

Takoma Park Study Area 1

Site Visit Notes





















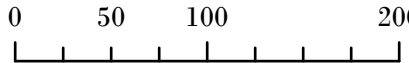
Bioretention BMP behind Montgomery College Building. According to residents, the Bioretention has alleviated surface runoff from the lot. The bioretention has an underdrain and connects to the 15" pipe that goes out to New York Ave. The bioretention also has a filter fabric liner to prevent groundwater seepage out of the media.

Runoff from 608 Philadelphia Ave lot flows to Takoma Ave. properties.

These three properties have consistently wet backyards. There is minimal infiltration during rain events, which creates ponding and increased runoff flows between the houses. This seems to be due to a high groundwater table in the area.

There is ponding water on the sidewalk in front of 7708 Takoma Ave. According to residents, this usually happens after any rain storm and last a few days.

Montgomery College Building

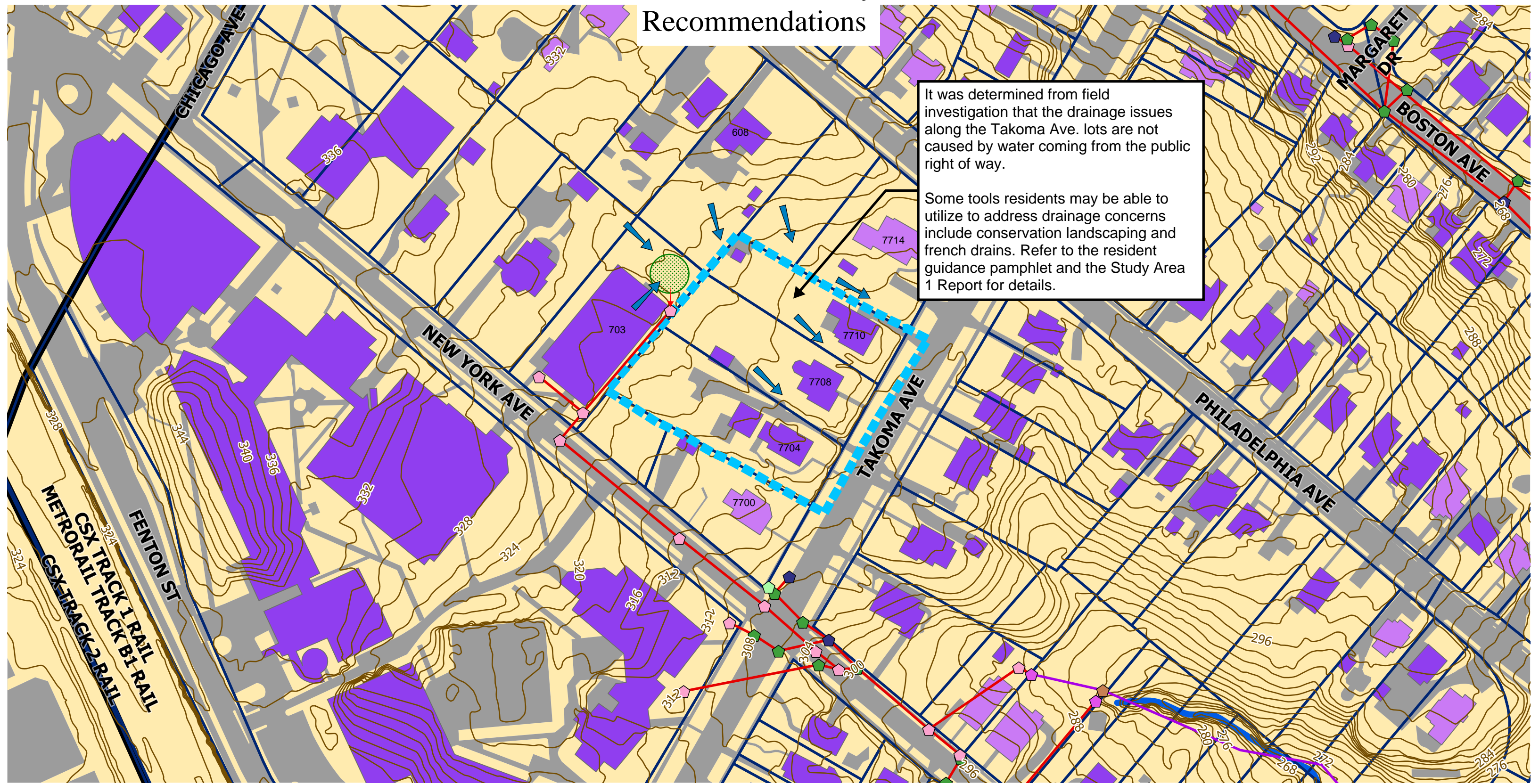
 <p>Low Impact Development Center</p>	 Property Lines  2 ft Contours (2020)  Study Area  Roads, Sidewalks, Driveways, etc.  Pervious Surfaces	 Streams  City Boundary Buildings by Roof  Flat  Gable	Storm Drain Conveyance  Ditch  Pipe Storm Drain Structures  Ditch Intersection	 Inlet  Manhole Structure  Pipe Connection  Pipe Direction  Projecting Pipe	 Runoff Flow Path  N  0 50 100 200 US Feet <p>1 inch = 100 feet</p>
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Takoma Park Study Area 1

Recommendations

It was determined from field investigation that the drainage issues along the Takoma Ave. lots are not caused by water coming from the public right of way.

