.90		
1/28/2020	3052	Sal Esparza Inc.	Inv# 1164	1731A Detention Basin & W-140 Bridge	1,310.80	3,277.00	31,612,769.37
			Inv# 1165	1731A Detention Basin & W-140 Bridge	1,310.80		
			Inv# 1166	1731A Detention Basin & W-140 Bridge	655.40		
1/28/2020	3053	SEI Commercial Landscape Management	Inv# 1172	1731A Detention Basin & W-140 Bridge		655.40	31,612,113.97
1/28/2020	3054	SWA Group	Inv# 179584	1738A Memorial Dr Drain & Mobility 1	19,967.48	28,881.23	31,583,232.74
			Inv# 179586	1732A N Gessner Drainage & Mobility	6,421.80		
			Inv# 179797	1732A N Gessner Drainage & Mobility	2,491.95		
1/28/2020	3055	The Goodman Corporation Inc.	Inv# 12-2019-8	1738A Memorial Dr Drain & Mobility 1	825.00	2,925.00	31,580,307.74
			Inv# 12-2019-9	1738A Memorial Dr Drain & Mobility 1	2,100.00		
2/25/2020	3058	Gauge Engineering, LLC	Proj#1005 Inv# 015	1734 W140 Channel Improvements	97,163.00	122,154.20	31,458,153.54
			Inv# 1149	1732A N Gessner Drainage & Mobility	24,991.20		
2/25/2020	3060	Lockwood, Andrews & Newman, Inc.	Inv#120-11972-000-21	1738A Memorial Dr Drain & Mobility 1		11,014.89	31,447,138.65
2/25/2020	3061	Reytec Construction Resources, Inc.	Proj#1005 Pay Est 15	1734 W140 Channel Improvements		53,545.99	31,393,592.66
2/25/2020	3062	The Goodman Corporation Inc.	Inv# 1-2020-12	1738A Memorial Dr Drain & Mobility 1	1,500.00	4,650.00	31,388,942.66

Memorial City Redevelopment Authority
Bond Series 2019
$42,950,709.37

			Inv# 1-2020-13	1738A Memorial Dr Drain & Mobility 1	3,150.00			
2/25/2020	3063	SWA Group	Inv# 180193	1732A N Gessner Drainage & Mobility		2,415.00	31,386,527.66	
2/28/2020		**TexStar**		**Interest Earned**		14,968.56	31,401,496.22	
3/26/2020	3069	Allen Boone Humphries Robinson LLP	Inv# 109456	1735A Detention Basin A		135.00	31,401,361.22	
3/26/2020	3070	Gauge Engineering, LLC	Inv# 1164	1732A N Gessner Drainage & Mobility	10,188.90	79,449.37	31,321,911.85	
			Proj#1005 Inv# 016	1734 W140 Channel Improvements	69,260.47			
3/26/2020	3071	Lockwood, Andrews & Newman, Inc.	Inv#120-11972-000-22	1738A Memorial Dr Drain & Mobility 1		21,418.81	31,300,493.04	
3/26/2020	3072	Reytec Construction Resources, Inc.	Proj#1005 Pay Est 16	1734 W140 Channel Improvements		299,505.45	31,000,987.59	
3/26/2020	3073	SWA Group	Inv# 180164	1734 W140 Channel Improvements	1,715.00	7,460.25	30,993,527.34	
			Inv# 180471	1732A N Gessner Drainage & Mobility	5,745.25			
3/4/2020		**TexStar**		**Interest Earned**		4,024.37	30,997,551.71	
3/31/2020		**TexPool**		**Interest Earned**		22,692.86	31,020,244.57	
4/28/2020	3078	Gauge Engineering, LLC	Inv# 1181	1732A N Gessner Drainage & Mobility	15,816.85	76,711.99	30,943,532.58	
			Proj#1005 Inv# 017	1734 W140 Channel Improvements	60,895.14			
4/28/2020	3079	Reytec Construction Resources, Inc.	Proj#1005 Pay Est 17	1734 W140 Channel Improvements		214,026.76	30,729,505.82	
4/28/2020	3080	SWA Group	Inv# 180756	1732A N Gessner Drainage & Mobility		7,125.06	30,722,380.76	
4/28/2020	WIRE	Metro National Corporation	Lipex Properties	1737 MetroNational - Detention / Road		3,013,459.49	27,708,921.27	
4/30/2020		**TexPool**		**Interest Earned**		11,492.98	27,720,414.25	
5/26/2020	3085	Gauge Engineering, LLC	Inv#013 Proj# 1007	1735A Detention Basin A	12,177.00	74,728.60	27,645,685.65	
			Inv# 1193	1732A N Gessner Drainage & Mobility	19,186.92			
			Inv# 018 Proj# 1005	1734 W140 Channel Improvements	43,364.68			
5/26/2020	3086	Lockwood, Andrews & Newman, Inc.	Reimbursement Scope	1738A Memorial Dr Drain & Mobility 1	45,000.00	76,204.00	27,569,481.65	
			Inv# 120-11972-000-23	1738A Memorial Dr Drain & Mobility 1	31,204.00			
5/26/2020	3087	Rapid Research, Inc.	Inv# 6305	1734 W140 Channel Improvements		214.50	27,569,267.15	
5/26/2020	3088	Reytec Construction Resources, Inc.	Proj#1005 Pay Est 18	1734 W140 Channel Improvements		86,683.90	27,482,583.25	
5/26/2020	3089	SWA Group	Inv# 181078	1732A N Gessner Drainage & Mobility		8,370.54	27,474,212.71	
5/26/2020	3090	The Goodman Corporation Inc.	Inv# 4-2020-25	1738A Memorial Dr Drain & Mobility 1		1,926.00	27,472,286.71	
5/31/2020		**TexPool**		**Interest Earned**		6,303.57	27,478,590.28	
6/30/2020	3096	Allen Boone Humphries Robinson LLP	Inv#111451	1734 W140 Channel Improvements	405.00	810.00	27,477,780.28	
			Inv#111451	1735A Detention Basin A	405.00			
6/30/2020	3097	Gauge Engineering, LLC	Inv# 014 Proj# 1007	1735A Detention Basin A	5,000.00	81,632.04	27,396,148.24	
			Inv# 1209	1732A N Gessner Drainage & Mobility	18,591.04			
			Inv# 019 Proj# 1005	1734 W140 Channel Improvements	58,041.00			
6/30/2020	3098	Reytec Construction Resources, Inc.	Proj#1005 Pay Est 19	1734 W140 Channel Improvements		145,438.31	27,250,709.93	
6/30/2020	3099	SWA Group	Inv# 181317	1738A Memorial Dr Drain & Mobility 1	19,196.80	25,895.68	27,224,814.25	
			Inv# 181306	1734 W140 Channel Improvements	2,542.44			
			Inv# 181369	1732A N Gessner Drainage & Mobility	1,898.22			
			Inv# 181373	1732A N Gessner Drainage & Mobility	2,258.22			
6/30/2020	3100	VOID CHECK						
6/30/2020		**TexPool**		**Interest Earned**		4,570.51	27,229,384.76	
7/7/2020	WIRE	Texas Department of Transportation	CSJ:0912-72-391	1738A Memorial Dr Drain & Mobility 1		10,682,908.81	16,546,475.95	
7/28/2020	3111	Allen Boone Humphries Robinson LLP	Inv# 112636	1734 W140 Channel Improvements		540.00	16,545,935.95	
7/28/2020	3112	Gauge Engineering, LLC	Inv# 015 Proj# 1007	1735A Detention Basin A	4,575.00	54,754.74	16,491,181.21	

Memorial City Redevelopment Authority
Bond Series 2019
$42,950,709.37

			Inv# 1221	1732A N Gessner Drainage & Mobility	15,749.40			
			Inv# 020 Proj# 1005	1734 W140 Channel Improvements	34,430.34			
7/28/2020	3113	Reytec Construction Resources, Inc.	Proj#1005 Pay Est 20	1734 W140 Channel Improvements		29,146.00	16,462,035.21	
7/28/2020	3114	SWA Group	Inv# 181788	1732A N Gessner Drainage & Mobility	5,142.86	8,130.01	16,453,905.20	
			Inv# 181854	1738A Memorial Dr Drain & Mobility 1	2,987.15			
7/31/2020		**TexPool**		**Interest Earned**		2,920.71	16,456,825.91	
8/25/2020	3120	Allen Boone Humphries Robinson LLP	Inv# 113336	1734 W140 Channel Improvements		135.00	16,456,690.91	
8/25/2020	3121	Gauge Engineering, LLC	Inv# 1241 Proj# 1071	1741 W140 Detention Expansion	8,868.60	73,753.70	16,382,937.21	
			Inv# 016 Proj# 1007	1735A Detention Basin A	2,900.00			
			Inv# 1240 Proj# 1041	1732A N Gessner Drainage & Mobility	23,656.60			
			Inv# 021 Proj# 1005	1734 W140 Channel Improvements	38,325.50			
8/25/2020	3122	Reytec Construction Resources, Inc.	Proj#1005 Pay Est 21	1734 W140 Channel Improvements		310,175.23	16,072,761.98	
8/25/2020	3123	SWA Group	Inv# 182144	1732A N Gessner Drainage & Mobility	3,605.00	6,055.00	16,066,706.98	
			Inv# 182145	1738A Memorial Dr Drain & Mobility 1	2,450.00			
8/25/2020	3124	SWA Group	Inv# 182151	1725 Parks & Green Space Improvements		9,100.00	16,057,606.98	
8/31/2020		**TexPool**		**Interest Earned**		2,447.66	16,060,054.64	
9/29/2020	3131	Gauge Engineering, LLC	Inv# 1263 Proj# 1041	1732A N Gessner Drainage & Mobility	17,993.60	80,147.96	15,979,906.68	
			Inv# 022 Proj# 1005	1734 W140 Channel Improvements	42,495.26			
			Inv# 017 Proj# 1007	1735A Detention Basin A	3,400.00			
			Inv# 1264 Proj# 1071	1741 W140 Detention Expansion	16,259.10			
9/29/2020	3132	Reytec Construction Resources, Inc.	Proj#1005 Pay Est 22	1734 W140 Channel Improvements		297,772.83	15,682,133.85	
9/29/2020	3133	SWA Group	Inv# 182451	1732A N Gessner Drainage & Mobility	2,695.00	4,659.04	15,677,474.81	
			Inv# 182440	1734 W140 Channel Improvements	1,964.04			
9/30/2020		**TexPool**		**Interest Earned**		1,935.23	15,679,410.04	
10/27/2020	3142	Allen Boone Humphries Robinson LLP	Inv# 114096	1734 W140 Channel Improvements		135.00	15,679,275.04	
10/27/2020	3143	Gauge Engineering, LLC	Inv# 1280 Proj# 1070	1738A Memorial Dr Drain & Mobility 1	23,187.00	139,560.47	15,539,714.57	
			Inv# 023 Proj# 1005	1734 W140 Channel Improvements	31,827.16			
			Inv# 1264 Proj# 1041	1732A N Gessner Drainage & Mobility	28,121.96			
			Inv# 018 Proj# 1007	1735A Detention Basin A	1,728.20			
			Inv# 1281 Proj# 1071	1741 W140 Detention Expansion	54,696.15			
10/27/2020	3144	Reytec Construction Resources, Inc.	Proj#1005 Pay Est 23	1734 W140 Channel Improvements		15,727.69	15,523,986.88	
10/27/2020	3145	SWA Group	Inv# 182686	1732A N Gessner Drainage & Mobility	3,205.30	14,017.59	15,509,969.29	
			Inv# 182687	1738A Memorial Dr Drain & Mobility 1	2,280.81			
			Inv# 182709	1734 W140 Channel Improvements	8,531.48			
10/31/2020		**TexPool**		**Interest Earned**		1,771.19	15,511,740.48	
11/30/2020		**TexPool**		**Interest Earned**		1,569.46	15,513,309.94	
12/8/2020	3152	Allen Boone Humphries Robinson LLP	Inv# 115229	1732A N Gessner Drainage & Mobility	540.00	675.00	15,512,634.94	
				1722 Town & Country Blv Signalizatn	135.00			
12/8/2020	3153	Gauge Engineering, LLC	Inv# 1312 Proj# 1071	1741 W140 Detention Expansion	37,691.55	136,625.16	15,376,009.78	
			Inv# 1312 Proj# 1070	1738A Memorial Dr Drain & Mobility 1	15,125.62			
			Inv# 024 Proj# 1005	1734 W140 Channel Improvements	56,648.15			
			Inv# 1311 Proj# 1041	1732A N Gessner Drainage & Mobility	27,159.84			
12/8/2020	3154	Reytec Construction Resources, Inc.	Proj#1005 Pay Est 24	1734 W140 Channel Improvements		149,276.60	15,226,733.18	

Memorial City Redevelopment Authority
Bond Series 2019
$42,950,709.37

12/8/2020	3155	SWA Group	Inv# 183082	1732A N Gessner Drainage & Mobility	2,948.22	8,852.34	15,217,880.84	
			Inv# 183083	1738A Memorial Dr Drain & Mobility 1	2,795.40			
			Inv# 183093	1734 W140 Channel Improvements	3,108.72			
12/31/2020		**TexPool**		**Interest Earned**		1,177.23	15,219,058.07	
1/26/2021	3163	Allen Boone Humphries Robinson LLP	Inv# 116145	1738A Memorial Dr Drain & Mobility 1	945.00	1,485.00	15,217,573.07	
				1722 Town & Country Blv Signalizatn	405.00			
			Inv# 116797	1717 Town & Country W Drain	135.00			
1/26/2021	3164	Gauge Engineering, LLC	Inv# 25-(1361)	1734 W140 Channel Improvements	56,093.80	118,586.24	15,098,986.83	
			Inv# 1357	1741 W140 Detention Expansion	41,797.60			
			Inv# 1355	1732A N Gessner Drainage & Mobility	6,747.60			
			Inv# 1356	1738A Memorial Dr Drain & Mobility 1	13,947.24			
1/26/2021	3165	Reytec Construction Resources, Inc.	Proj#1005 Pay Est 25	1734 W140 Channel Improvements	96,862.72	400,179.93	14,698,806.90	
			Proj#1005 Pay Est 26	1734 W140 Channel Improvements	303,317.21			
1/26/2021	3166	SWA Group	Inv# 183361	1732A N Gessner Drainage & Mobility	1,785.00	6,968.95	14,691,837.95	
			Inv# 183362	1738A Memorial Dr Drain & Mobility 1	2,322.25			
			Inv# 183386	1734 W140 Channel Improvements	936.70			
			Inv# 183699	1732A N Gessner Drainage & Mobility	1,925.00			
1/31/2021		**TexPool**		**Interest Earned**		1,015.14	14,692,853.09	
2/23/2021	3172	Allen Boone Humphries Robinson LLP	Inv# 117438	1717 Town & Country W Drain	550.00	550.00	14,692,303.09	
2/23/2021	3173	Gauge Engineering, LLC	Inv# 1389	1732A N Gessner Drainage & Mobility	13,909.29	52,483.14	14,639,819.95	
			Inv# 1390	1738A Memorial Dr Drain & Mobility 1	3,478.05			
			Inv# 1391	1741 W140 Detention Expansion	10,346.70			
			Inv# 26-(1388)	1734 W140 Channel Improvements	24,749.10			
2/23/2021	3174	Reytec Construction Resources, Inc.	Proj# 1005 Pay Est 27	1734 W140 Channel Improvements	259,213.42	616,142.83	14,023,677.12	
			Proj# 1005 Pay Est 27A	1734 W140 Channel Improvements	356,929.41			
2/23/2021	3175	SWA Group	Inv# 184020	1738A Memorial Dr Drain & Mobility 1	3,430.00	3,430.00	14,020,247.12	
2/28/2021		**TexPool**		**Interest Earned**		482.18	14,020,729.30	
3/29/2021	WIRE	TC Blvd Partners II, LLC		1737A TC Blvd Partners	605,160.00	605,160.00	13,415,569.30	
3/30/2021	3181	Allen Boone Humphries Robinson LLP	Inv# 118269	1717 Town & Country W Drain	137.50	275.00	13,415,294.30	
			Inv# 118269	1735A Detention Basin A	137.50			
3/30/2021	3182	Gauge Engineering, LLC	Inv# 1414	1732A N Gessner Drainage & Mobility	6,747.60	47,355.20	13,367,939.10	
			Inv# 1415	1738A Memorial Dr Drain & Mobility 1	7,052.50			
			Inv# 1416	1741 W140 Detention Expansion	4,794.30			
			Inv# 27-(1417)	1734 W140 Channel Improvements	28,760.80			
3/30/2021	3183	Reytec Construction Resources, Inc.	Proj# 1005 Pay Est 28	1734 W140 Channel Improvements	169,194.57	439,563.12	12,928,375.98	
			Proj# 1005 Pay Est 28A	1734 W140 Channel Improvements	270,368.55			
3/30/2021	3184	SWA Group	Inv# 184419	1732A N Gessner Drainage & Mobility	1,463.70	1,463.70	12,926,912.28	
3/31/2021		**TexPool**		**Interest Earned**		220.77	12,927,133.05	
4/27/2021	3190	Allen Boone Humphries Robinson LLP	Inv# 118868	1734 W140 Channel Improvements	137.50	1,100.00	12,926,033.05	
				1732A N Gessner Drainage & Mobility	550.00			
				1717 Town & Country W Drain	412.50			
4/27/2021	3191	Gauge Engineering, LLC	Inv# 28-(1441)	1734 W140 Channel Improvements	28,855.80	37,374.85	12,888,658.20	
			Inv# 1440	1738A Memorial Dr Drain & Mobility 1	8,519.05			

Memorial City Redevelopment Authority
Bond Series 2019
$42,950,709.37

4/27/2021	3192	Reytec Construction Resources, Inc.	Proj# 1005 Pay Est 29	1734 W140 Channel Improvements	111,727.47	111,727.47	12,776,930.73	
4/27/2021	3193	SWA Group	Inv# 184765	1738A Memorial Dr Drain & Mobility 1	5,570.33	5,570.33	12,771,360.40	
4/30/2021		**TexPool**		**Interest Earned**		142.74	12,771,503.14	
5/25/2021	3199	Allen Boone Humphries Robinson LLP	Inv# 119495	1734 W140 Channel Improvements	1,237.50	3,162.50	12,768,340.64	
				1738A Memorial Dr Drain & Mobility 1	1,925.00			
5/25/2021	3200	Gauge Engineering, LLC	Inv# 1472	1732A N Gessner Drainage & Mobility	524.52	35,848.52	12,732,492.12	
			Inv# 1473	1738A Memorial Dr Drain & Mobility 1	9,847.30			
			Inv# 29- (1471)	1734 W140 Channel Improvements	25,476.70			
5/25/2021	3201	Reytec Construction Resources, Inc.	Proj#1005 Pay Est 30	1734 W140 Channel Improvements	37,085.49	218,897.64	12,513,594.48	
			Proj#1005 Pay Est 30A	1734 W140 Channel Improvements	181,812.15			
5/25/2021	3202	SWA Group	Inv# 185128	1738A Memorial Dr Drain & Mobility 1	1,563.31	1,563.31	12,512,031.17	
5/31/2021		**TexPool**		**Interest Earned**		109.73	12,512,140.90	
6/29/2021	3210	Allen Boone Humphries Robinson LLP	Inv# 120416	1734 W140 Channel Improvements	687.50	1,650.00	12,510,490.90	
				1738A Memorial Dr Drain & Mobility 1	962.50			
6/29/2021	3211	Gauge Engineering, LLC	Inv# 30-(1507)	1734 W140 Channel Improvements	11,776.75	27,225.95	12,483,264.95	
			Inv# 1505	1738A Memorial Dr Drain & Mobility 1	15,449.20			
6/29/2021	3212	Reytec Construction Resources, Inc.	Inv# 1805	1734 W140 Channel Improvements	8,895.50	17,791.00	12,465,473.95	
			Inv# 1807	1734 W140 Channel Improvements	8,895.50			
6/29/2021	3213	SWA Group	Inv# 185516	1738A Memorial Dr Drain & Mobility 1	1,180.39	1,180.39	12,464,293.56	
6/30/2021		**TexPool**		**Interest Earned**		134.32	12,464,427.88	
7/27/2021	3220	Allen Boone Humphries Robinson LLP	Inv# 121070	1738A Memorial Dr Drain & Mobility 1	137.50	137.50	12,464,290.38	
7/27/2021	3221	Gauge Engineering, LLC	Inv# 1538	1732A N Gessner Drainage & Mobility	1,000.00	26,636.67	12,437,653.71	
			Inv# 1539	1738A Memorial Dr Drain & Mobility 1	13,953.08			
			Inv# 1540	1738B Memorial Dr Drain & Mobility 2	1,188.54			
			Inv# 31	1734 W140 Channel Improvements	10,495.05			
7/27/2021	3222	Reytec Construction Resources, Inc.	Inv# 1846	1734 W140 Channel Improvements	8,895.50	8,895.50	12,428,758.21	
7/27/2021	3223	SWA Group	Inv# 185919	1738A Memorial Dr Drain & Mobility 1	2,838.66	2,838.66	12,425,919.55	
7/27/2021	3224	Wheatley Investments, Inc	Jul-21	1738A Memorial Dr Drain & Mobility 1	11,171.00	11,171.00	12,414,748.55	
		TexPool		**Interest Earned**		199.70	12,414,948.25	
8/31/2021	3230	Allen Boone Humphries Robinson LLP	Inv# 121819	1738A Memorial Dr Drain & Mobility 1	412.50	412.50	12,414,535.75	
8/31/2021	3231	Gauge Engineering, LLC	Inv# 1567	1732A N Gessner Drainage & Mobility	769.20	43,962.11	12,370,573.64	
			Inv# 1568	1738A Memorial Dr Drain & Mobility 1	25,529.55			
			Inv# 1569	1738B Memorial Dr Drain & Mobility 2	17,663.36			
8/31/2021	3232	Reytec Construction Resources, Inc.	Proj#1005 Pay Est 31	1734 W140 Channel Improvements	99,950.65	108,846.15	12,261,727.49	
			Inv# 1858	1734 W140 Channel Improvements	8,895.50			
8/31/2021	3233	SWA Group	Inv# 186325	1738A Memorial Dr Drain & Mobility 1	1,000.50	1,000.50	12,260,726.99	
		TexPool		**Interest Earned**		233.33	12,260,960.32	
9/3/2021	WIRE	Metro National Corporation		1737 MetroNational - Detention / Road	3,013,459.49	6,026,918.98	6,234,041.34	
				1737 MetroNational - Detention / Road	3,013,459.49			
9/28/2021	3242	Allen Boone Humphries Robinson LLP	Inv# 122408	1738A Memorial Dr Drain & Mobility 1	687.50	687.50	6,233,353.84	
9/28/2021	3243	Gauge Engineering, LLC	Inv# 1600	1732A N Gessner Drainage & Mobility	255.48	54,669.02	6,178,684.82	
			Inv# 1601	1738A Memorial Dr Drain & Mobility 1	19,304.54			
			Inv# 1602	1738B Memorial Dr Drain & Mobility 2	35,109.00			

Memorial City Redevelopment Authority
Bond Series 2019
$42,950,709.37

9/28/2021	3244	Reytec Construction Resources, Inc.	Inv# 1886	1734 W140 Channel Improvements	8,895.50	8,895.50	6,169,789.32	
9/28/2021	3245	SWA Group	Inv# 186666	1738A Memorial Dr Drain & Mobility 1	1,692.66	1,692.66	6,168,096.66	
		TexPool		**Interest Earned**		149.78	6,168,246.44	
10/26/2021	3253	Allen Boone Humphries Robinson LLP	Inv# 123124	1735A Detention Basin A	137.50	275.00	6,167,971.44	
				1738A Memorial Dr Drain & Mobility 1	137.50			
10/26/2021	3254	Gauge Engineering, LLC	Inv# 1629	1738A Memorial Dr Drain & Mobility 1	10,434.15	45,367.13	6,122,604.31	
			Inv# 1630	1738B Memorial Dr Drain & Mobility 2	34,932.98			
10/26/2021	3255	Reytec Construction Resources, Inc.	Inv# 1919	1734 W140 Channel Improvements	8,895.50	8,895.50	6,113,708.81	
10/26/2021	3256	SWA Group	Inv# 187071	1738A Memorial Dr Drain & Mobility 1	1,510.32	1,510.32	6,112,198.49	
10/29/2022	Wire	JP Morgan Chase Bank		1738A Memorial Dr Drain & Mobility 1	13,400.00	13,400.00	6,098,798.49	
		TexPool		**Interest Earned**		374.83	6,099,173.32	
12/7/2021	3265	Allen Boone Humphries Robinson LLP	Inv# 123998	1738A Memorial Dr Drain & Mobility 1	275.00	275.00	6,098,898.32	
12/7/2021	3266	Gauge Engineering, LLC	Inv# 1674	1738A Memorial Dr Drain & Mobility 1	11,193.92	41,897.24	6,057,001.08	
		Gauge Engineering, LLC	Inv# 1675	1738B Memorial Dr Drain & Mobility 2	30,703.32			
12/7/2021	3267	Reytec Construction Resources, Inc.	Inv# 1943	1734 W140 Channel Improvements	8,895.50	8,895.50	6,048,105.58	
	3270	Reytec Construction Resources, Inc.	Inv# 1971	1734 W140 Channel Improvements	8,895.50	8,895.50	6,039,210.08	
12/7/2021	3268	SWA Group	Inv# 187485	1738A Memorial Dr Drain & Mobility 1	1,225.00	1,225.00	6,037,985.08	
12/7/2021	3269	The Goodman Corporation Inc.	Inv# 11-2021-3	1738B Memorial Dr Drain & Mobility 2	690.00	690.00	6,037,295.08	
		TexPool		**Interest Earned**		192.54	6,037,487.62	
1/25/2022	3277	Gauge Engineering, LLC	Inv# 1730	1738A Memorial Dr Drain & Mobility 1	10,115.00	10,115.00	6,027,372.62	
1/25/2022	3276	Gauge Engineering, LLC	Inv# 1731	1738B Memorial Dr Drain & Mobility 2	27,057.60	27,057.60	6,000,315.02	
1/25/2022	3278	Reytec Construction Resources, Inc.	Inv# 12007	1734 W140 Channel Improvements	8,895.50	8,895.50	5,991,419.52	
1/25/2022	3279	SWA Group	Inv# 187971	1738A Memorial Dr Drain & Mobility 1	2,457.64	2,457.64	5,988,961.88	
1/25/2022	3280	The Goodman Corporation Inc.	Inv# 12-2021-23	1738B Memorial Dr Drain & Mobility 2	345.00	345.00	5,988,616.88	
		TexPool		**Interest Earned**		192.08	5,988,808.96	
2/22/2022	3286	Gauge Engineering, LLC	Inv# 1770	1155 W140 Expansion	10,522.75	10,522.75	5,978,286.21	
2/22/2022	3287	Gauge Engineering, LLC	Inv# 1769	1125 Memorial Drive Phase II	23,629.65	23,629.65	5,954,656.56	
2/22/2022	3288	Gauge Engineering, LLC	Inv# 1768	1070 Memorial Drive Construction Phase II	16,928.60	16,928.60	5,937,727.96	
2/22/2022	3289	Reytec Construction Resources, Inc.	Inv# 2093	1734 W140 Channel Improvements	8,895.50	8,895.50	5,928,832.46	
2/22/2022	2890	Reytec Construction Resources, Inc.	Inv# 2092	1734 W140 Channel Improvements	8,895.50	8,895.50	5,919,936.96	
2/22/2022	3291	The Goodman Corporation Inc.	Inv# 1-2022-23	Memorial Dr Phase II	690.00	690.00	5,919,246.96	
		TexPool		**Interest Earned**		284.44	5,919,531.40	
3/29/2022	3296	Reytec Construction Resources, Inc.	Inv# 2122	1734 W140 Channel Improvements	8,895.50	8,895.50	5,910,635.90	
3/29/2022	3297	SWA Group	Inv# 188862	Memorial Dr Contrsuction	2,452.00	2,452.00	5,908,183.90	
3/29/2022	3298	The Goodman Corporation Inc.	Inv# 2-2022-7	Memorial Dr Phase II	1,725.00	1,725.00	5,906,458.90	
3/29/2022	3300	Gauge Engineering, LLC	Inv# 1810	1155 W140 Expansion	22,793.25	22,793.25	5,883,665.65	
3/29/2022	3301	Gauge Engineering, LLC	Inv# 1809	1125 Memorial Drive Phase II	21,260.55	21,260.55	5,862,405.10	
3/29/2022	3302	Gauge Engineering, LLC	Inv# 1808	1070 Memorial Drive Construction Phase	11,599.35	11,599.35	5,850,805.75	
		TexPool		**Interest Earned**		772.09	5,851,577.84	
4/26/2022	3310	Reytec Construction Resources, Inc.	Inv# 2160	1734 W140 Channel Improvements	8,895.50	8,895.50	5,842,682.34	
4/26/2022	3311	SWA Group	Inv# 189557	Memorial Dr Contrsuction	3,722.54	3,722.54	5,838,959.80	
4/26/2022	3312	The Goodman Corporation Inc.	Inv# 3-2022-2	Memorial Dr Phase II	3,450.00	3,450.00	5,835,509.80	88,171.66
4/26/2022	3309	Gauge Engineering, LLC	Inv# 1839	1155 W140 Expansion	29,263.79	29,263.79	5,806,246.01	

Memorial City Redevelopment Authority
Bond Series 2019
$42,950,709.37

4/26/2022	3309	Gauge Engineering, LLC	Inv# 1838	1125 Memorial Drive Phase II	25,843.13	25,843.13	5,780,402.88	
4/26/2022	3309	Gauge Engineering, LLC	Inv# 1837	1070 Memorial Drive Construction Phase	16,996.70	16,996.70	5,763,406.18	
		TexPool		**Interest Earned**		1,464.65	5,764,870.83	
5/31/2022	3317	Reytec Construction Resources, Inc.	Inv# 2199	1734 W140 Channel Improvements	8,895.50	8,895.50	5,755,975.33	
5/31/2022	3318	SWA Group	Inv# 189976	Memorial Dr Contrsuction	1,592.50	1,592.50	5,754,382.83	
5/31/2022	3319	The Goodman Corporation Inc.	Inv# 4-2022-4	Memorial Dr Phase II	690.00	690.00	5,753,692.83	
5/31/2022	3319	The Goodman Corporation Inc.	Inv# 4-2022-5	Memorial Dr Phase II	1,943.60	1,943.60	5,751,749.23	
5/31/2022	3320	Gauge Engineering, LLC	Inv# 1873	1155 W140 Expansion	13,927.73	13,927.73	5,737,821.50	
5/31/2022	3320	Gauge Engineering, LLC	Inv# 1872	1125 Memorial Drive Phase II	9,205.20	9,205.90	5,728,615.60	
5/31/2022	3320	Gauge Engineering, LLC	Inv# 1871	1070 Memorial Drive Construction Phase	12,918.30	12,918.30	5,715,697.30	
5/31/2022	3322	The Goodman Corporation Inc.	Inv# 5-2022-1	Memorial Dr Phase II	345.00	345.00	5,715,352.30	
		TexPool		**Interest Earned**		1,464.65	5,716,816.95	
6/28/2022	3331	Reytec Construction Resources, Inc.	Inv# 2224	1734 W140 Channel Improvements	8,895.50	8,895.50	5,707,921.45	
6/28/2022	3324	SWA Group	Inv# 190406	Memorial Dr Contrsuction	2,599.24	2,599.24	5,705,322.21	
6/28/2022	3323	Gauge Engineering, LLC	Inv# 1904	1155 W140 Expansion	43,239.17	43,239.17	5,662,083.04	
6/28/2022	3323	Gauge Engineering, LLC	Inv# 1903	1125 Memorial Drive Phase II	4,129.80	4,129.80	5,657,953.24	
6/28/2022	3323	Gauge Engineering, LLC	Inv# 1902	1070 Memorial Drive Construction Phase	5,796.75	5,796.75	5,652,156.49	
		TexPool		**Interest Earned**		3,040.68	5,655,197.17	
7/15/2022	Wire	Metro National Corporation	June 2022	Conrad Sauer Detention Pond/Mathewson I	5,335,542.11	5,335,542.11	319,655.06	
7/26/2022	3342	SWA Group	Inv# 190979	Memorial Dr Contrsuction	3,075.50	3,075.50	316,579.56	
7/26/2022	3340	Gauge Engineering, LLC	Inv# 1943	1125 Memorial Drive Phase II	2,022.57	2,022.57	314,556.99	
7/26/2022	3340	Gauge Engineering, LLC	Inv# 1944	1070 Memorial Drive Construction Phase	2,636.80	2,636.80	311,920.19	
7/26/2022	3340	Gauge Engineering, LLC	Inv# 1946	1155 W140 Expansion	82,535.40	82,535.40	229,384.79	
7/26/2022	3343	The Goodman Corporation Inc.	Inv# 6-2022-48	Memorial Dr Phase II	1,725.00	1,725.00	227,659.79	
7/26/2022	3341	Reytec Construction Resources, Inc.	Inv# 2256	1734 W140 Channel Improvements	8,895.50	8,895.50	218,764.29	
		TexPool		**Interest Earned**		4,684.06	223,448.35	
8/23/2022	3350	Gauge Engineering, LLC	Inv# 1987	1070 Memorial Drive Construction Phase	3,965.73	3,965.73	219,482.62	
8/23/2022	3350	Gauge Engineering, LLC	Inv# 1988	1155 W140 Expansion	13,379.41	13,379.41	206,103.21	
8/23/2022	3351	Reytec Construction Resources, Inc.	Inv# 2290	Briar Branch Maintenance	8,895.50	8,895.50	197,207.71	
8/23/2022	3352	SWA Group	Inv# 191323	Memorial Dr Contrsuction	2,597.98	2,597.98	194,609.73	
8/23/2022	3353	The Goodman Corporation Inc.	Inv# 7-2022-29	Memorial Dr Phase II	2,415.00	2,415.00	192,194.73	
8/23/2022	3353	The Goodman Corporation Inc.	Inv# 7-2022-30	W140 Detention Basin	2,850.60	2,850.60	189,344.13	
		TexPool		**Interest Earned**		1,409.26	190,753.39	
9/27/2022	3363	Gauge Engineering, LLC	Inv# 2024	1155 W140 Expansion	129,485.37	129,485.37	61,268.02	
9/27/2022	3363	Gauge Engineering, LLC	Inv# 2023	1070 Memorial Drive Construction Phase	4,631.26	4,631.26	56,636.76	
9/27/2022	3364	Reytec Construction Resources, Inc.	Inv# 2333	Briar Branch Maintenance	5,395.50	5,395.50	51,241.26	
9/27/2022	3365	The Goodman Corporation Inc.	Inv# 8-2022-12	Memorial Dr Phase II	1,035.00	1,035.00	50,206.26	
		TexPool		**Interest Earned**		1,409.26	51,615.52	
10/25/2022	3373	Gauge Engineering, LLC	Inv# 2064	1155 W140 Expansion	15,827.47	15,827.47	35,788.05	
10/25/2022	3373	Gauge Engineering, LLC	Inv# 2063	1070 Memorial Drive Construction Phase	9,891.15	9,891.15	25,896.90	
10/25/2022	3374	Reytec Construction Resources, Inc.	Inv# 2374	Briar Branch Maintenance	5,395.50	5,395.50	20,501.40	
10/25/2022	3375	The Goodman Corporation Inc.	Inv# 9-2022-7	Memorial Dr Phase II	690.00	690.00	19,811.40	
		TexPool		**Interest Earned**		476.69	20,288.09	

