

**Engineers Opinion of Probable Cost  
Proposed Richmond West Main Street Water & Wastewater Expansion**

**DESIGN, PERMITTING & ADMINISTRATIVE (PHASE I & II)**

Revised 2-1-22

Description	Unit Cost	Quantity	Total Cost
<b>A. PLANNING &amp; PRELIMINARY ENGINEERING (Phase I &amp; II)</b>			
Archeology	Complete	1	\$0
Wetlands Delineation	Complete	1	\$0
Planning/Conceptual Design (Town/GME)	\$5,000	1	<u>\$5,000</u>
<b>Preliminary Engineering Subtotal =</b>			<b>\$5,000</b>
<b>B. FINAL DESIGN &amp; PERMITTING (Phase I &amp; II)</b>			
Geotechnical Evaluation	\$5,000	1	\$5,000
ROW Surveying & Underground Utility Locating	\$10,000	1	\$10,000
Engineering & Surveying Easement Assistance (as necessary)	\$5,000	1	\$5,000
Hydraulic Analysis	\$10,000	1	\$10,000
Final Design	\$35,000	1	\$35,000
Water & Sewer Commission Review	\$1,000	1	\$1,000
Richmond Zoning Permits	\$2,000	1	\$2,000
Act 250 Permitting	\$15,000	1	\$15,000
Stream Alteration Permitting	\$5,000	1	\$5,000
Wetlands Permitting	\$5,000	1	\$5,000
Permit to Construct (Water)	\$2,000	1	\$2,000
Permit to Construct (Wastewater)	\$2,000	1	\$2,000
VT AOT Coordination/Permitting	\$3,000	1	<u>\$3,000</u>
<b>Final Design/ Permitting Subtotal =</b>			<b>\$100,000</b>
<b>ADMINISTRATION (PHASE I &amp; II)</b>			
Permit Fees	\$5,000	1	\$5,000
Legal (Municipal Bond Issuance)	\$3,000	1	\$3,000
Legal (Right of Way Certification & Easements)	\$10,000	1	\$10,000
Survey (Construction & Permanent Easements)	\$5,000	1	\$5,000
ROW Purchase (placeholder)	\$20,000	1	\$20,000
Misc.	\$5,000	1	<u>\$5,000</u>
<b>Administration Cost Subtotal =</b>			<b>\$48,000</b>
<b>Design, Permitting &amp; Administrative Total =</b>			<b>\$153,000</b>
<b>Contingency (15%) =</b>			<b>\$22,950</b>

**Engineers Opinion of Probable Cost for Design, Permitting and Administrative = \$175,950**

Note: GME believes Act 250 will request that they review the entire project prior to issuing a permit. As a result, the assumption is both phases I & II will be required to be permitted at the same time.

**Engineers Opinion of Probable Cost  
Proposed Richmond West Main Street Wastewater Expansion**

**WASTEWATER CONSTRUCTION (PHASE I)**

Revised 2-1-22

Description	Unit	Quantity	Unit Cost	Total Cost
<b>A. BIDDING/CONSTRUCTION/AWARD (Phase I)</b>				
Contract & Bid Document Preparation	LS	1	\$3,000	\$3,000
Bidding, Contractor Questions, Bid Review & Recommendation	LS	1	\$5,000	<u>\$5,000</u>
<b>Bidding/Construction/Award Subtotal =</b>				<b>\$8,000</b>
<b>B. WASTEWATER CONSTRUCTION (Phase I)</b>				
Surveying & Site Layout	LS	1	\$5,000	\$5,000
Site Preparation & Misc.	LS	1	\$10,000	\$10,000
3" HDPE Force Main	FT	3,600	\$35	\$126,000
Existing Manhole Coring/Repairs	LS	1	\$1,000	\$1,000
Pump Station Precast Concrete Tank (Assume 2,000 Gal.)	LS	1	\$20,000	\$20,000
Pump Station Pumps/Controls/Plumbing	LS	1	\$20,000	\$20,000
Pump Station Electricity	LS	1	\$10,000	\$10,000
Backup Generator & Control Panel	LS	1	\$25,000	\$25,000
Telemetry	LS	1	\$5,000	\$5,000
8" sleeve Under Route 2 - #235 Huntington Road (ft)	FT	40	\$95	\$3,800
2" Service Stub & Spacers Under Route 2 (#235 Huntington Road)	FT	50	\$100	\$5,000
Pavement Restoration (where necessary)	LS	1	\$2,000	\$2,000
*Blasting/Rock Removal	CY	50	\$400	\$20,000
Landscaping	LS	1	\$10,000	\$10,000
Erosion Control	LS	1	\$10,000	\$10,000
Traffic Control & Signage	LS	1	\$30,000	\$30,000
Excavator for bore pits (assume 1,000' max.)	LS	1	\$5,000	\$5,000
Mobilization/Demobilization	LS	1	\$30,000	\$30,000
Bonds	LS	1	\$5,000	\$5,000
Contingency (10%)	LS	0.10		<u>\$34,280</u>
<b>Phase I Construction Cost Subtotal =</b>				<b>\$377,080</b>
<b>C. Construction Phase Services (Phase I)</b>				
Material Approvals/Shop Drawing Reviews	T&M	1	\$4,000	\$4,000
Project Manager (assume 7 week project)	T&M	1	\$7,500	\$7,500
Field Engineer (7 week project)	T&M	1	\$27,500	\$27,500
Record Drawings	LS	1	\$5,000	<u>\$5,000</u>
<b>Phase I Construction Cost Subtotal =</b>				<b>\$44,000</b>
<b>Engineers Opinion of Total Probable Construction Costs Phase I =</b>				<b>\$429,080</b>

