Dedicated but Unmaintained County Roads (DBUCR) Program

CIP No. 501117

Kirk Lane and Brooks Road Improvements

FINAL REPORT

January 2017

Montgomery County Department of Transportation
Division of Transportation Engineering

100 Edison Park Drive, Fourth Floor
Gaithersburg, Maryland 20878

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I. INTRODUCTION

Montgomery County Department of Transportation (MCDOT), Division of Transportation Engineering prepared this report for the DBUCR program affected residents of Kirk Lane and Brooks Road in Olney. A majority of the affected residents signed a petition requesting Kirk Lane to be evaluated as a part of the DBUCR program.

Kirk Lane, which is about 1900 feet long, and a segment of Brooks Road between Ridge Drive and Kirk Lane, about 400 feet long, are currently constructed of gravel and are being considered for improvement to County standards. The road improvement project will include design and construction for roadway pavement, storm drainage and stormwater management in accordance with environmental regulations.

This report describes an overview of the DBUCR program, the existing conditions of Kirk Lane, conceptual design, project schedule, and a budgetary cost estimate for the project.

II. BACKGROUND

1. Background of DBU County Road Policy

County website for DBU roads information:
http://www.montgomerycountymd.gov/dot-dte/projects/dedicated/index.html

The following is a chronological order for the establishment of the DBU County roads policy:

- The County Council appropriated funds in FY 2008 Capital Budget for developing the DBU roads policy.

- July 2007-June 2008 (FY 2008)-Community stakeholders and representative from the County met periodically and developed the policy.

- September, 2009-the County Executive transmitted a draft policy to the County Council.

- October, 2009 – County Council Transportation and Environment (T&E) Committee reviewed and commented on the draft policy.

- December, 2009-the DBU roads policy was adopted.

- January, 2010-The County Executive recommended the Capital Improvement Program (CIP) budget for the DBU County Roads program.

- May, 2010-The County Council approved CIP for DBU roads.

- November 17, 2015-The County Council adopted a revised DBU roads policy.

- September 2016 -The County Council adopted a revised DBU roads policy.

2. Background of DBU County Roads and Public Information

MCDOT compiled the list of DBU County roads from a report by Montgomery County Civic Federation and the County's inventory utilizing the latest State Highway Administration (SHA) MAARS Report, Geographic Information System (GIS) map/aerial photos, existing subdivision plats, existing deeds, and status of the County maintenance by the County's depots. As a result of the research, a total of fifty-nine roads within the County have been identified as the DBU roads. The list is included in Appendix A.

MCDOT received an application from the community of Kirk Lane/Brooks Road in February 2016 for the County Build/County Maintain option. The application is included in Appendix B.

A public information meeting was held on April 5, 2016 for the property owners who reside adjacent to the identified DBU roads. The public information meeting was held to help affected property owners understand the program better and address any of their concerns.

APO's who are interested in making physical improvements to their DBU Road have 3 choices available to undertake the necessary improvements to bring a DBU Road into compliance with County standards. They are:

1. Self Build/Self Maintain
2. Self Build/County Maintain
3. County Build/County Maintain

The purpose of this report is to address the County Build/County Maintain option.

III. EXISTING CONDITION

MCDOT developed a plan sheet from an aerial photo for Kirk Lane/Brooks Road to assist in the existing conditions assessment. MCDOT also conducted several site visits to Kirk Lane/Brooks Road.

1. Roadway

1. Both Kirk Lane and Brooks Road are currently open section (no curbs), compacted gravel roads. The gravel cross section of Brooks Road is approximately 20’ in width. The proposed improved segment of Brooks Road is about 400’ long. Kirk Lane varies in width from about 18’ at the northern end down to 10’ at the southern end. In general, the northern end appears to be in better condition than the southern end where it is very rutted. (See Appendix D) Both Roads are within existing 50’ wide right-of-way. Kirk lane is about 1900’ long.

Starting Project Limit on Brooks Road

Existing Open Section of Kirk Lane

2. Drainage

The drainage areas are delineated in aerial GIS map in Appendix C.

The regional drainage area including Kirk Lane and Brook Road ultimately drains to North Branch. As per the topographic information from GIS and the field assessment, surface water that is not absorbed in the grass and wooded surface areas flows westerly across Kirk Lane or is conveyed by existing culverts under the road. Kirk Lane generally slopes from north to south with 2 low points near properties at #17600 and #17700.

There is an existing culvert crossing a low point along Kirk Lane near address #17519 to #17600. See Appendix D.

The drainage areas are composed of 3 different types of silt loam soil as shown on the aerial map. including Gaila silt loam, Glenelg silt loam and Baile silt loam.

Some stormwater penetrates through the gravel layer of the road and some flows into the existing side ditches.

Existing Drainage (near intersection of Brooks Road and Ridge Road)

Existing Drainage (near 17519 Kirk Lane)

3. Utilities

MCDOT investigated existing utilities within the project site. Based on meeting with property owners, there are no water and sewer services provided by WSSC.

There are also no gas facilities provided by Washington Gas Company. During the field visits, MCDOT found neither manholes nor valves on the ground to indicate either gas, water or sewer lines. When property owners were questions about the existence of these utilities none were reported.

There are 14 PEPCO utility poles exist within the project site. Existing poles and guy wires are located along the right-of-way lines for the most part. It is not anticipated that they will need to be relocated.

4. Streetlights

Two poles on Kirk Lane near Stone Road have streetlights.

5. Trees

MCDOT counted the number of trees that are likely to be impacted by the roadway construction. Approximately 150 trees with a diameter greater than 6" are expected to be impacted in addition to smaller trees.

Trees along Kirk Lane (south end)

IV. CONCEPTUAL DESIGN

1. Roadway

The proposed typical sections for Kirk Lane and Brooks Road Improvements are shown in Appendix E.

For Brooks Road asphalt pavement width, MCDOT proposes 20'. For Kirk Lane asphalt pavement width, MCDOT proposes 18'. The non-standard 18' width matches the existing width in the northern segment and reduces runoff and grading impacts. The road will have a 1' feet clearance width for emergency vehicles access. The reduced section will decrease the construction costs.

Pavement width and clearance width was coordinated with the Montgomery County Fire & Rescue Services (FRS). Coordination with FRS will continue in the design phase. According to FRS, any future development, infill or redevelopment on Kirk Lane will require the road to meet appropriate pavement width, apparatus turnaround and any relevant parking restrictions. A geotechnical report will be prepared during the design phase. Soil borings will be needed to determine the characteristics of the existing soil. The existing soil conditions will be utilized to determine the pavement design and the adequacy of the soil for environmental site design (stormwater management). For pavement design, it is critical to have an adequate subgrade to prevent pavement failures.