Memorial City Redevelopment Authority
Bond Series 2019
$42,950,709.37

12/6/2022	3384	Gauge Engineering, LLC	Inv# 2103	1070 Memorial Drive Construction Phase	12,155.60	12,155.60	8,132.49	
12/6/2022	3384	Gauge Engineering, LLC	Inv# 2104	1155 W140 Expansion	7,612.54	7,612.54	519.95	
12/6/2022	3385	SWA Group	Inv# 192169	Memorial Dr Contrsuction	3,700.88	3,700.88	(3,180.93)	
12/6/2022	3386	SWA Group	Inv# 192483	Memorial Dr Contrsuction	6,633.00	6,633.00	(9,813.93)	
12/6/2022	3387	The Goodman Corporation Inc.	Inv# 10-2022-12	Memorial Dr Phase II	9,070.10	9,070.10	(18,884.03)	
		TexPool		**Interest Earned**		242.19	(18,641.84)	

Debt Service Fund

BEGINNING BALANCE		**831,231.23**
REVENUE		
TexPool DSF Interest	8.20	
Wells Fargo/TexSTAR (2008 PR) Interest	11.98	
Wells Fargo/TexSTAR (2008 DSF) Interest	1,994.06	
Total Revenue		**2,014.24**
EXPENDITURES		
Due to GOF	0.00	
Debt Service Interest Payment	0.00	
Debt Service Principal Payment	0.00	
Total Expenditures		**0.00**
ENDING BALANCE		**833,245.47**

Location of Assets:

Institution	Investment Number	Interest Rate	Current Balance
Wells Fargo *4601	TexSTAR 2008 DSF	2.8531	824,985.96
Wells Fargo *4600	TexSTAR 2008 Pledged Rev	2.8531	4,956.72
TexPool	*0004	2.9336	3,302.79
		Total	**833,245.47**

Memorial City Redevelopment Authority
Investment Report
October 31, 2022

SCHEDULE OF INVESTMENTS

Investment Pools

Fund	Location Of Assets	Interest Rate	Beginning Balance Market	Beginning Balance N.A.V.	Beginning Balance Book	Interest Earned	Deposits or (Withdrawals)	Ending Balance Market	Ending Balance N.A.V.	Ending Balance Book
GOF	TexPool	2.9336	18,939,724.93	0.99942	18,950,716.35	47,209.91	(17,305.11)	18,968,473.55	0.99936	18,980,621.15
DSF	TexPool	2.9336	3,292.68	0.99942	3,294.59	8.20	(0.00)	3,300.68	0.99936	3,302.79
GOF	Wells Fargo/ TexStar	2.8531	10,933.15	0.999486	10,938.77	26.48	(0.00)	10,960.66	0.999581	10,965.25
DSF	Wells Fargo/ TexStar DSF	2.8531	822,568.88	0.999486	822,991.90	1,994.06	(0.00)	824,640.29	0.999581	824,985.96
DSF	Wells Fargo/ TexStar PI Rev	2.8531	4,942.20	0.999486	4,944.74	0.00	11.98	4,954.64	0.999581	4,956.72
CPF	TexPool CPF	2.9336	153,830.42	0.99942	153,919.69	242.19	(132,694.89)	21,453.25	0.99936	21,466.99

Demand Accounts

Fund	Location Of Assets	Interest Rate	Purchase Date	Beginning Balance	Interest Earned	Deposits or (Withdrawals)	Ending Balance
GOF	Wells Fargo	0.50	6/8/2015	20,663.63	33.93	108,021.70	128,719.26

Collateral Pledged In Addition to FDIC

Depository Institution	Total Funds On Deposit	Custodial Institution	Securities Pledged	Collateral Description	Par Value	Market Value
Wells Fargo	128,719.26	BNYM	14,684,250	BNYM	1,438,345	1,487,898

Certification:
The District's investments are in compliance with the investment strategy as expressed in the District's Investment Policy and the Public Funds Investment Act. I hereby certify that pursuant to the Senate Bill 253 and in connection with the preparation of this investment report, I have reviewed the divestment lists prepared and maintained by the Texas Comptroller of Public Accounts, and the District does not own direct or indirect holdings in any companies identified on such lists.

Bookkeeper

Investment Officer

Investment Officer	Date Assumed Office	Training Completed
Kenneth Byrd	8/6/2015	10/15/2022

Memorial City Redevelopment Authority
Profit & Loss Budget vs. Actual
October 2022

	October			Year to Date (4 Months)			Annual
	Actual	Budget	Variance	Actual	Budget	Variance	Budget
Ordinary Income/Expense							
Income							
1000 · Income							
6001 · City Tax Revenue	0	0	0	16,467,776	17,334,501	-866,725	17,334,501
8223 · Interest Income	49,527	625	48,902	172,047	2,500	169,547	7,500
Total 1000 · Income	49,527	625	48,902	16,639,823	17,337,001	-697,178	17,342,001
6-4350 · Grants	0	143,677	-143,677	0	574,708	-574,708	1,724,123
Total Income	49,527	144,302	-94,775	16,639,823	17,911,709	-1,271,886	19,066,124
Expense							
3335 · Management Consulting Services							
6320 · Legal	4,249	4,167	82	9,166	16,667	-7,501	50,000
6322 · Eng Consultant/General Prof.Svc	1,750	5,000	-3,250	7,450	20,000	-12,550	60,000
6337 · Construction Audit	0	0	0	12,000	5,000	7,000	5,000
6343 · Other	0	0	0	30	0	30	0
Total 3335 · Management Consulting Services	5,999	9,167	-3,168	28,646	41,667	-13,021	115,000
5650 · Transfers							
6420 · COH Administration Fee	0	0	0	0	866,725	-866,725	866,725
6430 · Municipal Services	0	0	0	2,104,297	2,256,619	-152,322	2,256,619
Total 5650 · Transfers	0	0	0	2,104,297	3,123,344	-1,019,047	3,123,344
5706 · Debt Service							
5707 · Principal	0	0	0	5,660,000	5,660,000	0	5,660,000
5708 · Interest	0	0	0	903,011	851,525	51,486	1,703,049
Total 5706 · Debt Service	0	0	0	6,563,011	6,511,525	51,486	7,363,049
6-6300 · Maintenance & Operations							
6300 · Administration & Overhead							
6321 · Auditor	3,000	13,865	-10,865	3,000	13,865	-10,865	23,865
6333 · Bookkeeping/Accounting	1,170	1,388	-218	5,259	5,550	-291	16,650
6340 · Administration Salaries/Benefit	10,000	10,000	0	40,000	40,000	0	120,000
6344 · Bond Svcs/Trustee/FA	0	2,917	-2,917	20,669	11,667	9,002	35,000
6353 · Insurance	0	0	0	1,378	1,530	-152	1,530
6359 · Bank Fees	89	0	89	316	0	316	0
6300 · Administration & Overhead - Other	0	0	0	1,600	0	1,600	0
Total 6300 · Administration & Overhead	14,259	28,170	-13,911	72,222	72,612	-390	197,045
7000 · Capital Expenditure							
1725 · Parks & Green Space Improv.	0	10,417	-10,417	0	41,667	-41,667	125,000
1734 · W140 Channel Improvements	0	8,573	-8,573	19,687	34,290	-14,603	102,870
1735A · Detention Basin A	0	320,833	-320,833	0	1,283,333	-1,283,333	3,850,000
1737 · MetroNational - Detention/Roads	0	0	0	5,335,542	5,335,542	0	5,335,542
1738A · Memorial Dr Drain & Mobility 1	3,701	14,255	-10,554	24,787	57,022	-32,235	171,065
1738B · Memorial Dr Drain & Mobility 2	0	56,667	-56,667	4,140	226,667	-222,527	680,000

Memorial City Redevelopment Authority
Profit & Loss Budget vs. Actual
October 2022

	October			Year to Date (4 Months)			Annual
	Actual	Budget	Variance	Actual	Budget	Variance	Budget
1741 · W140 Detention Basin Extenions	9,070	18,866	-9,796	170,613	75,465	95,148	226,394
1799 · Concrete Panel Replace Program	0	5,000	-5,000	0	20,000	-20,000	60,000
Total 7000 · Capital Expenditure	12,771	434,611	-421,840	5,554,769	7,073,986	-1,519,217	10,550,871
Total Expense	33,029	471,948	-438,919	14,322,945	16,823,134	-2,500,189	21,349,309
Net Income	**16,498**	**-327,646**	**344,144**	**2,316,878**	**1,088,575**	**1,228,303**	**-2,283,185**

3376

Allen Boone Humphries Robinson LLP

To contact the ABHR Billing Department, please call 713-860-6400 or email at billing@abhr.com

November 15, 2022

MEMORIAL CITY REDEVELOPMENT AUTHORITY

General

Client/Matter: MEM001-01
Statement Number: 132829
Billing Attorney: Jessica Biddle Holoubek

REMITTANCE PAGE

Fees for services posted through November 11, 2022	4,247.50
Expenses and Other Items posted through November 11, 2022	1.20
Total Amount Due:	**$4,248.70**

Please return this page with your payment to the remittance address below:

Allen Boone Humphries Robinson LLP
PO Box 4346
Department 90
Houston, TX 77210-4346

Checks should be made payable to Allen Boone Humphries Robinson LLP
Please include the invoice number on your check
Total amount payable in U.S.dollars

Code No. 6320
11/15/2022

ABHR

ALLEN BOONE HUMPHRIES ROBINSON LLP

Taxpayer ID 74-3091731

November 15, 2022

MEMORIAL CITY REDEVELOPMENT AUTHORITY

Ms. Jennifer Landreville
Equi-Tax, Inc.
P.O. Box 73109
Houston, TX 77273

Client/Matter: MEM001-01
Statement Number: 132829
Billing Attorney: Jessica Biddle Holoubek

General

Professional Fees

Fees for services posted through November 11, 2022, as follows:

Date	Professional		Hours
General			
06/06/22	Sanjay Bapat	Attend to matters regarding agenda item; call with City of Houston regarding same	1.00
06/07/22	Sanjay Bapat	Review draft response to City of Houston regarding annexation process	0.75
06/28/22	Sanjay Bapat	Travel to, prepare for, and attend Authority Board meeting	2.50
08/08/22	Sanjay Bapat	Call with City of Houston regarding agenda language for public comment	0.75
09/27/22	Sanjay Bapat	Prepare for, travel to, and attend Authority Board meeting	2.50
10/13/22	Farrah D. Montez	Research and follow-up regarding response to Public Information Act Request from Ariel Axelrod	0.25
10/18/22	Carnell W. Emanuel	Review, organize, and route Authority correspondence; update pending files and tracking charts	0.50
11/07/22	Carnell W. Emanuel	Discuss meeting schedule and related agenda items	0.25
11/07/22	Veronica Seguin	Work, correspondence and draft annual report documentation for Authority pursuant to SEC Rule 15c2-1; pull and review appropriate reports and correspondence with Authority consultants	0.75
11/08/22	Veronica Seguin	Work, correspondence and draft filing letter and annual disclosure documentation for Authority pursuant to SEC Rule 15c2-12; work on Continuing Disclosure Annual Report and correspondence with Authority consultants regarding comments to same	0.50
11/11/22	Carnell W. Emanuel	Review and route Authority correspondence	0.25
		Total Task Hours:	10.00

		Total Task Amount:	$4,182.50

Grants

10/24/22	Carnell W. Emanuel	Follow up with Administrator regarding grant applications	0.25
		Total Task Hours:	0.25
		Total Task Amount:	$65.00
		Total Fees:	**$4,247.50**

Expenses and Other Items

Expenses and Other Items posted through November 11, 2022, as follows:

10/19/22	CWE	Postage	1.20
		Total Expenses and Other Items:	1.20

TASK FEE BREAKDOWN	**Hours**	**Amount**
General	10.00	4,182.50
Grants	0.25	65.00

Total Fees:	$	4,247.50
Total Expenses and Other Items:	$	1.20
Total Amount Due:	**$**	**4,248.70**

3377

BURTON ACCOUNTING, P.L.L.C.
Certified Public Accountants

1281 Brittmoore Rd
Houston, TX 77043

Phone: 713-366-3111
Fax: 281-597-0184

Date: 10/31/22 **Due Date: Due upon receipt** **Invoice: 10287** **Amount: $3,000.00**

Memorial City Redevelopment Authority
P.O. Box 22167

Houston, TX 77227-2167

Beginning Balance	$0.00
Invoices	3,000.00
Receipts	0.00
Adjustments	0.00
Service Charges	0.00
Amount Due	**$3,000.00**

For professional services rendered as follows:

In preparation of Agreed Upon Procedures report

Code No. 6321
11/30/2022

Billed Amount	$3,000.00
Invoice Total	**$3,000.00**

www.mburtoncpa.com info@mburtoncpa.com

Please return this portion with payment. Thank you for your prompt payment.

Invoice: 10287	**Amount Due:** $3,000.00	**ID: 4299**
Date: 10/31/2022		Memorial City Redevelopment Authority
Due Date: Due upon receipt	**Payment Amount:** $_____	

Please make checks payable to Burton Accounting, P.L.L.C., 1281 Brittmoore Rd, Houston, TX 77043

A FINANCE CHARGE OF 18% PER YEAR, OR 1 1/2 % PER MONTH, WILL BE CHARGED ON ALL BALANCES OVER 30 DAYS OLD.

3378

Equi-Tax Inc.

Invoice

Suite 200
17111 Rolling Creek Drive
Houston Texas 77090
281-444-4866

DATE	INVOICE #
11/1/2022	59284

BILL TO

TIRZ No. 17 - Memorial City RDA
c/o ETI Bookkeeping Services
Suite 108
17111 Rolling Creek Drive
Houston TX 77090

DESCRIPTION	AMOUNT
Monthly Consultant Services fee per Contract Based on 437 items on the tax roll as of January 2022, at $0.30 per item	131.10

Invoice emailed to:
Jennifer Landreville at jl@equitaxinc.com
Valerie Pena at bkp2@etiaccounting.com
Scott Bean at sbean@haweshill.com
Linda Clayton at lclayton@haweshill.com

Total $131.10

Code No. 6333
11/15/2022

3378

Equi-Tax Inc.

Invoice

Suite 200
17111 Rolling Creek Drive
Houston Texas 77090
281-444-4866

DATE	INVOICE #
12/1/2022	59401

BILL TO
TIRZ No. 17 - Memorial City RDA c/o ETI Bookkeeping Services Suite 108 17111 Rolling Creek Drive Houston TX 77090

DESCRIPTION	AMOUNT
Monthly Consultant Services fee per Contract Based on 437 items on the tax roll as of January 2022, at $0.30 per item	131.10
Invoice emailed to: Jennifer Landreville at jl@equitaxinc.com Valerie Pena at bkp2@etiaccounting.com Scott Bean at sbean@haweshill.com Linda Clayton at lclayton@haweshill.com	

Total	$131.10

SB

Code No. 6333
11/30/2022

3379

ETI Bookkeeping Services

PO BOX 73109
Houston, TX 77273

Invoice

Date	Invoice #
11/1/2022	9591

Bill To
TIRZ 17 Redevelopment Authority P.O. Box 73109 Houston, Texas 77273

Description	Qty	Rate	Amount
Bookkeeping		1,060.90	1,060.90

Total	$1,060.90
Payments/Credits	$0.00
Balance Due	$1,060.90

Code No. 6333
11/15/2022

3379

ETI Bookkeeping Services

PO BOX 73109
Houston, TX 77273

Invoice

Date	Invoice #
12/1/2022	9621

Bill To
TIRZ 17 Redevelopment Authority P.O. Box 73109 Houston, Texas 77273

Description	Qty	Rate	Amount
Bookkeeping		1,060.90	1,060.90
Couriers		143.75	143.75

Total	$1,204.65
Payments/Credits	$0.00
Balance Due	$1,204.65

Code No. 6333
11/30/2022

3380

Gauge Engineering
11750 Katy Freeway, Suite 400
Houston, TX 77079

Memorial City Redevelopment Authority/TIRZ 17
9600 Long Point Rd, Suite 200
Houston, TX 77055

Invoice number 2105
Date 11/28/2022

Project **1157 TIRZ 17 - On-call Engineering**

Professional Services Provided Through November 25, 2022

Invoice Summary

Description	Contract Amount	Prior Billed	Total Billed	Remaining	Current Billed
1157 ON-CALL ENGINEERING	25,000.00	9,377.40	14,447.40	10,552.60	5,070.00
Total	25,000.00	9,377.40	14,447.40	10,552.60	5,070.00

Professional Fees

	Hours	Rate	Billed Amount
Principal			
Derek A. St. John	9.00	225.00	2,025.00
Muhammad M. Ali	2.00	225.00	450.00
Graduate Engineer			
Tori Weber	1.00	120.00	120.00
Hydrologist - Senior			
Kelly H. Hay	13.75	180.00	2,475.00
Professional Fees subtotal	25.75		5,070.00
		Invoice total	**5,070.00**

Aging Summary

Invoice Number	Invoice Date	Outstanding	Current	Over 30	Over 60	Over 90	Over 120
2105	11/28/2022	5,070.00	5,070.00				
	Total	5,070.00	5,070.00	0.00	0.00	0.00	0.00

I certify the above to be true and correct

Muhammad Ali, PE

Please note new mailing address
Please make checks payable to:
Gauge Engineering, LLC
11750 Katy Freeway, Suite 400
Houston, TX 77079

Code No. 6322
11/30/2022

3381

HAWES HILL & ASSOCIATES LLP

PO BOX 22167

Houston, TX 77227-2167

INVOICE

BILL TO
Memorial City Redevelopment Authority/TIRZ #17
PO Box 22167
Houston, TX 77227
United States

INVOICE 1427
DATE 11/01/2022

DESCRIPTION	AMOUNT
Professional Consulting and Administration Fee: October 2022	10,000.00

BALANCE DUE **$10,000.00**

Code No. 6340
11/15/2022

3381

HAWES HILL & ASSOCIATES LLP

PO BOX 22167

Houston, TX 77227-2167

INVOICE

BILL TO
Memorial City Redevelopment Authority/TIRZ #17
PO Box 22167
Houston, TX 77227
United States

INVOICE 1435
DATE 11/30/2022

DESCRIPTION	AMOUNT
Professional Consulting and Administration Fee: November 2022	10,000.00

BALANCE DUE **$10,000.00**

Code No. 6340
11/30/2022

3382

McCALL GIBSON SWEDLUND BARFOOT PLLC

Certified Public Accountants

13100 Wortham Center Drive
Suite 235
Houston, Texas 77065-5610
(713) 462-0341
Fax (713) 462-2708

PO Box 29584
Austin, TX 78755-5126
(512) 610-2209
www.mgsbpllc.com
E-Mail: mgsb@mgsbpllc.com

November 2, 2022

TIRZ 17 Redevelopment Authority
ETI Bookkeeping Services
17111 Rolling Creek, Suite 200
Houston, TX 77090

Client Number: 574-00

Audit of Memorial City Redevelopment Authority as of and for the year ended June 30, 2022, including distribution of the report and meeting with the Board of Directors and receiving comments from the City of Houston on the draft audit.

Annual Audit Fee	$ 12,500.00
Less Interim Billing	9,000.00
Balance Due	$ 3,500.00

We appreciate your business!

Chris Swedlund

3383

The Goodman Corporation

3200 Travis Street, Ste. 200
Houston, TX 77006

Invoice

Bill To
TIRZ 17 Memorial City Redevelopment Autho c/o Hawes Hill & Associates LLP P.O. Box 22167 Houston, TX 77227-2167

Date	Invoice #
10/31/2022	10-2022-11

Terms	Project
	MCT114

Item	Description	Rate	Prior %	Current %	Amount
Contract Services	Task 1 – Monitor and Present Funding Opportunities	21,000.00	50%	8.33%	1,750.00
Contract Services	Task 2 – Pursuit of Funding	105,500.00	0%	0.00%	0.00

Please send payment to:
The Goodman Corporation
911 W. Anderson Lane, Ste. 200
Austin, TX 78757

Total	$1,750.00
Balance Due	$1,750.00

Phone #	Fax #
713-951-7951	713-951-7957

Code No. 6322
11/15/2022

3384

Gauge Engineering
11750 Katy Freeway, Suite 400
Houston, TX 77079

Memorial City Redevelopment Authority/TIRZ 17
9600 Long Point Rd, Suite 200
Houston, TX 77055

Invoice number 2103
Date 11/28/2022

Project 1070 MEMORIAL DRIVE - CONSTRUCTION PHASE SERVICES

Professional Services Provided Through November 25, 2022

Description	Contract Amount	Percent Complete	Prior Billed	Total Billed	Remaining	Current Billed
Construction Phase Services	231,870.00	100.00	231,870.00	231,870.00	0.00	0.00
Expenses	2,000.00	61.53	1,230.54	1,230.54	769.46	0.00
Traffic Signal CPS	15,279.00	80.00	12,223.20	12,223.20	3,055.80	0.00
Structural Eng CPS	10,000.00	60.73	6,072.50	6,072.50	3,927.50	0.00
Supplemental CPS Services	66,500.00	50.00	21,094.40	33,250.00	33,250.00	12,155.60
Total	325,649.00	87.41	272,490.64	284,646.24	41,002.76	12,155.60

Invoice total **12,155.60**

Aging Summary

Invoice Number	Invoice Date	Outstanding	Current	Over 30	Over 60	Over 90	Over 120
2103	11/28/2022	12,155.60	12,155.60				
	Total	12,155.60	12,155.60	0.00	0.00	0.00	0.00

I certify the above to be true and correct

Muhammad Ali, PE

Please note new mailing address
Please make checks payable to:
Gauge Engineering, LLC
11750 Katy Freeway, Suite 400
Houston, TX 77079

Code No. 1738A
11/30/2022

C

3384

Gauge Engineering
11750 Katy Freeway, Suite 400
Houston, TX 77079

Memorial City Redevelopment Authority/TIRZ 17
9600 Long Point Rd, Suite 200
Houston, TX 77055

Invoice number 2104
Date 11/28/2022

Project 1155 W140 EXPANSION - DESIGN

Professional Services Provided Through November 25, 2022

Description	Contract Amount	Percent Complete	Prior Billed	Total Billed	Remaining	Current Billed
General/Rdwy/TCP/Signing Plans	113,985.00	62.75	71,240.63	71,525.59	42,459.41	284.96
Drainage Plans	91,395.00	74.50	65,804.40	68,089.28	23,305.72	2,284.88
PM/Coordination/Misc/QA/QC	39,780.00	83.00	28,243.80	33,017.40	6,762.60	4,773.60
QA/QC	13,455.00	49.50	6,391.13	6,660.23	6,794.77	269.10
Bid Phase	8,600.00	0.00	0.00	0.00	8,600.00	0.00
Topo Survey-Kuo	27,731.00	92.07	25,531.00	25,531.00	2,200.00	0.00
Environmental-Geotest	5,491.20	90.00	4,942.08	4,942.08	549.12	0.00
Geotechnical-Geotest	20,249.90	90.00	18,224.91	18,224.91	2,024.99	0.00
Pump Station Design - LJA	198,457.60	70.84	140,596.41	140,596.41	57,861.19	0.00
Structural-SSH	16,500.00	0.00	0.00	0.00	16,500.00	0.00
Urban Forestry-CN Khoel	3,850.00	0.00	0.00	0.00	3,850.00	0.00
Expenses/HBJ/Civcast/Misc	17,150.00	0.00	0.00	0.00	17,150.00	0.00
Geotechnical - Aviles	27,025.90	0.00	0.00	0.00	27,025.90	0.00
Total	583,670.60	63.15	360,974.36	368,586.90	215,083.70	7,612.54

Invoice total **7,612.54**

Aging Summary

Invoice Number	Invoice Date	Outstanding	Current	Over 30	Over 60	Over 90	Over 120
2104	11/28/2022	7,612.54	7,612.54				
	Total	7,612.54	7,612.54	0.00	0.00	0.00	0.00

I certify the above to be true and correct

Muhammad Ali, PE

Please note new mailing address
Please make checks payable to:
Gauge Engineering, LLC
11750 Katy Freeway, Suite 400
Houston, TX 77079

Code No. 1741
11/30/2022

C

3385

swa

WORK ORDER # 20

To: Memorial City Redevelopment Authority/Houston TIRZ 17
Attn: Scott Bean
c/o Hawes Hill and Associates LLP
PO Box 22167
Houston, TX 77227-2167

Date: October 12, 2022
Invoice No: 192169
For Period: September
Project No: RHTT002
Project Manager: James Vick

Project Memorial Drive Construction

WORK PERFORMED:
Construction Phase Services.
Professional Services from September 1, 2022 to September 30, 2022
Professional Personnel

	Hours	Rate	Amount
Principal			
Vick, James	13.00	245.00	3,185.00
Associate			
Oliver, Robert	4.00	123.50	494.00

Total Fee Due This Invoice **3,679.00**

Reimbursable Expenses
Misc Travel

James Vick	JV 9/16		21.88	
Total Reimbursables		**1.0 times**	**21.88**	**21.88**

Total Due this Invoice: **$3,700.88**

Authorized Fee:	**$ 93,450.00**
Previously Billed:	**$ 51,344.18**
Billed to Date	**$ 55,045.06**
Remainder Fee:	**$ 38,404.94**

Remit to:
SWA Group
P.O. Box 5904
Sausalito, CA 94966

Please refer to our Invoice number and Project number when making payment.
A discount of 1% on current charges allowed if paid in full in thirty days.
A service charge will be assessed on all past due accounts.

Code No. 1738A
11/15/2022

C

3385

swa

WORK ORDER # 20

To: Memorial City Redevelopment
Authority/Houston TIRZ 17
Attn: Scott Bean
c/o Hawes Hill and Associates LLP
PO Box 22167
Houston, TX 77227-2167

Date: November 8, 2022
Invoice No: 192483
For Period: October
Project No: RHTT002
Project Manager: James Vick

Project Memorial Drive Construction

WORK PERFORMED:
Construction Phase Services.
Professional Services from October 1, 2022 to October 31, 2022
Professional Personnel

	Hours	Rate	Amount
Principal			
Vick, James	18.00	245.00	4,410.00
Associate			
Oliver, Robert	18.00	123.50	2,223.00

Total Fee Due This Invoice **6,633.00**

Total Due this Invoice: $6,633.00

Authorized Fee:	**$ 93,450.00**
Previously Billed:	**$ 55,045.06**
Billed to Date	**$ 61,678.06**
Remainder Fee:	**$ 31,771.94**

Remit to:
SWA Group
P.O. Box 5904
Sausalito, CA 94966

Please refer to our Invoice number and Project number when making payment.
A discount of 1% on current charges allowed if paid in full in thirty days.
A service charge will be assessed on all past due accounts.

Code No. 1738A
11/15/2022

C

3386

The Goodman Corporation

3200 Travis Street, Ste. 200
Houston, TX 77006

Invoice

Bill To
TIRZ 17 Memorial City Redevelopment Autho c/o Hawes Hill & Associates LLP P.O. Box 22167 Houston, TX 77227-2167

Date	Invoice #
10/31/2022	10-2022-12

Terms	Project
	MCT113

Item	Description	Rate	Prior %	Current %	Amount
Contract Services	Task 1 – Grant Initiation and Execution	19,436.00	15%	10.00%	1,943.60
Contract Services	Task 2 – National Environmental Policy Act	28,506.00	10%	25.00%	7,126.50
Contract Services	Task 3 – Design and Bid Phase Compliance	26,161.00	0%	0.00%	0.00
Contract Services	Task 4 – Construction Phase Compliance	39,057.00	0%	0.00%	0.00
Contract Services	Task 5 – Lifecycle Reporting and Disbursement Assistance	43,221.00	0%	0.00%	0.00
	W140 Detention Basin Grant Assistance				

Please send payment to:
The Goodman Corporation
911 W. Anderson Lane, Ste. 200
Austin, TX 78757

Total	$9,070.10
Balance Due	$9,070.10

Phone #	Fax #
713-951-7951	713-951-7957

Code No. 1741
11/15/2022

C

AGENDA MEMORANDUM

TO: Memorial City Redevelopment Authority TIRZ No. 17 Board of Directors

FROM: Executive Director

SUBJECT: Agenda Item Materials

5. Annual review of Procedures for Continuing Disclosure Compliance.

AGENDA MEMORANDUM

TO: Memorial City Redevelopment Authority TIRZ No. 17 Board of Directors

FROM: Executive Director

SUBJECT: Agenda Item Materials

6. Consider Annual Report and authorize filing of same with appropriate information depositories in accordance with the Authority's Continuing Disclosure of Information Agreement and as required by SEC Rule 15c2-12.

AGENDA MEMORANDUM

TO: Memorial City Redevelopment Authority TIRZ No. 17 Board of Directors

FROM: Executive Director

SUBJECT: Agenda Item Materials

7. CIP Committee:
    a. Project update and recommendations from Gauge Engineering, LLC.
        i. Consider Task Order for Memorial Drive Phase 2, for design services.
    b. Project update from The Goodman Corporation.
    c. Project update from SWA.

