McCLURE & BROWNE ENGINEERING/SURVEYING, INC.
1008 Woodcreek Dr., Suite 103 · College Station, Tx. 77845 · (979) 693-3838
1314 10th Street, Suite 210 · Huntsville, Tx. 77320 · (936) 294-9749
Engineer Reg. No. F-458
Survey Reg. No. 101033-00

November 25, 2013

Mr. Paul Kaspar, PE
City Engineer
City of Bryan
Post Office Box 1000
Bryan, Texas 77802

Re: Greenbrier Phase 9 – Oversize Participation Request

Dear Paul:

On behalf of the owner, Carter-Arden Development, I wish to request Oversize Participation payment for costs associated with the extension of sanitary sewer lines to the Greenbrier Phase 9 Subdivision in the amount of $69,844. Please see attached exhibit detailing the cost determination.

The proposed 24" sewer line along the southwestern boundary of Phase 9, as shown on the preliminary plan for this phase, is in compliance with the previous sanitary sewer analysis of the area that was provided with the oversize participation request for Greenbrier Phase 12. A 6" sanitary sewer line would have been required under normal development of this phase. Exhibit C shows calculations of the anticipated flows from the Greenbrier Subdivision to demonstrate the capacity of the 6" line. Therefore, the price difference between the 24" line and the 6" line is the basis for the over size participation request.

If you need additional information, please contact me at your convenience.

Sincerely,

Jeffery L. Robertson, P.E.
Vice President – Engineering

Attachments
Exhibit A – Sewer Map for Lines to Serve Greenbrier Subdivision Only
Exhibit B – Sewer Map for Line Sizes to serve Greenbrier and the Surrounding Area under Ultimate Conditions
Exhibit C – Sewer Line Calculations
Exhibit D – Cost Estimate for Difference between Proposed Sewer System and Minimum Required Sewer System
Exhibit E – Total City of Bryan public infrastructure costs for Phase 9

