STORM SEWER STR. M1150 IN THE DRIVEWAY OF 701 POPLAR DRIVE (IMAGE FROM GOOGLE STREET VIEW, JULY 2014)

STORM SEWER STR. M1151, LOOKING EAST TOWARD DOWNSTREAM STORM SEWER STR. M1150 AND POPLAR DRIVE.

INSIDE STORM SEWER STR. M1151. THE EXISTING SUMP PUMP COMING FROM 619 POPLAR DRIVE (SHOWN ON DETAIL 2 THIS SHEET AS STR. D) MUST BE CONSIDERED IN ALL PROPOSED OPTIONS.

LOOKING INSIDE ALONG THE STORM SEWER PIPE FROM STR. M1151 TO M1150. SIGNIFICANT DETERIORATION OBSERVED INSIDE PIPE.

LOOKING INSIDE ALONG THE STORM SEWER PIPE FROM STR. M1151 TO M1150. LARGE HOLE OBSERVED IN SIDE OF PIPE.

LOOKING SOUTHEAST FROM STORM SEWER STR. M1141 TOWARD DOWNSTREAM STORM SEWER STR. M1151.

6/7 EXISTING CONDITIONS PHOTOS

NOT TO SCALE

CONCEPTUAL PLAN CONSTRAINTS

No.	Constraint	Cost	Schedule	Constructability	Comments
1	**Applies To All Options:** Sanitary sewer lines and water lines (not shown) exist underneath the street along Poplar Drive, which could impact potential pipe relining or pipe replacement for the section of storm sewer pipe between Str. M1150 and M1160.	●		●	Pending survey, proposed pipe horizontal and vertical alignment will be located to minimimize conflicts with sanitary sewer; however, care must be taken in construction to protect existing pipe and avoid damage during excavation.
2	**Applies To All Options:** There may be other unknown utilities in the area of proposed work that could cause a potential conflict.	●	●	●	Pending survey, proposed pipe horizontal and vertical alignment will be located to minimimize conflicts with existing utilities; however, care must be taken in construction to protect existing pipe and avoid damage during excavation. If utilities are found to be in conflict, they may be relocated.
3	**Applies To All Options:** Improvements will be required for storm sewer pipes on private property (701 and 619 Poplar Drive and potentially 616 Poplar Drive).	●	●	●	Permissions will need to be obtained.
4	**Applies To All Options:** Mature trees, fences, sheds, etc. potentially impacted by any construction between storm sewer structures M1141 and M1160.	●	●	●	Permissions will need to be obtained and coordination with homeowners will be required.
5	**Applies To All Options:** Construction may take place in close proximity to homes.	●	●	●	Caution must be taken during construction to ensure structural integrity of nearby homes.
6	**Applies To All Options:** A storm drain easement will need to be obtained for improvements on 701 Poplar Drive.	●	●		Permissions will need to be obtained and coordination with homeowners will be required.
7	**Applies to Option 2 and 3:** The existing sump pump leading to Str. M1151 from 619 Poplar Drive needs to be considered during improvements.	●	●	●	The existing storm sewer from Str. D to Str. M1151 must be accounted for in any replacement design.

Legend

●	Minimal Impact
●	Moderate Impact

U.V. CIPP Lining for Fairfax County SWM Contract Includes: **Poplar Drive M1151 to M1150**

	Task		Unit	Total this Job	Unit Price	Total Price
1	Traffic Control	Signs and Cones	EA	1	$ 500.00	$ 500.00
2	Hydro Jet	Initial Set up	EA	1	$ 1,200.00	$ 1,200.00
3	Hydro Jet Cleaning of Culverts		LF	103	$ 8.00	$ 824.00
4	CCTV Insp.	Initial Set up	EA	1	$ 900.00	$ 900.00
5	CCTV footage	Pre CCTV 6-21 inch	LF	103	$ 2.75	$ 283.25
6	Lining Setup	Initial Set up	EA	1	$ 2,500.00	$ 2,500.00
7	Piple Lining	15" 4.2mm	LF	103	$ 63.79	$ 6,570.37
8	Post CCTV	Post CCTV 6-21 inch	LF	103	$ 1.50	$ 154.50
9	Trim Protruding Taps		EA	0	$ 400.00	$ -
10	Lateral Reinstatements		EA	0	$ 300.00	$ -
Price Complete			**L.S**			**$ 12,932.12**