PROGRESS REPORT
DECEMBER 2022
MEMORIAL CITY REDEVELOPMENT AUTHORITY/TIRZ 17

Gauge ENGINEERING
11750 Katy Freeway, Suite 400
Houston, TX 77079

Planning/Preliminary Engineering/Design:

- Memorial Drive – PH -II (T-1738B)
    - Develop design proposal
        - Advance plans to 30% only

- W140 Basin Deepening/Pump:
    - Received approval from HCFCD for Drainage Impact Analysis
    - 60% construction plan set submitted to the City – Still waiting on some comments
    - Shifting the location of the pump station from the southwest corner of the site to the northwest corner.
        - Field work for new Geotechnical borings complete
        - Waiting on soils analysis and findings
        - Identified a higher water table than previous geotechnical borings
    - Working with goetech and contractors to address higher water table challenge.
        - Constructability review and construction process evaluation
        - Temporary dewatering

TIRZ 17
REDEVELOPMENT
AUTHORITY

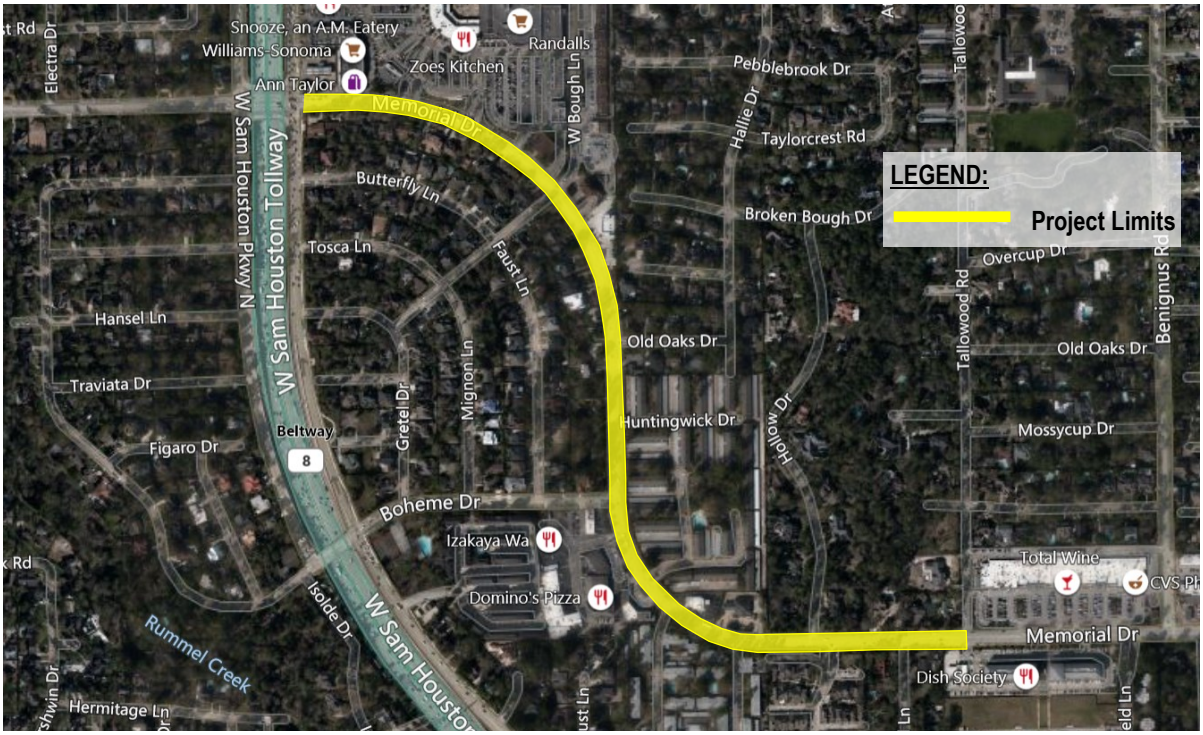
PROGRESS REPORT— DECEMBER 2022

Memorial Drive Mobility and Drainage Improvements

WBS No. N-T17000-031B-7 , CSJ: 0912-72-391

PROJECT LOCATION

The Memorial Drive improvement project is approximately 4,960 feet long, from East of Beltway 8 to East of Tallowood Road This project is located in the City of Houston within the TIRZ 17 limits.



PROJECT DESCRIPTION:

Memorial City Redevelopment Authority (MCRA)/Tax Increment Reinvestment Zone (TIRZ) 17 on behalf of the City of Houston, and in cooperation with TxDOT is sponsoring the proposed Memorial Drive project. Memorial Drive will be reconstructed from East of Beltway 8 to East of Tallowood Drive in the City of Houston, Harris County.

Memorial Drive is a major thoroughfare that carries 17,500 vehicles per day and one of the critical capital improvement projects to be undertaken by TIRZ 17. The project proposes to improve drainage issues, mobility, access management, traffic operations, and safety within the project limits. The proposed improvements include the following:

- Improving mobility and safety by reconstructing the roadway to two 12-foot wide travel lanes in each direction with a raised median in the center of the road
- Encourage a pedestrian friendly environment by installing 8-foot wide ADA-compliant sidewalks along both sides of the road
- Upgrading subsurface public utilities
- Improve traffic operations by upgrading existing traffic signals to meet current standards
- Improve drainage by replacing the existing ditches with an upgraded storm sewer system that consists of installing varying sized reinforced concrete boxes and pipes that go up to 10-FT x 10-FT
- Improve Quality of life by installing extensive hardscape and softscape landscaping items

Gauge ENGINEERING

Cont. PROGRESS REPORT— DECEMBER 2022

Memorial Drive Mobility and Drainage Improvements

WBS No. N-T17000-031B-7 , CSJ: 0912-72-391

CONSTRUCTION COST/TIME

- Construction Cost: $20.5 Million
- Contract time: 25 Months
- Notice to Proceed date: August 20, 2020

CONTACT INFORMATION

Construction Management/Inspection
TxDOT—Houston District

Construction Phase Services
Gauge Engineering, LLC

Contractor
SER Construction Partners

PROJECT STATUS

- Construction Progress: approximately 96% completed
- Sidewalk work almost completed
- Left turn lanes work is completed
- Median installation is completed
- Irrigation system installation is almost completed
- Landscaping work and planting should begin this month
- Signal work in progress
- Top soil installation for medians will begin this month
- Fire Hydrant relocation work is completed

CURRENT TRAFFIC CONTROL CONFIGURATION

- One lane open in each direction

PROGRESS PHOTOS

Landscaping in Progress

Median Installation Completed

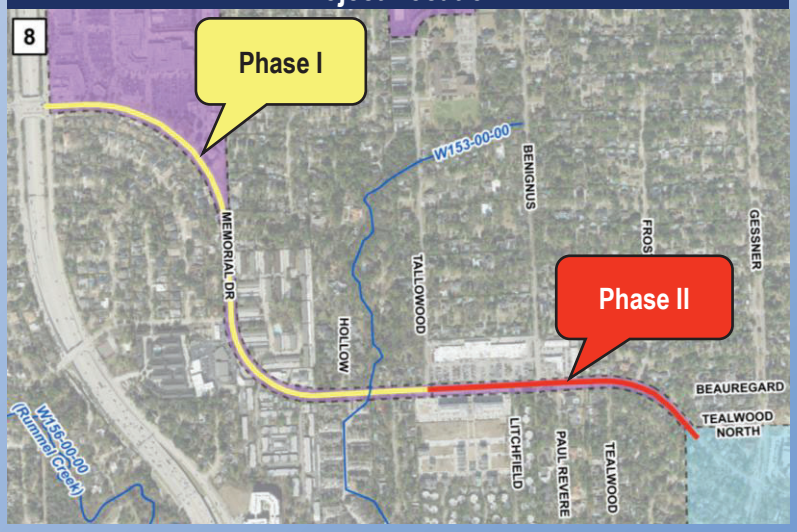
Completed Sidewalk & Bus Stop

Current Traffic Control

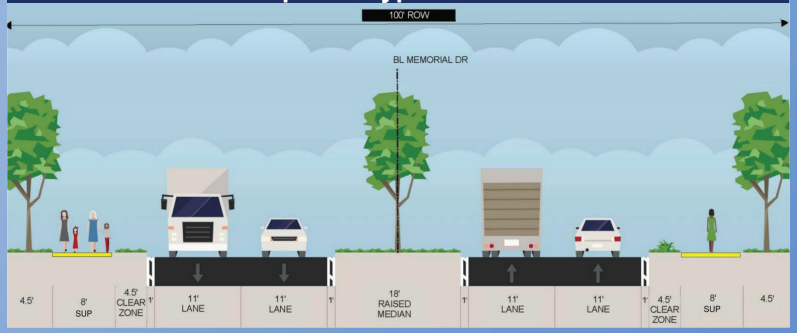
Memorial Drive Phase II – Tallowood Road to Tealwood North Drive Drainage & Mobility Improvements

WBS No. NT17000-0020-7

Project Location



Proposed Typical Section



Existing Deteriorated Pavement & Sidewalk

Project Status

Design Concept Report (Preliminary Engineering) – Completed

Next Steps

Design

Construction Cost

$21M

Project Objectives

Improve Mobility & Safety

Complete reconstruction of the deteriorated roadway which includes transforming 2,320 linear feet of asphalt road with roadside ditch to a curb and gutter concrete road. Lane configuration will be four 11-ft lanes separated by a raised median. The raised medians will replace the two-way-left-turn-lane and will create median openings with left turn lanes to access adjacent properties.

Improve Intersection Safety

The existing two-way stop-controlled T-intersection at Litchfield Ln and Memorial Dr will be converted into a signalized intersection and will operate in coordination with the Benignus Road intersection. A single controller will be utilized to provide optimal traffic operations and safety at the intersections.

Improve Pedestrian and Bicyclists Facilities

A widened 8-ft shared use path is proposed and will provide a safe, comfortable, friendly environment for both bicyclists and pedestrians. TIRZ 17's objective is to also improve connectivity in the area. The shared use path will directly tie into the Memorial Drive segment that is currently under construction and will ultimately safely connect pedestrians and bicyclists to Terry Hershey Park via Beltway 8 northbound frontage road and Memorial Drive.

Improve Storm Water System

The open roadside ditches and existing storm sewer will be replaced with two 10-ft x 10-ft RCBs for a net additional volume of 8 ac-ft. This storm water system functions as both a stand-alone system for this project and in concert with future regional improvements will result in a reduction in the floodplain for the 2-, 10-, and 100-year events.

Improve Transit Facilities

The METRO bus stops along Memorial Drive will be converted to far-side bus stops with upgraded large platforms for semi-level boarding and enhanced amenities. Bus stop locations will be relocated for optimized spacing and to be near major trip generators.

Improve Public Utilities

Sanitary lines and Water lines throughout the project corridor have exceeded their 30-year useful service life and will be replaced as part of this project.

TASK ORDER

December 1, 2022

Ms. Ann Givens, Chair of the Board
Memorial City Redevelopment Authority / TIRZ 17
9600 Long Point Road, Suite 200
Houston, TX 77055

Re: Proposal for Plans, Specifications and Estimates – Memorial Drive Mobility & Drainage Improvements – (T-1738B) from Tallowood Road to City of Houston/City of Bunker Hill Village limits.

Dear Ms. Givens,

Gauge Engineering, LLC (Gauge) is pleased to submit this proposal for providing Plans, Specifications and Estimates (PS&E) for the drainage and mobility improvements along Memorial Drive from Tallowood Road to City of Houston/City of Bunker Hill Village limits. The project is identified in the current City approved TIRZ 17 five-year Capital Improvement Plan. A Design Concept Report was previously completed. TIRZ 17's objective is to pursue federal grants for this project; therefore, the plans will be completed in accordance with TxDOT standards and requirements. The milestone submittals that will be made are 30%, 60%, 90%. 95% and Final phase. The initial authorization is to advance the plans to 30% level only.

We propose to perform this work for a Lump Sum amount of $1,304,200 (6.21% of construction cost). A detailed breakdown of the scope items and fee can be found under Exhibits "A" and "B" respectively. Please feel free to contact me at (713) 254-5946 if you have any questions or need additional information.

Sincerely,

Muhammad Ali, P.E.
Principal

Accepted for
Memorial City Redevelopment Authority/TIRZ 17

Signature Date

Print

Accepted for
City of Houston

Signature Date

Print

Attachments:
Exhibit A – Scope of Services
Exhibit B – Level-of-Effort
Exhibit C – Junction Box Design – Aurora Technical Services
Exhibit D – Geotech – Aviles Corp
Exhibit E – Urban Forestry – CN Koehl
Exhibit F – Environmental – Cypress Environmental
Exhibit G – Topo Survey - Kuo & Associates
Exhibit H – Subsurface Utility Engineering – Midtown Engineers
Exhibit I - Traffic Signal Design – TEI Planning + Design

Exhibit A

SERVICES TO BE PROVIDED BY THE ENGINEER

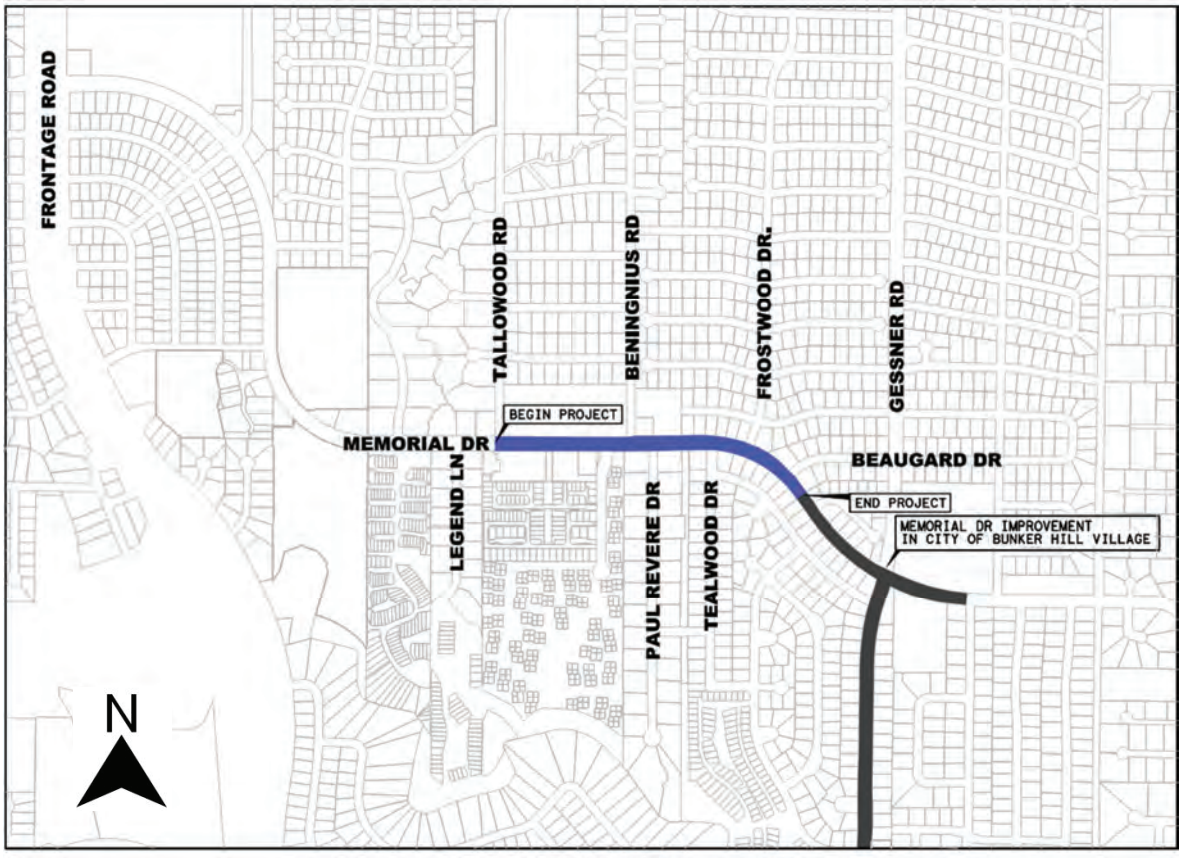
Project: Memorial Drive Phase II Drainage and Mobility Improvements

Limits: Tallowood Road to City of Bunker Hill Village City Limits (near Tealwood N. Drive.)

WBS: N-T17000-0005-7

The work to be performed by the Engineer under this contract consists of providing professional engineering, environmental, surveying, and urban forestry services required for the preparation of Plans, Specifications and Estimates (PS&E) and bidding documents for the full roadway reconstruction of Memorial Drive from Tallowood Road to the City of Bunker Hill City Limits (near Tealwood N. Drive).

The total length of roadway is approximately 2,250 feet (0.4 miles). Other improvements will include traffic signals, medians, sidewalks, storm sewers, sanitary sewers, water lines, landscaping, and anything else related to the roadway construction.



LOCATION MAP

The Engineer shall prepare plans, details and compute quantities to include roadway design, grading, paving, sidewalks and pedestrian ramps, drainage, sanitary sewers, water lines, signing, pavement markings, traffic control plans, storm water pollution prevention plans, urban forestry, traffic signals, retaining walls, specifications, and cost estimates. Engineer shall prepare bid documents and specifications for TxDOT and City of Houston.

The Engineer shall collect, review and evaluate the available existing data pertaining to the project and prepare the Plans, Specifications and Estimates (PS&E) in accordance with the requirements and policies of TxDOT.

The Engineer shall identify, prepare exhibits and complete all necessary forms for Design Exceptions and Waivers or both, within project limits immediately after the receipt of federal funding. These exceptions shall be provided to the TxDOT for coordination and processing of approvals. If subsequent changes require additional exceptions, the Engineer shall notify TxDOT as soon as possible after identification.

It shall be the responsibility of the City to assist the Engineer to secure right of entry to private property for the purpose of performing any surveying, environmental, and/or soil boring activities. In pursuance of TxDOT's policy with the general public, the Engineer shall not commit acts which will result in damages to private property and the Engineer will make every effort to comply with the wishes and address the concerns of private property owners.

The Engineer shall perform their work in accordance with TxDOT’s Utility Accommodation Policy, and the Houston District’s TxDOT Utility Cooperative Management Process. The Engineer shall prepare drawings early in the design phase (30%) to be used as exhibits in utility agreements. The exhibits shall be prepared using English units. The Engineer shall show existing utilities, including those in conflict with construction on this project. The Engineer shall prepare plans to avoid or minimize utility adjustments, where feasible. The Engineer shall implement TxDOT Utility Cooperative Management Process and is responsible for sending out notices, with copies of exhibits and plans, including all milestone submittals.

The Engineer shall create, maintain and update a Utility Conflict List to include contact name, phone log and all correspondence to the utility owners. The Engineer shall provide the most current copy of the conflict list to TxDOT at each milestone submittal, and shall be responsible for coordination with utility companies to resolve conflicts. The Utility Conflict List shall identify the owner of the facility, the contact person (with address and telephone number), location of conflict (station and offset), type of facility, expected clearance date, status, effect on construction and type of adjustment necessary. The Engineer shall ensure that each milestone submittal is provided to the utility companies throughout the design process, in addition to any revision submittals.

After identifying all conflicting utilities, and in coordination with TxDOT's Project Manager, the Engineer shall arrange for (send plans and invitations in a timely manner) and attend utility meetings with all utility owners and other interested parties or agencies that are identified to be within the proposed project’s area. The purpose of this meeting is to ensure that all utility owners and area entities are aware of the scope and relevant details

of the proposed project. The Engineer shall be responsible for writing and documenting the meeting minutes and other follow-up work with utility owners, if necessary. The information obtained at each utility meeting shall be included as part of the milestone submittals.

The Engineer shall determine prior to 30 percent milestone submittal if Subsurface Utility Engineering (SUE) will be required for this project.

The Engineer shall make every effort to prevent detours and utility relocations from extending beyond the existing right-of-way. If it is necessary to obtain additional right of way, permanent or temporary easements and /or right of entry, the Engineer shall notify the City in writing of the need and justification for such action. The Engineer shall identify and coordinate with all utility companies for relocations required.

The Engineer shall prepare any exhibits necessary for Utility and drainage district approvals, and other governmental/regulatory agencies, specific to the project.

The Engineer shall review the findings of the environmental document study; include 11" x 17" copies of the Environmental Permits to be inserted into the final PS&E, if applicable.

Any applicable project specific maintenance agreements provided by the City should be inserted by the Engineer into the final PS&E.

The Engineer shall coordinate through the City's Project Manager for the development of the PS&E with any local entity having jurisdiction or interest in the project (e.g. drainage district, county, municipal utility district, etc.).

The Engineer will provide the Comprehensive Drainage Impact Study, drainage and flood control impact evaluation material, preliminary drainage engineering information related to the Engineer's focus area of design for approval by the City, Harris County Flood Control, and TxDOT.

The Engineer shall prepare Storm Water Pollution Prevention Plans (SW3P), including details and pay quantities. The TIRZ will provide the Notice of Intent.

The preliminary cost estimate for the proposed improvements shall be prepared by the Engineer utilizing the Houston District's 12-month and / or 3-month average unit prices.

The Engineer shall not move forward with performing detailed PS&E (60%, 90%, 95% and final submittals) until federal funding is received and TxDOT approves the 30% milestone submittal.

The PS&E shall be complete and organized in accordance with Stand Alone Manual Notice 00-1 entitled "Organization of Plan Sheets" and as identified by the latest edition of the Consultant Contract Administration's "Guidelines for Milestone Submittals". The PS&E package shall be suitable for the bidding and awarding of a construction contract, and in accordance with the latest TxDOT's policies and procedures, and the Houston District's PS&E Checklist. The Engineer shall also comply with the AASHTO Guide for the Development of Bicycle Facilities requirements.

The Engineer shall use Computer-Aided Design and Drafting (CADD) to fully develop all drawings. The CADD drawings developed shall be compatible with TxDOT using Microstation V8 or V8i. The computer graphics files furnished must comply with Attachment G of this contract, entitled TxDOT's Document and Information Exchange.

The Engineer shall provide earthwork cross-section data files in a GEOPAK format as an evolving electronic data file and the latest version of the Houston District's PS&E checklist at each milestone submittal. Corridor modeling tools in Power Geopak shall be utilized to develop cross sections.

The PS&E shall be developed in English units using TxDOT's latest specifications and provisions. The final plan sheets shall be electronic and pdf versions, size 11" x 17", signed, sealed and dated by a Professional Engineer registered in the state of Texas. The plans shall be noted as copyrighted with TxDOT's logo. PS&E for the above work shall be prepared in accordance with the applicable requirements of the TxDOT's Specifications, Standards and Manuals. Whenever possible, the TxDOT's standard drawings, standard specifications, or previously approved special provisions and/or special specifications shall be used. If a special provision or a special specification must be developed or modified for this project, it shall be in TxDOT's format and, to the extent possible, incorporate references to approved TxDOT test procedures. Any specifications developed by the Engineer shall be submitted to TxDOT for approval prior to inclusion in the PS&E. The Engineer shall sign, seal, and date all project specific modifications to standard drawings.

The Engineer shall make submittals, as defined by the milestones in Attachment "D" of the contract, and in accordance with the latest TxDOT's policies and procedures. The submittals shall consist of electronic submissions. No paper submittals will be provided. The Engineer shall reply to each comment either within the plan set or by separate cover letter with a response to comment matrix. The Engineer shall make all agreed upon changes to the submitted documents before the next scheduled submittal.

The Engineer may be required to meet with the City and TxDOT Project Managers monthly to report on progress. After each meeting with the City and any other meeting, the Engineer shall prepare meeting minutes, solicit and incorporate participants' comments, distribute the minutes, submit a memorandum summarizing the events, including an ACTION ITEM LIST, within five (5) working days of the meeting.

The Engineer may be asked to incorporate into the project PS&E package, additional plans, specifications and quantities developed by others. The Engineer shall insert the package, number sheets, and update the Index of Sheets and provide a construction cost estimate of the plans developed by others. If significant effort is needed, this work will be handled by supplemental agreement.

The Engineer shall prepare a design time schedule that shall indicate tasks, critical dates, milestones, deliverables, review requirements in a format that depicts the interdependence of the various items and shall be updated monthly and submitted with the invoice. The Engineer shall provide assistance to City and TxDOT personnel in interpreting the schedule. Milestone submittals shall be at 30%, 60% 90%, 95% and final.

If the Engineer cannot meet the scheduled milestone review date they are to advise the City and TxDOT in writing.

The Engineer shall prepare a construction time determination in accordance with the TxDOT's Administrative Circular No. 17-93 be submitted one month prior to the 90 % milestone submittal. The Engineer shall provide assistance to City and TxDOT personnel in interpreting the schedules.

In addition to scheduling software set forth above, reports and/or spreadsheets prepared in connection with these services shall be in the Microsoft (MS) Office XP software. The Engineer shall be required to maintain compatible versions to TxDOT's software packages.

The project's engineering work may be inspected by the City, TxDOT and the Federal Highway Administration in the offices of the Engineer, except for the field work which shall be performed on-site, and the sub-consultant work which will be performed in the office of the sub-consultant. After notice to proceed is given in writing, the PS&E for the work outlined above shall be completed and submitted to the City within the negotiated contract period per the identified milestones in the schedule.

All documents submitted to the City and TxDOT shall be accompanied by a letter of transmittal which shall include, but need not be limited to, road name, project limits, county, CSJ, and contract number.

The Engineer shall designate one Texas Registered Professional Engineer to be responsible throughout the project for project management and all communications, including billing, with TxDOT.

The Engineer shall prepare and execute contracts with sub-consultants, monitor sub-consultant activities (staff and schedule), and review and recommend approval of sub-consultant invoices. Once sub-consultant contracts are executed, the Engineer is to provide copies of each sub-consultant contract to TxDOT. Any subsequent amendment to the Engineer's contract with TxDOT by supplemental agreement requiring services to be performed by a sub-consultant shall require an amendment to the sub-consultant contract as well. This is to be reviewed and approved by TxDOT.

The Engineer shall implement their Quality Assurance/Quality Control program prior to submitting plans to the City for each of the milestones. A milestone submittal is not considered complete unless the required milestone documents are submitted.

The Engineer shall meet with the City and TxDOT monthly or as needed to discuss progress of work and resolve any questions of design during the PS&E preparation.

Detailed description of work by Function Code:

FUNCTION CODE 102(110) – FEASIBILITY STUDIES

ROUTE AND DESIGN STUDIES

A. **Data Collection:** The Engineer shall collect, review and evaluate data described below. The Engineer shall notify the City in writing whenever the Engineer finds disagreement with the information or documents:

1. Data, if available, from the City or TxDOT, including “as-built plans", existing schematics, right-of-way maps, SUE mapping, existing cross sections, existing mapping, environmental documents, existing channel and drainage easement data, PMIS data, identified endangered species, identified hazardous material sites, current unit bid price information, current special provisions, special specifications, and standard drawings.

2. Documents for existing and proposed development along proposed route from local municipalities and local ordinances related to project development.

3. Utility plans and documents from appropriate municipalities and agencies.

4. Readily available flood plain information and studies from the Federal Emergency Management Agency (FEMA), the U. S. Army Corps of Engineers, local municipalities and other governmental agencies in addition to that provided by TxDOT.

B. **Field Reconnaissance:** The Engineer shall conduct field reconnaissance and collect data including a photographic record (to be maintained in Engineer’s office) of notable existing features.

C. **Design Concept Conference:** Design Concept Conference (DCC) will be conducted for this project. Also, a Design Summary Report (DSR) form, along with supporting documents, will be filled out with the 30 percent milestone submittal to be approved by the State.

D. **Roadway and Hydraulic Design Criteria:** The Engineer shall design the project according to the latest City of Houston, AASHTO, and TxDOT's design criteria. The Engineer shall supply project specific design criteria (typical sections, estimate, design exceptions, etc.) to be inserted into the Design Elements form and submitted electronically for discussion at the DCC.

E. **Preliminary Cost Estimate:** The Engineer shall prepare a preliminary construction cost estimate using Houston District’s 12-month and / or 3-month average unit rates, as reasonable.

F. **Geotechnical Borings.** The Engineer shall determine the location of proposed soil borings for pavement design, pipe loading, trench excavation, shoring bedding, groundwater control, backfill for storm sewer, and construction and groundwater control recommendations in accordance with the latest edition of the TxDOT Geotechnical Manual. Pavement design will be in accordance with City of Houston requirements. The City and TxDOT will review and provide comments for a boring layout submitted by the Engineer showing the general location and depths of the proposed borings. Once the Engineer receives the City’s and TxDOT's review

comments they shall perform soil borings (field work), soil testing and prepare the boring logs in accordance with the latest edition of the TxDOT Geotechnical Manual and Houston District's procedures and design guidelines.

All geotechnical work should be performed in accordance with the latest version of the TxDOT Geotechnical Manual. The Engineer shall review field logs and assign laboratory testing. All testing shall be performed in accordance with the latest version of the TxDOT Manual of Test Procedures. ASTM test procedures can be used only in the absence of the TxDOT's procedures. All soil classification should be done in accordance with the Unified Soil Classification System.

The Engineer shall perform retaining wall analyses, if applicable. This analysis should include the computation of the factor of safety for bearing capacity, global stability, overturning and sliding. In addition, the Engineer should include allowable bearing pressure, passive earth pressure, friction factor and lateral earth pressure for the retaining walls.

The Engineer shall provide a signed, sealed and dated geotechnical report which contains but is not limited to soil boring locations, boring logs, laboratory test results, generalized subsurface conditions, ground water conditions, piezometer data, analyses and recommendations for settlement and slope stability of the earthen embankments, skin friction tables and design capacity curves including skin friction and point bearing. The skin friction tables and design capacity curves should be present for piling and drilled shaft foundation.

The Engineer shall provide recommendations for concrete pavement and retaining walls.

The Engineer shall incorporate soil boring data sheets prepared, signed, sealed, and dated by the Geotechnical Engineer in the PS&E package. The soil boring sheets shall be in accordance with TxDOT WINCORE software as can be found on the Texas Department of Transportation website.

A separate proposal for geotechnical services is also attached in Attachment E.

FUNCTION CODE 120(120) – SOCIAL/ECON/ENVIRON STUDIES

SOCIAL, ECONOMIC AND ENVIRONMENTAL STUDIES AND PUBLIC INVOLVEMENT

120.1. Informal Meetings. The Engineer shall provide technical assistance, preparation of exhibits for, and minutes of informal meetings requested by the public to discuss the pending impacts to neighborhoods and businesses due to roadway shutdowns, detours and access restrictions or as deemed necessary. This is not to be confused with the formal public meetings held during the National Environmental Policy Act (NEPA) process during schematic approval for Public Involvement. It is not anticipated that the Engineer's participation will be needed for the NEPA process. Assistance (exhibits, attendance, etc.) may be required for a formal public meeting/hearing associated with schematic approval work.

120.2. Environmental Permits Issues and Commitments (EPIC) Sheets. The Engineer shall complete the latest version of the EPIC sheets per information provided by the State. These sheets must be signed, sealed and dated by the Engineer as indicated in signature block. The final sheets must be submitted for the State's signature.

120.3. Environmental Study Review. The Engineer shall provide the draft and final environmental document to TxDOT for review and approval.

120.4. The Engineer shall coordinate with the Environmental Project Manager and the State's Environmental Engineer for the preparation of these exhibits.

120.5. Cut and Fill Exhibits. If the information is available, the Engineer shall prepare cut and fill exhibits for delineated wetland.

Task 1 – Data Collection -
ENGINEER shall collect, review and evaluate any necessary available and appropriate data pertaining to this project and/or the project area, including but not limited to, aerial photography, demographic maps/Census information, historical and archeological site listings, USGS topographic quadrangle maps, national wetland inventory maps, floodplain maps, hazardous materials database information, proposed letting schedule, design drawings, and any pertinent information related to this proposed project.

Task 2 – Air Quality Analysis – TBD once TIP FUNDING IS SECURED
In accordance with TxDOT's Air Quality Handbook dated May 2017, a Traffic Air Quality Analysis is not required because the project does not add capacity. Also, in accordance with federal guidelines in Section 93.126 of Title 40 CFR, the proposed project, full roadway reconstruction, is exempt from a conformity determination. These findings will be documented in an Air Quality Technical Report.

Task 3 – Mobile Source Air Toxics Analysis TBD once TIP FUNDING IS SECURED
In accordance with TxDOT's Air Quality Handbook dated May 2017, a Mobile Source Air Toxics (MSAT) Analysis is not required because the project is a CE project and does not add capacity and is a project listed in 40 CFR 93.126.

Task 4 – Cultural Resources TBD once TIP FUNDING IS SECURED
Consultant will prepare a Project Coordination Request (PCR) and an Archeological Background Study for coordination with TxDOT-ENV. The two documents are intended to provide initial coordination and documentation to assess effects under and comply with Section 106 of the National Historic Preservation Act (Section 106) and the Antiquities Code of Texas.

Consultant will review the existing files in the Texas Historic Sites Atlas to determine if any previously recorded structures or National Register of Historic Places properties are located within or near the proposed project area. Consultant shall prepare a Non-Archeological Historic Resources PCR (August 2015 version) for review and comment by TxDOT-ENV.

Consultant will review the existing files held by the Texas Archeological Research Laboratory (TARL) and the Texas Historical Commission (THC) to determine if any previously recorded archeological sites, sites or districts listed in the National Register, State Antiquities Landmarks, Registered Texas Historic Landmarks, local landmarks/districts, architectural surveys, cemeteries, or archeological surveys occur within or near the proposed project area. The location of any previously recorded cultural resources sites and surveys will be plotted onto USGS 7.5-minute topographic maps and aerial photographs to evaluate potential constraints. Consultant will also consult the soil survey maps for Harris/Brazoria County, relevant aerial photography, historical maps, land use maps, the Geologic Atlas of Texas and other municipal archival sources to assess the likelihood for cultural resource issues and make recommendations regarding impacts from Memorial Drive Phase II Drainage & Mobility Improvements. The results of this effort will be integrated into Archeological Background Study that summarizes potential impacts and constraints for the proposed project and outlines the process for compliance with state statutes during the planning process.