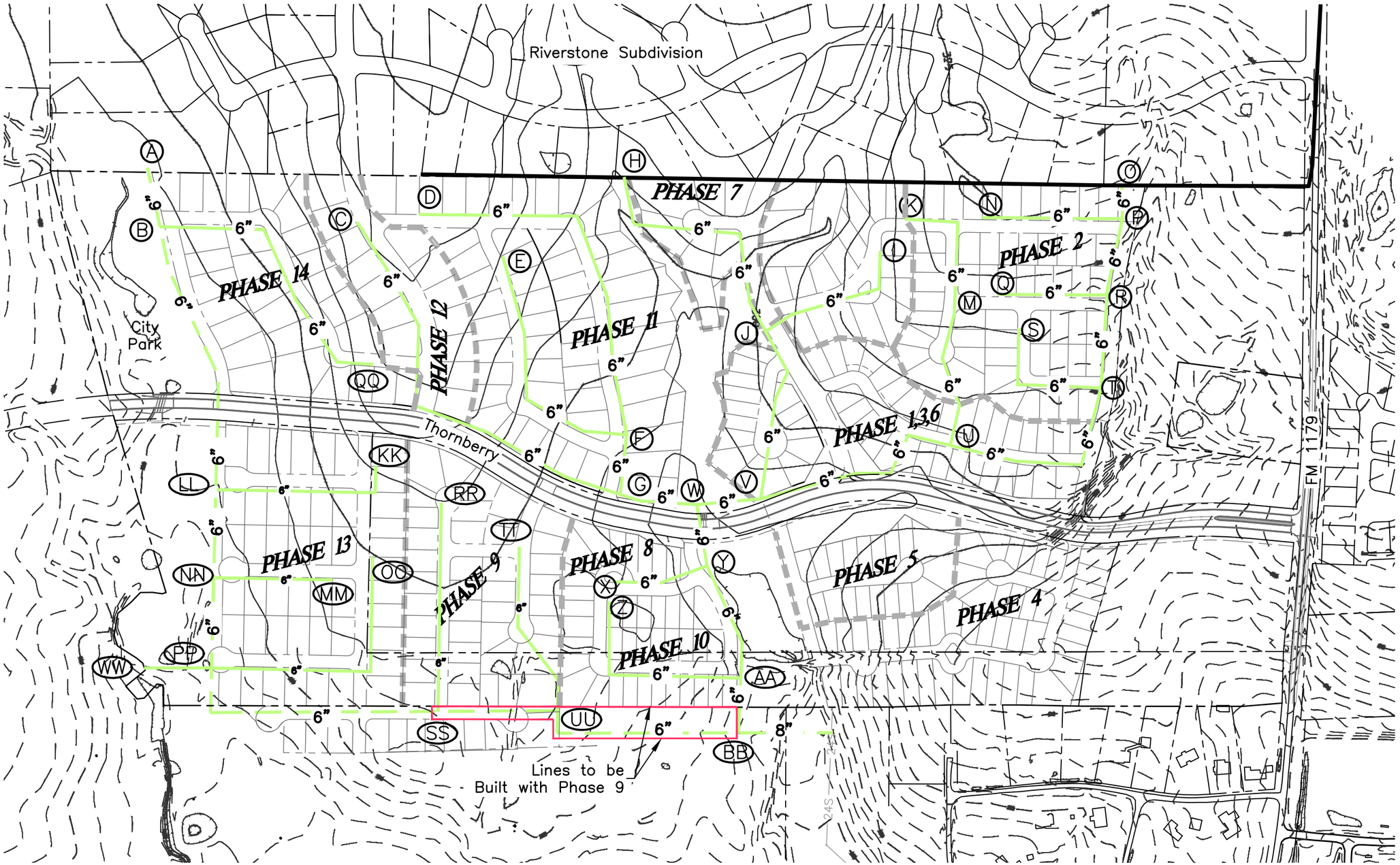

EXHIBIT A
Line Sizes to Serve Greenbrier Subdivision

SCALE: Hor: 1" = 500'

0 250' 500' 1000'

GREENBRIER SUBDIVISION
Oversize Participation Request
BRYAN, BRAZOS COUNTY, TEXAS

M&B
McCLURE & BROWNE ENGINEERING/SURVEYING, INC.
1008 Woodcreek Drive, Suite 103, College Station, TX 77845
(979) 693-3838 Fax: (979) 693-2554
Firm Reg. No. F-458