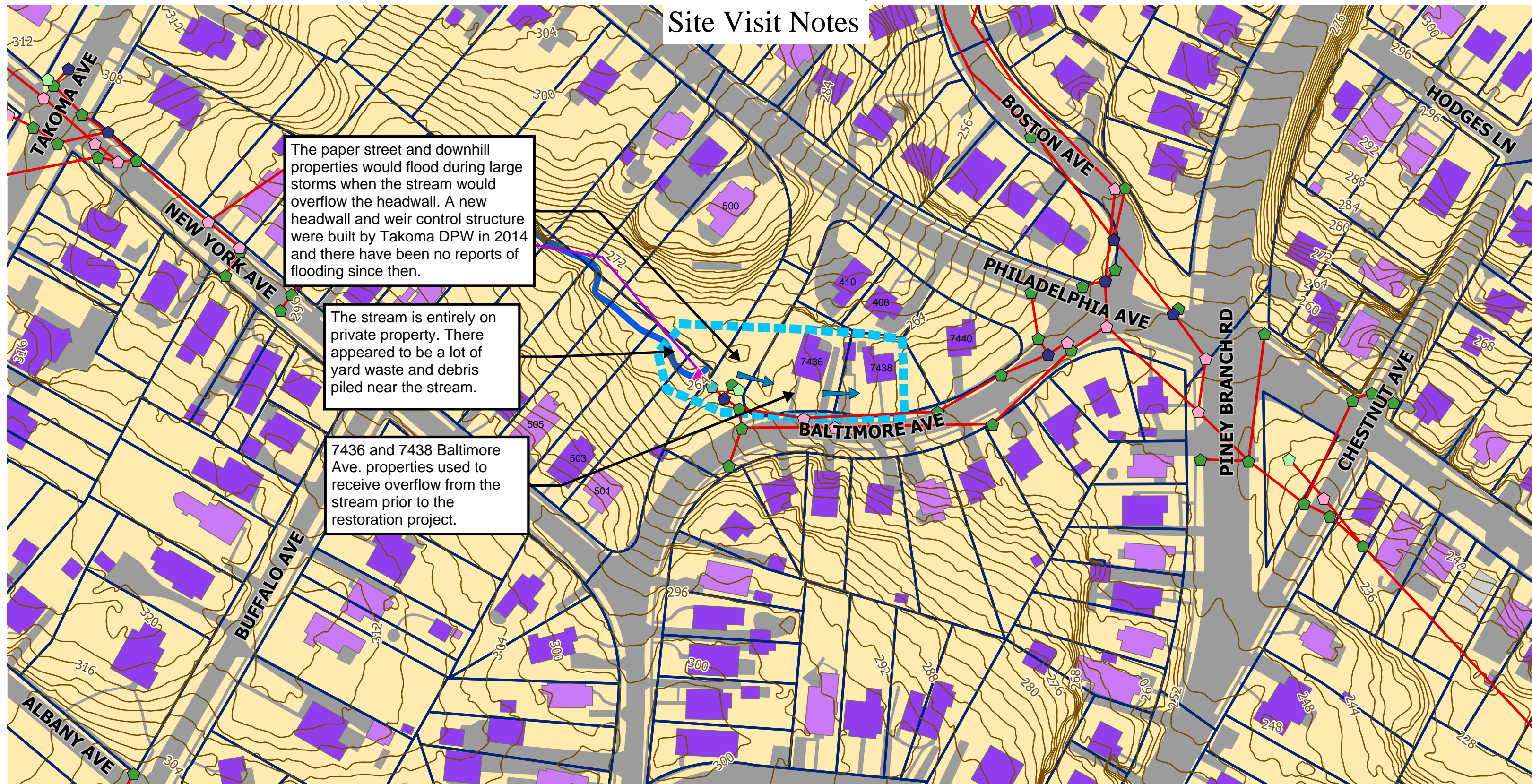
Some tools residents may be able to utilize to address drainage concerns include conservation landscaping and french drains. Refer to the resident guidance pamphlet and the Study Area 1 Report for details.



Property Lines	Streams	Storm Drain Conveyance	Inlet	Runoff Flow Path	N 1 inch = 100 feet
2 ft Contours (2020)	City Boundary	Ditch	Manhole Structure		
Study Area	Buildings by Roof	Pipe	Pipe Connection		0 50 100 200 US Feet
Roads, Sidewalks, Driveways, etc.	Flat	Storm Drain Structures	Pipe Direction		
Pervious Surfaces	Gable	Ditch Intersection	Projecting Pipe		

Takoma Park Study Area 2

Site Visit Notes



The paper street and downhill properties would flood during large storms when the stream would overflow the headwall. A new headwall and weir control structure were built by Takoma DPW in 2014 and there have been no reports of flooding since then.

The stream is entirely on private property. There appeared to be a lot of yard waste and debris piled near the stream.

7436 and 7438 Baltimore Ave. properties used to receive overflow from the stream prior to the restoration project.