Field surveys are not included under this scope of work.

Task 5 – Water Quality TBD once TIP FUNDING IS SECURED
ENGINEER shall document compliance with Section 402 of the Clean Water Act (CWA): Texas Pollutant Discharge Elimination System (TPDES), Construction General Permit (CGP) requirements. The Storm Water Pollution Prevention Plan (SW3P), if required, will be prepared by others. The ENGINEER shall identify any impaired waters using the Texas Commission on Environmental Quality (TCEQ) 2018 Section 303(d) Clean Water Act list of impaired waters. This work will be documented in TxDOT's Surface Water Analysis Form dated January 2020.

Task 6 – Floodplains
The Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Map (FIRM) for the project location will be analyzed with respect to the proposed project and the information documented. This task includes preparing an exhibit to include any 100-year floodplain locations. This work will be documented in the Surface Water Analysis Form identified under Task 6 above.

Task 7 – Wetland Determinations and Permitting N/A
The wetland determinations will be conducted using the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region, November 2010*, version 2.0 and the U.S. Army Corps of Engineers (USACE) Wetland Delineation Manual, Technical Report Y-87-1, January 1987, Final Report (1987 Manual). This task will include completing Wetland Determination Data Forms, according to the Supplement. This task will include identifying any other waters of the U.S. (e.g. creeks, streams, etc.), which would be subject to regulation under Section 404 of the Clean Water Act. The results of the wetland determinations will be documented in a Waters of the U.S Delineation Report.

This scope of services and fee is based on one jurisdictional stream (Clear Creek) with adjacent wetlands being present within the project limits and that the project will require a Nationwide Permit 14 with a Pre-Construction Notification (PCN). **The design drawings required for the PCN will be prepared by others. If it's desired for ENGINEER to**

prepare the PCN design drawings, additional fee will need to be added.

Task 8 – Vegetation Inventory N/A
ENGINEER shall assess the existing vegetation in the immediate proposed project area. The vegetation discussion will comply with the Memorandum of Understanding (MOU) between TxDOT and Texas Parks and Wildlife Department (TPWD) effective September 1, 2013. The results and findings will be documented in TPWD's Tier I Site Assessment dated December 2019 which assesses the need for TPWD coordination.

Task 9 – Threatened and Endangered Species TBD once TIP FUNDING IS SECURED
ENGINEER shall conduct threatened and endangered species habitat assessments using the U.S. Fish and Wildlife Service (USFWS) and TPWD threatened and endangered species list and shall conduct a Natural Diversity Database (NDD) search. The results and findings will be documented in TxDOT's Species Analysis Form dated January 2020 and Species Analysis Spreadsheet dated April 2020. This scope of services and fee is based on a no effect determination. The Species Analysis Form also addresses the Bald and Golden Eagle Protection Act and Migratory Bird Treaty Act.

Task 10 – Hazardous Materials TBD once TIP FUNDING IS SECURED
ENGINEER shall conduct a hazardous materials initial site assessment for the proposed project to identify sites within the project area that may have experienced soil and/or groundwater contamination by hazardous materials. The assessment will consist of a review of regulatory/governmental agency database records and an onsite investigation. The regulatory database search will occur within the minimum search distances set by American Society for Testing and Materials (ASTM) E 1527-13. The results of the hazardous materials investigation will be documented in TxDOT's Hazardous Materials Initial Site Assessment Report dated December 2019.

Task 11 – Community Impact Analysis TBD once TIP FUNDING IS SECURED
ENGINEER will complete TxDOT's Community Impacts Assessment Technical Report Form dated August 2019. Since this is a hike and bike trail project and does not involve any improvements or alterations to roadways or travel lanes, TxDOT's Demographic Characteristics for Community Impacts Study Area Table and Detailed Economic Analysis Form dated August 2019 will not be required and is therefore, not included in this scope of services or fee.

Task 12 – Indirect and Cumulative Impact Analyses TBD once TIP FUNDING IS SECURED
In accordance with TxDOT's Indirect Impacts Analysis Guidance dated January 2019, a written indirect impacts analysis is not required for a CE project and will therefore, not be conducted in this scope of services. Also, in accordance with TxDOT's Cumulative Impacts Analysis Guidelines dated January 2019, a written cumulative impacts analysis is not required for a CE project and will therefore, not be conducted in this scope of services.

Task 13 – Traffic Noise TBD once TIP FUNDING IS SECURED
Since this is roadway reconstruction will not involve additional capacity improvements to any roadways and there will be no substantial vertical or horizontal alterations to any roadways, a noise analysis will not be required in accordance with TxDOT's Traffic Noise Handbook dated May 2018 and their new 2019 noise policy.

Task 14 – Notice and Opportunity to Comment TBD once TIP FUNDING IS SECURED

A notice and opportunity to comment will be mailed directly to adjacent property owners and affected local governments and public officials to inform them of the project and allow them an opportunity to submit comments prior to the environmental decision on the project (43 TAC 2.104). A 15-day comment period is provided to these recipients.

Documentation of Notice and Opportunity to Comment will then be prepared which will contain the following information:

- Cover Page;
- Comment/Response Matrix;
- Notices Provided;
- Comments Received;

This scope of services does not include any public meetings or public hearings.

This Scope of Services does not include prime farmlands, Section 4(f) Evaluation (required for taking parkland, recreation land, and historic sites), Biological Assessment/Biological Evaluation (associated with endangered species/habitat impacts), Section 7 Consultation with the U.S. Fish and Wildlife Service, U.S. Coast Guard Section 9 permit, USACE Section 10 permit or Section 404 Individual Permit. Should any of these services be determined necessary, the ENGINEER will perform the associated work as additional services.

FUNCTION CODE 130(130) – RIGHT-OF-WAY (ROW) DATA

All standards, procedures and equipment used by the Engineer's Surveyor shall be such that the results of the survey will be in accordance with Board Rule 663.15, as promulgated by the Texas Board of Professional Land Surveyors.

The Engineer shall locate the existing ROW within the project limits from the current project control monuments and prepare a layout map for the project.

130.1. Right-of-Way Map. The Engineer shall review and evaluate the proposed or existing right-of-way map to verify that all construction staging and alignment considerations have been taken into account. The Engineer shall make every effort to prevent detours and utility relocations from extending beyond the proposed right-of-way lines. The Engineer shall notify the State in writing if it is necessary to obtain additional construction easements or rights-of-entry and shall provide justification for such action. The Engineer shall be responsible for identifying and delineating any temporary construction easements in areas outside the State's Right of Way. The State shall secure the necessary legal instruments.

130.2. Utility Locations and Layouts. The Engineer shall coordinate with the State and all utility owners to determine the location of each existing utility facility within the public ROW and review proposed utility relocation needs. The Engineer shall attend meetings with the various utility companies to discuss potential conflicts and conflict resolution. The Engineer shall identify and

coordinate with each utility company for relocations required within each construction easement or right-of entry. The existing and proposed utility layout shall be represented in the plans.

130.3. Access Management. The Engineer shall coordinate and evaluate access management within the project limits in accordance with the latest State Access Management Manual or as directed by the State.

FUNCTION CODE 145(145, 164) – MANAGING CONTRACTED/DONATED PE

PROJECT MANAGEMENT AND ADMINISTRATION

The Engineer, in association with the State's Project Manager shall be responsible for directing and coordinating all activities associated with the project to comply with State policies and procedures, and to deliver that work on time.
Project Management and Coordination. The Engineer shall coordinate all subconsultant activity to include quality of and consistency of plans and administration of the invoices and monthly progress reports. The Engineer shall coordinate with necessary local entities.

The Engineer shall:

- Prepare monthly written progress reports for each project.
- Develop and maintain a detailed project schedule to track project conformance to Exhibit C, Work Schedule, for each work authorization. The schedule submittals shall be hard copy and electronic format.
- Meet on a scheduled basis with the State to review project progress.
- Prepare, distribute, and file both written and electronic correspondence.
- Prepare and distribute meeting minutes.
- Document phone calls and conference calls as required during the project to coordinate the work for various team members.

FUNCTION CODE 160(150) – ROADWAY DESIGN

Design Surveys and Construction Surveys

Topographic surveying will be performed in compliance with the **latest TxDOT Survey Manua**l, as applicable. Survey limit consists of 3,800 feet of street. Width of survey will be limited to the ROW and 100 feet down side streets. In general, our office will perform necessary field and office work for the following items:

- Horizontal and vertical controls will be established and tied to the Texas State Plane Coordinate System, South Central Zone NAD 83 and datum NAVD 88.
- Survey will be tied to the nearby TxDOT Monument and City of Houston Monument as applicable for TxDOT Local Let Survey Checklist
- Cross sections will be surveyed at a spacing not exceeding 100 feet interval along the project route.
- All planimetric features (including curb, gutter, driveway, fence, sidewalk, ramp, bush, plant, 4" and larger caliper trees, etc.) will be surveyed along the road right-of-way within the limit specified in the Chapter 2 of the City design Manual. The

survey will be extended on all sides of street intersections at least to 100’ as per the requirements of design manual, unless otherwise warranted for your design.

- All visible existing utilities (i.e., manholes, culverts, power poles, etc.) will be located and pipe size and flow line measure downs in the manholes and inlets will be obtained including along south side of Memorial Dr east of Tealwood N Drive as marked in the attached exhibit.
- Texas one-call system will be notified, and pipeline companies will be contacted to probe and mark their pipeline (if any) locations to be tied to the survey.
- Attempt will be made to recover and verify sufficient monumentation along the existing roadway to establish estimated right-of-way lines for topographic surveying scope. Task of establishing estimated ROW may involve some limited abstracting and deed research, however, detail boundary category survey is excluded in determination.
- Plan view drawings will be prepared containing all topographic information and visible utility features according to the COH standards in Microstation format.
- Signed and sealed field books containing notes as well as ASCII files of point numbers, coordinates, and descriptions will be provided.
- Tie to TSARP/FEMA Monument: nearby TSARP monument will be tied to the survey and an equation will be provided in between surveyed elevation (on the CORS datum) and ublished elevation of the TSARP (on NAVD 88, 2001 adj).
- Borehole Survey: Boreholes will be located in the field and a spreadsheet will be prepared to show their location and elevation.
- Survey Control Map: A survey control map will be prepared to the TxDOT Local Let Survey Criteria. The survey control map will be signed and sealed by a Registered Professional Land Surveyor in charge of the project.
- City of Houston Monument: New City of Houston monuments will be established or/and existing City monuments (if any) will be recovered and updated to the new datum as per the City of Houston Ordinance and in accordance with Design Manual Section. Prepare map for the new/updated monument for City’s approval.
- Coordinate with private utility companies and City of Houston for record drawings
- Perform utility research and delineation of underground utility lines from available record drawing and surveyed information
- Prepare plan view for existing utilities based on field findings and available record information
- Prepare profile for ground lines corresponding to the center line of the streets, center line of the ditch/curb lines, right-of-way lines
- Prepare profile view of existing utilities based on field findings and available record information
- Prepare DTM model for the surveyed data

All standards, procedures and equipment used shall be such that the results of survey shall be in accordance with Board Rule 663.15, as promulgated by the Texas Board of Professional Land Surveyors.

Exclusions:

- Boundary level survey for determining of right of way of the street
- Any Level A and B SUE category survey

- Surveying SUE findings (by others)
- Accessing/opening electric and communication manholes
- Surveying any confined space of large manhole structure (if any)
- Surveying within fenced private areas

Deliverables:

- Topographic survey drawing in DGN format
- Signed and sealed survey control maps with TxDOT Local Let Surveying check list
- Copy of the field book
- ASCII file of survey data

FUNCTION CODE 160(160) - ROADWAY DESIGN

ROADWAY DESIGN CONTROLS (COMPUTATIONS AND DRAFTING)

The Engineer shall inform the State of changes made from previous initial meetings regarding each exception, waiver, and variance that may affect the design. The Engineer shall cease all work under this task until the exceptions, waivers, and variances have been resolved between the Engineer and the State unless otherwise directed by the State to proceed. The Engineer shall identify, prepare exhibits, and complete all necessary forms for Design Exceptions and Waivers within project limits prior to the 30% Submittal. These exceptions shall be provided to the State for coordination and processing of approvals.

160.1. Geometric Design. The Engineer shall:

A. Refine Schematic (This task may be deleted if the schematic is not available and replaced with Preliminary Geometric layout). The Engineer shall review the schematic provided by the State to confirm their understanding of the project and to verify completeness and accuracy of the information. The Engineer shall refine the horizontal and vertical alignment of the design schematic in English units for main lanes, ramps, direct connectors, frontage roads, cross streets, including grade separation structures. The Engineer shall determine vertical clearances at grade separations and overpasses, taking into account the appropriate percent grade and super-elevation rate. Minor modifications in the alignment must be considered to provide optimal design. Modifications must be coordinated with the State and adjacent Engineers. The State must approve the refined schematic prior to the Engineer proceeding to the 30% milestone submittal, and prior to starting on the bridge layouts.

B. Preliminary Geometric Project Layout. The Engineer shall develop a preliminary geometric project layout (Layout) for the full length of the project to be reviewed and approved by the State prior to the Engineer proceeding with the 30% milestone submittal package.

The Layout must consist of a planimetric file of existing features and the proposed improvements within the existing and any proposed ROW. The Layout must also include the following features: existing and proposed ROW, existing and proposed horizontal and

vertical alignment and profile grade line, cross culverts, lane widths, cross slopes, ditch slopes, pavement structure, clear zone, dedicated right turn lanes, corner clips, retaining walls (if applicable) guard rail (if applicable), and water surface elevations for various rainfall frequencies, etc. Existing major subsurface and surface utilities must be shown on the Layout.
The Engineer shall develop the proposed alignment to avoid the relocation of existing utilities as much as possible. The Engineer shall consider Americans with Disabilities Act (ADA) requirements when developing the Layout. The Layout must be prepared in accordance with the current Roadway Design Manual. The Engineer shall provide horizontal and vertical alignment of the project layout in English units for main lanes and cross streets. Minor alignment alternatives must be considered to provide for an optimal design. The project layout must be coordinated with the State and adjacent Engineers, if any. The Engineer shall also provide proposed and existing typical sections with the profile grade line (PGL), lane widths, cross slopes, ROW lines, ditch shapes, pavement structures and clear zones depicted, etc.

Prior to proceeding with the final preliminary geometric layout the Engineer shall also present to the State for review and approval, alternatives for the design (e.g. flush or raised curb median) with recommendations and cost estimates for each alternative. The Engineer shall also attend all necessary meetings to discuss the outcome of the evaluations of the study.

160.2. Roadway Design.

The Engineer shall use Bentley's Geopak software or OpenRoads 3D Design technology (if necessary) in the design and preparation of the roadway plan sheets. The Engineer shall use the versions of MicroStation and GEOPAK that are implemented at TxDOT at the time the work authorization is executed. However, TxDOT may approve the use of other versions.

The Engineer shall provide roadway plan and profile drawings using CADD standards as required by the State. The drawings must consist of a planimetric file of existing features and files of the proposed improvements. The roadway base map must contain line work that depicts existing surface features obtained from the schematic drawing. Existing major subsurface and surface utilities must be shown if requested by the State. Existing and proposed right-of-way lines must be

shown. Plan and Profile must be shown on separate or same sheets (this depends upon width of pavement) for main lanes, frontage roads, and direct connectors.
The plan view must contain the following design elements:

1. Calculated roadway centerlines for mainlanes, ramps, cross streets and frontage roads, as applicable. Horizontal control points must be shown. The alignments must be calculated using OpenRoads horizontal geometry tools.
2. Pavement edges for all improvements (mainlanes, direct connectors, ramps, cross streets, driveways and frontage roads, if applicable).
3. Lane and pavement width dimensions.
4. The geometrics of ramps, auxiliary and managed lanes.

5. Proposed structure locations, lengths, and widths.
6. Direction of traffic flow on all roadways. Lane lines and arrows indicating the number of lanes must also be shown.
7. Drawing scale shall be 1”=40’
8. Control of access line, ROW lines and easements.
9. Begin and end superelevation transitions and cross slope changes.
10. Limits of riprap, block sod, and seeding.
11. Existing utilities and structures.
12. Benchmark information.
13. Radii call outs, curb location, Concrete Traffic Barrier (CTB), guard fence, crash safety items and American with Disabilities Act Accessibility Guidelines (ADAAG) compliance items.

The profile view must contain the following design elements:

1. Calculated profile grade for proposed mainlanes (cite direction), direct connectors, ramps, cross streets and frontage roads, if applicable. Vertical curve data, including “K” values must be shown. The profiles must be calculated using OpenRoads vertical geometry tools.
2. Existing and proposed profiles along the proposed centerline of the mainlanes, the outside shoulder line of ramps, and the outside gutter line of the designated (north, south, east or west) bound frontage roads.
3. Water surface elevations at major stream crossing for 2, 5, 10, 25, 50, and 100 year storms.
4. Calculated vertical clearances at grade separations and overpasses, taking into account the appropriate superelevation rate, superstructure depth and required clearance.
5. The location of interchanges, mainlanes, grade separations and ramps (shall include cross sections of any proposed or existing roadway, structure, or utility crossing).
6. Drawing vertical scale to be 1”=4’.

160.3. Typical Sections:

The Engineer shall prepare typical sections for all proposed and existing roadways and structures. Typical sections must include width of travel lanes, shoulders, outer separations, border widths, curb offsets, managed lanes, and ROW. The typical section must also include Proposed Profile Gradeline (PGL), centerline, pavement design, longitudinal joints, side slopes, sodding or seeding limits, concrete traffic barriers and sidewalks, if required, station limits, common proposed and existing structures including retaining walls, existing pavement removal, riprap, limits of embankment and excavation, etc.

160.4. Cross Streets. The Engineer shall provide an intersection layout detailing the pavement design and drainage design at the intersection of each cross street. The layout must include the horizontal and vertical alignments, curb returns, geometrics, transition length, stationing, pavement, drainage details, and American with Disabilities Act Accessibility Guidelines (ADAAG) compliance items.

The Engineer shall design for full pavement width to the ROW and provide a transition to the existing roadway.

160.5. Cut and Fill Quantities. The Engineer shall develop an earthwork analysis to determine cut and fill quantities and provide final design cross sections at 100 feet intervals. Cross sections must be delivered in the standard TxDOT format on 11"x17" sheets or roll plots and electronic files. The Engineer shall provide templates and corridors used to generate the design cross sections. Cross sections and quantities must include existing pavement removals. Annotation shall include at a minimum existing and proposed ROW, side slopes (front & back), profiles, etc.

The Engineer shall submit 12 sets of electronic drawings at the 30%, 60%, and 90%, 95% and final submittals, respectively.

160.6. Plan Preparation. The Engineer shall prepare roadway plans, profiles and typical sections for the proposed improvements. Prior to the 30% submittal, the Engineer shall schedule a workshop to review profiles, and cross-sections with the State. The profile and cross sections must depict the 2, 5, 10, 25, 50, 100, and 500-year (if available) water surface elevations. The drawings will provide an overall view of the roadway and existing ground elevations with respect to the various storm design frequencies for the length of the project. This will enable the State to determine the most feasible proposed roadway profile. The State will approve the proposed profiles, and cross sections before the Engineer continues with the subsequent submittals. This scope of services and the corresponding cost proposal are based on the Engineer preparing plans to construct freeway main lanes, direct connectors, ramps, frontage roads, and cross streets at intersections. The roadway plans must consist of the types and be organized in the sequence as described in the *PS&E Preparation manual*.

160.7. Pavement Design. If applicable, the Engineer shall incorporate the pavement design developed by the State for this project. If the pavement design is not available, the State may request the Engineer to perform pavement design and submit to State for review and approval.

160.8. Pedestrian and Bicycle Facilities. The Engineer shall coordinate with the State to incorporate pedestrian and bicycle facilities as required or shown on the project's schematic. All pedestrian and bicycle facilities must be designed in accordance with the latest Americans with Disabilities Act Accessibility Guidelines (ADAAG), the Texas Accessibility Standards (TAS), and the AASHTO Guide for the Development of Bicycle Facilities

FUNCTION CODE 160(161) - ROADWAY DESIGN

DRAINAGE

161.1. Data Collection. The Engineer shall provide the following data collection services:

1. Conduct field inspections to observe current conditions, locate and verify

outfalls, cross drainage structures, drainage easements, tributary channels or ditches, and/or land development projects that that may contribute flow to the project and drainage outfall. Document field inspections with digital photos.

2. Collect available applicable data including GIS data and maps, site survey data, construction plans, previous reports and studies, and readily available rainfall history for the area. Particular sources of data collected must include, but are not limited to, the State, County, City, and Federal Emergency Management Agency (FEMA).

3. Review previous drainage studies for the region including the Memorial Drive Phase I drainage impact analysis, TIRZ 17 Regional Drainage Studies, and HCFCD W151-00-00 and W153-00-00 Bond project reports.

4. Collect available Flood Insurance Rate Maps (FIRMs), Flood Insurance Study (FIS) study data, and models if required.

5. Review survey data and coordinate any additional surveying needs with East End District and State.

6. Meet with local government officials to obtain historical flood records. Interview local residents or local government employees to obtain additional high-water information if available. Obtain available data for frequency of road closure and any additional high-water information from the City and District Maintenance office.

161.2. Hydrologic Studies. The Engineer shall provide the following services:

The Engineer shall conduct hydrologic analysis for approximately 0.4 miles of roadway, the contributing drainage area to the roadway including the 3 outfalls. This analysis must incorporate a thorough evaluation of the methodology available, comparison of the results of two or more methods, and calibration of results against measured data. The analysis must consider the pre-construction (existing) and post-construction (proposed) conditions. Specific scope of work includes the following:

1. Incorporate in the hydrologic study a thorough evaluation of the methodology available, comparison of the results of two or more methods, and calibration of results against measured data, if available.

2. Calculate discharges using appropriate hydrologic methods and as approved by the City and State.

3. Consider the pre-construction and post-construction conditions in the hydrologic study, as required in the individual Work Authorization. Account for changes in impervious cover.

4. Obtain the drainage area boundaries and hydrologic parameters such as impervious covered areas, and overland flow paths and slopes from appropriate sources including, but are not limited to, topographic maps, GIS modeling, construction plans, and existing hydrologic studies. The Engineer shall not use existing hydrologic studies without assessing of their validity. If necessary, obtain additional information such as local rainfall from official sites such as airports.

5. Include, at a minimum, the “design” frequency to be specified in the Work Authorization and the 1% Annual Exceedance Probability (AEP) storm frequency. The report must include the full range of frequencies (50%, 20% 10%, 4%, 2%, 1%, and 0.2% AEP).

6. Delineate existing conditions drainage area boundaries for approximately 0.4 miles of roadway ROW and contributing drainage areas to the existing three cross drainage structures. This includes delineation of drainage areas to each outfall as well as further delineation of sub-drainage areas specific to each existing and proposed ditch / storm sewer. The drainage area boundaries will be checked using 2018 LiDAR data, survey, and field observations. Existing hydrologic studies will not be used without Engineer’s assessment of validity.

7. Determine existing conditions hydrologic parameters such as impervious covered areas, overland flow paths and slopes from appropriate sources including topographic maps, GIS modeling, the National Land Cover Dataset (NLCD), and construction plans and existing hydrologic studies. Hydrologic parameters will be calculated for approximately 0.4 miles of existing roadway ROW and contributing drainage area. This includes the offsite drainage areas as well as sub-drainage areas specific to each existing and proposed ditch / storm sewer.

8. Calculate existing conditions discharges using appropriate hydrologic methods including the use of Atlas 14 rainfall. Include at a minimum, the “design” frequency to be specified by the State and the 1% AEP storm frequency. It may be required to include the full range of frequencies (50%, 20%, 10%, 4%, 2%, 1%, and 0.2% AEP). This includes development of both peak flows and full hydrographs.

9. Delineate proposed conditions drainage area boundaries for the proposed approximately 0.4 miles of roadway ROW and contributing drainage areas to the proposed outfall structures. This includes delineation of drainage areas to each outfall as well as further delineation of sub-drainage areas specific to each existing and proposed ditch / storm sewer.

10. Determine proposed conditions hydrologic parameters such as impervious covered areas, overland flow paths and slopes from appropriate sources including topographic maps, GIS modeling, and construction plans and existing hydrologic studies. Hydrologic parameters will be calculated for the approximately 0.4 miles of proposed roadway ROW and contributing drainage area to the three cross drainage structures. Parameters will be determined for proposed conditions and a design scenario including a 150-foot development strip from the State ROW.

11. Calculate proposed conditions discharges using the rational methods and Atlas 14 rainfall. Include at a minimum, the “design” frequency to be specified by the State and the 1% AEP storm frequency. It may be

required to include the full range of frequencies (50%, 20%, 10%, 4%, 2%, 1%, and 0.2% AEP).

12. Develop hydrographs for each analysis drainage area using time of concentration and peak flow data. Following the City of Houston guidelines, and in conformance with TxDOT criteria, HMS will be used to develop Clark hydrographs that match the peak flow and time of concentration.

161.3. Complex Hydraulic Design, Roadway Impact Analysis and Documentation. The Engineer shall provide the following services:

1. Gather information regarding existing drainage facilities and features from existing plans and other available studies or sources.

2. Perform hydraulic design and analysis using EPA SWMM, PC SWMM or XP SWMM. Data entry for appropriate hydraulic computer programs shall consist of a combination of both on-the-ground survey and other appropriate sources including but not limited to topographic maps, GIS modeling, and construction plans and existing hydrologic studies.

5. Consider pre-construction, present and post-construction conditions, as well as future widening, as determined in the Work Authorization.

6. Quantify impacts, beneficial or adverse, in terms of increases in peak flow rates and water surface elevations for the above listed hydraulic conditions and hydrologic events. Impacts will be determined at project outfall locations.

8. Use hydrograph calculations using Small Watershed Method and peak flows to determine the storage required.

9. If necessary, present mitigation measures along with the advantages and disadvantages of each. Each method must consider the effects on the entire area. Include approximate construction costs in the report.

10. Develop cut and fill volumes within the 1% AEP using GEOPAK and verify with hand calculations. Provide hand calculations which quantify the cut and fill within the 1% AEP flood plain.

11. Identify preliminary target mitigation volume to each outfall based on the Small Watershed Method (Item 161.3-8, and Item 161.3-10). It is anticipated that all detention will be accounted for in the existing ROW.

12. Review 2D modeling data from previously performed Preliminary Engineering to capture and quantify offsite contributing flow to the proposed project corridor. Assign the flow to specific project drainage areas.

13. Develop existing conditions SWMM model for the project corridor. Incorporate offsite flows from the 2D model developed during Preliminary Engineering. Determine existing conditions tailwater elevation at each of the outfalls based on the FEMA effective models adjusted for Atlas 14.

14. Assess existing drainage system in SWMM to determine existing

conditions discharges to each outfall and the existing hydraulic grade line through the drainage system.

15. Develop proposed conditions SWMM model for the project corridor. Incorporate offsite flows from the 2D model developed during Preliminary Engineering. Determine proposed conditions tailwater elevation at each of the outfalls based on the FEMA effective models adjusted for Atlas 14. Size the drainage system to meet the design criteria for the State. Quantify impacts at each of the existing outfall points, both overland and sub-surface.

16. Conduct a 1% AEP sheet flow analysis using the SWMM model for both existing and proposed conditions. The proposed improvements involve the conversion of the corridor from elevated roadside ditch to lowered curb and gutter. Determine the overland sheet flow impacts resulting from the lowering of the roadway surface. Coordinate necessary profile adjustments with roadway team.

17. Develop roadway and Water Surface Elevation (WSEL) profiles plots. Prior to the 30% submittal the Engineer shall schedule a workshop to review the WSEL profiles with the State. The profile must depict the 2, 5, 10, 25, 50, 100 and 500-year (if available) water surface elevations. The drawings must provide an overall view of the roadway and existing ground elevations with respect to the various storm design frequencies for the length of the project. This must enable the State to determine the most feasible proposed roadway profile. The State approval of the proposed profiles must be procured before the Engineer continues with the subsequent submittals. The roadway plans must be complete and organized in accordance with the latest edition of the State's PS&E Preparation Manual. The WSEL Profile drawings must be included in the Drainage Report.

18. Optimize proposed drainage system in SWMM to meet design criteria and to ensure no increase in proposed discharges above existing discharges. Optimization will include, when possible, the use of in-line detention within the storm sewer system with discharges controlled by restrictors. The Engineer shall also evaluate alternative flow routes or minor adjustments to system drainge area boundaries, if necessary, to relieve system overload. Detention requirements shall be coordinated with the State. Unsteady hydrograph routing within SWMM will be performed to assess no adverse impact in both the 10% and 1% events. The fully mitigated drainage system design will be used as the baseline for establishing City/TIRZ 17 betterments above and beyond the standard State design.

19. Incorporate into the proposed SWMM model the proposed storm sewer trunkline design from the Preliminary Engineering report, which includes oversizing the storm sewer trunkline for regional flood mitigation benefits as defined in the regional TIRZ 17 master drainge plan. This project is part of a local master drainage plan that calls for oversized trunklines. Ensure no increase in proposed discharges above existing discharges. Optimization will include, when possible, the use of in-line detention within the storm sewer system with discharges controlled by restrictors.

20. Evaluate differences in the trunkline sizes and associated cost to establish the City/TIRZ cost responsibility to the increase in volume above the standard State requirements.

161.4. Storm Drains

The Engineer shall provide the following services:

1. Design and analyze storm drains using GEOPAK Drainage.
2. Size inlets, laterals, trunk line and outfall. Develop designs that minimize the interference with the passage of traffic or incur damage to the highway and local property in accordance with the State's Hydraulic Design Manual, District criteria and any specific guidance provided by the State. Storm drain design software shall be selected as directed by the Work Authorization.
3. Determine hydraulic grade line starting at the outfall channel for each storm drain design. Use the design water surface elevation of the outfall as the starting basis (tailwater) for the design of the proposed storm sewer system.
4. Calculate manhole headlosses. Compute manhole head losses as per FHWA's HEC-22.
5. Limit discharge into existing storm drains and existing outfalls to the capacity of the existing system, which will be determined by the Engineer. Evaluate alternate flow routes or detention, if necessary, to relieve system overload. Determine the amount of the total detention storage to control storm drain runoff for the design frequency based on hydrograph routing for the full range of frequencies (50%, 20% 10%, 4%, 2%, 1%, and 0.2% AEP), as well as a rough estimate of the available on-site volume. When oversized storm drains are used for detention, the Engineer shall evaluate the hydraulic gradeline throughout the whole system, within project limits, for the design frequency or frequencies. The Engineer shall coordinate with the State any proposed changes to the detention systems. The State will assess the effects of such changes on the comprehensive drainage studies.
6. Identify areas requiring trench protection, excavation, shoring, and de-watering.
7. Develop GEOPAK Drainage model for the existing drainage system.
8. Develop GEOPAK Drainage model for the proposed drainage system. Evaluate inlet spacing and ponding criteria.

161.5. Cross-Drainage Structures: The Engineer shall provide the following services:

Not applicable

161.6. Temporary Drainage Facilities: The Engineer shall provide the following services:

1. Develop plans for all temporary drainage facilities necessary to allow staged construction of the project and to conform with the phasing of adjacent construction projects without significant impact to the hydraulic capacity of the area. Drainage area maps are not required for temporary drainage.

161.7. Scour Analysis. The Engineer shall provide the following services:

Not applicable

161.8. Environmental Permits:

Not applicable

161.9. Plans, Specifications and Estimates (PS&E) Development for Hydraulics: The Engineer shall provide the following services:

a. Prepare the PS&E package in accordance with the applicable requirements of the State's specifications, standards, and manuals, including the PS&E Preparation Manual. Include the following sheets and documents, as appropriate:

i. Overall Drainage Area Maps – Existing (1 Sheet)

ii. Overall Drainage Area Maps – Proposed (1 Sheet)

iii. Internal Drainage Area Maps – Existing (3 Sheets)

iv. Internal Drainage Area Maps – Proposed (3 Sheets)

v. Storm Sewer Hydrologic Data Sheets

vi. Storm Sewer Hydraulic Data Sheets

vii. 0.4 Miles of Storm Drain Plan/Profile Sheets (6 Sheets)

viii. Storm Sewer Lateral Sheets (3 Sheets)

ix. Junction Box Sheets (3 Sheets)

x. Miscellaneous Drainage Detail Sheets (2 Sheets)

xi. Drainage Standards Sheets (10 Sheets)

b. Identify areas requiring trench protection, excavation, shoring and de-watering.

c. Prepare drainage area maps.

d. Prepare plan and profile sheets for storm drain systems and outfall ditches.

e. Select any necessary standard details from State or District's list of standards for items such as inlets, manholes, junction boxes and end treatments.

f. Prepare details for non-standard inlets, manholes and junction boxes.

g. Prepare drainage details for outlet protection, outlet structures and utility accommodation structures.

h. Identify pipe strength requirements.

i. Prepare drainage facility quantity summaries.

j. Identify potential utility conflicts and, if feasible, design to mitigate or avoid those identified conflicts.

k. Consider pedestrian facilities, utility impacts, driveway grades, retaining wall and concrete traffic barrier drainage impacts.

l. Identify existing ground elevation profiles at the ROW lines on storm sewer plan and profile sheets.

m. GeoPak Drainage Product will be used for the drainage analysis.