MCDOT assumed that the depth of the excavation will be approximately 2' deep for the grass ditches and 1' for areas of Kirk Lane within the proposed 18' cross section that has no existing graded aggregate.

No sidewalks have been included in this project.

2. Stormwater Management & Drainage

A stormwater management concept approval is required for the Kirk Lane improvement project. MCDOT proposes an open-section road with 2 – 4 feet wide flat bottom grass swales for stormwater management and drainage. Bioretention facilities will be provided toward the south end of Kirk Lane where slopes are too steep for grass swales. Bioretention is similar to a grass swale but has an added 2'depth of enhanced topsoil to allow for filtering of stormwater runoff. PVC pipe are used under this special planting media to provide a controlled discharge.

There are a total number of 10 driveways that are adjacent to the gravel section of Kirk Lane. Each of the driveways will have a new culvert pipe be installed under it based on the County's Standard No. MC-301.03. The standard is included in Appendix F.

The schematic of the proposed storm drain system is in Appendix D. Fees are required for stormwater management concept review and for a sediment control permit. The fee costs are based on the area that will be disturbed by the proposed improvements. Total fees are expected to be about $5000.

3. Utilities

Based on MCDOT field observations, the existing PEPCO poles appear to be located within the County right-of-way or right on the line and will most likely not require relocation. If it is later determined that any pole relocations are required and PEPCO claims "prior rights" there could be additional pole relocation costs added to this project. No additional street lights have been added to the construction cost. If street lights are required, the additional cost for a typical street light is $2000/each.

4. Trees

More than 150 trees might be affected by the roadway project. This number will likely change as more information is obtained in the engineering design phase. As required, MCDOT will replace them at a ratio of 3 to 1 (450 trees planted) as a part of the project. However, the County cannot guarantee that the same species of trees will be planted in place of removed trees. The landscaping cost has been added to the construction cost estimate.

V. PROJECT SCHEDULE

The following is a **tentative schedule** based upon the assumption that the County Executive and the County Council will approve the funding for Kirk Lane Improvement in the upcoming CIP budget request for FY19-24. The County's fiscal year starts in July 1. The County's FY 19 starts on July 1, 2018.

Phase	Duration	Starting Date	Ending Date
Design	24 months	July, 2018	July, 2020
Property Acquisition	4 months	January, 2020	May, 2020
Construction	10 months	July, 2020	May, 2021

MCDOT included the property acquisition phase in case easements are needed for road reconstruction.

VI. PROJECT COST ESTIMATE

Design	$173,000
Construction Management, Testing, Inspection	$35,000
Land Acquisition	$10,000
Construction Materials & Labor	$821,000
Total Project Cost	**$1,039,000**

A total project cost has been estimated for budgetary basis. The total project cost is $1,039,000. As shown in Appendix G, there are a total number of 20 affected properties. The total project cost will be divided equally among the 20 affected properties. Each household will be responsible for paying the County approximately $46,755 after deduction of the County's participation cost which is 10% of the total project cost.

County's Participation Cost
$1,039,000 x 0.10 = $103,900

Affected Property Owner's Total Cost
($1,039,000 - $103,900) **/** 20 Properties = **$46,755**

Affected Property Owner's (APO) Annual Cost Option
An APO has the option to either pay the cost up front or over a 20-year period.

If the 20-year option is selected, the total cost is amortized over 20 years using an interest rate based on the County's bond rate for the year prior to construction. For this report the interest rate is assumed to be 2.3% annually. Based on a financed amount of $46,755 the total annual cost, including interest, to each affected property owner would be **$2,943**.

The project cost includes design, property acquisition and construction. The design cost includes a geotechnical study, permit fees for stormwater management, survey, and engineering. See appendices H & I for breakdown.

VII. PROCEEDING WITH PROJECT

In order to proceed with the County Build/County Maintain scenario, the DBU County Roads Policy (see link pg. 2) requires that at least 60% of the non-government owned Affected Property Owners must agree to participate in the program. Of the 20 Affected Property Owners in this study, 17 are non-government properties. Therefore, 60% of 17 = 10.2 or (rounded up) = 11 APO's must to vote to proceed.

APPENDIX A

List of DBU Roads

Updated : JULY 14, 2016

No.	Road Name	Starting Point (Miles)	Ending Point (Miles)	Total (Miles)	Town
1	AITCHESON LA	0.22 (North of Riding Stable Road)	0.70	0.48	LAUREL
2	ANCHORAGE DR	MACARTHUR BLVD	0.13	0.13	BETHESDA
3	ANCHORAGE PL.	BOLLING LA	ANCHORAGE DR/.08	0.08	BETHESDA
4	ANDERSON ST.	0.1 (Northwest of Octagon Lane)	0.18	0.08	SILVER SPRING
5	ARDWICK DR	GOLF LA.	WAYCROFT WAY/.22	0.22	ROCKVILLE
6	ATTLEBORO RD	NORWOOD RD	DUXBURY DR/0.25	0.25	SILVER SPRING
7	AUTH LA	0.09 (South of Hermleigh Road)	0.13	0.04	SILVER SPRING
8	BELFAST PL	KINGSGATE RD	0.15	0.15	POTOMAC
9	BELLE COTE DR	KRUHM RD	0.42	0.42	BURTONSVILLE
10	BENTLEY RD	0.36 (North of Olney Sandy Spring Road)	0.50	0.14	OLNEY
11	BIRCHCREST LA	FREDERICK RD	0.22	0.22	CLARKSBURG
12	BISHOP DR	WINTHROP DR	0.05	0.05	SILVER SPRING
13	BLANTON RD	GOOD HOPE RD	0.15	0.15	SILVER SPRING
14	BOLLING LA	ANCHORAGE DR	ANCHORAGE PL./0.11	0.11	BETHESDA
15	BRATTON DR	SUNSET DR	BRATTON CT/0.09	0.09	ROCKVILLE
16	BROOKS RD	RIDGE DR	KIRK LA/0.15	0.15	ROCKVILLE
17	CARNAGIE AVE	NEEDWOOD RD	0.12	0.12	DERWOOD
18	CINDY LA	SEVEN LOCKS RD	0.08	0.08	BETHESDA
19	CIRCLE DR	RIDGE DR/0.68	GLEN MILL RD/1.02	0.34	ROCKVILLE
20	CLOVER LA	PERSIMMON TREE RD	0.06	0.06	POTOMAC
21	CREST HILL LA	0.22 (South of Briggs Chaney Road)	0.51	0.29	SILVER SPRING
22	CROWFOOT LA	COPLEY LA	0.09	0.09	SILVER SPRING
23	DOMINION DR	0.2 (North of Olney Sandy Spring Road)	0.25	0.05	SANDY SPRING
24	DUXBURY RD	ATTLEBORO RD	0.14	0.14	SILVER SPRING
25	ECKMOOR RD	ELDRID DR	0.05	0.05	SILVER SPRING
26	EMORY ST	MUNCASTER MILL RD	0.07	0.07	GAITHERSBURG
27	ERSKINE AVE	GLENALLAN AVE	WALLACE AVE/0.10	0.10	SILVER SPRING
28	FAWSETT RD	MACARTHUR BLVD	0.29	0.29	POTOMAC
29	GARDNER PL	CHAPELGATE RD	0.11	0.11	GERMANTOWN
30	GARRETT RD	REDLAND RD/0.00	0.21	0.21	DERWOOD
31	GARY RD	0.31 (North of River Road)	0.35	0.04	POTOMAC
32	GOLF LA	MIDDLESHIRE PL/0.10	0.28	0.18	ROCKVILLE
33	HAW LA	EDNOR RD	0.21	0.21	SILVER SPRING
34	HAWHILL END	WILDEN LA/.07	0.13	0.06	POTOMAC