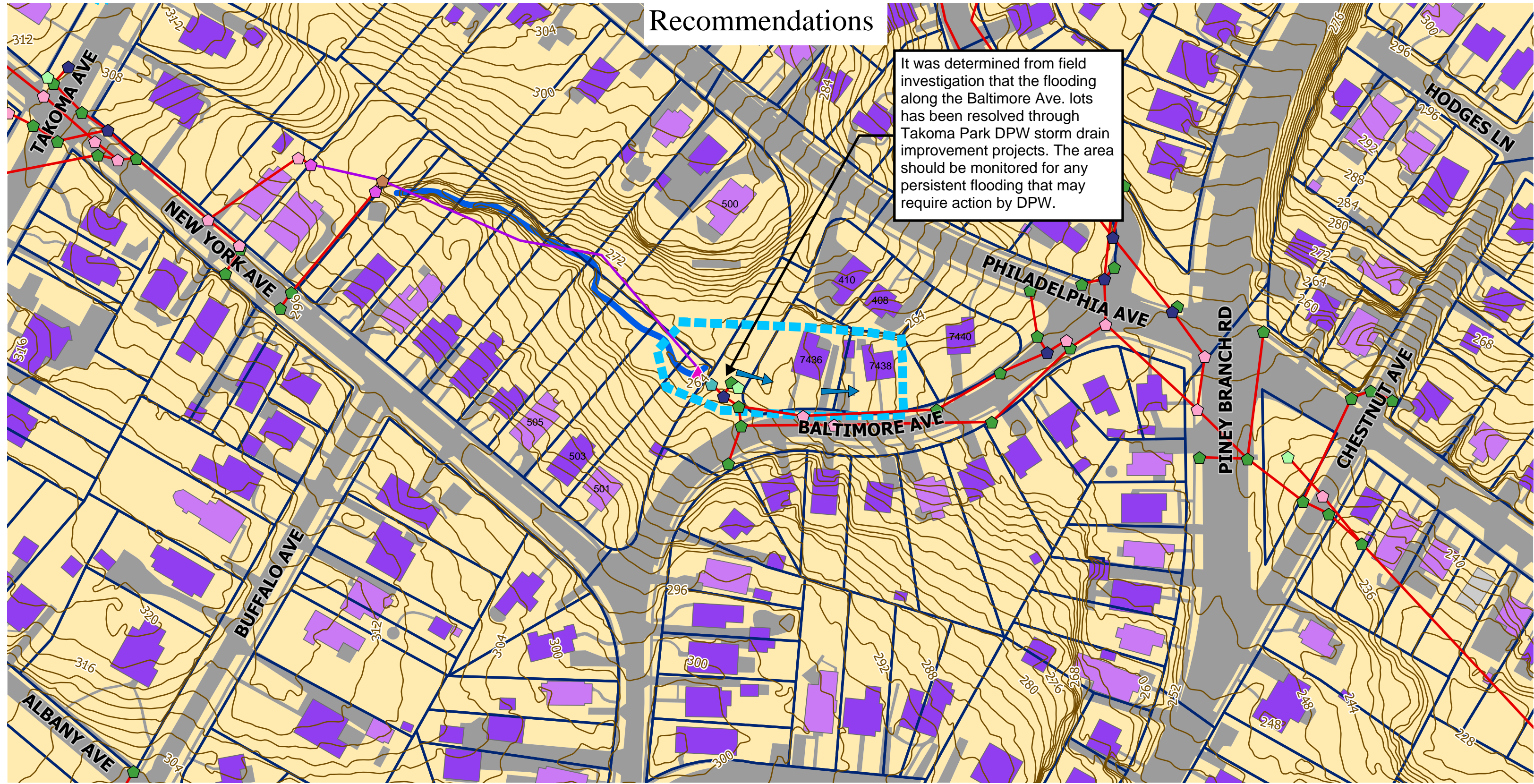


Property Lines	Streams	Storm Drain Conveyance	Ditch Intersection	Runoff Flow Path	N 0 50 100 200 US Feet 1 inch = 100 feet
2 ft Contours (2020)	Buildings by Roof	Ditch	Inlet	Manhole Structure	
Study Area	Flat	Pipe	Pipe Connection	Pipe Direction	
Stormwater BMPs	Gable	Storm Drain Structures	Head Wall	Projecting Pipe	
Roads, Sidewalks, Driveways, etc.					
Pervious Surfaces					

Takoma Park Study Area 2

Recommendations

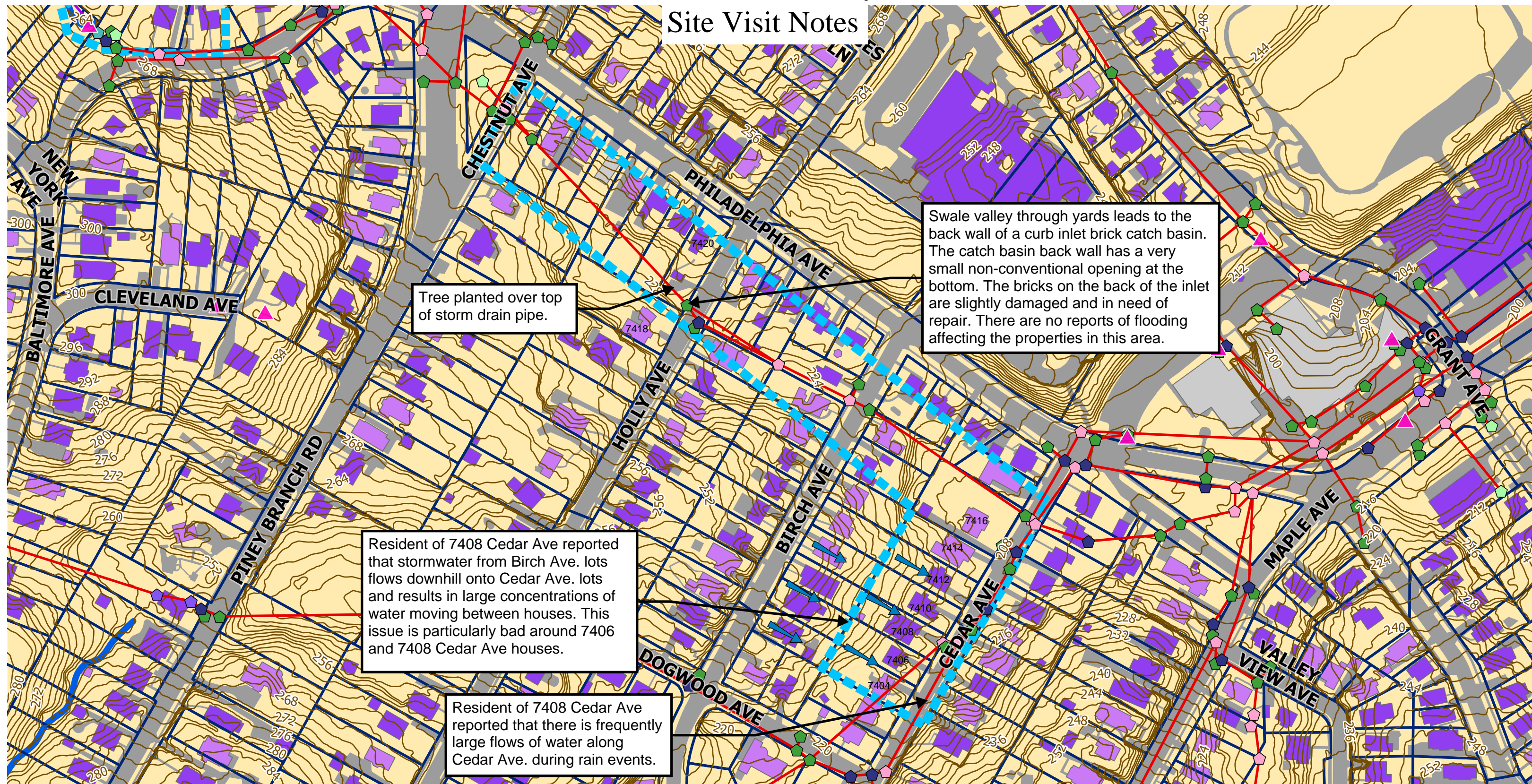
It was determined from field investigation that the flooding along the Baltimore Ave. lots has been resolved through Takoma Park DPW storm drain improvement projects. The area should be monitored for any persistent flooding that may require action by DPW.