**Notes**

1. Opinion of Probable Cost is based on preliminary phase estimates only. More detailed costs should be developed during Final Design based on actual design quantities and constraints. Prices are based on 2021 cost estimates. It should be noted that material are subject to high variability at thi
2. Assumes a limited amount of easement purchase will be required. This assumes cooperative landowners.
3. Storage, pumps, alarms, controls and electrical by others.
4. Assumes a minimal amount of ledge and large cobbles are encountered during directional drilling.
5. "Site Preparation and Misc." includes miscellaneous equipment to be supplied, temporary offices, clean up and contractors contract administration.

**Engineers Opinion of Probable Cost  
Proposed Richmond West Main Street Wastewater Expansion**

**WASTEWATER CONSTRUCTION (PHASE II)**

Revised 2-1-22

Description	Unit	Quantity	Unit Cost	Total Cost
<b>A. BIDDING/CONSTRUCTION/AWARD (Phase II)</b>				
Contract & Bid Document Preparation	LS	1	\$3,000	\$3,000
Bidding, Contractor Questions, Bid Review & Recommendation	LS	1	\$5,000	<u>\$5,000</u>
<b>Bidding/Construction/Award Subtotal =</b>				<b>\$8,000</b>
<b>B. WASTEWATER CONSTRUCTION (Phase II)</b>				
Surveying & Site Layout	LS	1	\$5,000	\$5,000
Site Preparation & Misc.	LS	1	\$10,000	\$10,000
6" PVC Gravity Sewer Line	FT	980	\$45	\$44,100
4' Diam. x 6' Concrete Manhole	EA	4	\$2,000	\$8,000
3" HDPE Force Main (Directionally Bored)	FT	1,820	\$35	\$63,700
Pre-packed Unit (Include Pumps & Controls)	LS	1	\$7,500	\$7,500
Pump Station Hookups/Plumbing	LS	1	\$2,000	\$2,000
Pump Station Electricity	LS	1	\$10,000	\$10,000
Backup Generator & Control Panel	LS	1	\$10,000	\$10,000
Telemetry	LS	1	\$5,000	\$5,000
8" sleeve Under Route 2 - #365 Verburg Ln (ft)	FT	40	\$95	\$3,800
2" Service Stub & Spacers Under Route 2 (#365 Verburg)	FT	50	\$100	\$5,000
8" sleeve Under Route 2 - #1151 West Main Street	FT	40	\$95	\$3,800
2" Service Stub & Spacers Under Route 2 -#1151 West Main Street	FT	50	\$100	\$5,000
Pavement Restoration (where necessary)	LS	1	\$2,000	\$2,000
*Blasting/Rock Removal	CY	50	\$400	\$20,000
Landscaping	LS	1	\$3,000	\$3,000
Erosion Control	LS	1	\$10,000	\$10,000
Traffic Control & Signage	LS	1	\$30,000	\$30,000
Excavator for bore pits (assume 1,000' max.)	LS	1	\$5,000	\$5,000
Mobilization/Demobilization	LS	1	\$30,000	\$30,000
Bonds	LS	1	\$5,000	\$5,000
Contingency (10%)	LS	0.10		<u>\$28,790</u>
<b>Phase II Construction Cost Subtotal =</b>				<b>\$316,690</b>
<b>C. Construction Phase Services (Phase II)</b>				
Material Approvals/Shop Drawing Reviews	T&M	1	\$4,000	\$4,000
Project Manager (assume 6 week project)	T&M	1	\$6,000	\$6,000
Field Engineer (6 week project)	T&M	1	\$24,000	\$24,000
Record Drawings	LS	1	\$5,000	<u>\$5,000</u>
<b>Phase II Construction Cost Subtotal =</b>				<b>\$39,000</b>
<b>Engineers Opinion of Total Probable Phase II Construction Costs =</b>				<b>\$363,690</b>