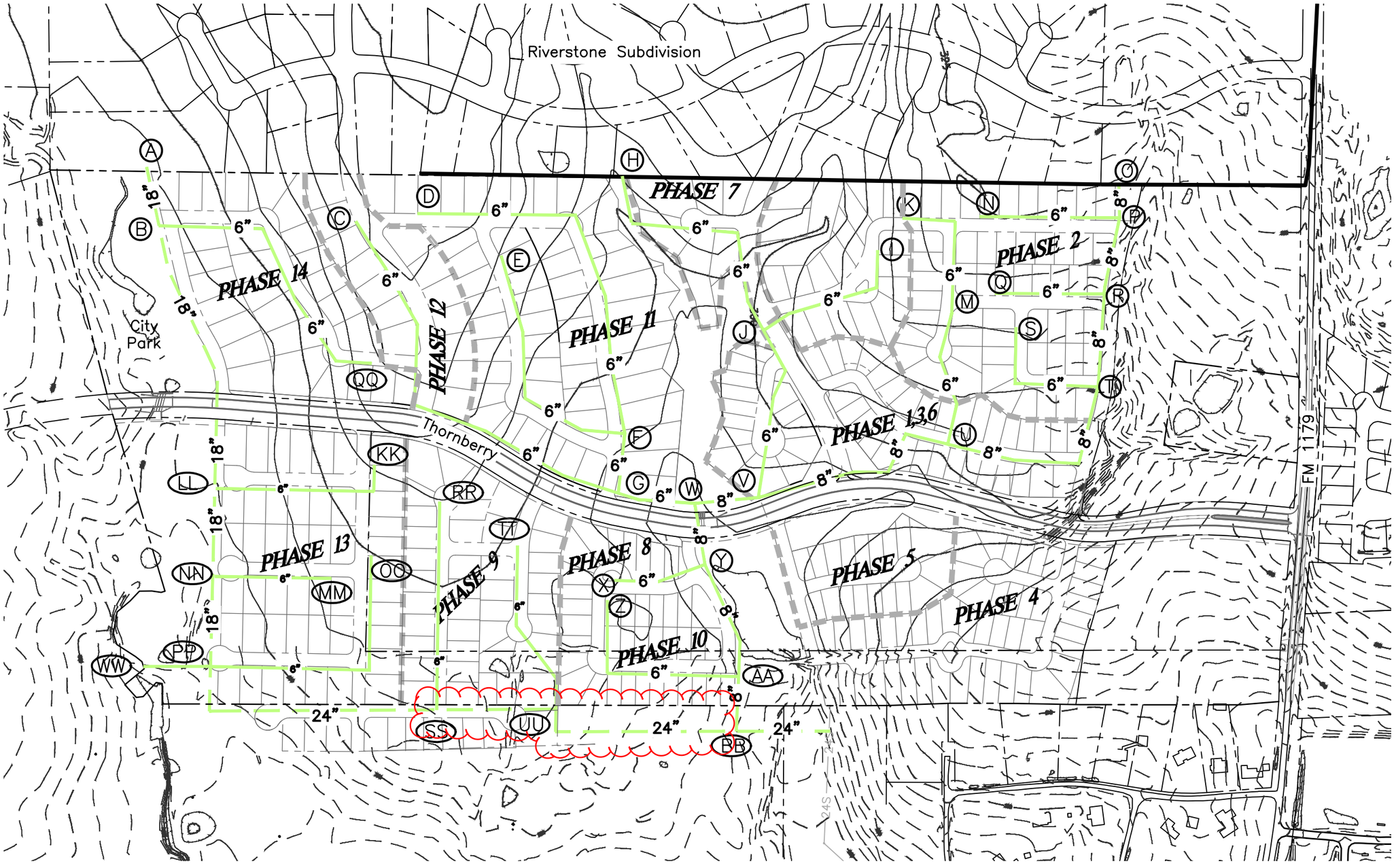

EXHIBIT B

Line Sizes to Serve Ultimate Development of Surrounding Area

SCALE: Hor: 1" = 500'

0 250' 500' 1000'

GREENBRIER SUBDIVISION
Oversize Participation Request
BRYAN, BRAZOS COUNTY, TEXAS

M&B
McCLURE & BROWNE ENGINEERING/SURVEYING, INC.
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Firm Reg. No. F-458