Property Lines	Streams	Storm Drain Conveyance	Ditch Intersection	Runoff Flow Path	 N 1 inch = 100 feet
2 ft Contours (2020)	Buildings by Roof	Ditch	Inlet	 0 50 100 200 US Feet	
Study Area	Flat	Pipe	Manhole Structure		
Stormwater BMPs	Gable	Storm Drain Structures	Pipe Connection		
Roads, Sidewalks, Driveways, etc.		Head Wall	Pipe Direction		
Pervious Surfaces			Projecting Pipe		

Takoma Park Study Area 3

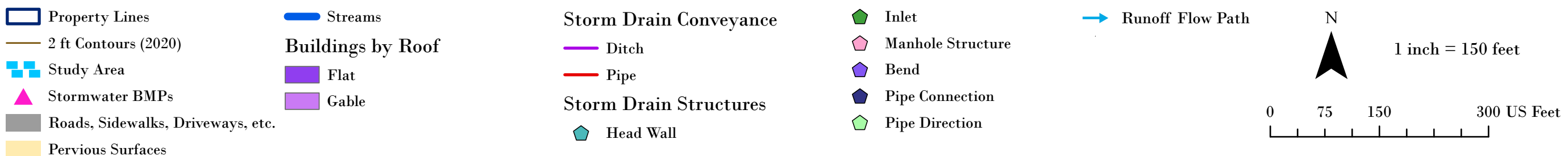
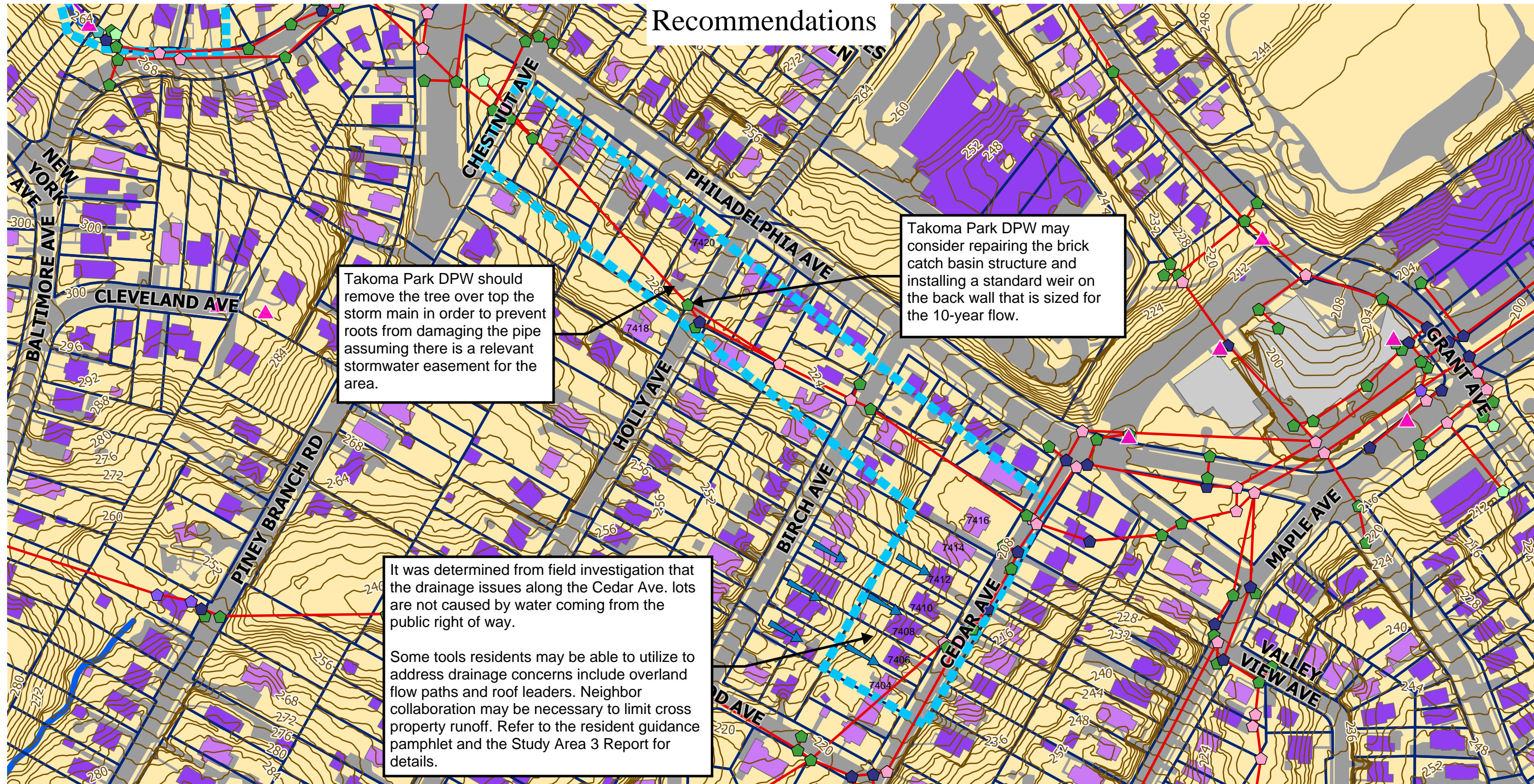
Site Visit Notes



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|-----------------------------------|--------------------------|-------------------------------|-------------------|----------------------|------------------------|
| Property Lines | Streams | Storm Drain Conveyance | Inlet | Runoff Flow Path | N
1 inch = 150 feet |
| 2 ft Contours (2020) | Buildings by Roof | Ditch | Manhole Structure | 0 75 150 300 US Feet | |
| Study Area | Flat | Pipe | Bend | | |
| Stormwater BMPs | Gable | Storm Drain Structures | Pipe Connection | | |
| Roads, Sidewalks, Driveways, etc. | | Head Wall | Pipe Direction | | |
| Pervious Surfaces | | | | | |