35	HEIL RD	NEW HAMPSHIRE AVE	0.15	0.15	SILVER SPRING
36	HILLER WAY	ROCKVILLE PIKE	0.10	0.10	ROCKVILLE
37	HILLSDALE DR	HILLSDALE DR/.06	0.10	0.04	KENSINGTON
38	KINGSGATE RD	ROCK RUN DR	0.15	0.15	POTOMAC
39	KIRK LA	BROOK RD	0.04	0.04	OLNEY
40	LAUX ST	ROSEMERE AVE	0.03	0.03	SILVER SPRING
41	LONG BRANCH PKWY	DEARBORN AVE	0.06	0.06	SILVER SPRING
42	MAPLE RIDGE CT	HOLLY RIDGE ROAD	0.15	0.15	ROCKVILLE
43	MARTIN AVE	ARCOLA AVE	0.08	0.08	WHEATON
44	MERRICK RD	WILSON LA	0.13	0.13	BETHESDA
45	MOULTRIE PKWY	LOGAN DR	0.06	0.06	POTOMAC
46	OLD ORCHARD RD	0.38 (South of Ednor Road)	0.52	0.14	SILVER SPRING
47	OLNEY LA	BREADY RD	0.26	0.26	OLNEY
48	OVERHILL RD	GARRETT RD	0.21	0.21	DERWOOD
49	PEMBROKE RD	BRADLEY RD	0.14	0.14	BETHESDA
50	POE RD	0.12 (South of Bradley Blvd)	0.16	0.04	BETHESDA
51	POPLAR HILL RD	PAREV TERR	0.70	0.70	GERMANTOWN
52	RADNOR RD	SPUR TO DURBIN RD	0.02	0.02	BETHESDA
53	SILVERWOOD LA	MARYLAND AVE	0.21	0.21	BETHESDA
54	STONE RD	KIRK LA	0.09	0.09	OLNEY
55	SUNCREST AVE	FREDERICK RD	0.18	0.18	CLARKSBURG
56	UNITY LA	GLEN MILL RD	0.31	0.31	POTOMAC
57	UPLAND DR	GOOD HOPE RD	0.17	0.17	SILVER SPRING
58	WAYCROFT WAY	GOLF LA	0.27	0.27	ROCKVILLE
59	WILLOW LA	PINETREE ROAD	0.25	0.25	ROCKVILLE
60	WINDSWEPT LA	NEW HAMPSHIRE AVE	0.67	0.67	BRINKLOW
61	WINNPENNY LA	CAPE MAY RD	0.07	0.07	SILVER SPRING
62	WINTHROP DR	PIPING ROCK DR	BISHOP RD	0.06	SILVER SPRING

APPENDIX B

Application Submitted by the Kirk Lane and Brooks Road Community

Kirk Lane Petition February 2016

We the undersigned owners do hereby request that Montgomery County DOT perform a study to determine the cost of constructing roadway improvements along the entire length of Kirk Lane and the section of Brooks Road from Ridge Drive to Kirk Lane in accordance with the County's Dedicated but Unmaintained County Roads Policy.

We understand that:

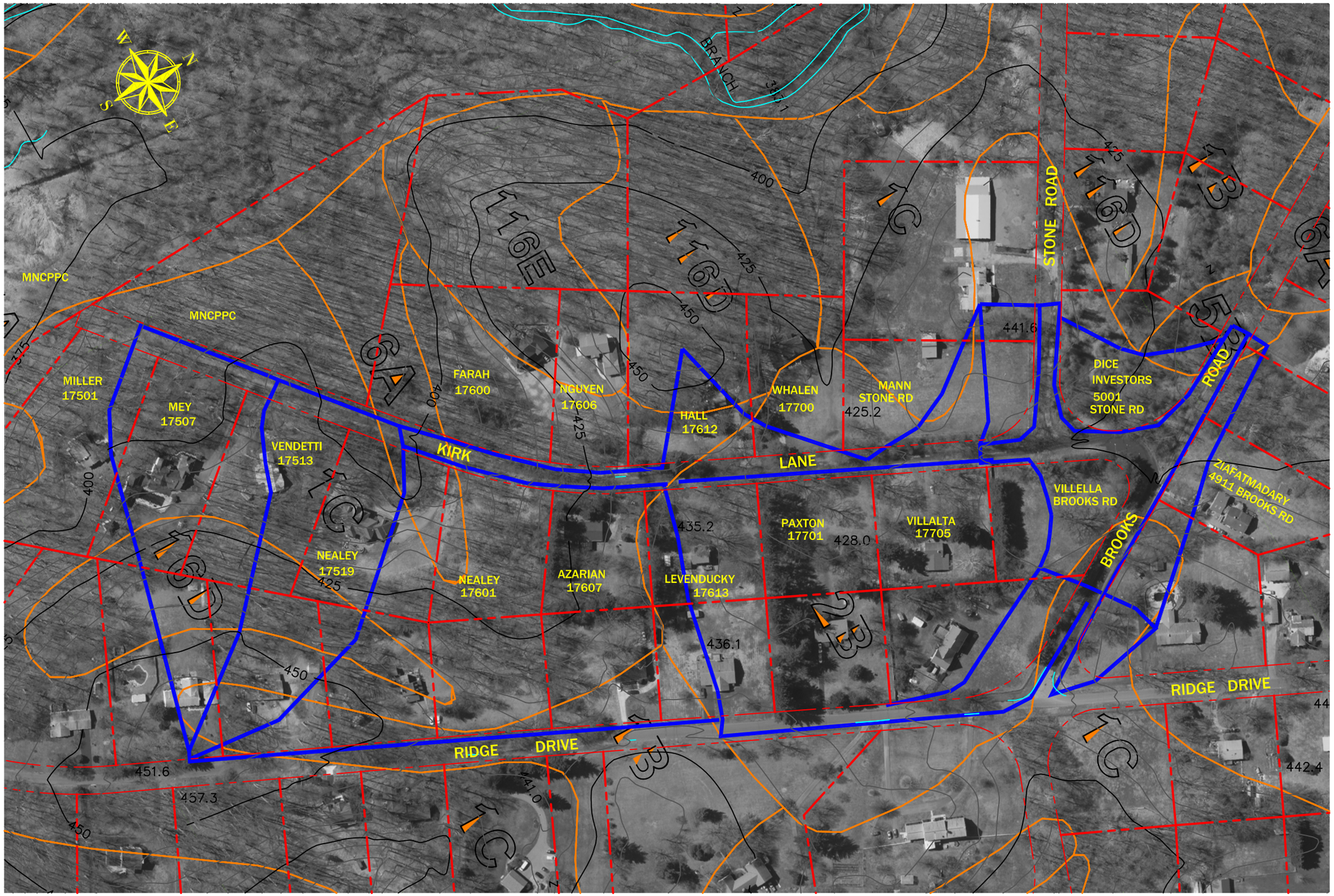
- This study will result in an estimate of project costs.
- Signing this petition is **for the study only and does not obligate, or cost, anything for the signees.** 100% of the cost for this study will be absorbed by the county.
- The results of the study, when complete, will be reviewed with the owners in the community.
- In accord with the County Policy, the owners in the community will then have the opportunity to vote whether or not to proceed based on the study's results and project cost.

Note: The first numbers on the list below correspond with the 20 numbers on the accompanying Montgomery County DOT map, showing all of the properties that have boundaries abutting Kirk Lane and that would be involved in this project.

Address	Name	Signature
(1) 00000 Kirk Lane	MNCPP (across from 17501-17513 Kirk Lane)	
(2) 17600 Kirk Lane	Frederick Farah & Michele Farah	
(3) 17606 Kirk Lane	Tan T. Nguyen & Patricia D'Souza	
(4) 17612 Kirk Lane	Keith E. Hall	
(5) 17700 Kirk Lane	Michael S. & Eleanore C. Whalen	
(6) 5000 Stone Rd.	Glenn Mann	
(7) 00000 Stone Rd. (millings pile)	Dice Investors (James Reise)	
(8) 00000 Ridge Rd.	Montgomery County _(touches Kirk Lane at the end of the road)	
(9) 17501 Kirk Lane	Gerald R. Miller and Claire E. Miller	
(10) 17507 Kirk Lane	Stephen J. Mey & Veronica Bucci	
(11) 17513 Kirk Lane	Lewis A. Vendetti & Mary Alice Vendetti	
(12) 17519 Kirk Lane	Gary T. Nealey & Jennifer Nealey	
(13) 17601 Kirk Lane	Gary T. Nealey & Jennifer Nealey	
(14) 17607 Kirk Lane	Elizabeth A. Azarian	
(15) 17613 Kirk Lane	Michael Levendusky	
(16) 17701 Kirk Lane	George R. Paxton & L.B. Paxton	
(17) 17705 Kirk Lane	Jose M. Villalta & Sandra P. Villalta	
(18) 00000 Brooks Rd.	Kimberly S. Villella	
(19) 4911 Brooks Road	Hamid R Ziafatmadary & Michele M Ziafatmadary	
(20) 00000 Bowie Mill Road	MNCPP _(touches Kirk Lane at the end of the road)	

APPENDIX C

Aerial GIS Map with Soil and Drainage Boundaries



KIRK LANE – DRAINAGE AREAS AND SOILS GROUPS

SCALE: 1"=200'