U.V. CIPP Lining for Fairfax County SWM Contract Includes: **Poplar Drive M1150 to M1160**

	Task		Unit	Total this Job	Unit Price	Total Price
1	Traffic Control	Signs and Cones	EA	1	$ 500.00	$ 500.00
2	Hydro Jet	Move and Re-set	EA	1	$ 300.00	$ 300.00
3	Hydro Jet Cleaning of Culverts		LF	82	$ 8.00	$ 656.00
4	CCTV Insp.	Move and Re-set	EA	1	$ 450.00	$ 450.00
5	CCTV footage	Pre CCTV 6-21 inch	LF	82	$ 2.75	$ 225.50
6	Lining Setup	Initial Set up	EA	1	$ 2,500.00	$ 2,500.00
7	Piple Lining	15" 4.2mm	LF	82	$ 63.79	$ 5,230.78
8	Post CCTV	Post CCTV 6-21 inch	LF	82	$ 1.50	$ 123.00
9	Trim Protruding Taps		EA	0	$ 400.00	$ -
10	Lateral Reinstatements		EA	0	$ 300.00	$ -
Price Complete			**L.S**			**$ 9,985.28**

NOTE: INCLUDING THE TWO ABOVE COSTS (RELINING FROM STR. M1151 TO M1150 AND RELINING FROM STR. M1150 TO M1160), 20% CONTINGENCY, AND CITY PROJECT OVERSIGHT, THE TOTAL ESTIMATED COST OF RELINING THE EXISTING STORM SEWER PIPE IS $30,000.

3/7 701 POPLAR DRIVE PROJECT CONCEPTUAL COST ESTIMATE

OPTION 1: PIPE RELINING

Project: City of Falls Church Watershed Master Plan: 701 Poplar Drive Project
Design Assumptions: Storm Sewer Pipe Replacement - Along Existing Alignment (OPTION 2)
Estimate Type: Conceptual Construction Cost Estimate
Prepared by: GKY & Associates, Inc.
Date: January 31, 2020

#	ITEM	QUANTITY	UNIT	UNIT COST	COST
1	**PROPOSED IMPROVEMENTS**				
2	15" RCP	160	LF	$300 / LF	$48,000
3	Connect to Existing Manhole	4	EA	$2,500 / EA	$10,000
4	Secure Permanent Storm Drain Easement (Plat and Deed)	1	LS	$5,000 / LS	$5,000
5	Driveway Restoration	160	SF	$40 / SF	$6,400
6	Surveying (Design)	1	LS	$2,500 / LS	$2,500
7	Surveying (As-Built)	1	LS	$800 / LS	$800
8	Engineering Design	1	LS	$5,000 / LS	$5,000
9	On-Lot Grading for Positive Drainage	1	LS	$2,000 / LS	$2,000
10	Tree Protection (RP & TP)	80	LF	$20 / LF	$1,600
11	Erosion & Sediment Controls	1	LS	$900 / LS	$900
12	Seed & Mulch	300	SY	$5 / SY	$1,500
13				**PROPOSED IMPROVEMENTS SUB TOTAL:**	**$83,700**
14					
15				**PROJECT SUB TOTAL:**	**$83,700**
16				**CONTINGENCY (20% of PROJECT SUB TOTAL):**	**$16,740**
17				**PROJECT TOTAL:**	**$100,440**