Exhibit C
Greenbrier Subdivision
Sanitary Sewer Analysis

Line				Flow Calculations							Pipe Calculations												
From	To	Residential	Commercial	Flow From Node to Node	Contributing Flow from Upstream Nodes	Average Daily Flows (ADF)		Infiltration (10% ADF)	Peaking Factor	Peak Flows	Size	Material	Inside Diameter	Manning Friction Slope ADF	Min. Design Slope ADF	Ave. Daily Flow Velocity	Ave. Daily Flow Depth	Manning Friction Slope Peak Flows	Min. Design Slope Peak Flows	Actual Slope for Existing or Designed Systems	Pipe Slope Check	Peak Flow Velocity	Peak Flow Depth
MH #	MH #	267 GPD per Lot	1500 GPD per acre	GPD		GPD	CFS	CFS		CFS	(in.)		Inches	%	%	fps	Inches	%	%	%		fps	Inches
A	B	0	0	-	-	-	0.0000	0.0000	4.00	0.00	6	D3034	5.793	0.0000	0.80	0.00	0.00	0.0000	0.80	0.80	OK	0.00	0.00
QQ	B	27	0	7,209	-	7,209	0.0112	0.0011	4.00	0.05	6	D3034	5.793	0.0023	0.80	1.06	0.58	0.0080	0.80	0.80	OK	1.55	1.16
B	LL	0	0	-	7,209	7,209	0.0112	0.0011	4.00	0.05	6	D3034	5.793	0.0023	0.80	1.06	0.58	0.0080	0.80	0.80	OK	1.55	1.16
KK	LL	15	0	4,005	-	4,005	0.0062	0.0006	4.00	0.03	6	D3034	5.793	0.0007	0.80	0.86	0.00	0.0025	0.80	0.80	OK	1.34	0.87
LL	NN	0	0	-	11,214	11,214	0.0174	0.0017	4.00	0.07	6	D3034	5.793	0.0055	0.80	1.22	0.58	0.0193	0.80	0.80	OK	1.80	1.45
MM	NN	12	0	3,204	-	3,204	0.0050	0.0005	4.00	0.02	6	D3034	5.793	0.0005	0.80	0.80	0.00	0.0016	0.80	0.80	OK	1.22	0.58
NN	PP	0	0	-	14,418	14,418	0.0223	0.0022	4.00	0.09	6	D3034	5.793	0.0092	0.80	1.30	0.87	0.0318	0.80	0.80	OK	1.92	1.74
PP	SS	18	0	4,806	14,418	19,224	0.0297	0.0030	4.00	0.12	6	D3034	5.793	0.0163	0.80	1.44	0.87	0.0566	0.80	0.80	OK	2.10	2.03
RR	SS	18	0	4,806	-	4,806	0.0074	0.0007	4.00	0.03	6	D3034	5.793	0.0010	0.80	0.95	0.29	0.0035	0.80	0.80	OK	1.37	0.87
SS	UU	0	0	-	24,030	24,030	0.0372	0.0037	4.00	0.15	6	D3034	5.793	0.0255	0.80	1.49	0.87	0.0885	0.80	0.80	OK	2.24	2.32
TT	UU	15	0	4,005	-	4,005	0.0062	0.0006	4.00	0.03	6	D3034	5.793	0.0007	0.80	0.86	0.00	0.0025	0.80	0.80	OK	1.34	0.87
VV	UU	17	0	4,539	-	4,539	0.0070	0.0007	4.00	0.03	6	D3034	5.793	0.0009	0.80	0.91	0.29	0.0032	0.80	0.80	OK	1.37	0.87
UU	BB	0	0	-	32,574	32,574	0.0504	0.0050	4.00	0.21	6	D3034	5.793	0.0468	0.80	1.69	1.16	0.1625	0.80	0.80	OK	2.43	2.61
C	G	16	0	4,272	-	4,272	0.0066	0.0007	4.00	0.03	6	D3034	5.793	0.0008	0.80	0.91	0.29	0.0028	0.80	0.80	OK	1.34	0.87
D	F	27	0	7,209	-	7,209	0.0112	0.0011	4.00	0.05	6	D3034	5.793	0.0023	0.80	1.06	0.58	0.0080	0.80	0.80	OK	1.55	1.16
E	F	22	0	5,874	-	5,874	0.0091	0.0009	4.00	0.04	6	D3034	5.793	0.0015	0.80	0.99	0.29	0.0053	0.80	0.80	OK	1.49	0.87
F	G	3	0	801	13,083	13,884	0.0215	0.0021	4.00	0.09	6	D3034	5.793	0.0085	0.80	1.30	0.87	0.0295	0.80	0.80	OK	1.92	1.45
G	W	0	0	-	18,156	18,156	0.0281	0.0028	4.00	0.12	6	D3034	5.793	0.0145	0.80	1.37	0.87	0.0505	0.80	0.80	OK	2.08	1.74
H	J	8	0	2,136	-	2,136	0.0033	0.0003	4.00	0.01	6	D3034	5.793	0.0002	0.80	0.74	0.00	0.0007	0.80	0.80	OK	1.06	0.58
I	J	15	0	4,005	-	4,005	0.0062	0.0006	4.00	0.03	6	D3034	5.793	0.0007	0.80	0.86	0.00	0.0025	0.80	0.80	OK	1.34	0.87
J	V	15	0	4,005	6,141	10,146	0.0157	0.0016	4.00	0.06	6	D3034	5.793	0.0045	0.80	1.17	0.58	0.0158	0.80	0.80	OK	1.76	1.45
K	M	12	0	3,204	-	3,204	0.0050	0.0005	4.00	0.02	6	D3034	5.793	0.0005	0.80	0.80	0.00	0.0016	0.80	0.80	OK	1.22	0.58
M	U	9	0	2,403	3,204	5,607	0.0087	0.0009	4.00	0.04	6	D3034	5.793	0.0014	0.80	0.99	0.29	0.0048	0.80	0.80	OK	1.44	0.87
N	P	16	0	4,272	-	4,272	0.0066	0.0007	4.00	0.03	6	D3034	5.793	0.0008	0.80	0.91	0.29	0.0028	0.80	0.80	OK	1.34	0.87
O	P	0	0	-	-	-	0.0000	0.0000	4.00	0.00	6	D3034	5.793	0.0000	0.80	0.00	0.00	0.0000	0.80	0.80	OK	0.00	0.00
P	R	2	0	534	4,272	4,806	0.0074	0.0007	4.00	0.03	6	D3034	5.793	0.0010	0.80	0.95	0.29	0.0035	0.80	0.80	OK	1.37	0.87
Q	R	11	0	2,937	-	2,937	0.0045	0.0005	4.00	0.02	6	D3034	5.793	0.0004	0.80	0.80	0.00	0.0013	0.80	0.80	OK	1.22	0.58
R	T	2	0	534	7,743	8,277	0.0128	0.0013	4.00	0.05	6	D3034	5.793	0.0030	0.80	1.12	0.58	0.0105	0.80	0.80	OK	1.64	1.16
S	T	14	0	3,738	-	3,738	0.0058	0.0006	4.00	0.02	6	D3034	5.793	0.0006	0.80	0.86	0.00	0.0021	0.80	0.80	OK	1.30	0.87
T	U	17	0	4,539	12,015	16,554	0.0256	0.0026	4.00	0.11	6	D3034	5.793	0.0121	0.80	1.37	0.87	0.0420	0.80	0.80	OK	2.00	1.74
U	V	17	0	4,539	22,161	26,700	0.0413	0.0041	4.00	0.17	6	D3034	5.793	0.0314	0.80	1.55	1.16	0.1092	0.80	0.80	OK	2.30	2.32
V	W	0	0	-	36,846	36,846	0.0570	0.0057	4.00	0.23	6	D3034	5.793	0.0599	0.80	1.72	1.16	0.2080	0.80	0.80	OK	2.51	2.90
W	Y	0	0	-	55,002	55,002	0.0851	0.0085	4.00	0.35	6	D3034	5.793	0.1334	0.80	1.95	1.74	0.4634	0.80	0.80	OK	2.75	3.77
X	Y	15	0	4,005	-	4,005	0.0062	0.0006	4.00	0.03	6	D3034	5.793	0.0007	0.80	0.86	0.00	0.0025	0.80	0.80	OK	1.34	0.87
Z	AA	15	0	4,005	-	4,005	0.0062	0.0006	4.00	0.03	6	D3034	5.793	0.0007	0.80	0.86	0.00	0.0025	0.80	0.80	OK	1.34	0.87
Y	AA	0	0	-	59,007	59,007	0.0913	0.0091	4.00	0.37	6	D3034	5.793	0.1536	0.80	1.98	1.74	0.5334	0.80	0.80	OK	2.78	3.77
AA	BB	0	0	-	63,012	63,012	0.0975	0.0097	4.00	0.40	6	D3034	5.793	0.1751	0.80	2.03	1.74	0.6082	0.80	0.80	OK	2.82	4.06
BB	JJ	0	0	-	95,586	95,586	0.1479	0.0148	4.00	0.61	8	D3034	7.754	0.0851	0.40	1.74	2.33	0.2956	0.40	0.40	OK	2.41	5.43