LEGEND

DRAINAGE DIVIDE

SOILS GROUP & BOUNDARY — 1C

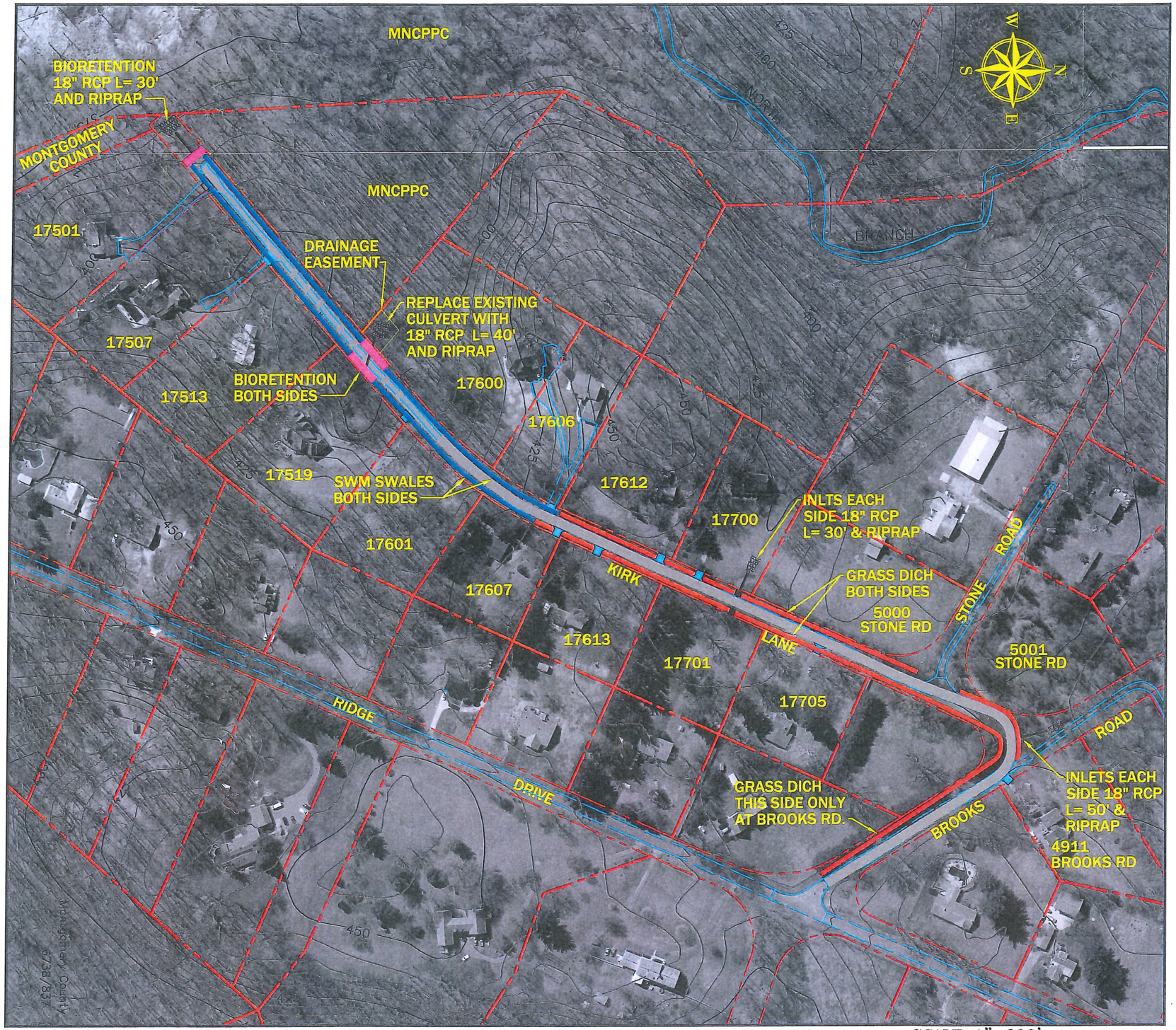
PROPERTY LINE

SOILS GROUPS

1B – GAILA SILT LOAM, 3% TO 8% SLOPES
1C – GAILA SILT LOAM, 8% TO 15% SLOPES
2B – GLENELG SILT LOAM, 3% TO 8% SLOPES
5B – GLENVILLE SILT LOAM, 3% TO 8% SLOPES
6A – BAILE SILT LOAM, 0% TO 3% SLOPES
16D – BRINKLOW–BLOCKTOWN CHANNERY SILT LOAM, 15% TO 25% SLOPES
116D – BLOCKTOWN CHANNERY SILT LOAM, 15% TO 25% SLOPES, ROCKY
116E – BLOCKTOWN CHANNERY SILT LOAM, 25% TO 45% SLOPES, ROCKY

APPENDIX D

Kirk Lane & Brooks Road Paving and Storm Drainage Schematic



LEGEND

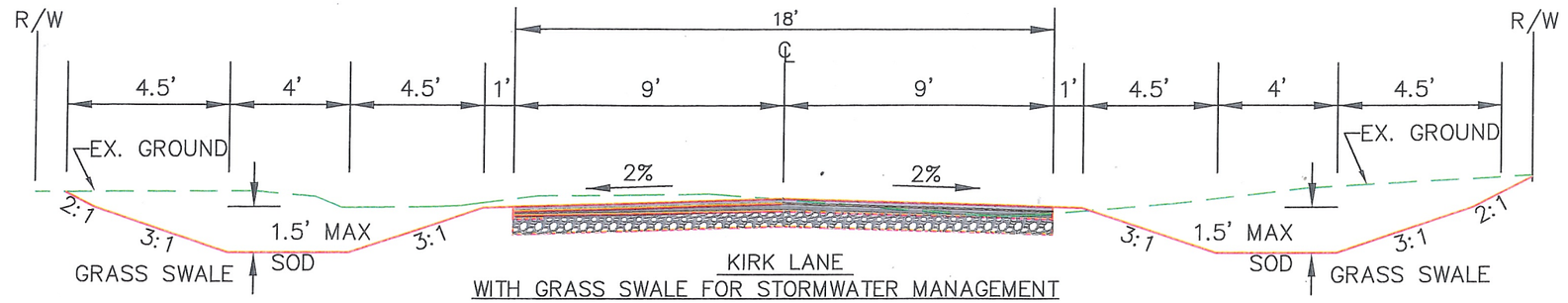
- DITCH – 2' BOTTOM
- SWM SWALE – 4' BOTTOM
- SWM FACILITY – BIORETENTION
- STORM DRAIN PIPE & RIPRAP
- STORM DRAIN PIPE & INLET
- PROPERTY LINE
- DRIVEWAY APRON
- EXISTING ROADWAY — GRAVEL ROAD
- PROPOSED ROADWAY PAVING — KIRK LANE
- CONTOUR LINE — 425

KIRK LANE & BROOKS ROAD PAVING & STORM DRAINAGE

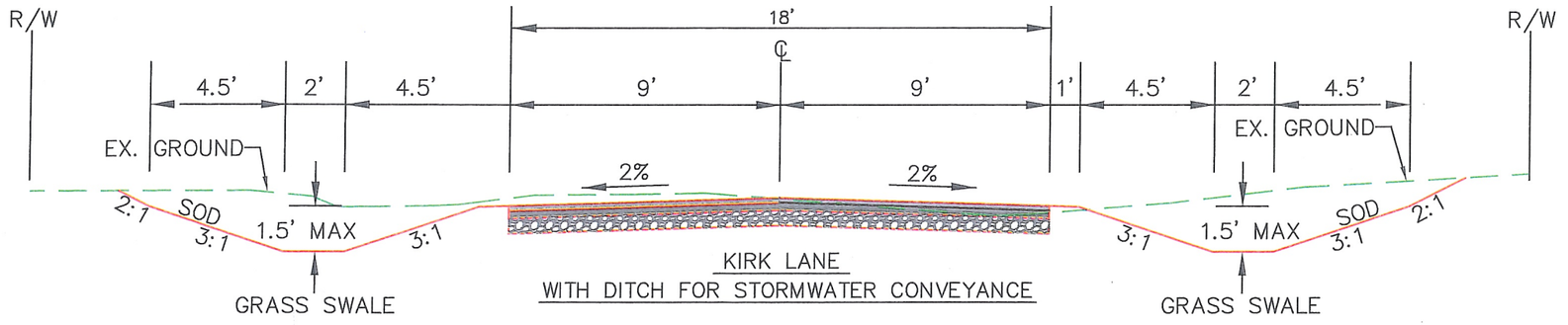
SCALE 1"=200'