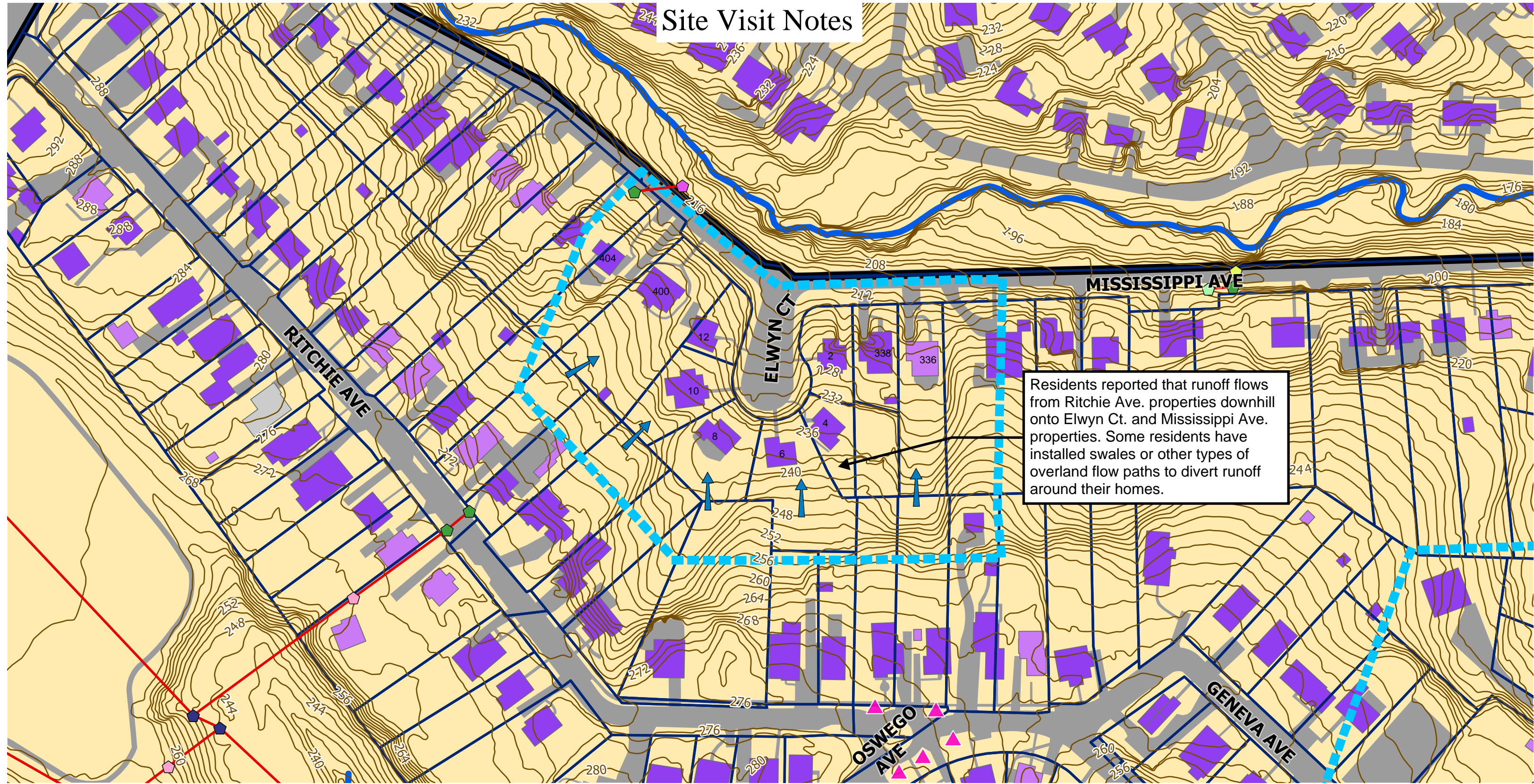
Takoma Park Study Area 3

Recommendations



Takoma Park Study Area 4

Site Visit Notes



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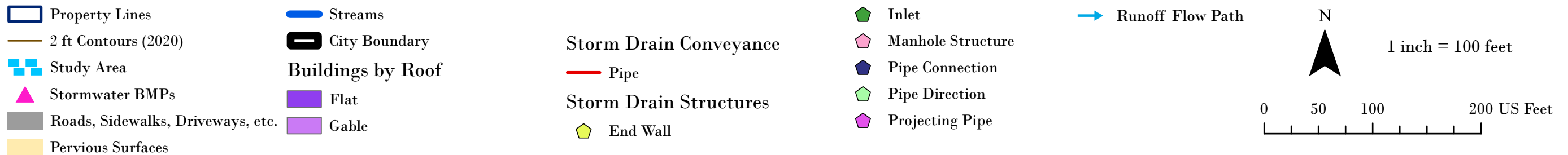
- | | | | | | |
|-----------------------------------|-------------------------------|-------------------|------------------|----------------------|-------------------|
| Property Lines | Streams | Inlet | Runoff Flow Path | N | 1 inch = 100 feet |
| 2 ft Contours (2020) | City Boundary | Manhole Structure | | | |
| Study Area | Buildings by Roof | Pipe Connection | | 0 50 100 200 US Feet | |
| Stormwater BMPs | Flat | Pipe Direction | | | |
| Roads, Sidewalks, Driveways, etc. | Gable | Projecting Pipe | | | |
| Pervious Surfaces | | End Wall | | | |
| | Storm Drain Conveyance | | | | |
| | Pipe | | | | |
| | Storm Drain Structures | | | | |

Takoma Park Study Area 4

Recommendations

It was determined from field investigation that the drainage issues along the Elwyn Ct. and Mississippi Ave. lots are not caused by water coming from the public right of way.

Some tools residents may be able to utilize to address drainage concerns include overland flow paths and downspout leaders. Neighbor collaboration may be necessary to limit cross property runoff. Refer to the resident guidance pamphlet and the Study Area 4 Report for details.