Exhibit C
Greenbrier Subdivision
Sanitary Sewer Analysis

From Sanitary Sewer Masterplan for Greenbrier - Line Size for Ultimate Development of Greenbrier and surrounding lands

Line					Flow Calculations							Pipe Calculations												
From	To	Residential	Single Family 4 DU/AC	Commercial	Flow From Node to Node	Contributing Flow from Upstream Nodes	Average Daily Flows (ADF)		Infiltration (10% ADF)	Peaking Factor	Peak Flows	Size	Material	Inside Diameter	Manning Friction Slope ADF	Min. Design Slope ADF	Ave. Daily Flow Velocity	Ave. Daily Flow Depth	Manning Friction Slope Peak Flows	Min. Design Slope Peak Flows	Actual Slope for Existing or Designed Systems	Pipe Slope Check	Peak Flow Velocity	Peak Flow Depth
MH #	MH #	267 GPD per Lot	1068 GPD per Acre	1500 GPD per acre	GPD		GPD	CFS	CFS		CFS	(in.)		Inches	%	%	fps	Inches	%	%	%		fps	Inches
A	B	15	550	0	591,405	-	591,405	0.9150	0.0915	4.00	3.75	18	DIP	18.88	0.0283	0.20	2.08	4.72	0.0983	0.20	0.20	OK	2.97	11.33
QQ	B	27	0	0	7,209	-	7,209	0.0112	0.0011	4.00	0.05	6	D3034	5.793	0.0023	0.80	1.06	0.58	0.0080	0.80	0.80	OK	1.55	1.16
B	LL	0	0	0	-	598,614	598,614	0.9262	0.0926	4.00	3.80	18	DIP	18.88	0.0290	0.20	2.12	4.72	0.1007	0.20	0.20	OK	2.97	11.33
KK	LL	15	0	0	4,005	-	4,005	0.0062	0.0006	4.00	0.03	6	D3034	5.793	0.0007	0.80	0.86	0.00	0.0025	0.80	0.80	OK	1.34	0.87
MM	NN	12	0	0	3,204	-	3,204	0.0050	0.0005	4.00	0.02	6	D3034	5.793	0.0005	0.80	0.80	0.00	0.0016	0.80	0.80	OK	1.22	0.58
LL	NN	0	0	0	-	602,619	602,619	0.9324	0.0932	4.00	3.82	18	DIP	18.88	0.0294	0.20	2.12	4.72	0.1020	0.20	0.20	OK	2.98	11.33
NN	PP	0	0	0	-	605,823	605,823	0.9373	0.0937	4.00	3.84	18	DIP	18.88	0.0297	0.20	2.12	4.72	0.1031	0.20	0.20	OK	2.98	11.33
OO	PP	19	0	0	5,073	-	5,073	0.0078	0.0008	4.00	0.03	6	D3034	5.793	0.0011	0.80	0.95	0.29	0.0039	0.80	0.80	OK	1.44	0.87
PP	SS	0	14	0	14,952	610,896	625,848	0.9683	0.0968	4.00	3.97	24	DIP	25.06	0.0070	0.20	2.06	3.76	0.0243	0.20	0.20	OK	3.00	10.02
RR	SS	20	0	0	5,340	-	5,340	0.0083	0.0008	4.00	0.03	6	D3034	5.793	0.0013	0.80	0.95	0.29	0.0044	0.80	0.80	OK	1.44	0.87
TT	UU	21	0	0	5,607	-	5,607	0.0087	0.0009	4.00	0.04	6	D3034	5.793	0.0014	0.80	0.99	0.29	0.0048	0.80	0.80	OK	1.44	0.87
SS	UU	0	0	0	-	631,188	631,188	0.9766	0.0977	4.00	4.00	24	DIP	25.06	0.0071	0.20	2.06	3.76	0.0247	0.20	0.20	OK	3.02	10.02
UU	BB	0	0	0	-	636,795	636,795	0.9852	0.0985	4.00	4.04	24	DIP	25.06	0.0072	0.20	2.06	5.01	0.0252	0.20	0.20	OK	3.02	10.02
BB	JJ	0	0	0	-	758,280	758,280	1.1732	0.1173	4.00	4.81	24	DIP	25.06	0.0103	0.20	2.18	5.01	0.0357	0.20	0.20	OK	3.17	11.28
C	G	16	0	0	4,272	-	4,272	0.0066	0.0007	4.00	0.03	6	D3034	5.793	0.0008	0.80	0.91	0.29	0.0028	0.80	0.80	OK	1.34	0.87
D	F	27	0	0	7,209	-	7,209	0.0112	0.0011	4.00	0.05	6	D3034	5.793	0.0023	0.80	1.06	0.58	0.0080	0.80	0.80	OK	1.55	1.16
E	F	22	0	0	5,874	-	5,874	0.0091	0.0009	4.00	0.04	6	D3034	5.793	0.0015	0.80	0.99	0.29	0.0053	0.80	0.80	OK	1.49	0.87
F	G	3	0	0	801	13,083	13,884	0.0215	0.0021	4.00	0.09	6	D3034	5.793	0.0085	0.80	1.30	0.87	0.0295	0.80	0.80	OK	1.92	1.45