APPENDIX E

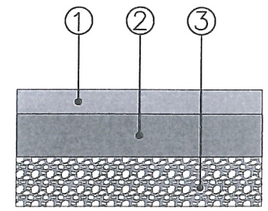
Proposed Typical Sections



KIRK LANE
WITH GRASS SWALE FOR STORMWATER MANAGEMENT

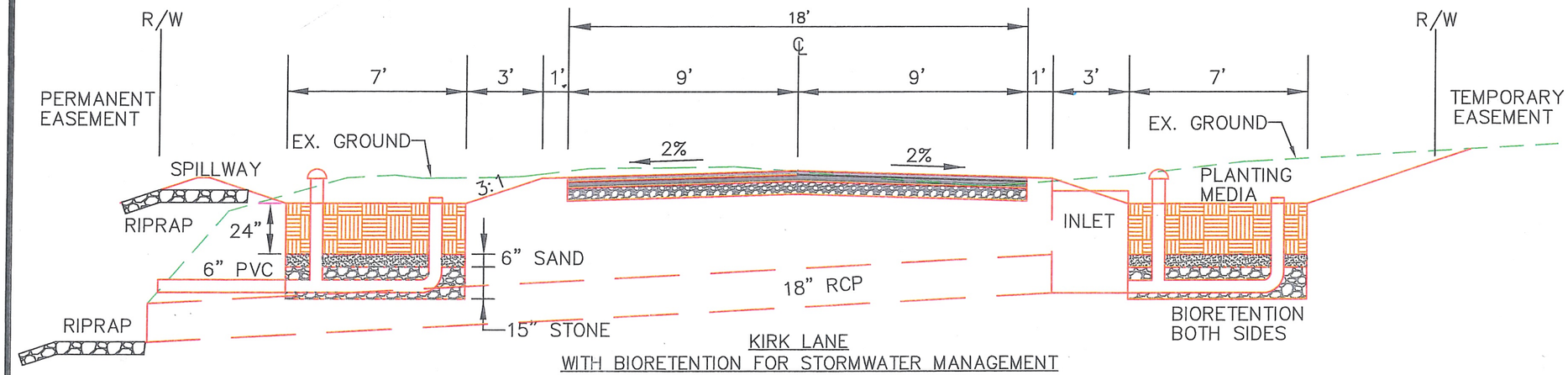


KIRK LANE
WITH DITCH FOR STORMWATER CONVEYANCE

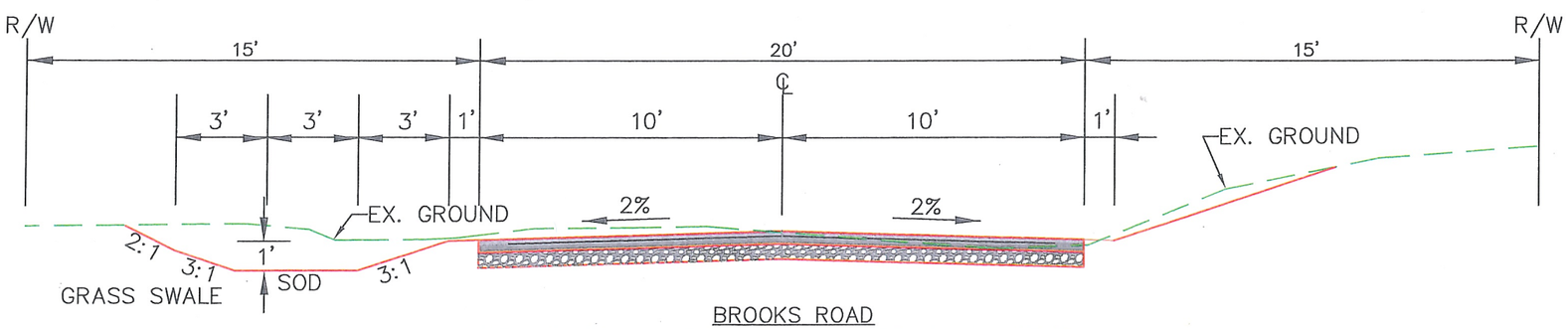


PAVEMENT DESIGN

① 2" HMA SUPERPAVE FOR SURFACE
② 3" HMA SUPERPAVE FOR BASE
③ 4" MINIMUM GRADED AGGREGATE BASE
(USE EXISTING GRAVEL WHERE AVAILABLE)



KIRK LANE
WITH BIORETENTION FOR STORMWATER MANAGEMENT



BROOKS ROAD
WITH GRASS SWALE FOR STORMWATER MANAGEMENT

TYPICAL SECTIONS

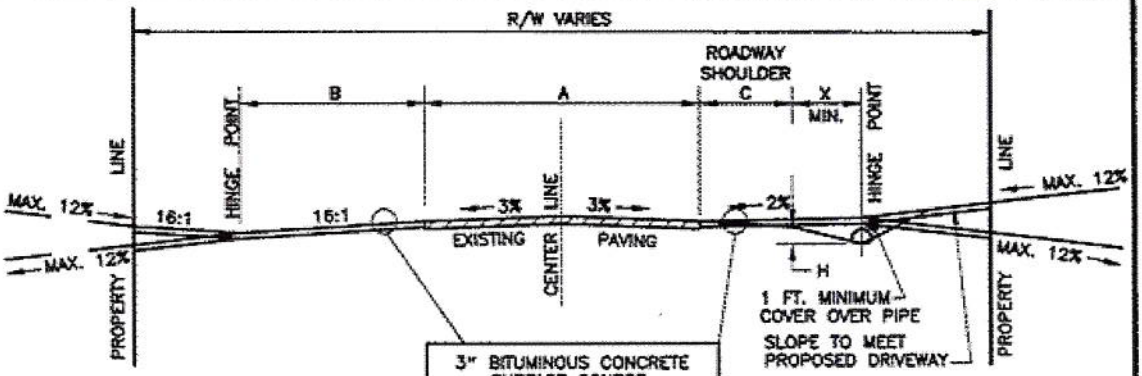
KIRK LANE AND BROOKS ROAD IMPROVEMENTS

SCALE 1"=5'