Takoma Park Study Area 5

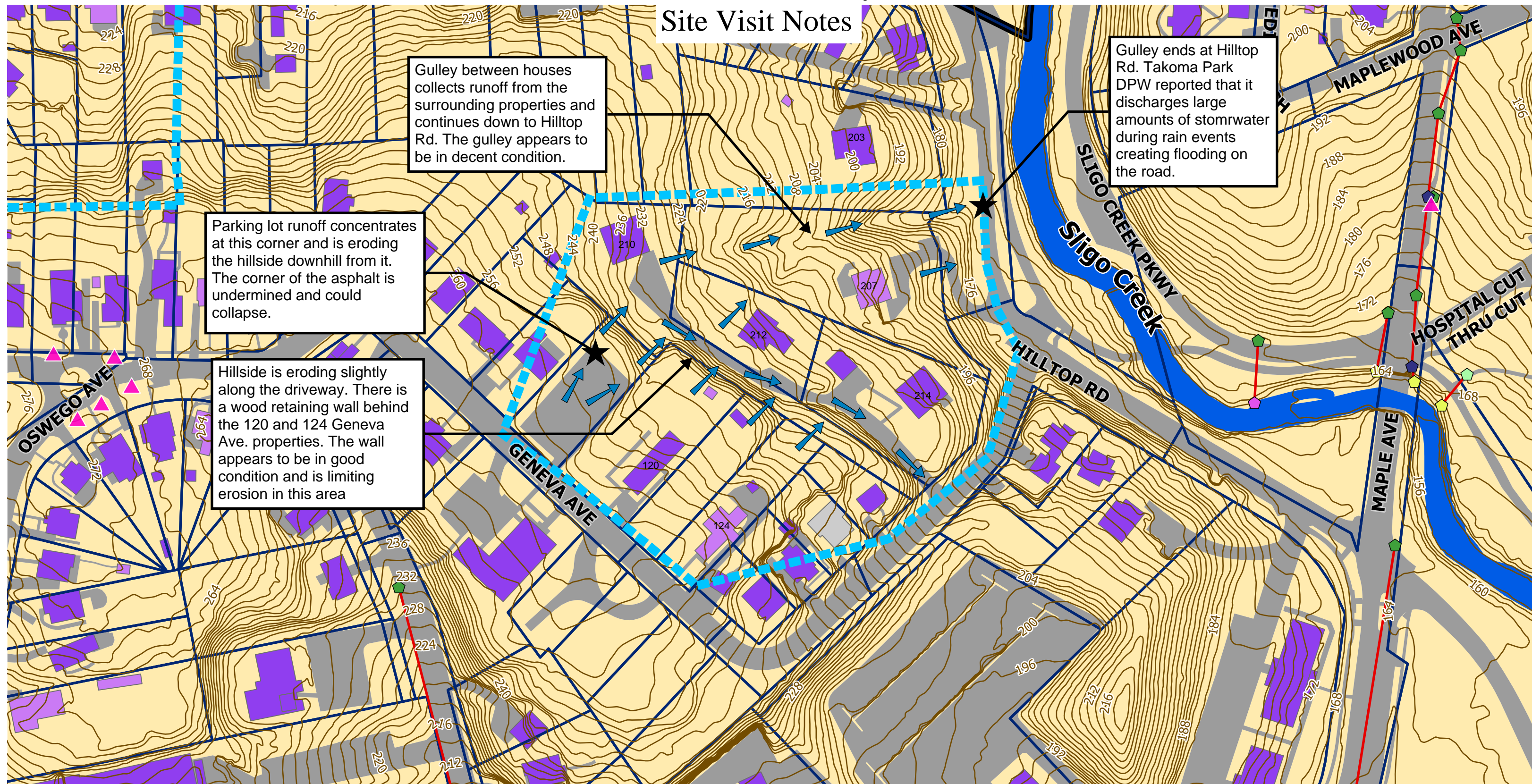
Site Visit Notes

Gully between houses collects runoff from the surrounding properties and continues down to Hilltop Rd. The gully appears to be in decent condition.

Parking lot runoff concentrates at this corner and is eroding the hillside downhill from it. The corner of the asphalt is undermined and could collapse.

Hillside is eroding slightly along the driveway. There is a wood retaining wall behind the 120 and 124 Geneva Ave. properties. The wall appears to be in good condition and is limiting erosion in this area

Gully ends at Hilltop Rd. Takoma Park DPW reported that it discharges large amounts of stormwater during rain events creating flooding on the road.



Property Lines	Streams	Inlet	Runoff Flow Path
2 ft Contours (2020)	City Boundary	Pipe Connection	Point of Concern
Study Area	Buildings by Roof	Pipe Direction	N 1 inch = 100 feet
Stormwater BMPs	Flat	Projecting Pipe	
Roads, Sidewalks, Driveways, etc.	Gable	Storm Drain Conveyance	0 50 100 200 US Feet
Pervious Surfaces		Pipe	
		Storm Drain Structures	
		End Wall	