G	W	0	0	0	-	18,156	18,156	0.0281	0.0028	4.00	0.12	6	D3034	5.793	0.0145	0.80	1.37	0.87	0.0505	0.80	0.80	OK	2.08	1.74
H	J	38	55	0	68,886	-	68,886	0.1066	0.0107	4.00	0.44	8	D3034	7.754	0.0442	0.40	1.57	1.94	0.1535	0.40	0.40	OK	2.25	4.26
I	J	15	0	0	4,005	-	4,005	0.0062	0.0006	4.00	0.03	6	D3034	5.793	0.0007	0.80	0.86	0.00	0.0025	0.80	0.80	OK	1.34	0.87
J	V	15	0	0	4,005	72,891	76,896	0.1190	0.0119	4.00	0.49	8	D3034	7.754	0.0551	0.40	1.63	1.94	0.1913	0.40	0.40	OK	2.31	4.65
O	P	5	8	11	26,379	-	26,379	0.0408	0.0041	4.00	0.17	8	D3034	7.754	0.0065	0.40	1.18	1.16	0.0225	0.40	0.40	OK	1.74	2.33
N	P	16	0	0	4,272	-	4,272	0.0066	0.0007	4.00	0.03	6	D3034	5.793	0.0008	0.80	0.91	0.29	0.0028	0.80	0.80	OK	1.34	0.87
Q	R	11	0	0	2,937	-	2,937	0.0045	0.0005	4.00	0.02	6	D3034	5.793	0.0004	0.80	0.80	0.00	0.0013	0.80	0.80	OK	1.22	0.58
P	R	2	0	0	534	30,651	31,185	0.0482	0.0048	4.00	0.20	8	D3034	7.754	0.0091	0.40	1.24	1.16	0.0315	0.40	0.40	OK	1.84	2.71
S	T	14	0	0	3,738	-	3,738	0.0058	0.0006	4.00	0.02	6	D3034	5.793	0.0006	0.80	0.86	0.00	0.0021	0.80	0.80	OK	1.30	0.87
T	U	17	0	0	4,539	3,738	8,277	0.0128	0.0013	4.00	0.05	8	D3034	7.754	0.0006	0.40	0.82	0.39	0.0022	0.40	0.40	OK	1.24	1.16
K	M	12	0	0	3,204	-	3,204	0.0050	0.0005	4.00	0.02	6	D3034	5.793	0.0005	0.80	0.80	0.00	0.0016	0.80	0.80	OK	1.22	0.58
M	U	9	0	0	2,403	3,204	5,607	0.0087	0.0009	4.00	0.04	6	D3034	5.793	0.0014	0.80	0.99	0.29	0.0048	0.80	0.80	OK	1.44	0.87
U	V	17	0	0	4,539	13,884	18,423	0.0285	0.0029	4.00	0.12	8	D3034	7.754	0.0032	0.40	1.05	0.78	0.0110	0.40	0.40	OK	1.57	1.94
V	W	0	0	0	-	95,319	95,319	0.1475	0.0147	4.00	0.60	8	D3034	7.754	0.0846	0.40	1.74	2.33	0.2939	0.40	0.40	OK	2.41	5.43
X	Y	15	0	0	4,005	-	4,005	0.0062	0.0006	4.00	0.03	6	D3034	5.793	0.0007	0.80	0.86	0.00	0.0025	0.80	0.80	OK	1.34	0.87
W	Y	0	0	0	-	113,475	113,475	0.1756	0.0176	4.00	0.72	8	D3034	7.754	0.1199	0.40	1.82	2.71	0.4166	0.40	0.40	OK	2.45	6.20
Z	AA	15	0	0	4,005	-	4,005	0.0062	0.0006	4.00	0.03	6	D3034	5.793	0.0007	0.80	0.86	0.00	0.0025	0.80	0.80	OK	1.34	0.87
Y	AA	0	0	0	-	117,480	117,480	0.1818	0.0182	4.00	0.75	8	D3034	7.754	0.1286	0.40	1.84	2.71	0.4465	0.40	0.40	OK	2.45	6.59
AA	BB	0	0	0	-	121,485	121,485	0.1880	0.0188	4.00	0.77	8	D3034	7.754	0.1375	0.40	1.86	2.71	0.4775	0.40	0.40	OK	2.45	6.59
DD	GG	8	0	0	2,136	-	2,136	0.0033	0.0003	4.00	0.01	8	D3034	7.754	0.0000	0.40	0.56	0.00	0.0001	0.40	0.40	OK	0.82	0.39
EE	GG	12	0	0	3,204	-	3,204	0.0050	0.0005	4.00	0.02	6	D3034	5.793	0.0005	0.80	0.80	0.00	0.0016	0.80	0.80	OK	1.22	0.58
FF	GG	2	0	0	534	-	534	0.0008	0.0001	4.00	0.00	8	D3034	7.754	0.0000	0.40	0.00	0.00	0.0000	0.40	0.40	OK	0.45	0.00
GG	HH	26	0	0	6,942	5,874	12,816	0.0198	0.0020	4.00	0.08	8	D3034	7.754	0.0015	0.40	0.96	0.78	0.0053	0.40	0.40	OK	1.41	1.55
CC	HH	18	0	0	4,806	-	4,806	0.0074	0.0007	4.00	0.03	6	D3034	5.793	0.0010	0.80	0.95	0.29	0.0035	0.80	0.80	OK	1.37	0.87
HH	JJ	0	0	0	-	17,622	17,622	0.0273	0.0027	4.00	0.11	8	D3034	7.754	0.0029	0.40	1.05	0.78	0.0100	0.40	0.40	OK	1.54	1.94