PROJECT DELIVERABLES

The Engineer shall provide milestone submittals in accordance with Exhibit C, Work Schedule, and the "Guidelines for PS&E Milestone Submittals". The Engineer shall implement their Quality Assurance and Quality Control program prior to submitting a drainage study to the State for each of the milestones. Additionally, the Engineer shall provide evidence of their internal review process in the form of a set of red-line mark-ups to be submitted at each milestone. A milestone submittal is not considered complete unless the required milestone documents and associated internal redline mark-ups are submitted. This information will not be reviewed nor checked by the State but instead serves as documentation that the Engineer has performed an internal review of their own work and that of their sub-providers. This request for documentation of the internal review process is not to be considered as additional work but rather it is a routine order of business.

A. REPORTS

1. Draft Drainage Impact Analysis Report

   a. The Engineer shall prepare a draft drainage report which shall include the preliminary findings. The report shall also include conceptual and generic discussions of the alternatives considered, and a recommended solution.

   b. The recommended solution must be analyzed in detail to reflect the mitigation requirements for the roadway development.

c. Storm drain discussion must include the preliminary sizing of the storm drain, requirement for line rerouting, preliminary detention storage volumes (if required) based on hydrograph, and initial recommendations on mitigation of impacts on the receiving streams.

d. The report must document and justify all data, boundary conditions, assumptions, methodologies, and results. The text, tables, exhibits, and appendices must document clearly and concisely the work performed and results found. The report must provide recommendations for critical review by the State. Such recommendations may include corrective actions by the State, corrective actions by others, or need for further detailed analysis such as an unsteady model analysis or the development of mitigation measures. The Engineer shall save text, tables, exhibits, and appendices (including computer models) on a small storage device or thrum drive and included the device with each report.

e. Assume one round of comments from the State and one round of comments by the City of Houston. The Engineer shall address all State and City comments.

f. Three copies of a draft drainage report for review and comment.

2. Final Drainage Impact Analysis Report

a. Three originals of a finalized drainage report.

b. The reports must be signed and sealed by a professional engineer.

c. Provide a complete version of the report and calculations to the State Project Manager via Dropbox.

B. DRAINAGE PS&E PACKAGE

The Engineer shall submit to the State's District Office for review and approval:

1. Draft drainage impact analysis report.
   - One set of 11" x 17" plan sets for the State's district review.
   - Quantity summaries.
   - Standard Details.

2. 60% Plans Submittal:

   - Draft drainage impact analysis report.
   - One set of 11" x 17" plan sets for the State's district review.
   - Quantity summaries.
   - Standard Details.

3. 90% Plans Submittal:

- Final drainage impact analysis report.
- One set of 11” x 17” plan sheets for the State’s district review.
- Quantity summaries.
- Marked up general notes.
- Standard Details.
- Special Details.
- New Special Specifications and Special Provisions with Form 1814, if applicable.
- Engineer’s internal QA/QC marked up set.
- Other supporting documents.

4. 95% Plans Submittal:

- One set of 11” x 17” plan sheets for the State’s district review.
- List of governing Specifications and Special Provisions in addition to those required.
- Marked up general notes.
- Quantity summaries.
- Standard Details.
- Special Details.
- New Special Specifications and Special Provisions with Form 1814, if applicable.
- Engineer’s internal QC marked-up set.
- Other supporting documents.

5. Final Plans Submittal (100%):

- One set of 11” x 17” final signed and sealed plan sheets in an electronic pdf format (in color).
- One set of 11” x 17” final signed and sealed plan sheets plotted on paper.
- Revised supporting documents from 95% review comments.

C. ELECTRONIC COPIES

1. The Engineer shall furnish the State with a CD or DVD of the final plans in the format of current CADD system used by the State, pdf format, and in the District’s File Management System (FMS) format. The final drainage report shall be included in pdf format.

2. A fully functioning HEC-RAS and HEC-HMS model shall be included on a CD or DVD, in a format so that allows the State to open, maneuver, and QA/QC the models.

D. CALCULATIONS

The Engineer shall provide the following:

1. A bound copy of all engineering calculations, analysis, input calculations, quantities, geometric designs (GEOPAK GPK files), etc. relating to the project's structural elements. Project structural elements include, but are not limited to: non-standard culverts, custom headwalls, and drainage appurtenances.

2. Working copies of all spreadsheets and input and output from any programs utilized on a CD or DVD in a universally reliable format.

The Engineer may provide the requested information on a thumb drive, CD or DVD in pdf format.

FUNCTION CODE 160(162) - ROADWAY DESIGN

SIGNING, PAVEMENT MARKINGS AND SIGNALIZATION (PERMANENT)

162.1. Signing. The Engineer shall prepare drawings, specifications, and details for all signs. The Engineer shall coordinate with the State (and other Engineers as required) for overall temporary, interim and final signing strategies and placement of signs outside contract limits. The Engineer shall:

- Prepare sign detail sheets for large guide signs showing dimensions, lettering, shields, borders, corner radii, etc., and shall provide a summary of large and small signs to be removed, relocated, or replaced.
- Designate the shields to be attached to guide signs.
- Illustrate and number the proposed signs on plan sheets.
- Select each sign foundation from State Standards.

162.2. Pavement Marking. The Engineer shall detail both permanent and temporary pavement markings and channelization devices on plan sheets. The Engineer shall coordinate with the State (and other Engineers as required) for overall temporary, interim, and final pavement marking strategies. The Engineer shall select Pavement markings from the latest State standards.

The Engineer shall provide the following information on sign and pavement marking layouts:

- Roadway layout.
- Center line with station numbering.
- Designation of arrow used on exit direction signs
- Culverts and other structures that present a hazard to traffic.
- Location of utilities.
- Existing signs to remain, to be removed, to be relocated or replaced.
- Proposed signs (illustrated, numbered and size).
- Proposed overhead sign bridges to remain, to be revised, removed,

relocated, or replaced.
- Proposed overhead sign bridges, indicating location by plan.
- Proposed markings (illustrated and quantified) which include pavement markings, object markings and delineation.
- Quantities of existing pavement markings to be removed.
- Proposed delineators, object markers, and mailboxes.
- The location of interchanges, mainlanes, grade separations, frontage roads and ramps.
- The number of lanes in each section of proposed highway and the location of changes in numbers of lanes.
- Right-of-way limits.
- Direction of traffic flow on all roadways.

162.3. Traffic Signals. The Engineer shall prepare Traffic Signal Plans for intersection of Memorial Drive at Benignus Road and Memorial Drive at Litchfield Lane. The Engineer shall confirm the power source for all signals and coordinate with the appropriate utility agency. Traffic Signal Plans must be signed and sealed by a Texas Registered professional Engineer. The Engineer shall develop all quantities, general notes, specifications, and incorporate the appropriate agency standards required to complete construction. Traffic signal poles, fixtures, signs, and lighting must be designed per the Green Ribbon Report recommendations and standards.

Proposed traffic signals shall be prepared per guidelines of City of Houston and the State, consisting of mast arm poles, foundations, ground boxes, vehicle and countdown pedestrian signal heads (LED), vehicle detection (Inductance Loop), accessible pedestrian signals, and traffic signs as per TMUTCD.

The Engineer shall provide the following information in the Traffic Signal Plans:

1. Layout
    a. Estimate and quantity sheet
        (1) List of all bid items
        (2) Bid item quantities
        (3) Specification item number
        (4) Paid item description and unit of measure
    b. Basis of estimate sheet (list of materials)
    c. General notes and specification data.
    d. Condition diagram
        (1) Highway and intersection design features
        (2) Roadside development
        (3) Traffic control including illumination
    e. Plan sheet(s)
        (1) Existing traffic control that will remain (signs and markings)
        (2) Existing utilities
        (3) Proposed traffic signal installation
        (4) Proposed illumination attached to signal poles
        (5) Proposed additional traffic controls
        (6) Proposed power pole source
    f. Notes for plan layout

g. Phase sequence diagram(s)
   (1) Signal locations
   (2) Signal indications
   (3) Phase diagram
   (4) Signal sequence table
   (5) Flashing operation (normal and emergency)
   (6) Preemption operation (when applicable)
   (7) Contact responsible Agency to obtain interval timing, cycle length and offset
h. Construction detail sheets(s)
   (1) Poles (State standard sheets)
   (2) Detectors
   (3) Pull Box and conduit layout
   (4) Controller Foundation standard sheet
   (5) Electrical chart
i. Marking details (when applicable)
j. Aerial or underground interconnect details (when applicable)

2. General Requirements
   a. Contact local utility company
      (1) Confirm power source
   b. Prepare governing specifications and special provisions list
   c. Prepare project estimate

FUNCTION CODE 160(163) - ROADWAY DESIGN

MISCELLANEOUS (ROADWAY)

The Engineer shall provide the following services:

163.1. Retaining Walls and Miscellaneous Structures. The Engineer shall develop each retaining wall design and determine the location of each soil boring needed for the foundation design of each retaining wall in accordance with the *Geotechnical Manual*. Prior to preparation of retaining wall layouts, the Engineer shall prepare a comparative cost analysis of different types of retaining walls versus roadway embankment, pavement, soil stabilization, retaining walls type, and available ROW to determine optimum selection based on economics, construction time duration, ROW encroachments (need for construction easements) and construction feasibility. The Engineer shall submit early in the plan preparation the retaining wall layouts to obtain approval from the State. The Engineer shall incorporate all necessary information from above referenced manuals and respective checklists into the retaining wall layouts. For stage construction, the Engineer shall indicate limits of existing retaining walls for removal and reconstruction, and determine limits of temporary retaining walls to be shown on the TCP.

The approximate limits of each retaining wall shall be based on Station or length. The Engineer shall notify the State the type of retaining walls that will be used for and Cut

and Fill location. Retaining wall types must include:

- Spread Footing Walls (High Footing Pressure Design and Low Footing Pressure Design). The Engineer shall select a spread footing wall for fill situation when considerable room behind the walls is available for forming, constructing, and backfilling the footings and stem. The Engineer shall notify the State when the quantity is less than 1000 square feet to have as option in the plans to cast in place a spread footing wall design. This selection has to be approved to State.
- Mechanically Stabilized Earth (MSE) Walls. The Engineer shall prepare the retaining wall layouts showing plan and profile or retaining walls for design by a State approved vendor. The Engineer is responsible for design of geometry and wall stability. The Engineer shall incorporate a slope of 4:1 or flatter from the existing and finished ground line elevation to the face of the retaining wall.
- Concrete Block Walls (Structural and Landscape).
- Tied Back Walls.

- Soil Nailed Walls. o

Rock Nailed Walls. o
Drilled Shaft Walls.

- Temporary MSE Walls.

The Engineer shall provide layouts (scale 1"=100'), elevations, quantity estimate, summary of quantities, typical cross sections and structural details of all retaining walls within the project. Approximate lengths of the retaining walls as shown on the schematic are listed as below. The Engineer shall determine if any additional walls are required and verify the need for and length of the retaining walls as shown on the schematic.

If applicable, the State will provide architectural standard drawings. The Engineer shall incorporate architectural standard drawings into design details. The specific requirements for each item are as follows:

1. Layout Plan
   (1) Designation of reference line
   (2) Beginning and ending retaining wall stations
   (3) Offset from reference line
   (4) Horizontal curve data
   (5) Total length of wall
   (6) Indicate face of wall
   (7) All wall dimensions and alignment relations (alignment data as necessary)
   (8) Soil boring locations
   (9) Drainage, signing, lightning, etc. that is mounted on or passing through the wall.
   (10) Subsurface drainage structures or utilities which could be impacted by wall construction.

2. Elevation:

(a) Top of wall elevations
(b) Existing and finished ground line elevations
(c) Vertical limits of measurement for payment
(d) Type, limits and anchorage details of railing (only if Traffic Railing foundation standard is not being used on this project)
(e) Top and bottom of wall profiles plotted at correct station & elevation.
(f) Underdrains
(g) Any soil improvement, if applicable.
(h) Drainage, signing, lighting etc. as noted above
(i) Drainage structures and utilities as noted above

3. Sectional View:
   (a) Reinforced volume
   (b) Underdrain location
   (c) Soil improvements, if applicable.

4. General Guidelines for Retaining Walls
   (a) The Engineer shall perform design calculations to check the external stability of the walls including slope stability, bearing, sliding and overturning and detail drawings in accordance with the standard requirements of the State.
   (b) For retaining wall submittals, the Engineer shall check State's Bridge Division website for current requirements.

163.2. Traffic Control Plan, Detours, Sequence of Construction. The Engineer shall prepare Traffic Control Plans (TCP) including TCP typical sections, for the project. The Engineer shall complete Form 2229-Significant Project Procedures along with Page 4 of Form 1002, specifically titled Accelerated Construction Procedures. A detailed TCP must be developed in accordance with the latest edition of the TMUTCD. The Engineer shall implement the current Barricade and Construction (BC) standards and TCP standards as applicable. The Engineer shall interface and coordinate phases of work, including the TCP, with adjacent Engineers. The Engineer shall:

1. Provide a written narrative of the construction sequencing and work activities per phase and determine the existing and proposed traffic control devices (regulatory signs, warning signs, guide signs, route markers, construction pavement markings, barricades, flag personnel, temporary traffic signals, etc.) to be used to handle traffic during each construction sequence. The Engineer shall show proposed traffic control devices at grade intersections during each construction phase (stop signs, flagperson, signals, etc.). The Engineer shall show temporary roadways, ramps, structures (including railroad shoo-fly) and detours required to maintain lane continuity throughout the construction phasing. If temporary shoring is required, prepare layouts and show the limits on the applicable TCP.
2. Coordinate with the State in scheduling a Traffic Control Workshop and submittal of the TCP for approval by the Traffic Control Approval Team (TCAT). The Engineer shall assist the State in coordinating mitigation of impacts to adjacent schools, emergency vehicles, pedestrians, bicyclists

and neighborhoods.

3. Develop each TCP to provide continuous, safe access to each adjacent property during all phases of construction and to preserve existing access. The Engineer shall notify the State in the event existing access must be eliminated, and must receive approval from the State prior to any elimination of existing access.
4. Design temporary drainage to replace existing drainage disturbed by construction activities or to drain detour pavement. The Engineer shall show horizontal and vertical location of culverts and required cross sectional area of culverts.
5. Prepare each TCP in coordination with the State. The TCP must include interim signing for every phase of construction. Interim signing must include regulatory, warning, construction, route, and guide signs. The Engineer shall interface and coordinate phases of work, including the TCP, with adjacent Engineers, which are responsible for the preparation of the PS&E for adjacent projects.
6. Maintain continuous access to abutting properties during all phases of the TCP. The Engineer shall develop a list of each abutting property along its alignment. The Engineer shall prepare exhibits for and attend meetings with the public, as requested by the State.
7. Make every effort to prevent detours and utility relocations from extending beyond the proposed Right-of-way lines. If it is necessary to obtain additional permanent or temporary easements and Right-of-Entry, the Engineer shall notify the State in writing of the need and justification for such action. The Engineer shall identify and coordinate with all utility companies for relocations required.
8. Describe the type of work to be performed for each phase of sequence of construction and any special instructions (e.g. storm drain, culverts, bridges, railing, illumination, signals, retaining walls, signing, paving surface sequencing or concrete placement, ROW restrictions, utilities, etc.) that the contractor should be made aware to include limits of construction, obliteration, and shifting or detouring of traffic prior to the proceeding phase.
9. Include the work limits, the location of channelizing devices, positive barrier, location and direction of traffic, work area, stations, pavement markings, and other information deemed necessary for each phase of construction.
10. Identify and delineate any outstanding ROW parcels.
11. Delineate areas of wetlands on traffic control plans.

163.3. Temporary Traffic Signals and Illumination: The Engineer shall immediately notify the State if the Engineer determines that an existing traffic signal or roadway illumination will be affected by the project. The Engineer shall address the adjustment or realignment of traffic signal heads and the use of detection for mainlanes and side streets on the plans as directed by the State. The Engineer shall obtain traffic movement counts to address any new timing plans to minimize the impact during construction and to determine the storage length needed for left and right turn movements. The Engineer shall address lighting of signalized intersections and shall coordinate with local utilities as approved by the State.

163.4. Illumination. The Engineer shall refer to TxDOT's *Highway Illumination Manual* and other deemed necessary State approved manuals for design of continuous lighting and safety lighting for all conventional, high-mast, and underpass lighting. The Engineer shall include safety lighting as part of each design on each flashing beacon and traffic signal. The Engineer shall provide a preliminary layout for initial review and approval by the State. The Engineer shall prepare circuit wiring diagrams showing the number of luminaries on each circuit, electrical conductors, length of runs, service pole assemblies. Underpass lighting must be used on all structures within each project. The Engineer shall integrate existing illumination within the project limits into the proposed design. The Engineer shall coordinate with the State to determine the location of proposed high-mast, conventional, and underpass lighting.

163.5. StormWater Pollution Prevention Plans (SWP3). The Engineer shall develop SWP3, on separate sheets from (but in conformance with) the TCP, to minimize potential impact to receiving waterways. The SWP3 must include text describing the plan, quantities, type, phase and locations of erosion control devices and any required permanent erosion control.

163.6. Compute and Tabulate Quantities. The Engineer shall provide the summaries and quantities within all formal submittals.

163.7. Special Utility Details (Water, Sanitary Sewer, *etc.*) The Engineer shall develop special details to accommodate or adjust utilities. Prior to developing any special utility detail, the Engineer shall notify the State in writing regarding each utility conflict that may require an accommodation. As directed by the State the Engineer shall coordinate with each utility to develop each special detail. The Engineer shall develop each utility detail or accommodation in compliance with the State's *Utility Accommodation Rules*. The Engineer shall prepare each plan sheet, detail sheet, special specification, special provision, and special note required to incorporate the details into the State's plans.

163.8. Miscellaneous Structural Details. The Engineer shall provide necessary details required to supplement standard details.

163.9. Testimony for Right of Way Hearings. If required, the Engineer shall support and testify in possible Right of Way hearings. As requested by the State or the Attorney General's office, the Engineer shall be required to do the following:

- Research, study, analyze and review the project and the assigned parcels for acquisition;
- Prepare litigation designs and standard 8.5 x 11 inch, 11 x 17 inch or 24 x 36 inch paper exhibits. These deliverables are considered to be litigation documents and not engineering documents requiring a P.E. seal;
- Be available to prepare for and testify at hearings, depositions and trials, and;
- Be available to assist and consult with the Attorney General's Office, with case preparation.

163.10. Estimate. The Engineer shall independently develop and report quantities necessary to construct the contract in standard State bid format at the specified milestones and Final PS&E submittals. The Engineer shall prepare each construction cost estimates using Estimator or any approved method. The estimate shall be provided at each milestone submittal or in DCIS format at the 95% and Final PS&E submittals per State's District requirement.

163.11. Contract time determination. The Engineer shall prepare a detailed contract time estimate to determine the approximate time required for construction of the project in calendar and working days (based on the State standard definitions of calendar and working days) at the 95% and Final PS&E milestone. The schedule must include tasks, subtasks, critical dates, milestones, deliverables, and review requirements in a format which depicts the interdependence of the various items and adjacent construction packages. The Engineer shall provide assistance to the State in interpreting the schedule.

163.12. Specifications and General Notes. The Engineer shall identify necessary standard specifications, special specifications, special provisions and the appropriate reference items. The Engineer shall prepare General Notes from the District's *Master List of General Notes*, Special Specifications and Special Provisions for inclusion in the plans and bidding documents. The Engineer shall provide General Notes, Special Specifications and Special Provisions in the required format.

163.13. Constructability Review. The Engineer shall provide Independent Quality Review of the constructability PS&E sets.

The Engineer shall perform constructability reviews at major project design milestones (e.g. 60%, 90%, and final plan) to identify potential constructability issues and options that would provide substantial time savings during construction. The constructability review must be performed for all roadway and structural elements such as Sequence of Work/Traffic Control, Drainage (Temporary and Permanent), Storm Water Pollution Prevention Plan (SWP3), Environmental Permits, Issues and Commitments (EPIC) addressed, identify Utility conflicts; ensuring accuracy and appropriate use of Items, Quantities, General Notes, Standard and Special Specifications, Special Provisions, Contract Time/Schedule, Standards; and providing detailed comments in an approved format. Reviews must be captured in a Constructability Log identifying areas of concern and potential conflict. The Engineer shall provide the results of all Constructability reviews and recommendations to the State at major project design milestone submittals.

Exhibit B - Fee Schedule
Method of Payment: Lump Sum

Prime Provider: Gauge Engineering, LLC Project: Memorial Drive Phase II WBS No.: N-T17000-0020-7		SUBTOTALS	Prime Provider GAUGE ENGINEERING, LLC (Prime, PM, Utilities, Roadway, Drainage)	Sub-Provider AURORA TECHNICAL SERVICES (Structural Engineer)	Sub-Provider AVILES ENGINEERING CORP (Geotech)	Sub-Provider KUO & ASSOCIATES, INC. (Survey)	Sub-Provider CYPRESS ENVIRONMENTAL CONSULTING (Environmental)	Sub-Provider CN KOEHL (Urban Forestry)	Sub-Provider MIDTOWN ENGINEERS (SUE)	Sub-Provider TEI Planning +Design (Traffic Signal)	Sub-Provider AIMS (CCTV)
FC 110	Total Labor Cost	$54,230.50	$43,233.50		$10,997.00						
	Other Direct Expenses	$2,164.00			$2,164.00						
	Subcontracts	$8,426.00			$8,426.00						
FC 120	Total Labor Cost	$53,246.86	$35,406.86				$17,840.00				
	Other Direct Expenses	$8,096.00					$8,096.00				
FC 130	Total Labor Cost	$49,074.52	$49,074.52								
	Other Direct Expenses	$0.00									
FC 164	Total Labor Cost	$134,870.98	$134,870.98								
	Other Direct Expenses	$0.00									
FC 150	Total Labor Cost	$57,784.50				$48,326.00			$2,546.00		$6,912.50
	Other Direct Expenses	$11,895.00				$1,895.00			$10,000.00		
	Optional Additional Services	$20,500.00				$20,500.00					
FC 160	Total Labor Cost	$289,915.16	$289,915.16								
	Other Direct Expenses	$5,620.90	$5,620.90								
FC 161	Total Labor Cost	$249,732.50	$238,732.50	$11,000.00							
	Other Direct Expenses	$0.00									
FC 162	Total Labor Cost	$89,565.24	$17,475.24							$72,090.00	
	Other Direct Expenses	$0.00									
FC 163	Total Labor Cost	$269,077.84	$261,347.84					$7,730.00			
	Other Direct Expenses	$0.00									
FC 170	Total Labor Cost	$0.00									
	Other Direct Expenses	$0.00									
FC 309 Construction Phase Services	Direct Labor Cost	$0.00									
	Fixed Fee/Profit	$0.00									
	Other Direct Expense	$0.00									
Grand Totals		$1,304,200.00	$1,075,677.50	$11,000.00	$21,587.00	$70,721.00	$25,936.00	$7,730.00	$12,546.00	$72,090.00	$6,912.50

Project: Memorial Drive Phase II
WBS No.: N-T17000-0020-7

Exhibit B - Fee Schedule
Method of Payment: Lump Sum
Gauge Engineering, LLC

TASK DESCRIPTION	PROJECT MANAGER	SENIOR PROJECT ENGINEER	PROJECT ENGINEER	DESIGN ENGINEER	ENGINEER IN TRAINING	SENIOR ENGINEERING TECH	ADMIN/ CLERICAL	TOTAL LABOR HRS. & COSTS	NO OF DWGS	LABOR HRS PER SHEET
FEASIBILITY STUDIES - FC 102(110)										
ROUTE & DESIGN STUDIES										
DATA COLLECTION, RECORDS RESERACH & FIELD RECONNAISSANCE	2	12		16	24	16		70	N/A	N/A
REVIEW TOPOGRAPHIC SURVEY	1	6		6	8	16		37		
ROADWAY AND HYDRAULIC DESIGN CRITERIA	1	6		8				15	N/A	N/A
PRELIMINARY COST ESTIMATE	2	6		16				24	N/A	N/A
DESIGN SUMMARY REPORT (DSR) PREPARATION	2	4		16	24			46	N/A	N/A
DESIGN CONCEPT CONFERENCE	4	8		10	16			38	N/A	N/A
REVIEW GEOTECHNICAL REPORT	1	4		8				13	N/A	N/A
FLOOD PLAIN INFORMATION & STUDIES	2	8		12	16			38	N/A	N/A
DESIGN EXCEPTIONS, IF APPLICABLE	2	6		12	18			38	N/A	N/A
HOURS SUB-TOTALS	17	60	0	104	106	32	0	319		
CONTRACT RATE PER HOUR	$233.74	$194.48	$141.99	$129.74	$97.24	$118.46	$61.00			
TOTAL LABOR COSTS	$3,973.58	$11,668.80	$0.00	$13,492.96	$10,307.44	$3,790.72	$0.00	$43,233.50		
% DISTRIBUTION OF STAFFING	5.3%	18.8%	0.0%	32.6%	41.2%	10.0%	0.0%			
SUBTOTAL - FC 110								**$43,233.50**		

TASK DESCRIPTION	PROJECT MANAGER	SENIOR PROJECT ENGINEER	PROJECT ENGINEER	DESIGN ENGINEER	ENGINEER IN TRAINING	SENIOR ENGINEERING TECH	ADMIN/ CLERICAL	TOTAL LABOR HRS. & COSTS	NO OF DWGS	LABOR HRS PER SHEET
SOCIA/ECON/ENVIRON STUDIES - FC 120(120)										
ENVIRONMENTAL STUDIES & PUBLIC INVOLVEMENT										
INFORMAL MEETINGS WITH PUBLIC & STAKEHOLDERS								0	N/A	N/A
Provide technical assistance for informal 8 meeting(s)	8	16		8	8			40	N/A	N/A
Prepare exhibits for informal meeting(s)		4		4	8	12		28	N/A	N/A
Prepare minutes for informal meeting(s)	4	2		4	8			18	N/A	N/A
Environmental Permits Issues and Commitment (EPIC) Sheets	1	2		4	12	16		35	N/A	N/A
REVIEW OF ENVIRONMENTAL STUDY	2	8		10				20	N/A	N/A
PUBLIC MEETING SUPPORT	8	16		32	60			116	N/A	N/A
HOURS SUB-TOTALS	23	48	0	62	96	28	0	257		
CONTRACT RATE PER HOUR	$233.74	$194.48	$141.99	$129.74	$97.24	$118.46	$61.00			
TOTAL LABOR COSTS	$5,376.02	$9,335.04	$0.00	$8,043.88	$9,335.04	$3,316.88	$0.00	$35,406.86		
% DISTRIBUTION OF STAFFING	8.95%	18.68%	0.00%	24.12%	37.35%	10.89%	0.00%			
SUBTOTAL - FC 120								**$35,406.86**		

Project: Memorial Drive Phase II
WBS No.: N-T17000-0020-7

Exhibit B - Fee Schedule
Method of Payment: Lump Sum
Gauge Engineering, LLC

TASK DESCRIPTION	PROJECT MANAGER	SENIOR PROJECT ENGINEER	PROJECT ENGINEER	DESIGN ENGINEER	ENGINEER IN TRAINING	SENIOR ENGINEERING TECH	ADMIN/ CLERICAL	TOTAL LABOR HRS. & COSTS	NO OF DWGS	LABOR HRS PER SHEET
RIGHT OF WAY DATA - FC 130(130)										
RIGHT OF WAY DATA										
RECORDS RESEARCH, INCLUDING UTILITY OWNERS AND CONTACT INFORMATION (QL D & C)				6	8		4	18	N/A	N/A
REVIEW AS-BUILT INFORMATION PROVIDED BY UTILITY OWNERS	2	4		12	6			24	N/A	N/A
PREPARE AND SUBMIT UTILITY DRAWINGS WITH GATHERED INFORMATION	2	4		8	12	16		42	N/A	N/A
COORDINATE, COMMUNICATE & CONDUCT MEETINGS FOR ADJUSTMENT COORDINATION	8	8		12		16		44	N/A	N/A
SCHEDULE AND ATTEND MILESTONE MEETINGS AND PREPARE MEETING MINUTES	6	12		16	24			58	N/A	N/A
PRIVATE UTILITY COORDINATION - MEET CITY REQUIREMENTS	6	8		16				30	N/A	N/A
PRIVATE UTILTIY COORDINATION - UTILTIY OWNERS	4	6		18				28	N/A	N/A
CREATE UTILITY INVENTORY AND CONFLICT MATRIX	2	4		8	12			26	N/A	N/A
ASSIST WITH UTILITY CONFLCIT ANALYSIS AND RESOLUTION	2	4		16				22	N/A	N/A
MONTHLY CITY UTILITY MEETINGS FROM 60% TO BID	2	4		12	12			30	N/A	N/A
MAINTAIN UTILITY CONFLCIT MATRIX				12	18			30	N/A	N/A
HOURS SUB-TOTALS	34	54	0	136	92	32	4	352	0	
CONTRACT RATE PER HOUR	$233.74	$194.48	$141.99	$129.74	$97.24	$118.46	$61.00			
TOTAL LABOR COSTS	$7,947.16	$10,501.92	$0.00	$17,644.64	$8,946.08	$3,790.72	$244.00	$49,074.52		
% DISTRIBUTION OF STAFFING	9.66%	15.34%	0.00%	38.64%	26.14%	9.09%	1.14%			
SUBTOTAL - FC 130								**$49,074.52**		

TASK DESCRIPTION	PROJECT MANAGER	SENIOR PROJECT ENGINEER	PROJECT ENGINEER	DESIGN ENGINEER	ENGINEER IN TRAINING	SENIOR ENGINEERING TECH	ADMIN/ CLERICAL	TOTAL LABOR HRS. & COSTS	NO OF DWGS	LABOR HRS PER SHEET
PROJECT MANAGEMENT & ADMINISTRATION - FC 145(145, 164)										
PROJECT COORDINATION /MANAGEMENT										
Project Management and Administration									N/A	N/A
Project Management and Coordination	24	40		40	12	16		132		
Monthly Progress Reports	8	24		24				56		
Meetings with State	24	60		16	24	24		148		
Project Schedule	4	16						20		
Correspondence	16	24		16				56		
Document Phone Calls	6	24						30		
Project Management, Coordination & Review of Submittals with Subconsultants										
Structural - Aurora	4	8						12		
Geotechnical - Aviles	4	12						16		
Urban Forestor - CN Koehl	2	6		8	16			32		
Environmental - Cypress Env	4	12						16		
Survey - Kuo	2	8		18	26			54		
SUE - Midtown	2	8						10		
Traffic - TEI	6	12		24	18			60		
CCTV - AIMS		2		6	8			16		
QUALITY ASSURANCE/QUALITY CONTROL	16	24		32	40	60		172	N/A	N/A
PROJECT SCHEDULE	1	2		12				15	N/A	N/A
HOURS SUB-TOTALS	123	282	0	196	144	100	0	845		
CONTRACT RATE PER HOUR	$233.74	$194.48	$141.99	$129.74	$97.24	$118.46	$61.00			
TOTAL LABOR COSTS	$28,750.02	$54,843.36	$0.00	$25,429.04	$14,002.56	$11,846.00	$0.00	$134,870.98		
% DISTRIBUTION OF STAFFING	34.94%	80.11%	0.00%	55.68%	40.91%	28.41%	0.00%			
SUBTOTAL - FC 164								**$134,870.98**		