DECEMBER 2016

APPENDIX F

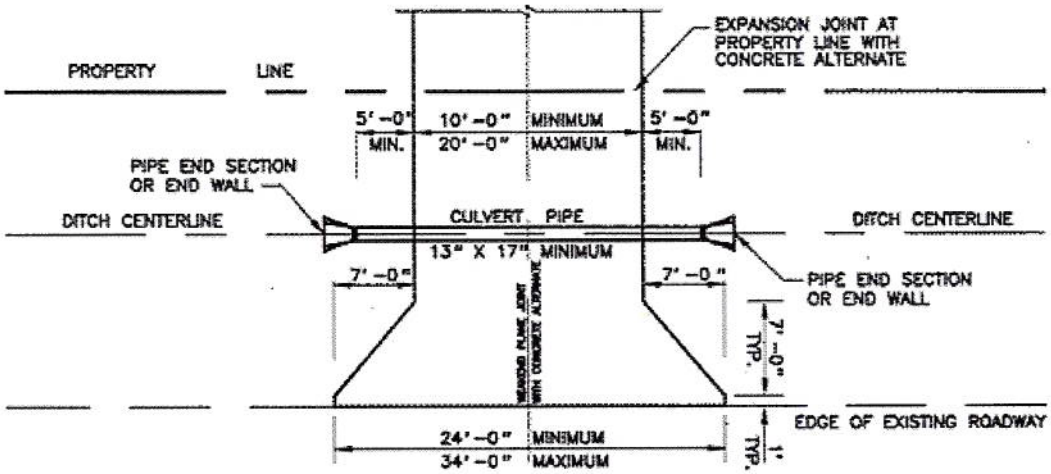
Standard No. MC-301.03
Residential Driveway Open Section Road



PAVING SECTION

ROADWAY	A	B	C
SECONDARY	20'-0"	13'-0"	7'-0"
PRIMARY	24'-0"	14'-0"	8'-0"
ARTERIAL	24'-0"	16'-0"	10'-0"

CULVERT SIZE	X	H MIN.	Q MAX.
13" X 17"	6'	1.50'	4.5 C.F.S.
15" X 21"	6'	1.50'	7.0 C.F.S.
18" X 24"	7'	1.75'	10.0 C.F.S.



GENERAL NOTES

1. REFER TO MARYLAND STATE HIGHWAY ADMINISTRATION SPECIFICATIONS FOR MATERIALS AND METHODS OF CONSTRUCTION.
2. DRIVEWAY AND DRIVEWAY APRON TO BE MAINTAINED BY PROPERTY OWNER.
3. DITCH IS TO BE DESIGNED FOR A MAXIMUM Q. OF 12 C.F.S., A MAXIMUM V. OF 5 F.P.S. AND A DEPTH OF FLOW OF ONE FOOT. DEPTH OF FLOW MAY EXCEED ONE FOOT FOR CULVERT APPROACH HEAD REQUIREMENTS, WITH A MAXIMUM ALLOWABLE OF 6" ABOVE THE CROWN OF PIPE.
4. END SECTIONS ARE TO BE FASTENED TO THE FIRST CORRUGATION AND FITTED TO FORM A TIGHT CONNECTION. THE PIPE SHALL NOT PROJECT INTO THE END SECTION.
5. SPECIAL CARE MUST BE TAKEN TO PROVIDE PROPER COMPACTION OF BACKFILL AROUND THE CULVERT PIPE AND THE END SECTION.

APPROVED JAN 5/96
DATE

DIRECTOR, DEPT. OF TRANS.

CHIEF, DIV. OF ENG. SERVICES

REVISED

MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION

RESIDENTIAL DRIVEWAY
OPEN SECTION ROAD

STANDARD NO. MC-301.03

P:\DOT\STD\MC30103 6-24-94 943423 dn EST

[Return to Standards](#)

APPENDIX G

List of Affected Properties

LIST OF AFFECTED PROPERTY OWNERS

	HOUSE NO.	**OWNER'S LAST NAME** (10/26/16)
1.	17607 KIRK LN.	AZARIAN
2.	5001 STONE RD.	DICE INVESTORS, INC.
3.	17600 KIRK LN.	FARAH
4.	17612 KIRK LN.	HALL
5.	17613 KIRK LN.	LEVENDUSKY
6.	5000 STONE RD.	MANN
7.	17507 KIRK LN.	MEY
8.	17501 KIRK LN.	MILLER
9.	17601 KIRK LN.	NEALEY
10.	17519 KIRK LN.	NEALEY
11.	17606 KIRK LN.	NGUYEN
12.	17701 KIRK LN.	PAXTON
13.	17513 KIRK LN.	VENDETTI
14.	17705 KIRK LN.	VILLALTA
15.	BROOKS RD.	VILLELLA
16.	17700 KIRK LN.	WHALEN
17.	4911 BROOKS RD.	ZIAFATMADARY
18.	END OF KIRK LN.	MONTGOMERY COUNTY (MAINTAINED BY M-NCPPC)
19.	END OF KIRK LN.	M-NCPPC
20.	END OF KIRK LN.	M-NCPPC