4/7 701 POPLAR DRIVE PROJECT CONCEPTUAL COST ESTIMATE

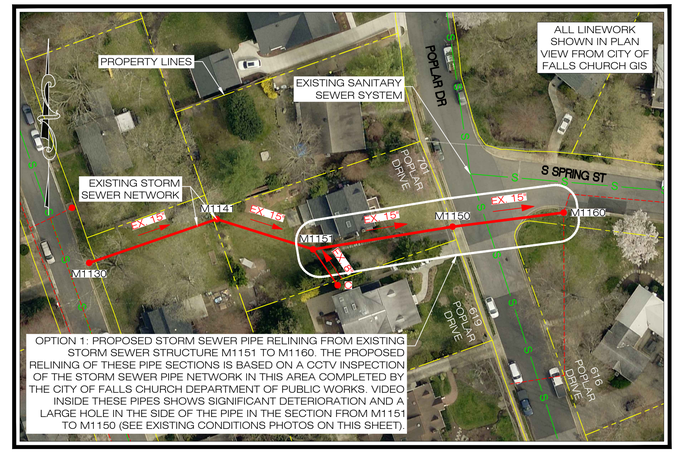
OPTION 2: PIPE RELOCATION ALONG EXISTING STORM SEWER PIPE ALIGNMENT

Project: City of Falls Church Watershed Master Plan: 701 Poplar Drive Project
Design Assumptions: Storm Sewer Pipe Replacement - New Alignment (OPTION 3)
Estimate Type: Conceptual Construction Cost Estimate
Prepared by: GKY & Associates, Inc.
Date: January 31, 2020

#	ITEM	QUANTITY	UNIT	UNIT COST	COST
1	**PROPOSED IMPROVEMENTS**				
2	DI-1	1	EA	$20,000 / EA	$20,000
3	MH-1	2	EA	$20,000 / EA	$40,000
4	15" RCP	160	LF	$300 / LF	$48,000
5	Connect to Existing Manhole	2	EA	$2,500 / EA	$5,000
6	Tree Removal	1	LS	$10,000 / LS	$10,000
7	Abandon Pipes and MH in Place with Flowable Fill	1	LS	$5,000 / LS	$5,000
8	Secure Permanent Storm Drain Easement (Plat and Deed)	1	LS	$5,000 / LS	$5,000
9	Driveway Restoration	160	SF	$40 / SF	$6,400
10	Surveying (Design)	1	LS	$2,500 / LS	$2,500
11	Surveying (As-Built)	1	LS	$800 / LS	$800
12	Engineering Design	1	LS	$7,500 / LS	$7,500
13	On-Lot Grading for Positive Drainage	1	LS	$2,000 / LS	$2,000
14	Tree Protection (RP & TP)	80	LF	$20 / LF	$1,600
15	Erosion & Sediment Controls	1	LS	$900 / LS	$900
16	Seed & Mulch	300	SY	$5 / SY	$1,500
17				**PROPOSED IMPROVEMENTS SUB TOTAL:**	**$156,200**
18					
19				**PROJECT SUB TOTAL:**	**$156,200**
20				**CONTINGENCY (20% of PROJECT SUB TOTAL):**	**$31,240**
21				**PROJECT TOTAL:**	**$187,440**

5/7 701 POPLAR DRIVE PROJECT CONCEPTUAL COST ESTIMATE

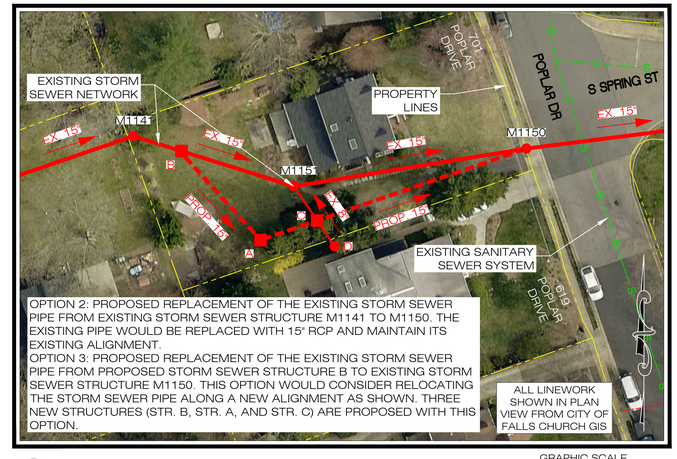
OPTION 3: PIPE RELOCATION ALONG NEW STORM SEWER PIPE ALIGNMENT



1/7 701 POPLAR DRIVE PROJECT CONCEPTUAL LAYOUT: PIPE RELINING

1" = 50'

GRAPHIC SCALE
50 0 25 50 100
(IN FEET)
1 inch = 50 ft.