Project: Memorial Drive Phase II
WBS No.: N-T17000-0020-7

Exhibit B - Fee Schedule
Method of Payment: Lump Sum
Gauge Engineering, LLC

TASK DESCRIPTION	PROJECT MANAGER	SENIOR PROJECT ENGINEER	PROJECT ENGINEER	DESIGN ENGINEER	ENGINEER IN TRAINING	SENIOR ENGINEERING TECH	ADMIN/ CLERICAL	TOTAL LABOR HRS. & COSTS	NO OF DWGS	LABOR HRS PER SHEET
ROADWAY DESIGN - FC 160(161)										
ROADWAY DESIGN CONTROLS										
ROADWAY DESIGN (30%, 60%, 90%, 95% & FINAL):										
Develop preliminary geometric project layout	2	6		12	16	24		60	1	60
Develop OpenRoads Memorial Dr Corridor Model (3D Model)	6	8		60	80	160		314	1	314
Open Roads Horizontal Alignment Design:								0	1	0
Memorial Dr		1		2	4	8		15	1	15
Litchfield Ln - Intersection/Grading Layout (H 1" = 40')		1		2	4	6		13	1	13
Benignus Rd - Intersection/Grading Layout (H 1" = 40')		1		2	4	6		13	1	13
Paul Revere Dr - Intersection/Grading Layout (H 1" = 40')		1		2	4	6		13	1	13
Tealwood Dr - Intersection/Grading Layout (H 1" = 40')		1		1	2	4		8	1	8
Frostwood Dr - Intersection/Grading Layout (H 1" = 40')		1		1	2	4		8	1	8
Bearegard Dr - Intersection/Grading Layout (H 1" = 40')		1		1	2	4		8	1	8
Open Roads Vertical Alignment (Profile) Design:								0	1	0
Memorial Dr	4	12		16	40	80		152	1	152
Litchfield Ln	1	2		4	6	12		25	1	25
Benignus Rd	1	2		4	6	12		25	1	25
Paul Revere Dr	1	2		4	6	12		25	1	25
Tealwood Dr	1	2		4	10	8		25	1	25
Frostwood Dr	1	2		4	6	8		21	1	21
Bearegard Dr	1	2		4	6	8		21	1	21
Plan Preparation										
TITLE SHEET		1		2	4	12		19	1	19
INDEX OF SHEETS		1		2	12	18		33	1	33
PROJECT LAYOUT SHEETS		1		2	12	18		33	2	17
SURVEY CONTROL SHEET INDEX		1		2	4	8		15	2	8
HORIZONTAL AND VERTICAL CONTROL SHEET		1		2	4	12		19	2	10
EXISTING TYPICAL SECTIONS	1	2		4	8	18		33	2	17
PROPOSED TYPICAL SECTIONS	1	4		8	12	32		57	2	29
GENERAL NOTES		2		4	8	4		18	1	18
PRIVATE UTILITY NOTES		1		2	6	3		12	1	12
CENTERPOINT CONDUIT SPECIFICATIONS		1		2	12	20		35	9	4
CENTERPOINT EMBEDDED STREET LIGHT STANDARD		1		2	8	4		15	1	15
DEMOLITION PLAN	2	8		16	32	24		82	5	16
HORIZONTAL CURVE DATA	1	2		8	12	4		27	1	27
VERTICAL CURVE DATA	1	2		8	12	4		27	1	27
ROADWAY PLAN & PROFILE (SCALE:H 1"=40',V 1"=4')	8	40		60	120	180		408	12	34
HORIZONTAL GEOMETRY LAYOUT	1	8		16	24	40		89	4	22
INTERSECTION/GRADING LAYOUT	2	16		24	80	120		242	8	30
DRIVEWAY TABULATION	1	2		4	18	16		41	1	41
MISCELLANEOUS ROADWAY DETAILS		4		8	16	24		52	2	26
METRO DETAILS		1		4	8	4		17	1	17
BORING DATA LOG SHEETS		1		2	4	16		23	2	12
EARTHWORK CROSS SECTIONS (Every 50-FT)	2	12		16	18	60		108	10	11
EARTHWORK QUANTITIES	1	6		12	16	18		53	10	5
ROADWAY STANDARDS		1		8	16	12		37	10	4
STORM WATER POLLUTION PREVENTION PLAN (SW3P):										
EPIC SHEET	1	1			8	2		12	1	12
STORM WATER POLLUTION PREVENTION PLAN	2	4		16	40	60		122	5	24
STORM WATER POLLUTION PREVENTION PLAN STANDARDS		1		4	8	4		17	3	6
STORM WATER POLLUTION PREVENTION PLAN SUMMARIES								0	N/A	N/A
HOURS SUB-TOTALS	42	170	0	361	720	1099	0	2392		
CONTRACT RATE PER HOUR	$233.74	$194.48	$141.99	$129.74	$97.24	$118.46	$61.00			
TOTAL LABOR COSTS	$9,817.08	$33,061.60	$0.00	$46,836.14	$70,012.80	$130,187.54	$0.00	$289,915.16		
% DISTRIBUTION OF STAFFING	1.76%	7.11%	0.00%	15.09%	30.10%	45.94%	0.00%			
SUBTOTAL - FC 160								**$289,915.16**		

Project: Memorial Drive Phase II
WBS No.: N-T17000-0020-7

Exhibit B - Fee Schedule
Method of Payment: Lump Sum
Gauge Engineering, LLC

TASK DESCRIPTION	PROJECT MANAGER	SENIOR PROJECT ENGINEER	PROJECT ENGINEER	DESIGN ENGINEER	ENGINEER IN TRAINING	SENIOR ENGINEERING TECH	ADMIN/ CLERICAL	TOTAL LABOR HRS. & COSTS	NO OF DWGS	LABOR HRS PER SHEET
DRAINAGE DESIGN - FC 160(161)										
IMPACT ANALYSIS										
DATA COLLECTION - DRAINAGE										
COLLECT AND REVIEW AVAILABLE APPLICABLE DATA		1		4	8			13		
COLLECT AVAILABLE FLOOD INSURANCE INFORMATION		1		1	4			6		
REVIEW PREVIOUS REPORTS FROM HCFCD AND CITY	2	4		4				10		
MEET WITH LOCAL GOVERNMENT OFFICALS TO OBTAIN HISTORIAL FLOOD RECORDS	2	4						6		
HYDROLOGIC STUDIES - CROSSINGS										
DELINEATE AND UPDATE EXISTING DRAINAGE AREAS	2	4		16	32			54		
DETERMINE EXISTING HYDROLOGIC PARAMETERS		2		8	16			26		
CALCULATE EXISTING DISCHARGES		1		2	6			9		
DELINEATE PROPOSED DRAINAGE AREAS	2	4		16	32			54		
DETERMINE PROPOSED HYDROLOGIC PARAMETERS		2		8	16			26		
CALCULATED PROPOSED DISCHARGES		1		2	6			9		
DEVELOP HYDROGRAPHS		2		4	8			14		
COMPLEX HYDRAULIC DESIGN AND IMPACT ANALYSIS								0		
CUT/FILL VOLUMES - GEOPAK AND HAND CALCS		2	4	8	16			30		
PRELIMINARY TARGET MITIGATION VOLUMES		1	2		8			11		
DEVELOP OFFSITE FLOWS FROM 2D MODEL	1	16	4					21		
DEVELOP EXISTING CONDITIONS SWMM MODEL	1	4	16	36	40			97		
DEVELOP PROPOSED CONDITIONS SWMM MODEL	1	2	10	24	30			67		
CONDUCT 1% AEP SHEET FLOW ANALYSIS	1	16	16	4	4			41		
ROADWAY AND WSEL PROFILE PLOTS AND WORKSHOP	4	8	12		16	16		56		
MITIGATION ANALYSIS	2	4	24	16	8			54		
REGIONAL SOLUTION TRUNKLINE OVERSIZING ANALYSIS	1	4	24	16	8			53		
REGIONAL SOLUTION LOCAL COST SHARE EVALUATION		2	4	8	8			22		
STORM DRAINS								0		
EXISTING STORM SEWER EVALUATION - GEOPAK	1	4	16	40				61		
PROPOSED STORM SEWER ANALYSIS - GEOPAK	1	4	16	40				61		
TEMPORARY DRAINAGE								0		
DETERMINE TEMPORARY DRAINAGE NEEDS FOR DESIGN PLANS	2	6	10	20				38		
DRAINAGE DESIGN PLANS										
DRAINAGE AREA MAPS - OVERALL AND INTERNAL, EXISTING AND PROPOSED	4	8	24	80		72		188	8	24
2-YEAR STORM SEWER CALCULATIONS		2	4	8		4		18	3	6
100-YEAR STORM SEWER CALCULATIONS		2	4	8		4		18	3	6
DRAINAGE PLAN & PROFILE	4	12	32	48		60		156	6	26
STORM SEWER LATERALS	2	6	16	40		32		96	3	32
JUNCTION BOX PLAN, SECTIONS, AND SCHEDULE	2	8	40	16		48		114	3	38
MISCELLANEOUS DRAINAGE DETAILS	1	4	12	20		32		69	2	35
DRAINAGE STANDARDS		2	6	12		12		32	10	3
DRAINAGE IMPACT ANALYSIS REPORT								0		
DRAFT DRAINAGE REPORT	8	24	32	60		40		164		
FINAL DRAINAGE REPORT	4	12	16	30		20		82		
HOURS SUB-TOTALS	48	179	344	599	266	340	0	1,776		
CONTRACT RATE PER HR (INCLUDE AVG HOURLY RATE TIME OVERHEAD AND FF)	$233.74	$194.48	$141.99	$129.74	$97.24	$118.46	$61.00			
TOTAL LABOR COSTS	$11,219.52	$34,811.92	$48,844.56	$77,714.26	$25,865.84	$40,276.40	$0.00	$238,732.50		
% DISTRIBUTION OF STAFFING	2.70%	10.08%	19.37%	33.73%	14.98%	19.14%	0.00%			
SUBTOTAL - FC 161								**$238,732.50**		

Project: Memorial Drive Phase II
WBS No.: N-T17000-0020-7

Exhibit B - Fee Schedule
Method of Payment: Lump Sum
Gauge Engineering, LLC

TASK DESCRIPTION	PROJECT MANAGER	SENIOR PROJECT ENGINEER	PROJECT ENGINEER	DESIGN ENGINEER	ENGINEER IN TRAINING	SENIOR ENGINEERING TECH	ADMIN/ CLERICAL	TOTAL LABOR HRS. & COSTS	NO OF DWGS	LABOR HRS PER SHEET
SIGNING, PAVEMENT MARKINGS & SIGNALIZATION - FC 160(162)										
SIGNING, PVMT. MARKING, & SIGNAL										
SIGNING AND PAVEMENT MARKING LAYOUTS (4 SHEETS)	2	8		16	32	40		98	4	25
SIGNING SUMMARIES (LARGE AND SMALL)		1		2	12	8		23	2	12
SIGNING, PAVEMENT MARKING, ETC. QUANTITIES		1		2	16	8		27	N/A	N/A
HOURS SUB-TOTALS	2	10	0	20	60	56	0	148		
CONTRACT RATE PER HOUR	$233.74	$194.48	$141.99	$129.74	$97.24	$118.46	$61.00			
TOTAL LABOR COSTS	$467.48	$1,944.80	$0.00	$2,594.80	$5,834.40	$6,633.76	$0.00	$17,475.24		
% DISTRIBUTION OF STAFFING	1.35%	6.76%	0.00%	13.51%	40.54%	37.84%	0.00%			
SUBTOTAL - FC 162								**$17,475.24**		

Project: Memorial Drive Phase II
WBS No.: N-T17000-0020-7

Exhibit B - Fee Schedule
Method of Payment: Lump Sum
Gauge Engineering, LLC

TASK DESCRIPTION	PROJECT MANAGER	SENIOR PROJECT ENGINEER	PROJECT ENGINEER	DESIGN ENGINEER	ENGINEER IN TRAINING	SENIOR ENGINEERING TECH	ADMIN/ CLERICAL	TOTAL LABOR HRS. & COSTS	NO OF DWGS	LABOR HRS PER SHEET
MISCELLANEOUS (ROADWAY) - FC 160(163)										
UTILITY ENGINEERING										
EXISTING UTILITIES PLAN & PROFILE	2	4		8	24	40		78	6	13
WATER LINE AND SANITARY SEWER PLAN & PROFILE	8	24		40	80	120		272	12	23
WATER LINE AND SANITARY SEWER CROSSINGS	2	4		12	24	40		82	2	41
WATER LINE & SANITARY SEWER DETAILS		1		4	12	20		37	6	6
TRAFFIC CONTROL PLAN, DETOURS & SEQUENCE OF CONSTRUCTION:										
SEQUENCE OF CONSTRUCTION AND TRAFFIC CONTROL NARRATIVE	2	4		8	12	20		46	3	15
TRAFFIC CONTROL PLANS	8	16		24	160	240		448	20	22
INTERSECTION DETAILS	2	8		24	40	60				
ADVANCE SIGNING LAYOUTS		1		1	6	12		20	1	20
TCP STANDARDS		1		2	12	16		31	20	2
TRAFFIC CONTROL WORKSHOP	2	8		16	12	24		62		
ILLUMINATION:										
LIGHTING LAYOUTS	1	8		8	24	60		101	5	20
ILLUMINATION STANDARDS		2			8	4		14	1	14
QUANTITIES, SPECIFICATIONS & ESTIMATE:										
Compute and Tabulate Demolition Quantities (30%, 60%, 90%, 95% and 100%)	1	6		8	24	18		57	12	5
Compute and Tabulate Traffic Control Quantities (30%, 60%, 90%, 95% and 100%)	1	6		8	24	32		71	12	6
Compute and Tabulate Roadway Quantities (30%, 60%, 90%, 95% and 100%)	1	6		8	24	32		71	12	6
Compute and Tabulate Drainage Quantities (30%, 60%, 90%, 95% and 100%)	1	6		8	24	32		71	12	6
Compute and Tabulate Utilities Quantities (30%, 60%, 90%, 95% and 100%)	1	6		8	24	32		71	12	6
Compute and Tabulate Earthwork Quantities (30%, 60%, 90%, 95% and 100%)	1	4		6	18	18		47	12	4
Compute and Tabulate Pavement Markings Quantities (30%, 60%, 90%, 95% and 100%)	1	4		6	18	16		45	12	4
Compute and Tabulate Small Sign Quantities (30%, 60%, 90%, 95% and 100%)	1	4		6	18	16		45	12	4
Compute and Tabulate SWP3 Quantities (30%, 60%, 90%, 95% and 100%)	1	2		4	12	16		35	12	3
CONSTRUCTION TIME/SCHEDULE DETERMINATION	1	8						9		
CONSTRUCTION COST EST. (30, 60, 90, 95 & FINAL) WITH VARIANCE REPORT	2	6		24	40	16		88		
TXDOT CONNECT ESTIMATE & QUANTITY		4		8	16			28		
MASTER GENERAL NOTES, SPECIFICATIONS AND PROVISIONS	2	16			24			42		
TxDOT FORMS (2443, 1002, 2229, 2605, ETC.)	2	4		12	24			42		
CONSTRUCTIBILITY REVIEW	16	24		40				80		
	59	187	0	293	704	884	0	2127		
CONTRACT RATE PER HOUR	$233.74	$194.48	$141.99	$129.74	$97.24	$118.46	$61.00			
TOTAL LABOR COSTS	$13,790.66	$36,367.76	$0.00	$38,013.82	$68,456.96	$104,718.64	$0.00	$261,347.84		
% DISTRIBUTION OF STAFFING	2.77%	8.79%	0.00%	13.78%	33.10%	41.56%	0.00%			
SUBTOTAL - FC 160 (163)								**$261,347.84**		

Project: Memorial Drive Phase II
WBS No.: N-T17000-0020-7

Exhibit B - Fee Schedule
Method of Payment: Lump Sum
Gauge Engineering, LLC

TASK DESCRIPTION	PROJECT MANAGER	SENIOR PROJECT ENGINEER	PROJECT ENGINEER	DESIGN ENGINEER	ENGINEER IN TRAINING	SENIOR ENGINEERING TECH	ADMIN/ CLERICAL	TOTAL LABOR HRS. & COSTS	NO OF DWGS	LABOR HRS PER SHEET
DELIVERABLES FOR FC 160(160, 161, 163, AND 170)										
PS&E Package								0		
Submit 30% plans package	2	4		6	8	12		32		
Submit bridge layout review package	2	4		6	8	12		32		
Submit 60% plans package	2	4		6	8	12		32		
Submit 90% plans package	2	4		6	8	12		32		
Submit 95% plans package	2	4		6	8	12		32		
Submit Final (100%) plans package	2	4		6	8	12		32		
Electronic Copies								0		
Submit electronic copies	1	4		6	8	12		31		
Calculations								0		
Submit documentation of calculations	2	4		8	18			32		
HOURS SUB-TOTALS	15	32	0	50	74	84	0	255		
CONTRACT RATE PER HOUR	$233.74	$194.48	$141.99	$129.74	$97.24	$118.46	$61.00			
TOTAL LABOR COSTS	$3,506.10	$6,223.36	$0.00	$6,487.00	$7,195.76	$9,950.64	$0.00	$33,362.86		
% DISTRIBUTION OF STAFFING	10.14%	21.62%	0.00%	33.78%	50.00%	56.76%	0.00%			
SUBTOTAL - FC 162								**$33,362.86**		

DESCRIPTION							TOTAL MH BY FC	TOTAL COSTS BY FC
FEASIBILITY STUDIES - FC 110							319	$43,233.50
SOCIAL/ECON/ENVIRON STUDIES - FC 120							257	$35,406.86
RIGHT OF WAY DATA - FC 130							352	$49,074.52
PROJECT MANAGEMENT & ADMINISTRATION - FC 164							845	$134,870.98
ROADWAY DESIGN - FC 160							2,392	$289,915.16
DRAINAGE DESIGN - FC 161							1,776	$238,732.50
SIGNING, PAVEMENT MARKINGS & SIGNALIZATION - FC 162							148	$17,475.24
MISCELLANEOUS (ROADWAY) - FC 163							2127	$261,347.84
DELIVERABLES FOR FC 160(160, 161, 163, AND 170)							0	$33,362.86
SUBTOTAL LABOR EXPENSES							8216	**$1,103,419.46**
OTHER DIRECT EXPENSES	**COST/UNIT**							
Mileage (# of miles) (current state rate)	$0.625	1000						$625.00
Courier, Printing and Reproduction	$4,995.90	1						$4,995.90
								$0.00
SUBTOTAL DIRECT EXPENSES								**$5,620.90**

SUMMARY	**Total**
TOTAL COSTS FOR PRIME ONLY	$1,103,419.46
NON-SALARY (OTHER DIRECT EXPENSES) FOR PRIME ONLY	$5,620.90
GRAND TOTAL	$1,109,040.36

Project: Memorial Drive Phase II
WBS No.: N-T17000-0020-7

Exhibit B - Fee Schedule
Method of Payment: Lump Sum
Aurora Technical Services

TASK DESCRIPTION	PROJECT MANAGER	SENIOR STRUCTURAL ENGINEER	GRADUATE ENGINEER	ADMIN ASST			TOTAL LABOR HRS. & COSTS	NO OF DWGS	LABOR HRS PER SHEET
DRAINAGE DESIGN - FC 160(161)									
STRUCTURAL DESIGN OF ONE CIP STORM JUNCTION BOX (APPRO. 24'W x 12'L x 24'H)									
60% DESIGN							0		
1.1 CONCEPTUAL STRUCTURAL AND ORIFICE DESIGN	0.5	1	2				3.5		
1.2 REVIEW GEOTECHNICAL REPORT	0.5	2					2.5		
1.3 PRELIMINARY DESIGN DRAWINGS	1	4	16				21		
90% DESIGN							0		
1.4 STRUCTURAL ANALYIS OF JB BASED ON PNP SHEETS AND DIMENSION PROVIDED	0.5	2	4				6.5		
1.5 PREPARE CONSTRUCTION DRAWINGS FOR THE JUNCTION BOX AND ORIFICE DETAILS	1	2	12	2			17		
95% DESIGN							0		
1.6 REVISIONS DUE TO CIVIL DRAWINGS REVISIONS OR REVIEW COMMENTS	1	2	8				11		
FINAL DESIGN							0		
1.7 REVISIONS DUE TO CIVIL DRAWINGS REVISIONS OR REVIEW COMMENTS	0.5	2	4				6.5		
1.8 COST ESTIMATES	0.5	2	2				4.5		
							0		
HOURS SUB-TOTALS	5.5	17	48	2	0	0	72.5		
CONTRACT RATE PER HOUR	$250.00	$174.00	$132.00	$90.00	$0.00	$0.00			
TOTAL LABOR COSTS	$1,375.00	$2,958.00	$6,336.00	$180.00	$0.00	$0.00	$10,849.00		
% DISTRIBUTION OF STAFFING	7.6%	23.4%	66.2%	2.8%	0.0%	0.0%			
SUBTOTAL - FC 110							**$10,849.00**		

DESCRIPTION						TOTAL MH BY FC	TOTAL COSTS BY FC
ROADWAY DESIGN - FC 160 (161)						72.5	$10,849.00

SUMMARY	
TOTAL COSTS FOR AURORA ONLY	$11,000.00
DIRECT EXPENSES FOR AURORA ONLY	$0.00
SUBCONTRACTS (includes labor costs and direct expenses)	$0.00
GRAND TOTAL	$11,000.00

Project: Memorial Drive Phase II
WBS No.: N-T17000-0020-7

Exhibit B - Fee Schedule
Method of Payment: Lump Sum
Aviles Engineering Corp

TASK DESCRIPTION	PROJECT MANAGER	SENIOR ENGINEER	PROJECT ENGINEER	DESIGN ENGINEER	ENGINEER IN TRAINING	PROJECT GEOLOGIST	ENGINEERING TECHNICIAN	ADMIN/ CLERICAL	TOTAL LABOR HRS. & COSTS
FEASIBILITY STUDIES - FC 110									
ROUTE & DESIGN STUDIES									
DATA COLLECTION & FIELD RECONNAISSANCE									
Utilities Clearance and Field Coordination for staking the soil borings						14			14
Drilling, Sampling, Logging and Traffic Control Coordination						11	8		19
Review lab test data and perform QA/QC				8					8
Input lab test data, edit and prepare final Wincore Boring Logs				16				4	20
Preliminary Fault Study						8			8
ENGINEERING ANALYSIS		2	8	8					18
GEOTECHNICAL REPORT		2	12						
HOURS SUB-TOTALS	0	4	20	32	0	33	8	4	101
CONTRACT RATE PER HOUR	$210.00	$170.00	$133.00	$105.00	$97.00	$105.00	$70.00	$68.00	
TOTAL LABOR COSTS	$0.00	$680.00	$2,660.00	$3,360.00	$0.00	$3,465.00	$560.00	$272.00	$10,997.00
% DISTRIBUTION OF STAFFING	0.0%	4.0%	19.8%	31.7%	0.0%	32.7%	7.9%	4.0%	
SUBTOTAL - FC 110									**$10,997.00**

DESCRIPTION								**TOTAL MH BY FC**	**TOTAL COSTS BY FC**
FEASIBILITY STUDIES - FC 110								101	$10,997.00
SUBTOTAL LABOR EXPENSES								101	**$10,997.00**

Project: Memorial Drive Phase II
WBS No.: N-T17000-0020-7

Exhibit B - Fee Schedule
Method of Payment: Lump Sum
Aviles Engineering Corp

OTHER DIRECT EXPENSES	COST/UNIT								
Mileage (# of miles) (current state rate)	$0.585	451.28							$264.00
Per diem	$36.00								$0.00
Hotel	$85.00								$0.00
Traffic Control Services, Arrow Boards and Attenuator trucks - Medium Project (Includes labor, equipment and fuel)	$950.00	2							$1,900.00
Photocopies B/W (11" X 17")	$0.20								$0.00
Photocopies B/W (8 1/2" X 11")	$0.10								$0.00
Photocopies Color (11" X 17")	$1.20								$0.00
Photocopies Color (8 1/2" X 11")	0.75								$0.00
SUBTOTAL DIRECT EXPENSES									**$2,164.00**

Unit Costs					
Services To Be Provided	**Test Code**	**Unit**	**Rate**	**Quantity**	**Total**
Coring Crew travel to/from Job site per day	1	hour	$180.00		$0.00
(a) 6-in. diameter cores	N/A	each	$102.00		$0.00
(b) 6-in. diameter cores (greater than 6-inch thickness)	N/A	Inch	$9.00		$0.00
Truck Mounted Rig		each	$400.00	1	$400.00
Soil Drilling and Continuous Sampling (0 to 20 ft)	Tex-132-E	LF	$24.00	80	$1,920.00
Soil Drilling and Intermittent Sampling (20 to 50 ft)	Tex-132-E	LF	$20.00	40	$800.00
TxDOT TCP Test	Tex-132-E	each	$28.00	24	$672.00
Grouting Holes		LF	$7.00	90	$630.00
Pavement Patches		each	$30.00	4	$120.00
Install Piezometers		LF	$18.00	30	$540.00
Metal Piezometer Covers		each	$68.00	1	$68.00
Plug and Abandon Piezometers		LF	$16.00	30	$480.00
Drilling Standby Time		hour	$150.00		$0.00
Determination of Moisture Content in soils	ASTM D2216	test	$10.00	48	$480.00
Liquid Limit of Soils	ASTM D4318	test	$34.00	12	$408.00
Plastic Limit of Soils	ASTM D4318	test	$34.00	12	$408.00
Sieve Analysis	ASTM D 422	each	$62.00	2	$124.00
Percent Passing # 200 sieve	ASTM D 1140	each	$52.00	12	$624.00
Unconsolidated Undrained Triaxial Compressive Strength of Soil	ASTM D 2850	each	$69.00	8	$552.00
Unconfined Compressive Strength (Soil)	ASTM D2166	each	$50.00	4	$200.00
SUBTOTAL UNIT COSTS					**$8,426.00**

SUMMARY	
TOTAL COSTS FOR AVILES ONLY	$10,997.00
OTHER DIRECT EXPENSES FOR AVILES ONLY	$2,164.00
SUBCONTRACTS (includes labor costs and direct expenses)	$8,426.00
GRAND TOTAL	**$21,587.00**

Project: Memorial Drive Phase II
WBS No.: N-T17000-0020-7

Exhibit B - Fee Schedule
Method of Payment: Lump Sum
CN Koehl

TASK DESCRIPTION	SR. URBAN FORESTER	FIELD TECH FORESTER	SR. CAD DRAFTSMAN			TOTAL LABOR HRS. & COSTS	NO OF DWGS	LABOR HRS PER SHEET
MISCELLANEOUS (ROADWAY) - FC 160(163)								
TREE PROTECTION AND REMOVAL								
1. Data Collection/Field Evaluation	8	8				16		
2. Civil Design review and plan markup for TPP	12					12		
3. Construction Feasibility Field Meeting	7					7		
4. Civil Design review and plan markup for 90% submittal	8					8		
5. Civil Design review and plan markup for 95% submittal	8					8		
6. Civil Design review and plan markup for final submittal	6					6		
7.Drafting CAD drawn TPP drawings			10			10		
HOURS SUB-TOTALS	49	8	10	0	0	67	0	
CONTRACT RATE PER HOUR (INCLUDE AVG HOURLY RATE TIME OVERHEAD AND FF)	$130.00	$95.00	$60.00	$118.94				
TOTAL LABOR COSTS	$6,370.00	$760.00	$600.00	$0.00	$0.00	$7,730.00		
% DISTRIBUTION OF STAFFING	73.13%	11.94%	14.93%	0.00%	0.00%			
SUBTOTAL - FC 120						**$7,730.00**		

DESCRIPTION					**TOTAL MH BY FC**	**TOTAL COSTS BY FC**
ROADWAY DESIGN - FC 160 (163)					67	$7,730.00
ROADWAY DESIGN - FC 160 (170)						
SUBTOTAL LABOR EXPENSES					67	**$7,730.00**
OTHER DIRECT EXPENSES	**COST/UNIT**					
						$0.00
SUBTOTAL DIRECT EXPENSES						**$0.00**

SUMMARY	
TOTAL COSTS FOR CN KOEHL ONLY	$7,730.00
DIRECT EXPENSES FOR CN KOEHL ONLY	$0.00
GRAND TOTAL	**$7,730.00**

Project: Memorial Drive Phase II
WBS No.: N-T17000-0020-7

Exhibit B - Fee Schedule
Method of Payment: Lump Sum
Cypress Environmental Consulting LLC

TASK DESCRIPTION	PROJECT MANAGER	GIS Operator	Professional Geoscientist	Scientist 3	Scientist 1	Clerical	TOTAL LABOR HRS. & COSTS
SOCIA/ECON/ENVIRON STUDIES - FC 120							
ENVIRONMENTAL STUDIES & PUBLIC INVOLVEMENT							
							0
Categorical Exclusion Documentation	8	12	24	60	56	8	168
HOURS SUB-TOTALS	8	12	24	60	56	8	168
CONTRACT RATE PER HOUR (INCLUDE AVG HOURLY RATE TIME OVERHEAD AND FF)	$150.00	$85.00	$135.00	$125.00	$80.00	$50.00	
TOTAL LABOR COSTS	$1,200.00	$1,020.00	$3,240.00	$7,500.00	$4,480.00	$400.00	$17,840.00
% DISTRIBUTION OF STAFFING	4.76%	7.14%	14.29%	35.71%	33.33%	4.76%	
SUBTOTAL - FC 120							**$17,840.00**

DESCRIPTION						**TOTAL MH BY FC**	**TOTAL COSTS BY FC**
FEASIBILITY STUDIES - FC 102 (110)							
SOCIAL/ECON/ENVIRON STUDIES - FC 120						168	$17,840.00
SUBTOTAL LABOR EXPENSES						168	**$17,840.00**
OTHER DIRECT EXPENSES	**COST/UNIT**						
Laboratory Analysis (A&B Labs; 1 soil TPH; 1 water TPH; 7 soil VOCs; 7 water VOCs)	$1,280.000	1					$1,280.00
Equipment Rental (PID meter, perstaltic pump)	$250.00	2					$500.00
Street Cut Permit Fee	$205.00	2					$410.00
Peace Officer/Traffic Control	$400.00	2					$800.00
Driller	$2,553.00	2					$5,106.00
SUBTOTAL DIRECT EXPENSES							**$8,096.00**

SUMMARY	
TOTAL COSTS FOR CYPRESS ONLY	$17,840.00
OTHER DIRECT EXPENSES FOR CYPRESS ONLY	$8,096.00
GRAND TOTAL	**$25,936.00**

Project: Memorial Drive Phase II
WBS No.: N-T17000-0020-7

Exhibit B - Fee Schedule
Method of Payment: Lump Sum
KUO and Associates

TASK DESCRIPTION	RPLS PROJECT MANAGER	RPLS SURVEY MANAGER	SENIOR SURVEY TECH	SURVEY TECH	2-PERSON FIELD CREW	3-PERSON FIELD CREW	ADMIN/ CLERICAL	TOTAL LABOR HRS. & COSTS
Topograhic Survey - FC 150								
FC 150-Field Survey								
Tie to TxDOT Monument/Benchmark		4	6	4	16			30
Set Survey Controls (+/- 10)			1		4			5
Horizontal Control Survey		1	1		4			6
Vertical Control Survey		1	2		8			11
Limited brush clearing								0
Survey Cross section, topo, utility features			8		64			72
Survey bridge structures								0
Trailhead area (2) survey								
Invert culverts, inlet, manhole			4	4	8			16
Survey boreholes		1	2	4	8			15
Estimated ROW delineation		6	12		4			22
Utility coordination and research			6					6
Plan drawing			6	56				62
Profile drawing			4	36				40
DTM			16	4				20
SCM (11x17 size, scale: 1"=100')		8	16	16				40
Stake design center line		1	2	8				11
Stake estimated ROW lines		1	2	8				11
Stake wetlands within survey limit								0
QC/QA		16		8	8			32
Project Management & Coordination		4					4	8
HOURS SUB-TOTALS	0	43	88	148	124	0	4	407
CONTRACT RATE PER HR (INCLUDE AVG HRLY RATE TIME OVERHEAD & FF)	$220.00	$150.00	$110.00	$90.00	$150.00	$185.00	$69.00	
TOTAL LABOR COSTS	$0.00	$6,450.00	$9,680.00	$13,320.00	$18,600.00	$0.00	$276.00	$48,326.00
% DISTRIBUTION OF STAFFING	0.00%	10.57%	21.62%	36.36%	30.47%	0.00%	0.98%	
SUBTOTAL - FC 150								**$48,326.00**

Project: Memorial Drive Phase II
WBS No.: N-T17000-0020-7

Exhibit B - Fee Schedule
Method of Payment: Lump Sum
KUO and Associates

DESCRIPTION							BY FC	TOTAL COSTS BY FC
TOPOGRAPHIC SURVEY - FC 150							407	$48,326.00
SUBTOTAL LABOR EXPENSES							407	**$48,326.00**
OTHER DIRECT EXPENSES	**COST/UNIT**	**QUANTITY**						**TOTAL**
Mileage (# of miles) (current state rate)	$0.585	2000						$1,170.00
Toll Charges (each)	$1.50	200						$300.00
Courier Services (each)	$25.00	2						$50.00
Boat with Motor (per day)	$100.00	0						$0.00
Map Records (per Sheet)	$15.00	5						$75.00
Deed Copies (per Sheet)	$5.00	60						$300.00
SUBTOTAL DIRECT EXPENSES								**$1,895.00**