APPENDIX H

Itemized Construction Cost Estimate

KIRK LANE AND BROOKS ROAD IMPROVEMENTS
CIP No. 501117
ENGINEER'S REPORT
December 8, 2016

NO.	ITEM	QTY.	UNIT	UNIT PRICE	TOTAL COST
1001	CLEARING	80	CH	$ 150.00	$ 12,000
1002	UNCLASSIFIED GRUBBING EXCAVATION	100	CY	$ 5.00	$ 500
1008	TEMPORARY TRAFFIC SIGNS	32	SF	$ 13.50	$ 432
1020	DRUMS FOR MAINTENANCE OF TRAFFIC	50	EA	$ 60.00	$ 3,000
1023	FLAGGER	300	HR	$ 26.00	$ 7,800
1026	TEMPORARY ORANGE CONSTRUCTION FENCE	3000	LF	$ 2.00	$ 6,000
1027	REMOVE AND RESET TEMPORARY ORANGE CONSTRUCTION FENCE	3000	LF	$ 1.00	$ 3,000
1032	CR-6 FOR MOT	100	TONS	$ 5.00	$ 500
1034	CONSTRUCTION STAKEOUT	40	CH	$ 100.00	$ 4,000
2001	UNCLASSIFIED ROADWAY EXCAVATION	2344	CY	$ 20.00	$ 46,880
2002	COMMON BORROW	267	CY	$ 4.00	$ 1,068
2004	TEST PIT EXCAVATION	10	CY	$ 100.00	$ 1,000
2005	FULL DEPTH SAW CUTS	25	LF	$ 6.00	$ 150
2006	REMOVAL OF EXISTING PAVEMENT	10	CY	$ 28.00	$ 280
3001	CLASS 3 EXCAVATION FOR STORM DRAIN AND MISCELLANEOUS CONSTRUCTION: TOTAL DEPTH OF EXCAVATION LESS THAN OR EQUAL TO 4 VERTICAL FEET	120	CY	$ 54.00	$ 6,480
3002	CLASS 3 EXCAVATION FOR STORM DRAIN AND MISCELLANEOUS CONSTRUCTION: TOTAL DEPTH OF EXCAVATION GREATER THAN 4 VERTICAL FEET AND LESS THAN OR EQUAL TO 8 VERTICAL FEET	60	CY	$ 60.00	$ 3,600
3004	SELECT BACKFILL USING NO. 57 STONE	100	CY	$ 65.00	$ 6,500
3005	SLECTED BACKFILL USING CRUSHER RUN AGGREGATE CR-6	10	TONS	$ 40.00	$ 400
3006	CLASS IV OR CLASS V 15 INCH REINFORCED CONCRETE PIPE	40	LF	$ 21.00	$ 840
3007	CLASS IV OR CLASS V 18 INCH REINFORCED CONCRETE PIPE	80	LF	$ 26.00	$ 2,080
3017	15" CORRUGATED STEEL PIPE, 16 GUAGE	250	LF	$ 10.00	$ 2,500
3043	"D" INLET MC 503.01	16	VF	$ 275.00	$ 4,400
3044	E INLET MCDOT STANDARD NO. MC-504.01	4	VF	$ 200.00	$ 800
3084	6 INCH DIAMETER ~~PERFORATED~~ PIPE FOR UNDER DRAINS & SPRING CONTROL	100	LF	$ 20.00	$ 2,000
3095	SILT FENCE	1000	LF	$ 2.00	$ 2,000
3096	REMOVE AND RESET SILT FENCE	1000	LF	$ 1.50	$ 1,500
3098	STABILIZED CONSTRUCTION ENTRANCE	22	TONS	$ 20.00	$ 440
3099	REHABILITATE STABILIZED CONSTRUCTION ENTRANCE	22	TONS	$ 1.00	$ 22
3113	CLASS I RIP RAP FOR SLOPE AND CHANNEL PROTECTION	100	TONS	$ 40.00	$ 4,000

3130	SAND ASTM 33 (AASHTO M6) FOR STORM WATER MANAGEMENT STRUCTURES	56	TONS	$ 30.00	$ 1,680
3131	MSHA NO. 7 STONE	140	TONS	$ 75.00	$ 10,500
4002	TOTAL COMBINED DEPTH OF EXCAVATION GREATER THAN 4 VERTICAL FEET AND LESS THAN OR EQUAL TO 8 VERTICAL FEET	10	CY	$ 5.00	$ 50
5001	GRADED AGGREGATE BASE COURSE FOR EACH 4 INCH LIFT	2000	SY	$ 12.00	$ 24,000
5003	HOT MIX ASPHALT BASE PAVEMENT FOR ROADWAYS: SUPERPAVE 25.0 MM, PG 64-22	780	TONS	$ 75.00	$ 58,500
5004	HOT MIX ASPHALT SURFACE PAVEMENT FOR ROADWAYS: SUPERPAVE 12.5 MM, PG 64-22	550	TONS	$ 100.00	$ 55,000
6007	HOT MIX ASPHALT FOR DRIVEWAYS	113	TONS	$ 115.00	$ 12,995
6042	REMOVE & RESET/RELOCATE EXISTING MAIL BOX (ANY SIZE, ANY TYPE)	13	EA	$ 10.00	$ 130
7002	PLACING FURNISHED TOPSOIL	550	CY	$ 60.00	$ 33,000
7003	TEMPORARY SEEDING	1500	SY	$ 0.10	$ 150
7004	TEMP MULCH	1500	SY	$ 0.10	$ 150
7014	SOD	6000	SY	$ 6.00	$ 36,000
7017	SELECTIVE TREE TRIMMING; 61/4 INCHES OR LARGER (NOT FELLING)	20	CH	$ 150.00	$ 3,000
7019	ADDITIONAL WATERING OF SOD, PLANTS, AND SEEDED AREAS	1000	1000 GAL.	$ 1.00	$ 1,000
7020	TREE ROOT PRUNING	1500	LF	$ 2.00	$ 3,000
7023	BIORETENTION SOIL MIX	110	CY	$ 85.00	$ 9,350
				SUBTOTAL	$ 372,677
				30% CONTINGENCY	$ 111,803
				TOTAL CONSTRUCTION	**$ 484,480**

TREE REMOVAL & PLANTING CONTRACT

STREET TREES PLANTING	1	LS	$ 112,000.00	$ 112,000
TREE REMOVAL INCLUDING STUMP	1	LS	$ 225,000.00	$ 225,000
			TOTAL FOR CONTRACT	**$337,000**

ROUNDED TOTAL FOR CONSTRUCTION INCLUDING TREE WORK **$821,000**

ABBREVIATIONS

CH = CREW HOUR
CY = CUBIC YARD
SY = SQUARE YARD
SF = SQUARE FOOT
LF = LINEAR FOOT
EA = EACH
LS = LUMP SUM
VF = VERTICAL FOOT
HR = HOUR
GAL = GALLON

APPENDIX I

Design, Property Acquisition and Construction Management Cost Estimate

Project: Kirk Lane and Brooks Road Improvements

Date:12/08/2016

Cost of County Manhours, Testing, Fees, and Property Acquisition

Design (12) Time: 24 months

		FY19			FY20			Total
	Hourly Rate	Duration (month)	Hours/ Month	Cost	Duration (month)	Hours/ Month	Cost	
Transportation Design	100	12	60	72,000	12	55	66,000	
Topographic and Boundary Survey (LS)				20,000			0	
Geotechnical Survey (LS)				10,000			0	
Stormwater Management Concept Fee				2,000			0	
Other Permit Permit Fees				3,000			0	
Total Cost				**107,000**			**66,000**	**$173,000**

Property (14) Time: 4 months (Time may be needed to acquire right of entry agreements)

		FY20			FY21			Total
	Hourly Rate	Duration (month)	Hours/ Month	Cost	Duration (month)	Hours/ Month	Cost	
Permanent Easement (LS)				3000			0	
Temp.orary Easement (LS)				2000			0	
Appraisals (LS)				1000			0	
Property Acquisition Staff	100	4	10	4,000			0	
Total Cost				**10,000**			**0**	**$ 10,000**

Construction Mgt (13) Time: 10 months = 4 months pre-construction + 6 month for construction

		FY21			FY22			Total
	Hourly Rate	Duration (month)	Hours/ Month	Cost	Duration (month)	Hours/ Month	Cost	
Construction Management				25,000			0	
Transportation Design	100	10	5	5,000			0	
Inspection and Testing (LS)				5,000			0	
Total Cost				**35,000**			**0**	**$ 35,000**