Exhibit D

Greenbrier - PHASE 9

MBESI PROJ #: 1098-0001

Engineer's Opinion of Probable Construction Costs

November 5, 2013

Item #	Description	Unit	Quantity	Unit Price	Total
	Sewer System Construction - 24" Sewer Line Cost				
1	24" PVC, F679 PS 115	L.F.	1,326	$61.89	$82,066.14
2	Non-Str. Backfill (5'-8' Depth)	L.F.	109	$9.28	$1,011.52
3	Non-Str. Backfill (8'-10' Depth)	L.F.	89	$12.38	$1,101.82
4	Non-Str. Backfill (10'-12' Depth)	L.F.	243	$14.44	$3,508.92
5	Non-Str. Backfill (12'-14' Depth)	L.F.	425	$16.50	$7,012.50
6	Non-Str. Backfill (14'-16' Depth)	L.F.	173	$19.60	$3,390.80
7	Str. Backfill (12'-14' Depth)	L.F.	133	$26.00	$3,458.00
8	Str. Backfill (14'-16' Depth)	L.F.	156	$30.00	$4,680.00
9	5' Diam. Manhole, 0-6 ft. deep	EACH	3	$3,610.06	$10,830.18
10	Extra Depth for 5' Manhole	V.F.	21	$361.01	$7,545.11
				Sewer System Subtotal	$124,605
	Sewer System Construction - 6" Sewer Line Cost				
1	6" PVC, ASTM 3034 SDR 26	L.F.	1,326	$13.41	$17,781.66
2	Non-Str. Backfill (5'-8' Depth)	L.F.	109	$9.28	$1,011.52
3	Non-Str. Backfill (8'-10' Depth)	L.F.	89	$12.38	$1,101.82
4	Non-Str. Backfill (10'-12' Depth)	L.F.	243	$14.44	$3,508.92
5	Non-Str. Backfill (12'-14' Depth)	L.F.	425	$16.50	$7,012.50
6	Non-Str. Backfill (14'-16' Depth)	L.F.	173	$19.60	$3,390.80
7	Str. Backfill (12'-14' Depth)	L.F.	133	$26.00	$3,458.00
8	Str. Backfill (14'-16' Depth)	L.F.	156	$30.00	$4,680.00
9	5' Diam. Manhole, 0-6 ft. deep	EACH	3	$2,475.47	$7,426.41
10	Extra Depth for 5' Manhole	V.F.	21	$257.86	$5,389.27
				Sewer System Subtotal	$54,761
				OP Request	**$69,844**

The above construction estimate is based on the engineer's preliminary opinion of probable construction costs. This estimate constitutes our best judgment at this time. Please note that the engineer does not have any control over contractor or supplier workloads and the degree to which inflation may affect project costs between now and the bid date. During construction, additional features may become apparent as the work progresses, which will result in an increase in cost.