ADDITIONAL SERVICE (SUE SURVEYING)				
Level B SUE Surveying	hr	$200	40	$8,000.00
SUE Surveying (up to 19.99')	each	$2,500.00	5.00	$12,500.00
SUBTOTAL ADD SERVICES (Not to exceed)				**$20,500.00**

SUMMARY	
TOTAL COSTS FOR KUO ONLY	$48,326.00
DIRECT EXPENSES FOR KUO ONLY	$1,895.00
ADDITIONAL SERVICE (SUE SURVEYING)	$20,500.00
GRAND TOTAL	**$70,721.00**

Project: Memorial Drive Phase II
WBS No.: N-T17000-0020-7

Exhibit B - Fee Schedule
Method of Payment: Lump Sum
Midtown Engineers, LLC

TASK DESCRIPTION	PROJECT MANAGER	PROJECT ENGINEER	ENGINEER IN TRAINING	ENGINEERING TECHNICIAN	TOTAL LABOR HRS. & COSTS
FUNCTION CODE 160(150) - ROADWAY DESIGN					
QLA SUE					
COORDINATION WITH GAUGE AND PROJECT TEAM	2	2	2	2	8
COORDINATION WITH CITY OF HOUSTON, PERMITTING, TRAFFIC CONTROL, ETC.	2	2	2		6
PROJECT CONTROLS, MANAGEMENT, QA/QC, SCHEDULING, ETC.	2		2		4
HOURS SUB-TOTALS	6	4	6	2	18
CONTRACT RATE PER HOUR	$192.00	$142.00	$105.00	$98.00	
TOTAL LABOR COSTS	$1,152.00	$568.00	$630.00	$196.00	$2,546.00
% DISTRIBUTION OF STAFFING	47.1%	41.2%	11.8%	0.0%	
SUBTOTAL - PLUMBING					**$2,546.00**

DESCRIPTION					**TOTAL COSTS BY FC**
FEASIBILITY STUDIES - FC 102 (110)					$0.00
SOCIAL/ECON/ENVIRON STUDIES - FC 120 (120)					$0.00
RIGHT OF WAY DATA - FC 130 (130)					$0.00
MANAGING CONTRACTED/DONATED PE - FC 145 (164)					$0.00
QLA SUE - FC 150					$2,546.00
SUBTOTAL LABOR EXPENSES					**$2,546.00**
OTHER DIRECT EXPENSES	**COST/UNIT**				
TRAFFIC CONTROL IMPLEMENTATION	$2,400.000	1	EACH		$2,400.00
PAVEMENT CORING/RESTORATION	$500.000	2	EACH		$1,000.00
VACUUM EXCAVATION	$400.000	10	HOUR		$4,000.00
BACKFILL (LABOR AND MATERIALS)	$500.00	2	EACH		$1,000.00
SURVEY TEST HOLE LOCATIONS	$800.00	2	EACH		$1,600.00
SUBTOTAL DIRECT EXPENSES					**$10,000.00**

SUMMARY	
TOTAL COSTS FOR MIDTOWN ENGINEERS (LUMP SUM) ONLY	$2,546.00
DIRECT EXPENSES FOR MIDTOWN ENGINEERS ONLY	$10,000.00
GRAND TOTAL	$12,546.00

Project: Memorial Drive Phase II
WBS No.: N-T17000-0020-7

Exhibit B - Fee Schedule
Method of Payment: Lump Sum
TEI Planning+Design

TASK DESCRIPTION	SENIOR PRINCIPAL	PRINCIPAL	SENIOR ASSOCIATE	ASSOCIATE	TOTAL LABOR HRS. & COSTS	NO OF DWGS	LABOR HRS PER SHEET
SIGNAL DESIGN							
SIGNAL DESIGN							
Task 1: Project Management & Client Coordination	6	16			22		
Task 2: Stakeholder Engagement and Public Outreach	8	12			20		
Task 3: Metro Coordination	4	4			8		
Task 4: Intersection Design Plans	16	60	100	160	336		
Task 5: Temporary Traffic Signal	4	8	8	40	60		
					0		
HOURS SUB-TOTALS	38	100	108	200	446		
CONTRACT RATE PER HOUR	$255.00	$210.00	$150.00	$126.00			
TOTAL LABOR COSTS	$9,690.00	$21,000.00	$16,200.00	$25,200.00	$72,090.00		
% DISTRIBUTION OF STAFFING	8.5%	22.4%	24.2%	44.8%			
SUBTOTAL					**$72,090.00**		

DESCRIPTION					**TOTAL COSTS BY FC**
SIGNAL DESIGN					$72,090.00
SUBTOTAL LABOR EXPENSES					**$72,090.00**
OTHER DIRECT EXPENSES	**COST/UNIT**				
Mileage (# of miles) (current state rate)	$0.625				$0.00
SUBTOTAL DIRECT EXPENSES					**$0.00**

SUMMARY	
TOTAL COSTS FOR HIRSCH ENGINEERING, INC ONLY	$72,090.00
DIRECT EXPENSES FOR HIRSCH ENGINEERING, INC ONLY	$0.00
SUBCONTRACTS (includes labor costs and direct expenses)	
GRAND TOTAL	$72,090.00

Project: Memorial Drive Phase II
WBS No.: N-T17000-0020-7

Exhibit B - Fee Schedule
Method of Payment: Lump Sum
AIMS

OTHER DIRECT EXPENSES	COST/UNIT				
CL to facilitate & TV 15"-21" sanitary sewer	$2.50	1325	LF		$3,312.50
Float to facilitate & TV 48" sanitary sewer	$4.00	900	LF		$3,600.00
					$0.00
					$0.00
					$0.00
SUBTOTAL DIRECT EXPENSES					**$6,912.50**

SUMMARY	
DIRECT EXPENSES FOR AIMS ONLY	$6,912.50
GRAND TOTAL	$6,912.50

Exhibit C

November 18, 2022

Aurora Technical Services
engineering + construction management

Mr. David G. Greaney, P.E., C.F.M – Project Manager
Gauge Engineering
11750 Katy Freeway, Suite 400
Houston, TX 77079
Via. Email - dgreaney@gaugeengineering.com

Reference: **Structural Design Support for Memorial Drive Drainage Improvement Project**
Phase II

Dear Mr. Greaney,

In response to your request, Aurora Technical Services, LLC, is submitting this proposal to provide structural design support services for the above referenced project designed by Gauge Engineering.

Project Description
Gauge Engineering is designing the drainage improvements for Memorial Drive, which requires a junction box to accommodate an approximate 10 ft drop of the dual 10'x10' RCBs between Paul Revere and Tealwood (approximately 24' W x 12' L x 24' H). In addition, two restrictors/orifices will be integrated into the junction box.

Scope of Services
Aurora Technical Services will perform the following scope items:

- Structural design of the proposed junction box (approximately 24' W x 12' L x 24' H).
- Design of two restrictors/orifices to be placed within the RCB storm sewer (orifice sizes to be provided by Gauge Engineering).
- Cost estimate of the proposed junction box.

Schedule
Based on the information provided and understanding of the project scope, Aurora Technical Services is committed to complete the above referenced scope no later than 30 days after receiving the final civil drawings. Comments received will be addressed within two weeks from receipt.

Fee
Aurora Technical Services proposes to perform the scope identified for a lump sum amount of **$11,000.00**. Please refer to the attached level of effort.

2121 Sage Rd
Houston, Texas 77056
281-453-7700
rortega7@auroratechservices.com

We appreciate the opportunity to submit this proposal, and hope you find it acceptable.

Respectfully Submitted,

Rafael Ortega, P.E.
President

Attachment: Level of Effort

2121 Sage Rd
Houston, Texas 77056
281-453-7700
rortega7@auroratechservices.com

AVILES
ENGINEERING CORP.

November 16, 2022

David Greaney, P.E., CFM
Gauge Engineering
11750 Katy Freeway, Suite 400
Houston, Texas 77079

Re: Geotechnical Investigation Proposal
TIRZ 17 Memorial Drive Phase II Improvements
From Tallowood Road to Tealwood North Drive
Houston, Texas
AEC Proposal No. G2022-11-07

Dear Mr. Greaney,

Aviles Engineering Corporation (AEC) is pleased to present this geotechnical investigation proposal for the Tax Increment Revenue Zone (TIRZ) 17 Redevelopment Authority's proposed Memorial Drive Phase II Improvements project, located along Memorial Drive between Tallowood Road and Tealwood North Drive, in Houston, Texas (Houston/Harris County Key Map 489M and 490J). The project limits are presented on Plate 1, in the Attachments. According to information provided by you, the proposed improvements include: (i) roadway reconstruction with concrete pavement; and (ii) installation of dual 10 foot by 10 foot reinforced concrete box (RCB) storm sewers. The storm sewers will have depths ranging from approximately 13 feet to 23.5 feet and will be installed by open cut method.

As directed, this investigation will be performed in general accordance with the requirements of both theTexas Department of Transportation (TxDOT) 2020 Geotechnical Manual and the 2021 City of Houston (COH) Infrastructure Design Manual (IDM). AEC proposes to drill a total of 4 soil borings ranging from 25 to 35 feet deep along the project alignments. The total drilling footage is 120 feet. AEC will also install one piezometer to a depth of 30 feet to monitor groundwater levels along the project alignment. A Proposed Boring Location Plan is presented on Plate 1, in the Attachments. We will perform a site reconnaissance prior to drilling and mark the boring locations. We will also contact the Texas 811 System to confirm utility locations; however, Texas 811 does not locate water, sanitary, or storm sewer lines. We request that any existing underground utility drawings of the project alignments be provided to AEC prior to mobilization of the drill rig.

Based on aerial photographs and our previous experience in the area, the existing pavement along Memorial Drive is asphalt. Traffic control will be required for drilling operations. A truck mounted drill rig will be required to access the boring locations. For the borings, we will collect samples continuously from the ground surface to a depth of 20 feet, and then at 5 foot intervals until the boring termination depths. Undisturbed samples will be obtained of cohesive soils by pushing a Shelby tube (ASTM D-1587). Standard Penetration Test samples will be obtained of granular soils (ASTM D-1586). Representative portions of all soil samples will be sealed, packaged, and transported to our laboratory. We will note any visual evidence or odor indicating hazardous materials if encountered in the samples. Water level readings will be noted during drilling and obtained upon completion of drilling. Boring B-2 will be converted to a piezometer upon completion of drilling. The remaining borings will be grouted using tremie method with cement-bentonite upon completion of drilling and the pavement patched with cold asphalt patch. The piezometer will be monitored 24 hours after installation and after 30 days. The piezometer will then be plugged and abandoned after the final readings are taken.

As part of our services, we will review in-house published fault maps to identify documented faults crossing the alignment; based on AEC's previous experience in the area, the Piney Point West fault is

known to cross Memorial Drive to the north of the project alignment (at Huntingwick Drive). We will visit the site to observe fault-related features (if any) that are evident along the alignment and immediate vicinity. Laboratory testing may consist of moisture contents, Atterberg limits, percentage passing No. 200 sieve, sieve analysis, unconfined compression, and unconsolidated-undrained triaxial tests depending on the soil types encountered. We will analyze the field and laboratory data to develop geotechnical engineering recommendations for: (i) rigid pavement reconstruction in accordance with COH requirements, including pavement thickness design and subgrade preparation; and (ii) pipe loading, trench excavation, shoring (including generalized lateral pressure diagrams only), bedding, groundwater control, and backfill for storm sewer installed by open cut method; and (iii) construction and groundwater control recommendations for the proposed improvements. We will present our findings and recommendations in an engineering report (electronic copies only).

The estimated lump sum fee for our services is **$21,587.00** as presented on the Itemized Fee Estimate in the Attachments. The fees are based on the following assumptions: (1) the field personnel will use Level D protection during the field exploration; (2) no standby time (weather-related or incurred due to reasons beyond our control) is included; and (3) surveying, environmental testing and evaluation, and construction document review are not included. We will invoice our services on a lump sum basis, assuming our services will be provided in 2022-2023.

After receiving notice to proceed, AEC will apply for lane closure permits from the COH, which AEC anticipates will take 2 weeks to obtain. After the lane closure permits are obtained, AEC will perform a site reconnaissance within 3 days and contact Texas 811 to clear utilities at the boring locations. Weather permitting, and assuming no field delays, we plan to start the field exploration about 1 week after all necessary permits are obtained and utilities are cleared. The field exploration will take approximately 1 to 2 days. Laboratory soil testing will require four weeks to complete after completion of the drilling, and the draft geotechnical report will take two weeks after laboratory testing is completed. We will submit the final geotechnical report two weeks after we receive review comments on the draft report. The provided time frame is an estimate based on AEC's current schedule at the time this proposal was written and will remain valid for 60 days from the date of the proposal. If project authorization is received after 60 days, then the schedule estimated herein may be subject to change.

If any of the project details described in this proposal are incorrect or the scope described or the assumptions listed need to be revised, please inform us immediately so we can revise the proposal as necessary. Please sign and return this proposal (including terms and conditions) or issue AEC an Professional Services Agreement (referencing this proposal) to authorize AEC to proceed with the services. We appreciate the opportunity to present this proposal and look forward to working with you.

AVILES ENGINEERING CORPORATION
(TBPELS Firm Registration No. F-42)

Wilber L Wang, P.E.
Senior Engineer

Attachments: Terms and Conditions, Itemized Fee Estimate, Boring Location Plan

GEOTECHNICAL INVESTIGATION
TERMS AND CONDITIONS

STANDARD OF CARE

The CLIENT recognizes that actual subsurface conditions can vary from those observed and/or encountered at locations where borings, surveys, or explorations are made, and that site conditions may change with time. Data interpretations and recommendations by AVILES ENGINEERING will be based solely on information available to the AVILES ENGINEERING during the investigation. AVILES ENGINEERING is responsible for those data, interpretations, and recommendations, but will not be responsible for other parties' interpretations or use of the information developed.

The CLIENT should expect AVILES ENGINEERING to perform Services under this PROPOSAL/AGREEMENT in a manner consistent with the level of care and skill ordinarily exercised by members of the engineering profession practicing contemporaneously under similar conditions in the locality of the project. No other warranty, expressed or implied, is made.

SCOPE OF SERVICES

AVILES ENGINEERING will develop a scope of services based on the project information provided by the CLIENT. AVILES ENGINEERING shall not be responsible for problems arising due to inadequate number of borings and/or depths dictated or required by others or inadequate engineering analyses, if the CLIENT reduces the scope of services and/or provides insufficient or invalid project or other relevant information to AVILES ENGINEERING. In the event the CLIENT or his representative orders work described in this PROPOSAL/AGREEMENT, that action shall constitute the CLIENT's acceptance of this PROPOSAL/AGREEMENT and its terms and conditions

SITE ACCESS AND SITE CONDITIONS

The CLIENT will grant or obtain free access to the site for all equipment and personnel necessary for AVILES ENGINEERING to perform the services described in this PROPOSAL/AGREEMENT, as well as provide location data for all below and above ground structures, pipelines, and utilities. For such items encountered, not called to the attention of AVILES ENGINEERING, the CLIENT shall assume responsibility for any resultant damages. AVILES ENGINEERING will take reasonable precautions to minimize damage to the site, but it is understood by the CLIENT that, in the normal course of work, some damage may occur, and the correction of such damage is not part of this AGREEMENT. The CLIENT will notify AVILES ENGINEERING of any known toxic and/or hazardous materials on site and shall assume responsibility for the cost of occurrences due to unknown toxic and/or hazardous materials on site.

BILLING AND PAYMENT

The CLIENT will pay AVILES ENGINEERING the lump sum amount(s) shown in the PROPOSAL/AGREEMENT. Invoices will be submitted to the CLIENT by AVILES ENGINEERING and will be due and payable within thirty (30) days of the invoice date. CLIENT will pay an additional charge of 1.5 percent per month on any delinquent amount and agrees to pay attorney's fees and/or other costs involved in any required collection activity.

LIMITATION OF LIABILITY / INDEMNIFICATION

If at any time, there shall be or arise any liability on the part of AVILES ENGINEERING by virtue of this Agreement or because of the relation hereby established, whether due to the negligence of AVILES ENGINEERING (including gross negligence) or otherwise, such liability is and shall be limited to a sum equal in amount to the fee charged by AVILES ENGINEERING. AVILES ENGINEERING and CLIENT agree to indemnify each other from any claims, etc., including attorney's fees and litigation costs, to the proportionate extent caused by each party's own negligence. If AVILES ENGINEERING is found to be prevalent in any third party lawsuits relating to this AGREEMENT, the CLIENT shall pay all AVILES ENGINEERING costs, including legal fees, that were incurred as a result thereof.

Geotechnical Investigation
TIRZ 17 Memorial Drive Phase II Improvements
Houston, Texas
AEC Proposal No. G2022-11-07
11/16/2022

AVLES ENGINEERING CORP.

ITEMIZED FEE ESTIMATE

4 Borings Total: 2 @ 25', 2 @ 35'. 1 piezometer @ 30'

A. FIELD EXPLORATION	QTY	UNIT		RATE	AMOUNT
Truck Rig Mobilization/Demobilization	1	LS	@	$400.00	$400.00
Field Coordination (Staff Geologist)	8	hrs.	@	$105.00	$840.00
Utility Clearance (Staff Geologist)	4	hrs.	@	$105.00	$420.00
Obtain Lane Closure Permits (Staff Geologist)	2	hrs.	@	$105.00	$210.00
Preliminary Fault Study (Staff Geologist)	8	hrs.	@	$105.00	$840.00
Boring Layout & Site Reconnaissance (Staff Geologist)	6	hrs.	@	$105.00	$630.00
Pavement Coring (6" dia, 6" thick core, min charge $300)	0	ea.	@	$102.00	$0.00
Pavement Coring (6" dia, 6"-12")	0	inch	@	$9.00	$0.00
Soil Drilling and Continuous Sampling (0 to 20 ft)	80	ft.	@	$24.00	$1,920.00
Soil Drilling and Intermittent Sampling (20 to 50 ft)	40	ft.	@	$20.00	$800.00
Soil Drilling and Intermittent Sampling (50 to 100 ft)	0	ft.	@	$24.00	$0.00
TxDOT TCP Test	24	ea.	@	$28.00	$672.00
Grouting Holes (Cement-bentonite)	90	ft.	@	$7.00	$630.00
Pavement Patches	4	ea.	@	$30.00	$120.00
Install Piezometers	30	ft.	@	$18.00	$540.00
Metal Piezometer Covers	1	ea.	@	$68.00	$68.00
Piezometer Monitoring (Technician)	8	hrs.	@	$70.00	$560.00
Plug and Abandon Piezometers	30	ft.	@	$16.00	$480.00
On-site Standby Time, if incurred (3-man Crew)	0	hrs.	@	$185.00	$0.00
Vehicle Charge (Three Trips)	22	hrs.	@	$12.00	$264.00
	SUBTOTAL				**$9,394.00**
B. ALLOWANCE					
Coordination (Staff Geologist)	5	hrs.	@	$105.00	$525.00
Traffic Control Subcontractor	2	days	@	$950.00	$1,900.00
	SUBTOTAL				**$2,425.00**
C. GEOTECHNICAL LABORATORY TESTING					
Atterberg Limits (ASTM D-4318)	12	ea.	@	$68.00	$816.00
Passing No. 200 Sieve (ASTM D-1140)	12	ea.	@	$52.00	$624.00
Sieve Analysis w/o Hydrometer (ASTM D-422)	2	ea.	@	$62.00	$124.00
Moisture Content (ASTM D-2216)	48	ea.	@	$10.00	$480.00
Unconfined Compression (ASTM D-2166)	4	ea.	@	$50.00	$200.00
Unconsolidated-Undrained Test (ASTM D-2850)	8	ea.	@	$69.00	$552.00
	SUBTOTAL				**$2,796.00**
D. PROJECT MANAGEMENT, ENGINEERING ANALYSES & REPOR					
Principal Engineer, P.E.	0	hrs.	@	$210.00	$0.00
Senior Engineer, P.E.	4	hrs.	@	$170.00	$680.00
Project Engineer, P.E.	20	hrs.	@	$133.00	$2,660.00
Staff Engineer, EIT	32	hrs.	@	$105.00	$3,360.00
Support Personnel (Drafting)	4	hrs.	@	$68.00	$272.00
Reproduction (electronic copies only)		copies	@	$40.00	$0.00
	SUBTOTAL				**$6,972.00**
	TOTAL ESTIMATED FEE				**$21,587.00**

LEGEND:

B-# (X') — *PROPOSED AVILES BORING LOCATION (DEPTH IN FEET)*

B-# (X')
GXXX-XX — *PREVIOUSLY DRILLED BORING LOCATION (DEPTH IN FEET) AEC PROJECT G178-14, AUGUST 2015*

NOTES:

1) ***Proposed boring locations are approximate and may be adjusted in the field as necessary for drill rig access.***
2) ***Existing boring locations have been surveyed.***

AVILES ENGINEERING CORPORATION

PROPOSED BORING LOCATION PLAN

TIRZ17 MEMORIAL DRIVE IMPROVEMENTS FROM TALLOWOOD ROAD TO TEALWOOD NORTH DRIVE
HOUSTON, TEXAS

AEC PROPOSAL NO.:	DATE:	SOURCE DRAWING PROVIDED BY:
G2022-11-07	11-16-2022	GOOGLE
APPROX. SCALE:	DRAFTED BY:	PLATE NO.:
1" = 200'	WLW	PLATE 1

Exhibit E

C.N. Koehl
Urban Forestry, Inc.

November 15, 2022

Mr. David G. Greaney, P.E., CFM
Project Manager
Gauge Engineering
11750 Katy Freeway, Suite 400
Houston, Texas 77079

Re: Proposal for Urban Forestry Consulting Services on the TIRZ 17, Memorial Drive Improvements from Tallowood Rd. to Tealwood North Dr., Project.

Dear Mr. Greaney,

As per your request, C.N. Koehl Urban Forestry, Inc. proposes to provide Urban Forestry Consulting services for design phase of the Memorial Drive Improvements from Tallowood Rd. to Tealwood North Dr.Project. Approximately 2,500 linear feet of project right of way will be evaluated for proposed storm, pavement, sidewalk, and utility construction. Based on your request for proposal, and our most recent experience on past projects working with consulting civil engineers and the City of Houston's Street Tree Ordinance and Urban Forestry department, we propose to provide the following Urban Forestry services:

Phase II – Services for Project Design

Field Evaluation/Site Visit

We will walk each side of every street on which construction is proposed and evaluate the species, size, condition, and preservation feasibility of each tree. We will confirm the surveyed location of each tree and approximately locate any trees that may be impacted that were not picked up by surveyor. Proposed construction activity adjacent to each tree will be evaluated to determine impacts on long-term tree survival and compliance with City of Houston Street Tree Ordinance. The field evaluation will be scheduled in conjunction with the 60% submittal Tree Protection Plan development. The data collected will be used in development of the 60%, 90%, 95% and final Tree Protection Plans.

Fee for Field Evaluation/Site Visit
-Degreed Urban Forester
8.0 hours @ $130.00/hour…….…… $1,040.00
- Field Tech accompany for personal safety concerns
8.0 hours @ $95.00/hour…….... $760.00

Tree Protection Plan for 60% Submittal

The plan and profile drawings, provided by the engineer, will be reviewed between the 30 and 60 percent submittals, to determine treatment for each tree. Each tree will be numbered on the drawings. A tree treatment schedule will list each tree by number, species, diameter, condition, anticipated treatment, and mitigation required by ordinance for trees to be removed. Each tree (public and private) adjacent to construction activity will be evaluated to ensure that construction activity will not destroy too much of the structural root system. Should we find any conflicts with proposed construction we will make recommendations for minor design changes or

for removal of the tree. Recommendations for minor design changes, such as shifting bends, a ts&v, vertical offset, or a fire hydrant, will be redlined on plan and profile drawings copied to our Tree Submittal Form with a brief description of recommended changes and emailed to your office. Design change recommendations can then be reviewed by engineer and client to determine feasibility.

Minor design changes may reduce the number of trees needing to be removed and reduce the cost of replacement plantings required by ordinance. The design review and comment process is typically the most value added aspect of our services, because the changes will preserve trees rather than requiring removal and replacement to comply with Street Tree Ordinance. If our recommendations preserve one 24" diameter ordinance tree the cost savings to the project, in removal and replacement costs, is approximately $12,000.00.

After we receive your comments on our design change recommendations we will develop an AutoCAD drawn tree protection plan which will identify the mitigative and protective treatments needed to ensure long term tree survival and compliance with the City's Street Tree Ordinance. Plan and profile drawings, provided by the engineer, will be used to indicate each tree by number, and exact location of preservation treatments (protection fencing, root pruning trench, zero curb cutback, water line augers, etc.). The plan will also include the number of inches of replacement tree plantings required to comply with the Street Tree Ordinance, for reference by project landscape architect to incorporate plantings into their drawings. Details for tree treatments will be included in the tree protection plan. Quantity totals and cost estimates for each tree treatment will be provided. The tree protection plan and quantity totals and cost estimates will be emailed to you so that your staff may use the files as needed and plot the tree protection plan as it is needed. The tree protection plan will include our logo with a signature line, which we provide signed PDF file at the mylar stage. The tree protection plan and quantity/cost estimate can be included in your 60% submittal so that the City's Urban Forestry staff can review our plan and provide comments prior to the final submittal. We will need 12-15 business days to schedule and complete the field evaluation and 60% submittal tree protection plan.

Fee for 60% Tree Protection Plan
12.0 hours @ $130.00/hour …….$1,560.00

Construction Feasibility Meeting

We will attend an on-site meeting with Gauge, City of Houston PW and City of Houston Urban Forestry to review proposed project construction and tree protection. If City of Houston Forestry has not already identified the "Arboriculturally Significant" trees, they will need to be identified in the meeting so that the TPP and construction design can respond to trees that City will not allow to re removed or pruned for construction equipment access.

Fee for Construction Feasibility Meeting and TPP update resulting from meeting
7.0 hours @ $130.00/hour…….$910.00

Tree Protection Plan for 90% submittal

We will review the construction design between the 60% and 90% submittal, following comments from the City on recommendations made in the 60% submittal, to ensure that any design changes that may have been made are incorporated into the tree protection plan. Changes necessary to the tree protection plan will be completed in the DWG drawings and resubmitted to engineer for submittal. Quantity/Cost estimates will be updated and forwarded to engineer. We will need 7-10 business days to complete the 90% Tree Protection Plan.

Fee for 90% Tree Protection Plan
8.0 hours @ $130.00/hour…….……..$1,040.00

Tree Protection Plan for 95% submittal

We will review the construction design between the 90% and 95% submittal, following comments from the City on recommendations made in the 90% submittal, to ensure that any design changes that may have been made are incorporated into the tree protection plan. Changes necessary to the tree protection plan will be completed in the DWG drawings and resubmitted to engineer for submittal. Quantity/Cost estimates will be updated and forwarded to engineer. We will need 7-10 business days to complete the 95% Tree Protection Plan.

Fee for 90% Tree Protection Plan
8.0 hours @ $130.00/hour…….……..$1,040.00

Tree Protection Plan for Final submittal

We will review the construction design between the 95% and final submittal, following comments from the City on recommendations made in the 95% submittal, to ensure that any design changes that may have been made are incorporated into the tree protection plan. Changes necessary to the tree protection plan will be completed in the DWG drawings and resubmitted to engineer for submittal. Quantity/Cost estimates, and specifications will be updated and forwarded to engineer. We will sign the mylar set of the Tree Protection Plans prior to final submittal. We will need 7-10 days to complete the Final Tree Protection Plan.

Fee for Final Tree Protection Plan
6.0 hours @ $130.00/hour…….……..$780.00

Drafting AutoCAD (DWG) files of Tree Preservation Plan

We do have AutoCAD capabilities and will provide a CAD drawn document. We will need the electronic files of proposed construction in DWG format. We will use the project title block and insert plan drawings at a 1:40 scale, double banked on each sheet, similar to most traffic control plans. Tree treatment schedule will be included on each sheet which will call out treatments for each specific tree. This format typically allows us to fit approximately 1,200-1,500 l.f. per plan sheet, which would give us 2-3 sheets on this project. Two sheets with project details will also be included, which would give us a total of 4 to 5 sheets. The drawings will be emailed or ftp transferred to you, so that you may plot the files as you need them. CAD drafting will be completed in conjunction with the Preliminary and Final Plans. No additional time required.

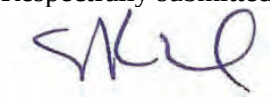
Drafting Services Fee for DWG files of the Tree Preservation Plan
10.0 hours @ $60.00/hour……..…….$600.00

Total Phase II Services Fees
Urban Forestry Services for development of Tree Protection Plan…..$7,130.00
Drafting Services Fee for DWG files…….$600.00
Total Fee for CAD drawn Tree Protection Plan……..$7,730.00

We have utilized the services contained in this proposal on similar projects for The City of West University Place Infrastructure Replacement Program, City of Houston Neighborhood Street Reconstruction Program, City of Houston Surface Water Transmission Program, Houston Storm Water Management Program, City of Missouri City Street Reconstruction, City of Friendswood Street Reconstruction, City of Piney Point Street Reconstruction, City of Sugarland Street Reconstruction, City of Texas City Street Reconstruction, and numerous City of Houston waterline and sewer projects in the past. It is our goal to provide you the most effective, efficient, and value added services we can provide. We are willing to provide services in whatever capacity you deem appropriate.

If this proposal meets with your approval and you would like to retain our services, please forward your standard agreement or a notice to proceed, and we will schedule the work as soon as we receive the plan and profile sheets. We greatly appreciate the opportunity to present this proposal and look forward to working with you on this project. If you have any questions or would like to make any changes, please do not hesitate to call me at 281-391-0022.

Respectfully submitted,



Sarah Koehl
President

November 15, 2022

Mr. Davis Greaney, P.E., CFM
Gauge Engineering
11750 Katy Freeway, Suite 400
Houston, Texas 77079

Subject: **Proposal for Environmental Services**
Categorical Exclusion Documentation
Memorial Drive Phase II Project (Tallowood Rd to Tealwood North Dr)
Houston, Harris County, Texas 77024

Dear Mr. Greaney,

Cypress Environmental Consulting LLC (CEC) appreciates the opportunity to submit this proposal to Gauge Engineering (Prime) to provide environmental services for the proposed Memorial Drive Phase II Project. The project is located within existing City right-of-way along an approximately 0.45-mile segment of Memorial Drive from Tallowood Rd to Tealwood North Dr in Houston, Harris County, Texas 77024 (Project Area; **Attachment 1**).

The general scope of the project will include asphalt roadway reconstruction, installation of medians, drainage system improvements to install a curb and gutter system, pedestrian sidewalks, traffic signal improvements, water and sanitary sewer utility improvements, and landscaping improvements.

To facilitate the permitting and construction of the proposed project, the proposed scope of work (SOW) to be performed by CEC for the project includes the following environmental studies, technical reports, coordination with the Texas Department of Transportation (TxDOT) and preparation of National Environmental Policy Act (NEPA) Categorical Exclusion (CE) documentation based on the project tasks and cost estimate outlined herein.

Scope of Work

The proposed scope of work will include preparation of Categorical Exclusion (CE) technical documentation support for review by the Project Engineer and TxDOT Houston District to be prepared in accordance with the most recent guidance on CEs. CEC anticipates preparing a Project Description Memo, a Community Impact Analysis Report, a Biological Species Analysis, a Surface Water Analysis Form, a Hazardous Materials Technical Report, an Archeological Background Study, a Historical Resources Project Coordination Request (PCR), Section 4(f) review, Notice of Opportunity to Comment (NOC) for adjacent landowners, and a Public Involvement Summary [note: this assumes that the Engineer would conduct appropriate meeting of affected property owners (MAPOs), if necessary, and provide summaries to CEC for incorporation into the report]. The proposed scope of work does not include archeological survey, historic resources field work, air quality modeling, noise analysis, agency permit preparation, or formal coordination with regulatory agencies (other than TxDOT).

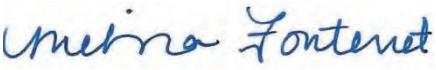
Cost

The total cost of these services will be a lump sum fee of $29,998.50 to be billed monthly on a percent complete basis. The level of effort assigned to each task associated with the cost estimate is presented in **Attachment 2**.