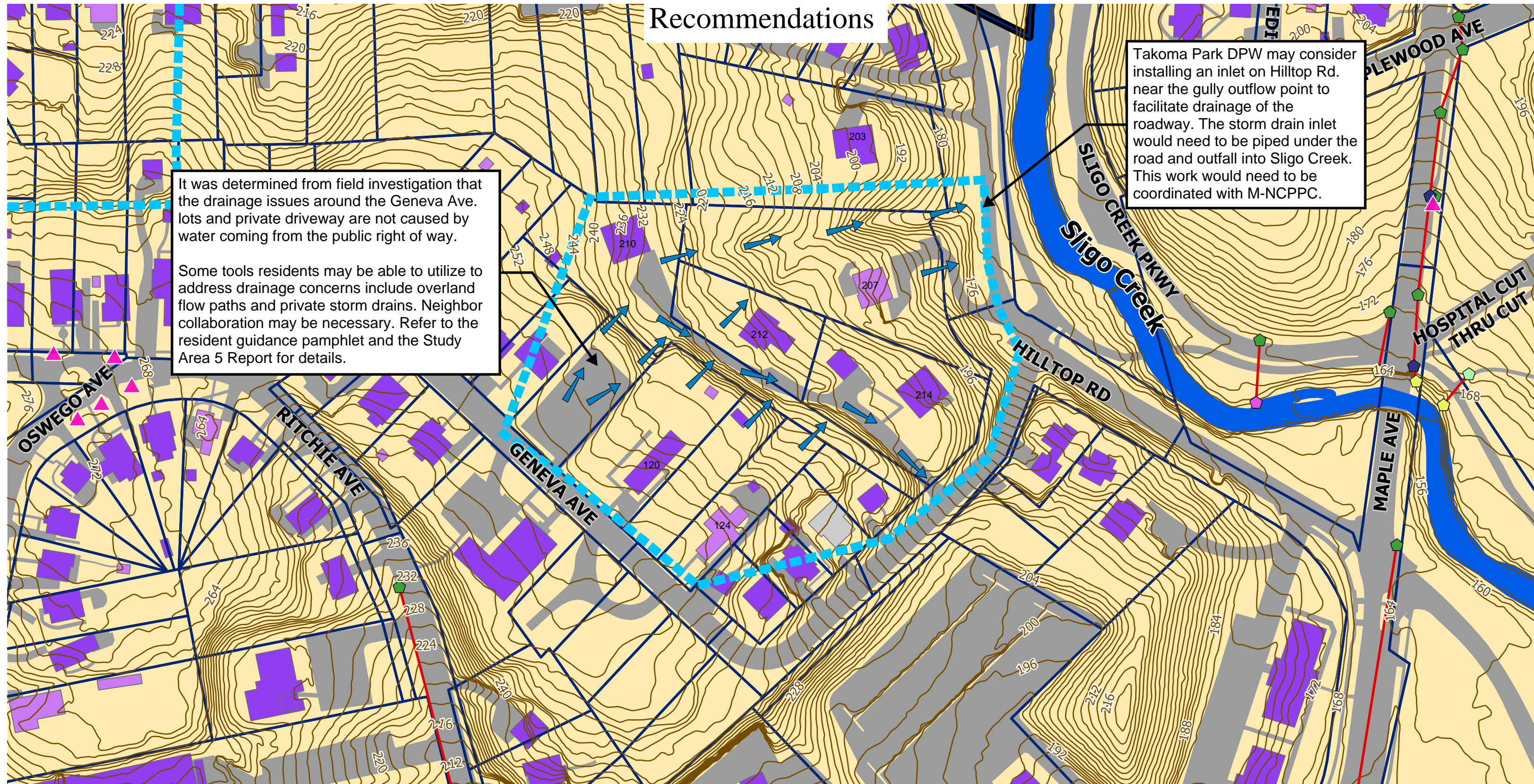
Takoma Park Study Area 5

Recommendations

It was determined from field investigation that the drainage issues around the Geneva Ave. lots and private driveway are not caused by water coming from the public right of way.

Some tools residents may be able to utilize to address drainage concerns include overland flow paths and private storm drains. Neighbor collaboration may be necessary. Refer to the resident guidance pamphlet and the Study Area 5 Report for details.

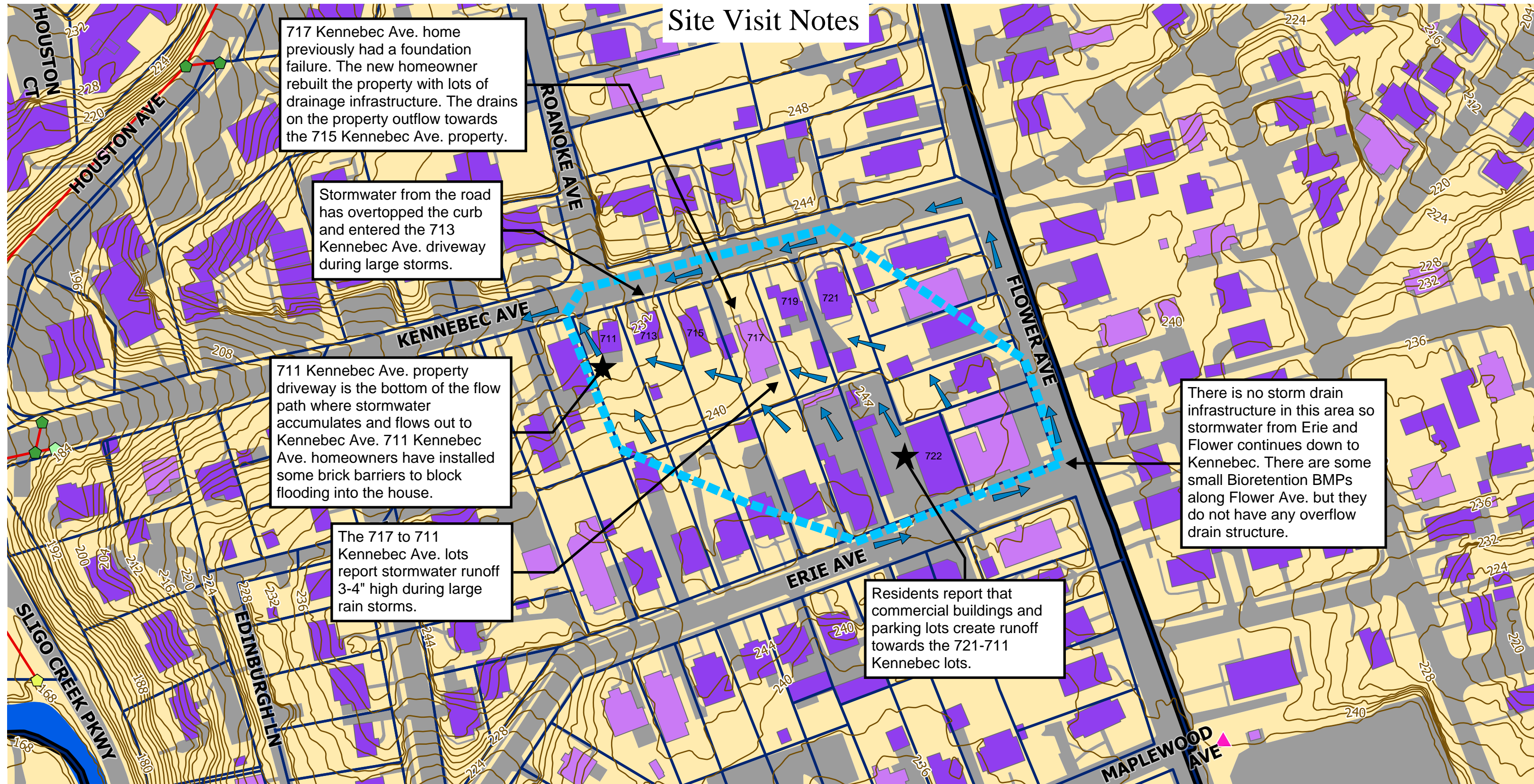
Takoma Park DPW may consider installing an inlet on Hilltop Rd. near the gully outflow point to facilitate drainage of the roadway. The storm drain inlet would need to be piped under the road and outfall into Sligo Creek. This work would need to be coordinated with M-NCPPC.