**Notes**

1. Opinion of Probable Cost is based on preliminary phase estimates only. More detailed costs should be developed during Final Design based on actual design quantities and constraints. Prices are based on 2021 cost estimates. It should be noted that material are subject to high variability at this time.
2. Assumes a limited amount of easement purchase will be required. This assumes cooperative landowners.
3. Storage, pumps, alarms, controls and electrical by others.
4. Assumes a minimal amount of ledge and large cobbles are encountered during directional drilling.
5. "Site Preparation and Misc." includes miscellaneous equipment to be supplied, temporary offices, clean up and contractors contract administration.

**Engineers Opinion of Probable Cost  
Proposed Richmond West Main Street Waterline Expansion**

**ALTERNATE A - 12" WATERLINE CONSTRUCTION (PHASE I)**

Revised 2-1-22

Description	Unit	Quantity	Unit Cost	Total Cost
<b>A. BIDDING/CONSTRUCTION/AWARD (Phase I)</b>				
Contract & Bid Document Preparation	LS	1	\$3,000	\$3,000
Bidding, Contractor Questions, Bid Review & Recommendation	LS	1	\$5,000	\$5,000
<b>Bidding/Construction/Award Subtotal =</b>				<b>\$8,000</b>
<b>B. CONSTRUCTION (Phase I)</b>				
12" HDPE Water Main	LF	3,600	\$185.00	\$666,000.00
15" Jack & Bore PVC Sleeve Under Route 2 @ Reap	LF	40	\$225.00	\$9,000.00
8" PVC Waterline & Sleeve Spacers (Rt 2 Crossing)	LF	150	\$150.00	\$22,500.00
8" Jack&Bore PVC Sleeve Under Route 2 @ 365 Verburg&1151 W. Main	LF	80	\$95.00	\$7,600.00
3/4" Copper Road Crossing & Spacers for House Services (365 Verburg & 1151 W. Main)	LF	100	\$100.00	\$10,000.00
3" Waterline for House Services on East Side of Route 2	LF	0	\$35.00	\$0.00
3/4" Corp. Stops	EACH	2	\$150.00	\$300.00
3/4" Curb Stops and Boxes	EACH	2	\$200.00	\$400.00
12" Gate Valve	EACH	1	\$3,000.00	\$3,000.00
8" Gate Valve (Reap)	EACH	1	\$2,000.00	\$2,000.00
Fire Hydrant Assembly	EACH	1	\$6,000.00	\$6,000.00
Blasting/Rock Removal	CY	50	\$400.00	\$20,000.00
Class "B" Concrete (Thrust Blocks)	CY	15	\$200.00	\$3,000.00
Landscaping & Re-Establishment of Vegetation	LS	1	\$5,000.00	\$5,000.00
Excavator for bore pits (assume 300' max.)	LS	1	\$5,000.00	\$5,000.00
Erosion Control	LS	1	\$5,000.00	\$5,000.00
Traffic Control & Signage	LS	1	\$30,000.00	\$30,000.00
Mobilization/Demobilization	LS	1	\$30,000.00	\$30,000.00
Bonds	LS	1	\$3,750.00	\$3,750.00
Contingency (10%)	LS	0.10		\$82,855
<b>Construction Subtotal =</b>				<b>\$911,405.00</b>
<b>C. Construction Phase Services (Phase I)</b>				
Material Approvals/Shop Drawing Reviews	T&M	1	\$4,000	\$4,000
Project Manager (assume 8 week project)	T&M	1	\$12,000	\$12,000
Field Engineer (Assume 8 week project)	T&M	1	\$35,000	\$35,000
Record Drawings	LS	1	\$5,000	\$5,000
<b>Construction Documentation Subtotal =</b>				<b>\$56,000</b>