Summary

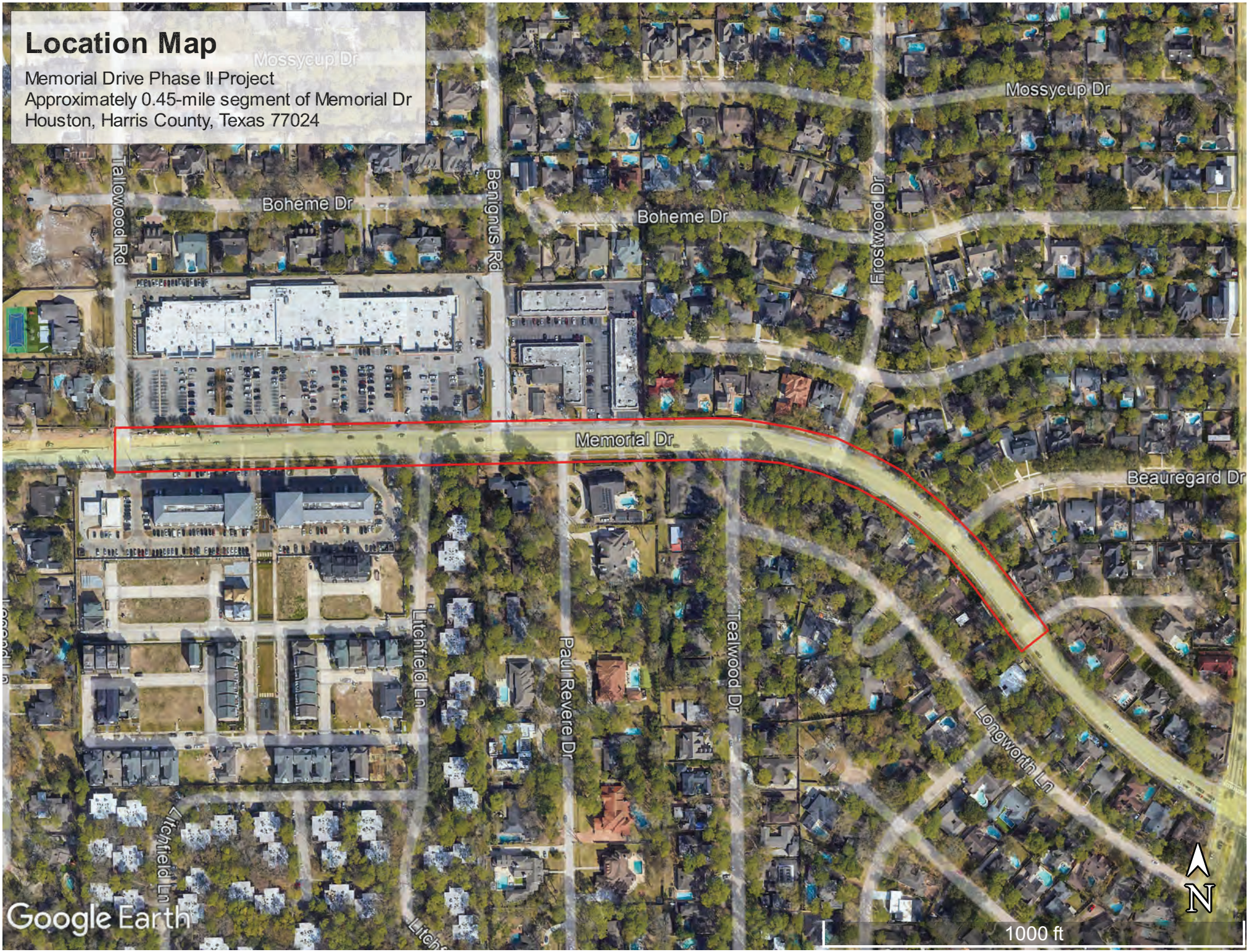
We appreciate the opportunity to work with you on this project. The total cost due to CEC for the services described herein is $29,998.50. If this proposal is acceptable to you, please send a signed task order to me at mfontenot@cypressec.com as our Notice to Proceed.

Sincerely,



Melissa Fontenot
President
Cypress Environmental Consulting LLC

Attachment 1
Project Location Map


Location Map
Memorial Drive Phase II Project
Approximately 0.45-mile segment of Memorial Dr
Houston, Harris County, Texas 77024
Mossycup Dr
Tallowood Rd
Boheme Dr
Benignus Rd
Boheme Dr
Frostwood Dr
Mossycup Dr
Memorial Dr
Beauregard Dr
Litchfield Ln
Paul Revere Dr
Tealwood Dr
Longworth Ln
Litchfield Ln
Google Earth
N
1000 ft

Attachment 2
Cost

Attachment B
Fee Schedule

Roadway: Memorial Drive Phase II Project (Tallowood Rd to Tealwood North Dr)
Date: November 15, 2022
County: Harris

Sub-Provider Name: Cypress Environmental Consulting LLC	$ 130.00	$ 85.00	$ 100.00	$ 75.00	$ 50.00	$ 90.00	$ 64.00	$ 80.00	$ 47.00	
BASIS SERVICES Task Descriptions	Project Manager	GIS Operator	Senior Scientist	Environmental Scientist I	Technical Editor	Permit Preparer	Biologist I	Archeologist III	Clerical	Total Cost
Social, Economic and Environmental Studies and Public Involvement - Categorical Exclusion Documentation										
Environmental Studies (including Technical Reports)										
Prepare Community Impact Analysis (CIA form)	2	4	24	4	2	0	0	0	0	$ 3,400.00
Prepare Water and Biological Resources Documentation										
Threatened and Endangered Species										
Conduct site investigation	0	0	8	8	0	0	0	0	0	$ 1,400.00
Prepare Biological Species Analysis Spreadsheet, USFWS Official Species List, TPWD TxNDD/County List	2	8	0	24	2	4	8	0	2	$ 3,806.00
Conduct analysis of wetlands, streams, floodplains, and associated habitats	0	2	0	4	0	4	2	0	0	$ 958.00
Complete Surface Water Analysis Form	0	2	0	0	2	4	10	0	2	$ 1,364.00
Address Executive Memorandum on Beneficial Landscape	0	0	0	2	0	4	0	0	0	$ 510.00
Prepare Hazardous Materials Technical Report	2	8	8	24	2	4	0	0	2	$ 4,094.00
Prepare Cultural Resources Background Study	2	8	4	0	0	0	0	16	0	$ 2,620.00
Prepare Historical Resources PCR	2	8	4	0	0	0	0	16	2	$ 2,714.00
Prepare Section 4(f) Review	2	4	16	0	0	0	0	4	0	$ 2,520.00
Prepare Project Description Memo	2	0	4	0	0	8	0	0	0	$ 1,380.00
Public Involvement										
Summary of Meeting of Affected Property Owners (meeting conducted by Engineer)	2	0	4	0	0	0	0	0	0	$ 660.00
Prepare Notice of Opportunity to Comment (NOC) to Adjacent Landowners	2	4	16	0	0	0	0	0	0	$ 2,200.00
Agency Coordination										
Texas Department of Transportation - Coordination, Reviews, Meetings with Environmental PM	8	0	4	0	0	4	0	0	0	$ 1,800.00
ODE										$ 572.50
Subtotal Hours:	**26**	**48**	**92**	**66**	**8**	**32**	**20**	**36**	**8**	**$ 29,998.50**
Subtotal Labor Cost:	**$ 3,380.00**	**$ 4,080.00**	**$ 9,200.00**	**$ 4,950.00**	**$ 400.00**	**$ 2,880.00**	**$ 1,280.00**	**$ 2,880.00**	**$ 376.00**	**$ 29,998.50**

Attachment B
Fee Schedule

Roadway: Memorial Drive Phase II (Tallowood Rd to Tealwood North Dr)
Date: November 15, 2022
County: Harris

Sub-Provider Name: Cypress Environmental Consulting LLC

OTHER DIRECT EXPENSE	UNIT	UNIT COST	QUANTITY	COST
Mileage (allowable IRS rate)	mile	$ 0.625	100	$ 62.50
Color Reproduction - Plate	page	$ 1.00	20	$ 20.00
Copies - B&W	page	$ 0.10	200	$ 20.00
Certified Mail - letter size	each	$ 6.00	20	$ 120.00
Environmental Database Records	unit	$ 350.00	1	$ 350.00
			Subtotal Other Direct Expense:	**$ 572.50**

KUO & associates, Inc.
Consulting Engineers & Surveyors

10300 Westoffice Drive, Ste. 800
Houston, TX 77042
Phone: (713) 975-8769
Fax: (713) 975-0920
Engineering Firm Reg. No. F-4578
Surveying Firm Reg. No. 10075600
www.kuoassociates.com

November 28, 2022

David G. Greaney, PE, CFM
Project Manager
Gauge Engineering
11750 Katy Freeway., Suite 400
Houston, TX 77079

RE: Memorial Drive Phase 2
Topographic Surveying

Dear Mr. Greaney:

Kuo & Associates, Inc. is pleased to submit this proposal to perform topographic survey services for the above referenced project.

The scope of work and fee will be as follows:

SCOPE OF WORK

Survey will be done mainly for project corridor along Memorial Drive and crossing side streets for the limits as defined in the attached table and shown in the exhibit:

Survey shall conform to all requirements as outlined in the latest TxDOT Local Let survey checklist and latest City of Houston Design Manual, Chapter 2 – Survey Requirements and the City of Houston (COH) as applicable. The scope for survey will be including the following tasks:

1. Horizontal and vertical controls will be established and tied to the Texas State Plane Coordinate System, South Central Zone NAD 83 and datum NAVD 88.
2. Survey will be tied to the nearby TxDOT Monument and City of Houston Monument as applicable for TxDOT Local Let Survey Checklist
3. Cross sections will be surveyed at a spacing not exceeding 100 feet interval along the project route.
4. All planimetric features (including curb, gutter, driveway, fence, sidewalk, ramp, bush, plant, 4" and larger caliper trees, etc.) will be surveyed along the road right-of-way within the limit specified in the Chapter 2 of the City design Manual. The survey will be extended on all sides of street intersections at least to 100' as per the requirements of design manual, unless otherwise warranted for your design.
5. All visible existing utilities (i.e., manholes, culverts, power poles, etc.) will be located and pipe size and flow line measure downs in the manholes and inlets will be obtained including along south side of Memorial Dr east of Tealwood N Drive as marked in the attached exhibit.
6. Texas one-call system will be notified and pipeline companies will be contacted to probe and mark their pipeline (if any) locations to be tied to the survey.
7. Attempt will be made to recover and verify sufficient monumentation along the existing roadway to establish estimated right-of-way lines for topographic surveying scope. Task of establishing estimated ROW may involve some limited abstracting and deed research, however, detail boundary category survey is excluded in determination.
8. Plan view drawings will be prepared containing all topographic information and visible utility features according to the COH standards in Microstation format.
9. Signed and sealed field books containing notes as well as ASCII files of point numbers, coordinates, and descriptions will be provided.

10. Tie to TSARP/FEMA Monument: nearby TSARP monument will be tied to the survey and an equation will be provided in between surveyed elevation (on the CORS datum) and published elevation of the TSARP (on NAVD 88, 2001 adj).
11. Borehole Survey: Boreholes will be located in the field and a spreadsheet will be prepared to show their location and elevation
12. Survey Control Map: A survey control map will be prepared to the TxDOT Local Let Survey Criteria The survey control map will be signed and sealed by a Registered Professional Land Surveyor in charge of the project.
13. City of Houston Monument: New City of Houston monuments will be established or/and existing City monuments (if any) will be recovered and updated to the new datum as per the City of Houston Ordinance and in accordance with Design Manual Section. Prepare map for the new/updated monument for City's approval.
14. Coordinate with private utility companies and City of Houston for record drawings
15. Perform utility research and delineation of underground utility lines from available record drawing and surveyed information
16. Prepare plan view for existing utilities based on field findings and available record information
17. Prepare profile for ground lines corresponding to the center line of the streets, center line of the ditch/curb lines, right-of-way lines
18. Prepare profile view of existing utilities based on field findings and available record information
19. Prepare DTM model for the surveyed data

To our understanding the following and any items not mentioned above are **excluded** from the scope of this proposal

- Boundary level survey for determining of right of way of the street
- Any Level A and B SUE category survey
- Surveying SUE findings (by others)
- Accessing/opening electric and communication manholes
- Surveying any confined space of large manhole structure (if any)
- Surveying within fenced private areas

DELIVERABLES:

The following will be submitted as deliverable under the scope of project:

- Topographic survey drawing plan and profile view in DGN format
- DTM model
- Signed and sealed survey control maps with TxDOT Local Let Surveying check list
- Copy of the field book
- ASCII file of survey data

FEE AND SCHEDULE:

The fee for the above-described work is estimated to be as follows:

Item	Fee
Topographic Surveying	$48,326.00
Reimbursable	$1,895.00
Total	**$50,221.00**

* See detail breakdown in the attached pages

We estimate to complete the above work in 8 to 10 weeks upon your authorization to proceed.

We appreciate this opportunity to submit this proposal. If you need further information, please do not hesitate to contact me.

Sincerely,

Shaheen Chowdhury, P.E., R.P.L.S.
President
Kuo & Associates, Inc.

Accepted By:

_____
Name:

Title:

Firm:

TABLE - STREET LENGTH

Streets	From	To	Quantity (LF)
Memorial	HCFCD Channel (W153)	100' east of Tealwood N Dr.	3,000
Tallowwood	Memorial	100' to the north	100
Litchfield	Memorial	100' to the south	100
Benignus	Memorial	100' to the north	100
Paul Revere	Memorial	100' to the south	100
Tealwood	Memorial	100' to the south	100
Frostwood	Memorial	100' to the north	100
Beauregard	Memorial	100' to the east	100
Tealwood N	Memorial	100' to the east	100
Total			**3,800**

Project: Memorial Drive Phase II
WBS No.: N-T17000-0020-7

Exhibit D - Fee Schedule
Method of Payment: Lump Sum
KUO and Associates

TASK DESCRIPTION	RPLS PROJECT MANAGER	RPLS SURVEY MANAGER	SENIOR SURVEY TECH	SURVEY TECH	2-PERSON FIELD CREW	3-PERSON FIELD CREW	ADMIN/ CLERICAL	TOTAL LABOR HRS. & COSTS	NO OF DWGS	LABOR HRS PER SHEET
Topograhic Survey - FC 150										
FC 150-Field Survey										
Tie to TxDOT Monument/Benchmark		4	6	4	16			30		
Set Survey Controls (+/- 10)			1		4			5		
Horizontal Control Survey		1	1		4			6		
Vertical Control Survey		1	2		8			11		
Limited brush clearing								0		
Survey Cross section, topo, utility features			8		64			72		
Survey bridge structures								0		
Trailhead area (2) survey										
Invert culverts, inlet, manhole			4	4	8			16		
Survey boreholes		1	2	4	8			15		
Estimated ROW delineation		6	12		4			22		
Utility coordination and research			6					6		
Plan drawing			6	56				62		
Profile drawing			4	36				40		
DTM			16	4				20		
SCM (11x17 size, scale: 1"=100')		8	16	16				40		
Stake design center line		1	2	8				11		
Stake estimated ROW lines		1	2	8				11		
Stake wetlands within survey limit								0		
QC/QA		16		8	8			32		
Project Management & Coordination		4					4	8		
HOURS SUB-TOTALS	0	43	88	148	124	0	4	407	0	
CONTRACT RATE PER HR (INCLUDE AVG HRLY RATE TIME OVERHEAD & FF)	$220.00	$150.00	$110.00	$90.00	$150.00	$185.00	$69.00			
TOTAL LABOR COSTS	$0.00	$6,450.00	$9,680.00	$13,320.00	$18,600.00	$0.00	$276.00	$48,326.00		
% DISTRIBUTION OF STAFFING	0.00%	10.57%	21.62%	36.36%	30.47%	0.00%	0.98%			
SUBTOTAL - FC 150								**$48,326.00**		

DESCRIPTION							**BY FC**	**TOTAL COSTS BY FC**
TOPOGRAPHIC SURVEY - FC 150							407	$48,326.00
SUBTOTAL LABOR EXPENSES							407	**$48,326.00**
OTHER DIRECT EXPENSES	**COST/UNIT**	**QUANTITY**						**TOTAL**
Mileage (# of miles) (current state rate)	$0.585	2000						$1,170.00
Toll Charges (each)	$1.50	200						$300.00
Courier Services (each)	$25.00	2						$50.00
Boat with Motor (per day)	$100.00	0						$0.00
Map Records (per Sheet)	$15.00	5						$75.00
Deed Copies (per Sheet)	$5.00	60						$300.00
SUBTOTAL DIRECT EXPENSES								**$1,895.00**

ADDITIONAL SERVICE (SUE SURVEYING)				
Level B SUE Surveying	hr	$200	40	$8,000.00
SUE Surveying (up to 19.99')	each	$2,500.00	5.00	$12,500.00
SUBTOTAL ADD SERVICES (Not to exceed)				**$20,500.00**

SUMMARY	
TOTAL COSTS FOR KUO ONLY	$48,326.00
DIRECT EXPENSES FOR KUO ONLY	$1,895.00
ADDITIONAL SERVICE (SUE SURVEYING)	$20,500.00
GRAND TOTAL	**$70,721.00**


Additional limits of survey exclusively for creation of .tin to the bayou.
Full Survey
Memorial Dr & Tallowood Rd
The Union Kitchen
Total Wine & More
CVS
By Popular Demand
Empire Turkish Grill
Starbucks
Rebecque Demark, Memorial Office
Jonathan's The Rub
Dish Society
Somerset Place Memorial Drive
Willows Grove Ln
Memorial Shutters
Memorial Parkview Dr
Litchfield Ln
Memorial Dr
Beauregard Dr
Longworth Ln
Tealwood N Dr
Rip Van Winkle Dr
Past Tealwood N Drive there are a series of grate inlets. We don't know whether they drain to the project or to Gessner. Please survey these in between Tealwood N Dr and Gessner until they start draining towards Gessner. Make sure to determine pipe size, top of grate, and flowline as usual.

Exhibit H

November 18, 2022

Mr. Muhammad Ali, P.E., ENV SP
Gauge Engineering
11750 Katy Freeway, Suite 400
Houston, TX 77079

Re: Subsurface Utility Engineering Services Proposal for Memorial Drive

Dear Mr. Ali:

Midtown Engineers is pleased to present this proposal to provide the above-mentioned services to Gauge Engineering. The specific tasks and locations of the services are detailed in the proposal text below. A Fee Estimate is included as Attachment A. Specific work tasks associated with this proposal include:

SCOPE

1. Review existing utility records as they are provided by Gauge Engineering.

2. Two Quality Level A (QL A) test holes will be completed by Midtown Engineers upon determination of final locations by the project team. The following tasks will be completed as part of the QL A effort.
    - Traffic Control Implementation – Limited to single lane closure (TCP Design per standard or by others)
    - Pavement Coring – Single 12” diameter pavement core per location and resetting core with epoxy
    - Vacuum Excavating
    - Backfill – Compacted select fill or pea grave
    - Surveying – Tie found elevations to project control

3. All SUE to be completed per ASCE 38-02 criteria.

DELIVERABLE

Documents provided will include:
- QL A test hole data sheets on all requested test holes

SCHEDULE

It is estimated that QL A test holes can be completed within 4 weeks after identification of the requested locations. However, City of Houston coordination and permitting timing is beyond our control and will be required prior to beginning work efforts.

BUDGET

The above services will be invoiced according to the itemized estimate included as Attachment A. The Coordination and initial services will be billed as a lump sum amount of $2,546.00. Quality Level A SUE work will be invoiced as a Unit Cost based on the number of performed test holes for a total estimated cost of $12,546.00.

Please call if additional information is required.

Sincerely,

Midtown Engineers, LLC

Joel R. Colwell, P.E.
Principal

Attachments: Attachment A – Fee Schedule

Project Name	**Memorial Drive**
Consultant	**Midtown Engineers, LLC**
Project No.	**0**
Date	**2022-11-18**

BASIC SERVICES

TASK DESCRIPTION	Project Manager	Senior Engineer	Project Engineer	Design Engineer	Engineer In Training	Senior Engineering Tech	Engineering Technician	Senior Cadd Operator	Cadd Operator	Admin/ Clerical	SUE Technician with EM Locator	TOTAL LABOR HRS. & COSTS
OTHER												
SUBSURFACE UTILITY ENGINEERING												
Coordination with Gauge Engineering for QL A Test Hole location and needs	2		2		2		2					8
Coordination with City of Houston for permitting, pavement coring, traffic control	2		2		2							6
Project Controls, Project Management, QA/QC, Scheduling, Invoicing, etc.	2				2							4
												0
SUBSURFACE UTILITY ENGINEERING	**6**	**0**	**4**	**0**	**6**	**0**	**2**	**0**	**0**	**0**	**0**	**18**
HOURS SUB-TOTALS	6	0	4	0	6	0	2	0	0	0	0	**18**
CONTRACT RATE PER HOUR (INCLUDE AVG HOURLY RATE TIME OVERHEAD AND FF)	$ 192.00	$ 155.00	$ 142.00	$ 135.00	$ 105.00	$ 104.00	$ 98.00	$ 94.00	$ 91.00	$ 68.00	$ 125.00	
TOTAL LABOR COSTS	$ 1,152.00	$ -	$ 568.00	$ -	$ 630.00	$ -	$ 196.00	$ -	$ -	$ -	$ -	**$ 2,546.00**
% DISTRIBUTION OF STAFFING	45.25%	0.00%	22.31%	0.00%	24.74%	0.00%	7.70%	0.00%	0.00%	0.00%	0.00%	**100%**

BASIC SERVICES SUBTOTAL	**$ 2,546.00**

OTHER DIRECT EXPENSES	QTY	UNIT	RATE	COST
Level A Test Hole (All Depths)				$ 10,000.00
Traffic Control Implementation	1	Each	$ 2,400.00	
Pavement Coring/Resetting	2	Each	$ 500.00	
Vacuum Excavating	10	Hours	$ 400.00	
Backfill (Labor & materials)	2	Each	$ 500.00	
Survey Test Hole locations into project control provided by Gauge Engineering	2	Each	$ 800.00	

ODE SUBTOTAL	**$ 10,000.00**

OTHER SUMMARY	
TOTAL BASIC SERVICES	$ 2,546.00
TOTAL OTHER DIRECT EXPENSES	$ 10,000.00
TOTAL	$ 12,546.00

Exhibit I

712 Main Street, Suite 950
Houston, TX 77002
(713) 270-8145
www.teiconnects.com
TX Registration F-003158

November 17, 2022

Muhammad Ali, PE, ENV SP
Gauge Engineering
11750 Katy Freeway, Suite 400
Houston, TX 77079

RE: Memorial Drive Phase II Signal Design

Dear Mr. Ali:

TEI is pleased to provide the scope and fee for preparing a traffic signal design to support Gauge Engineering on the Design Phase (Phase II) of Memorial Drive from Tallowood Drive to Tealwood Drive (North) through TIRZ 17. The signalization is based on recommendations proposed by the previously conducted *Design Concept Report (DCR)* to Houston Public Works. The design of the traffic signals will follow the standards and guidelines by the Texas Department of Transportation (TxDOT).

Scope of Services

TEI will prepare full PS&E design documents for installation of complete traffic signal hardware assembly at the following intersections:

- Memorial Drive at Benignus Road
- Memorial Drive at Litchfield Lane

Specific tasks included in the Scope of Services include:

Task 1: Project Management & Client Coordination

Project management and coordination with client including regular updates between TEI and the client and monthly invoicing.

Task 2: Stakeholder Engagement and Public Outreach

TEI will attend the stakeholder meetings (TIRZ 17, TxDOT, HPW, METRO, etc.) and public meetings that requested by the client, up to six (6) meetings.

Task 3: Metro Coordination

TEI will coordinate with Metro for the stop relocations that proposed in the DCR to get approval of recommended stop locations.

712 Main Street, Suite 950
Houston, TX 77002
(713) 270-8145
www.teiconnects.com
TX Registration F-003158

Task 4: Traffic Signal Design Plans

The traffic signal plan layouts shall be prepared per the TxDOT Houston District Signal Design Guidelines. Specific service will include:

- Obtain CAD topographical survey files (including underground and above ground utilities) and proposed roadway design data along with updated proposed signing and pavement marking layouts from Gauge Engineering.
- Coordinate with CenterPoint Energy to obtain electrical service data statements and a service outlet location for the signals.
- Design mast arm foundations.
- Design pedestrian elements at all corners of the intersection (as shown on the DCR report).
- Prepare cabling schematic for new traffic signal heads, pedestrian signal heads, and vehicle detection, including appropriate pull boxes.
- Prepare applicable traffic signal notes and standards.
- Prepare necessary specifications, projected construction quantities, and opinion of probable construction costs.
- Identify utility conflicts related to the traffic signal and need for corner clips for ROW acquisition, if applicable.
- Coordination and resolution of all design comments from TxDOT and HPW.

Task 5: Temporary Traffic Signal

TEI will design the temporary signal layout for the various phases of the traffic control plan (TCP) during roadway construction at Memorial Drive at Benignus Road. . If determined feasible, the temporary signal may use the existing signal poles, with the signal heads being shifted to align with the travel lanes through

the various phases and steps of the TCP.

Milestones and Deliverables

The Submittals shall be at the 30%, 60%, 90%, 95% and 100% complete levels within electronic PDF files. The 100% submittal will be the final deliverable plans sheets and associated documents (standard details, specifications, construction quantities, cost estimates, etc.). TEI will coordinate and provide resolutions for all design comments from TxDOT.

712 Main Street, Suite 950
Houston, TX 77002
(713) 270-8145
www.teiconnects.com
TX Registration F-003158

Compensation

TEI estimates the fee for the proposed scope above to be $72,090.00 as a lump sum basis. A detailed breakdown of the proposed fee is included in Attachment A. The table below summarizes the proposed fee for each task.

Task	Fee
Task 1: Project Management & Client Coordination	$4,890.00
Task 2: Stakeholder Engagement and Public Outreach	$4,560.00
Task 3: Metro Coordination	$1,860.00
Task 4: Traffic Signal Design Plans	$51,840.00
Task 5: Temporary Traffic Signal	$8,940.00
Total Cost	$72,090.00

This proposal is valid for 120 days from the date of this letter. If you have any questions, please do not hesitate to contact me at (281) 606-0128 or at da.li@teiconnects.com. Thank you.

Sincerely,

Da Li, PE, PTOE

Principal

Date: November 17, 2022

ATTACHMENT A
COST SPREADSHEET
SUMMARY OF MANHOURS BY CLASSIFICATION
AND MAJOR TASK ANALYSIS

Memorial Dr Phase II Signal Design

DESCRIPTION OF WORK TASK**	SENIOR PRINCIPAL	PRINCIPAL	PRINCIPAL ASSOCIATE	SENIOR ASSOCIATE	ASSOCIATE	TOTAL HOURS	COST PER
	COST/HR	***COST/HR***	***COST/HR***	***COST/HR***	***COST/HR***	PER TASK	TASK
Hourly Billing Rates	$255.00	$210.00	$180.00	$150.00	$126.00		
Task 1: Project Management & Client Coordination	6	16				22	**$4,890.00**
Task 2: Stakeholder Engagement and Public Outreach	8	12				20	**$4,560.00**
Task 3: Metro Coordination	4	4				8	**$1,860.00**
Task 4: Intersection Design Plans	16	60		100	160	336	**$51,840.00**
Task 5: Temporary Traffic Signal	4	8		8	40	26	**$8,940.00**
Hours Total	**38**	**100**	**0**	**108**	**200**	**412**	**$72,090.00**
PERCENT OF TOTAL HOURS	9.22%	24.27%	0.00%	26.21%	48.54%	100.00%	
						Total Cost	**$72,090.00**

THE GOODMAN CORPORATION

TBPE NO. F-19990

HOUSTON:
3200 Travis Street
Suite 200
Houston, TX 77006

AUSTIN:
911 W. Anderson Lane
Suite 200
Austin, TX 78757

PHONE: (713) 951-7951

THEGOODMANCORP.COM

PROGRESS REPORT

To: Scott Bean
From: Jim Webb, AICP, ENV SP
Date: 11/1/2022
Re: W-140 Detention Basin Improvements Project EPA State and Tribal Assistance Grant Compliance and Management (MCT113) – 10/2022

Progress Complete

Task	Prior Percent	Current Percent
1	15%	25%
2	10%	35%
3	0%	0%
4	0%	0%
5	0%	0%

Details

Task 1 – Grant Initiation and Execution
Comments: TGC completed project identification/entry information per request from the EPA. EPA indicates that the final guidance will be released in November with a regional meeting to follow. We have indicated that this project is 'ready to go' and should be one of the first ones ready for an executed grant agreement.

Task 2 – NEPA
Comments: TGC continued the development of the NEPA documentation of this project. This included the development of technical reports and analysis for submission to the EPA. TGC updated documentation with the current project limits.

Task 3 – Design and Bid PH Compliance
Comments: No activity this period.

Task 4 – Construction PH Compliance
Comments: No activity this period.

Task 5 – Lifecycle Reporting and Disbursement Assistance
Comments: No activity this period.

THE GOODMAN CORPORATION

TBPE NO. F-19990

HOUSTON:
3200 Travis Street
Suite 200
Houston, TX 77006

AUSTIN:
911 W. Anderson Lane
Suite 200
Austin, TX 78757

PHONE: (713) 951-7951

THEGOODMANCORP.COM

PROGRESS REPORT

To: Scott Bean
From: Jim Webb, AICP, ENV SP
Date: 11/1/2022
Re: Ongoing Pursuit of Funding (MCT114) – 10/2022

Progress Complete

Task	Prior Percent	Current Percent
1	50.00%	58.33%
2	0%	0%

Details

Task 1 – Monitor and Present Funding Opportunities
Comments:

Task 1 – Monitor and Present Funding Opportunities
Comments:

TGC coordinated with the consultant team to evaluate the potential for additional federal cost recovery for the Memorial Drive Phase 1 project. A budget reconciliation will be completed in December which will indicate whether or not additional resources are warranted and can be requested from H-GAC.

Additionally, the following funding opportunities were released, monitored, tracked, and synthesized in October 2022:

TxDOT Transportation Alternatives Program
Funding for pedestrian and bicycle improvements. TGC is developing applicable projects in advance of the application period beginning in October. Since last month, the start date of this program has been delayed to December 2022. It is unclear how this will impact application deadlines. TGC does not believe there is an eligible project within the purview of TIRZ 17 at this time.

TxDOT Highway Safety Improvement Program
This is TxDOT's FY23 call for off-system safety projects. Projects will need to be developed per TxDOT Crash Reduction Factors and submitted through the TxDOT District Office. TGC has coordinated with TxDOT to gather program crash files. The application deadline, for final packages back to TxDOT, is December 31, 2022. Projects within the City of Houston will need to be submitted to the City on November 28, 2022. TGC does not believe there is an eligible project within the purview of TIRZ 17 at this time.

Bloomberg Initiative for Cycling Infrastructure
Bloomberg Philanthropies is launching the Bloomberg Initiative for Cycling Infrastructure (BICI), a competitive grant program that will foster catalytic change in city cycling infrastructure worldwide. Led in partnership with the Global Designing Cities Initiative (GDCI), BICI will help cities implement ambitious cycling projects in cities with a population of more than 100,000. BICI will make $10 Million in funding

available for ten successful applicants, where each award may range between $400k to $1M. In addition to funding ambitious cycling infrastructure, BICI will help applicant cities to refine project plans by connecting winning cities with world-class technical assistance from GDCI and connecting participating cities with a global network of city peers. February 3, 2023 is the deadline for submitting applications. TGC does not believe there is an eligible project within the purview of TIRZ 17 at this time.

Houston Galveston Area Council Call for Projects
In October 2022, TGC participated in the following activities at H-GAC:

- TIP Subcommittee Meeting – Wednesday, 10/5
  - Provided update on pending Call-for-Projects
  - No definitive next steps established
- TAC Meeting – Wednesday, 10/19
  - General business
- Ped/Bike Subcommittee Meeting – Thursday, 10/20
  - TxDOT presentation on TA and HSIP grant opportunities
- TPC Meeting – Friday, 10/29
  - General business

Task 2 – Pursuit of Funding
Comments: No activity at this time.

SWA Houston

The Jones on Main
712 Main Street
6th Floor
Houston, Texas
77002
+1.713.868.1676
www.swagroup.com

PROJECT STATUS REPORT BY SWA

SCOPE: LANDSCAPE ARCHITECTURE FOR MEMORIAL CITY REDEVELOPMENT AUTHORITY

PROJECTS: TIRZ #17 CIP

DATE: December 6, 2022

CURRENT PROJECTS STATUS

1. MEMORIAL DRIVE DRAINAGE AND MOBILITY IMPROVEMENTS - (T1731B) (SWA WO#13/#20)
   - SWA is providing construction phase services in coordination with Gauge, TXDOT and Memorial Management District, including making regular site visits and responding to Contractor's queries. SWA is replying to RFIs with clarifications and submittals on lighting, irrigation and planting, in coordination with Gauge Engineering. No out-standing items or issues to report at this time.

END OF REPORT