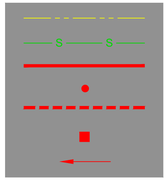
2/7 701 POPLAR DRIVE PROJECT CONCEPTUAL LAYOUT: PIPE REPLACEMENT

1" = 50'

GRAPHIC SCALE
30 0 15 30 60
(IN FEET)
1 inch = 30 ft.

CONCEPTUAL PLAN LEGEND

PROPERTY LINES
EXISTING SANITARY SEWER
EXISTING STORM SEWER PIPE
EXISTING STORM STRUCTURE
PROPOSED STORM SEWER PIPE
PROPOSED JUNCTION BOX
DIRECTIONAL ARROW



ALL INFORMATION HEREON, INCLUDING THE PLAN AND COST ESTIMATE, IS IN DRAFT FORM AT A CONCEPTUAL LEVEL OF DESIGN, PRODUCED AS AN INTERIM PRODUCT. INFORMATION WILL CHANGE AS SUBSEQUENT LEVELS OF DESIGN ARE COMPLETED.

CONCEPTUAL PLAN NARRATIVE

THE GOAL OF THIS PROJECT IS TO REPAIR AND RESTORE A SECTION OF CORRUGATED METAL STORM SEWER PIPE THAT IS CURRENTLY IN A STATE OF SIGNIFICANT DETERIORATION. FLOODING ALSO OCCURS IN THIS AREA DURING SIGNIFICANT RAINFALL EVENTS. THE STORM SEWER NETWORK IN THE SUBJECT PROBLEM AREA (STR. M1130 TO STR. M1160) HAS ADEQUATE CAPACITY FOR THE 10-YEAR STORM EVENT, WHEN IN AN ACCEPTABLE CONDITION, ACCORDING TO A 2007 "STORMCAD" ANALYSIS COMPLETED BY THE CORPS OF ENGINEERS.

THIS CONCEPTUAL PLAN CONSIDERS THREE DIFFERENT OPTIONS TO REPAIR AND RESTORE THE STORM SEWER PIPE IN THIS AREA. THE FIRST OPTION CONSIDERS RELINING OF THE EXISTING PIPE FROM STR. M1151 TO STR. M1160 (SEE DETAIL 1 ON THIS SHEET). THE SECOND OPTION CONSIDERS REPLACEMENT OF THE STORM SEWER PIPE WITH 15" REINFORCED CONCRETE PIPE (RCP) ALONG ITS EXISTING ALIGNMENT FROM STR. M1141 TO STR. M1150 (SEE DETAIL 2 ON THIS SHEET). THE THIRD OPTION CONSIDERS REPLACEMENT OF THE STORM SEWER PIPE WITH 15" RCP ALONG A NEW ALIGNMENT AS SHOWN IN DETAIL 2 ON THIS SHEET; THIS OPTION CONSIDERS INSTALLATION OF TWO NEW MANHOLE STRUCTURES AND ONE NEW YARD INLET STRUCTURE.

GKY & Associates, Inc.

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701 POPLAR DRIVE PROJECT CONCEPTUAL PLAN

WATERSHED MANAGEMENT PLAN PROJECTS
CITY OF FALLS CHURCH, VIRGINIA

NOT FOR CONSTRUCTION

DATE	DESCRIPTION
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H SCALE: VARIES
H DATUM: NAD83
V SCALE: N/A
V DATUM: NGVD29

DESIGNED: SM/CA
DRAFTED: SM/AJ
CHECKED: BK

PROJECT#: 2016-006
CONTRACT#: TO#30

SHEET: 7 OF 9