**Engineers Opinion of Total Probable Costs for Construction, Documentation & Cert. Phase I =**

**\$975,405**

**Engineers Opinion of Probable Cost  
Proposed Richmond West Main Street Waterline Expansion**

**ALTERNATE A - 12" WATERLINE CONSTRUCTION (PHASE II)**

Revised 2-1-22

Description	Unit	Quantity	Unit Cost	Total Cost
<b>A. BIDDING/CONSTRUCTION/AWARD (Phase II)</b>				
Contract & Bid Document Preparation	LS	1	\$3,000	\$3,000
Bidding, Contractor Questions, Bid Review & Recommendation	LS	1	\$5,000	\$5,000
<b>Bidding/Construction/Award Subtotal =</b>				<b>\$8,000</b>
<b>B. CONSTRUCTION (Phase II)</b>				
12" HDPE Water Main	LF	1,820	\$185.00	\$336,700.00
15" Jack & Bore PVC Sleeve Under Route 2 @ Reap	LF	40	\$225.00	\$9,000.00
8" PVC Waterline & Sleeve Spacers (Rt 2 Crossing @ Mobile)	LF	50	\$100.00	\$5,000.00
3/4" Copper Road Crossing & Spacers for House Services (365 Verburg & 1151 W. Main)	LF	0	\$100.00	\$0.00
3" Waterline for House Services on East Side of Route 2	LF	1,100	\$35.00	\$38,500.00
3/4" Corp. Stops	EACH	10	\$150.00	\$1,500.00
3/4" Curb Stops and Boxes	EACH	10	\$200.00	\$2,000.00
12" Gate Valve	EACH	1	\$3,000.00	\$3,000.00
8" Gate Valve (Reap)	EACH	0	\$2,000.00	\$0.00
Fire Hydrant Assembly	EACH	2	\$6,000.00	\$12,000.00
Blasting/Rock Removal	CY	50	\$400.00	\$20,000.00
Class "B" Concrete (Thrust Blocks)	CY	15	\$200.00	\$3,000.00
Landscaping & Re-Establishment of Vegetation	LS	1	\$5,000.00	\$5,000.00
Excavator for bore pits (assume 300' max.)	LS	1	\$5,000.00	\$5,000.00
Erosion Control	LS	1	\$5,000.00	\$5,000.00
Traffic Control & Signage	LS	1	\$30,000.00	\$30,000.00
Mobilization/Demobilization	LS	1	\$30,000.00	\$30,000.00
Bonds	LS	1	\$3,750.00	\$3,750.00
Contingency (10%)	LS	0.10		\$50,945
<b>Construction Subtotal =</b>				<b>\$560,395.00</b>
<b>C. Construction Phase Services (Phase II)</b>				
Material Approvals/Shop Drawing Reviews	T&M	1	\$4,000	\$4,000
Project Manager (assume 8 week project)	T&M	1	\$12,000	\$12,000
Field Engineer (Assume 8 week project)	T&M	1	\$35,000	\$35,000
Record Drawings	LS	1	\$5,000	\$5,000
<b>Construction Documentation Subtotal =</b>				<b>\$56,000</b>