Jeffery L. Robertson, P.E.

11/5/2013
Date

STATE OF TEXAS
JEFFERY L. ROBERTSON
94745
LICENSED
PROFESSIONAL ENGINEER

EXHIBIT E

GREENBRIER SUBDIVISION, PHASE 9

MBESI PROJ #: 1015

City of Bryan Infrastructure Costs

November 25, 2013

Item #	Description	Unit	Quantity	Unit Price	Total
	Paving Construction				
1	Clearing and Grubbing (ROW & Esmts)	Ac.	4.30	$2,578.62	11,088
2	Earthwork	C.Y.	4,250	$5.16	21,930
3	6" Lime Stabilized Subgrade (6% by weight)	S.Y.	6,734	$4.13	27,811
4	6" Crushed Limestone Base	S.Y.	4,854	$10.31	50,045
5	2" HMAC Surface Course (including prime coat)	S.Y.	4,854	$10.83	52,569
6	Concrete Curb and Gutter (all types)	L.F.	3,210	$11.35	36,434
7	6" Reinforced Concrete Pavement	S.Y.	351	$37.13	13,033
8	4" Reinforced Concrete Sidewalk	S.F.	5,671	$3.92	22,230
9	Sidewalk Ramps	EACH	4	$773.58	3,094
				Paving Subtotal	$238,234
	Drainage System Construction				
10	24" HDPE	L.F.	464	$37.13	17,228
11	18" RCP, ASTM C76, CLIII	L.F.	306	$43.32	13,256
12	5' Rec. Inlet	EACH	5	$2,991.19	14,956
13	Junction Box	EACH	2	$2,888.05	5,776
14	24" Sloped Headwall	EACH	1	$1,547.17	1,547
15	Rock Rip Rap	S.Y.	25	$51.57	1,289
16	TV Inspection	L.F.	770	$3.09	2,379
				Drainage System Subtotal	$56,432
	Sewer System Construction				
17	24" PVC, ASTM F679 SDR 26	L.F.	1,316	$61.89	81,447
18	6" PVC, D-3034 SDR 26	L.F.	1,580	$13.41	21,188
19	Trenching and Backfill (5'-8' Depth, Non-Str. Backfill)	L.F.	313	$9.28	2,905
20	Trenching and Backfill (8'-10' Depth, Non-Str. Backfill)	L.F.	228	$12.38	2,823
21	Trenching and Backfill (10'-12' Depth, Non-Str. Backfill)	L.F.	236	$14.44	3,408
22	Trenching and Backfill (12'-14' Depth, Non-Str. Backfill)	L.F.	556	$16.50	9,174
23	Trenching and Backfill (14'-16' Depth, Non-Str. Backfill)	L.F.	321	$19.60	6,292
24	Trenching and Backfill (5'-8' Depth, Str. Backfill)	L.F.	982	$14.44	14,180
25	Trenching and Backfill (8'-10' Depth, Str. Backfill)	L.F.	136	$18.57	2,526
26	Trenching and Backfill (10'-12' Depth, Str. Backfill)	L.F.	124	$22.69	2,814
27	Standard Manhole, 0-6 ft. deep	EACH	5	$2,475.47	12,377
28	5' Diam. Manhole, 0-6 ft. deep	EACH	3	$3,610.06	10,830
29	Extra Depth for Std. Manhole	V.F.	8.0	$257.86	2,063
30	Extra Depth for 5' Diam. Manhole	V.F.	24.3	$361.01	8,773
31	Connect to Existing Manhole	EACH	1.0	$1,547.17	1,547
32	Short Side 4" Sewer Service (≤ 20')	EACH	5	$722.01	3,610
33	Long Side 4" Sewer Service (>20')	EACH	16	$1,340.88	21,454
34	Trench Safety (sewer)	L.F.	2,896	$2.84	8,225
				Sewer System Subtotal	$215,634
	Erosion Control Construction				
35	Erosion Control Plan & Sedimentation Control (per Item 106) (includes silt fencing, construction exits, straw bale barriers, inlet protection, grass seeding, and any other sedimentation control devices)	L.S.	1	10,314.47	10,314
				Erosion Control Subtotal	$10,314

TOTAL CONSTRUCTION COST $520,614

11/25/13

STATE OF TEXAS
JEFFERY L. ROBERTSON
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