**Engineers Opinion of Total Probable Costs for Construction, Documentation & Cert. Phase II =**

**\$624,395**

**Engineers Opinion of Probable Cost  
Proposed Richmond West Main Street Waterline Expansion**

**ALTERNATE B - 4" WATERLINE CONSTRUCTION (PHASE I)**

Revised 2-1-22

Description	Unit	Quantity	Unit Cost	Total Cost
<b>A. BIDDING/CONSTRUCTION/AWARD (Phase I)</b>				
Contract & Bid Document Preparation	LS	1	\$3,000	\$3,000
Bidding, Contractor Questions, Bid Review & Recommendation	LS	1	\$5,000	<u>\$5,000</u>
<b>Bidding/Construction/Award Subtotal =</b>				<b>\$8,000</b>
<b>B. CONSTRUCTION (Phase I)</b>				
4" HDPE Water Main	LF	3,600	\$45.00	\$162,000.00
10" Jack & Bore PVC Sleeve Under Route 2 @ Reap	LF	40	\$120.00	\$4,800.00
3" HDPE Waterline & Sleeve Spacers (Rt 2 Crossing @ Reap Property)	LF	50	\$75.00	\$3,750.00
3" HDPE Waterline for House Services East Side of Route 2	LF	0	\$35.00	\$0.00
8" Jack&Bore PVC Sleeve Under Route 2 @ 365 Verburg&1151 W. Main	LF	80	\$95.00	\$7,600.00
3/4" Copper Road Crossing & Spacers for House Services (365 Verburg & 1151 W. Main)	LF	100	\$100.00	\$10,000.00
3/4" Corp. Stops	EACH	2	\$150.00	\$300.00
3/4" Curb Stops and Boxes	EACH	2	\$200.00	\$400.00
4" Gate Valve	EACH	2	\$1,000.00	\$2,000.00
8" Gate Valve (Reap)	EACH	0	\$2,000.00	\$0.00
Fire Hydrant Assembly	EACH	0	\$6,000.00	\$0.00
Blasting/Rock Removal	CY	50	\$400.00	\$20,000.00
Class "B" Concrete (Thrust Blocks)	CY	15	\$200.00	\$3,000.00
Landscaping & Re-Establishment of Vegetation	LS	1	\$5,000.00	\$5,000.00
Excavator for bore pits (assume 1000' max.)	LS	1	\$5,000.00	\$5,000.00
Erosion Control	LS	1	\$5,000.00	\$5,000.00
Traffic Control & Signage	LS	1	\$30,000.00	\$30,000.00
Mobilization/Demobilization	LS	1	\$30,000.00	\$30,000.00
Bonds	LS	1	\$3,750.00	\$3,750.00
Contingency (10%)	LS	0.10		<u>\$29,260</u>
<b>Construction Subtotal =</b>				<b>\$321,860.00</b>
<b>C. Construction Phase Services (Phase I)</b>				
Material Approvals/Shop Drawing Reviews	T&M	1	\$4,000	\$4,000
Project Manager (assume 8 week project)	T&M	1	\$12,000	\$12,000
Field Engineer (Assume 8 week project)	T&M	1	\$35,000	\$35,000
Record Drawings	LS	1	\$5,000	<u>\$5,000</u>
<b>Construction Documentation Subtotal =</b>				<b>\$56,000</b>

**Engineers Opinion of Total Probable Costs for Construction, Documentation & Cert. Phase I =**

**\$385,860**

**Engineers Opinion of Probable Cost  
Proposed Richmond West Main Street Waterline Expansion**

**ALTERNATE B - 4" WATERLINE CONSTRUCTION (PHASE II)**

Revised 2-1-22

Description	Unit	Quantity	Unit Cost	Total Cost
<b>A. BIDDING/CONSTRUCTION/AWARD (Phase II)</b>				
Contract & Bid Document Preparation	LS	1	\$3,000	\$3,000
Bidding, Contractor Questions, Bid Review & Recommendation	LS	1	\$5,000	<u>\$5,000</u>
<b>Bidding/Construction/Award Subtotal =</b>				<b>\$8,000</b>
<b>B. CONSTRUCTION (Phase II)</b>				
4" HDPE Water Main	LF	1,820	\$45.00	\$81,900.00
8" Jack & Bore PVC Sleeve Under Route 2 @ Mobile Station	LF	40	\$95.00	\$3,800.00
1" HDPE Waterline & Sleeve Spacers (Rt 2 Crossing @ Reap Property)	LF	50	\$75.00	\$3,750.00
3" HDPE Waterline for House Services East Side of Route 2	LF	1,100	\$35.00	\$38,500.00
1" Corp. Stops	EACH	1	\$150.00	\$150.00
1 " Curb Stops and Boxes	EACH	1	\$200.00	\$200.00
4" Gate Valve	EACH	1	\$1,000.00	\$1,000.00
Fire Hydrant Assembly	EACH	0	\$6,000.00	\$0.00
Blasting/Rock Removal	CY	50	\$400.00	\$20,000.00
Class "B" Concrete (Thrust Blocks)	CY	15	\$200.00	\$3,000.00
Landscaping & Re-Establishment of Vegetation	LS	1	\$5,000.00	\$5,000.00
Excavator for bore pits (assume 1,000' max.)	LS	1	\$5,000.00	\$5,000.00
Erosion Control	LS	1	\$5,000.00	\$5,000.00
Traffic Control & Signage	LS	1	\$30,000.00	\$30,000.00
Mobilization/Demobilization	LS	1	\$30,000.00	\$30,000.00
Bonds	LS	1	\$3,750.00	\$3,750.00
Contingency (10%)	LS	0.10		<u>\$23,105</u>
<b>Construction Subtotal =</b>				<b>\$254,155.00</b>
<b>C. Construction Phase Services (Phase II)</b>				
Material Approvals/Shop Drawing Reviews	T&M	1	\$4,000	\$4,000
Project Manager (assume 8 week project)	T&M	1	\$12,000	\$12,000
Field Engineer (Assume 8 week project)	T&M	1	\$35,000	\$35,000
Record Drawings	LS	1	\$5,000	<u>\$5,000</u>
<b>Construction Documentation Subtotal =</b>				<b>\$56,000</b>

**Engineers Opinion of Total Probable Costs for Construction, Documentation & Cert. Phase II = \$318,155**