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|-----------------------------------|--------------------------|-------------------------------|------------------|-------|----------------------|
| Property Lines | Streams | Inlet | Runoff Flow Path | N
 | 1 inch = 100 feet |
| 2 ft Contours (2020) | City Boundary | Pipe Connection | | | |
| Study Area | Buildings by Roof | Pipe Direction | | | 0 50 100 200 US Feet |
| Stormwater BMPs | Flat | Projecting Pipe | | | |
| Roads, Sidewalks, Driveways, etc. | Gable | Storm Drain Conveyance | | | |
| Pervious Surfaces | | Pipe | | | |
| | | Storm Drain Structures | | | |
| | | End Wall | | | |

Takoma Park Study Area 6

Site Visit Notes



Low Impact Development Center

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|-----------------------------------|--------------------------|-------------------------------|-------------------|------------------|----------------------|
| Property Lines | Pervious Surfaces | Gable | Inlet | Runoff Flow Path | N |
| 2 ft Contours (2020) | Streams | Storm Drain Conveyance | Manhole Structure | Point of Concern | |
| Study Area | City Boundary | Pipe | Pipe Direction | | 1 inch = 100 feet |
| Stormwater BMPs | Buildings by Roof | Storm Drain Structures | | | |
| Roads, Sidewalks, Driveways, etc. | Flat | End Wall | | | 0 50 100 200 US Feet |

Takoma Park Study Area 6

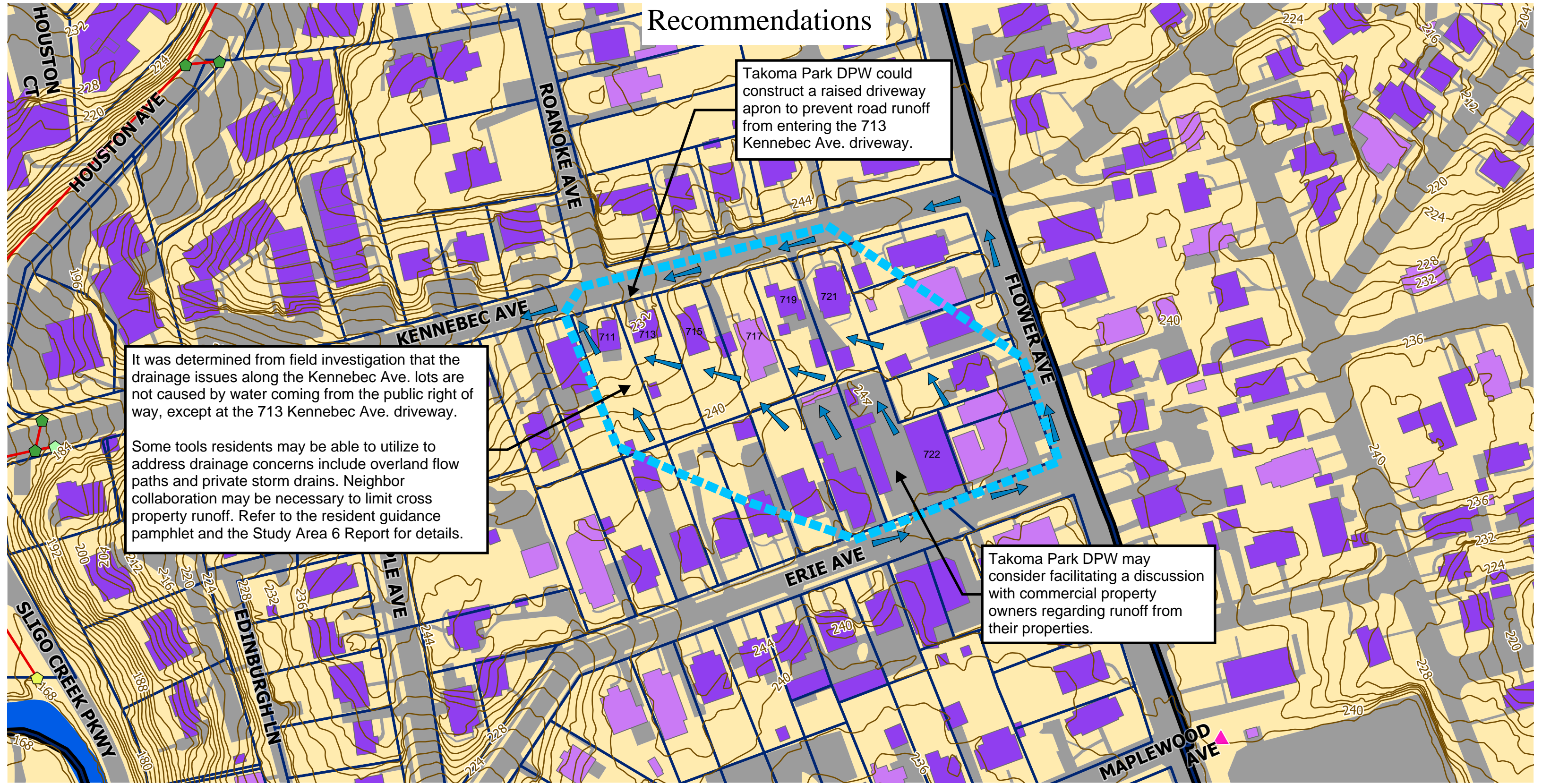
Recommendations

Takoma Park DPW could construct a raised driveway apron to prevent road runoff from entering the 713 Kennebec Ave. driveway.

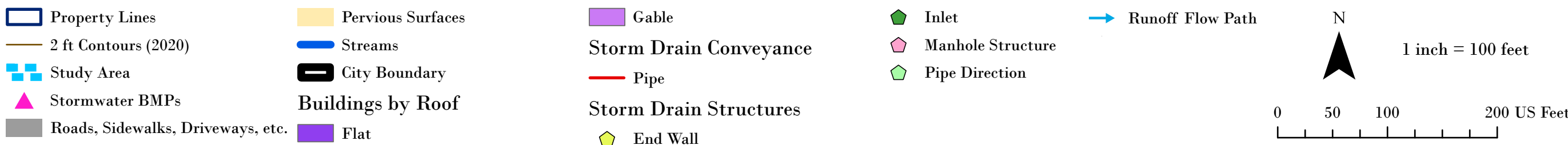
It was determined from field investigation that the drainage issues along the Kennebec Ave. lots are not caused by water coming from the public right of way, except at the 713 Kennebec Ave. driveway.

Some tools residents may be able to utilize to address drainage concerns include overland flow paths and private storm drains. Neighbor collaboration may be necessary to limit cross property runoff. Refer to the resident guidance pamphlet and the Study Area 6 Report for details.

Takoma Park DPW may consider facilitating a discussion with commercial property owners regarding runoff from their properties.

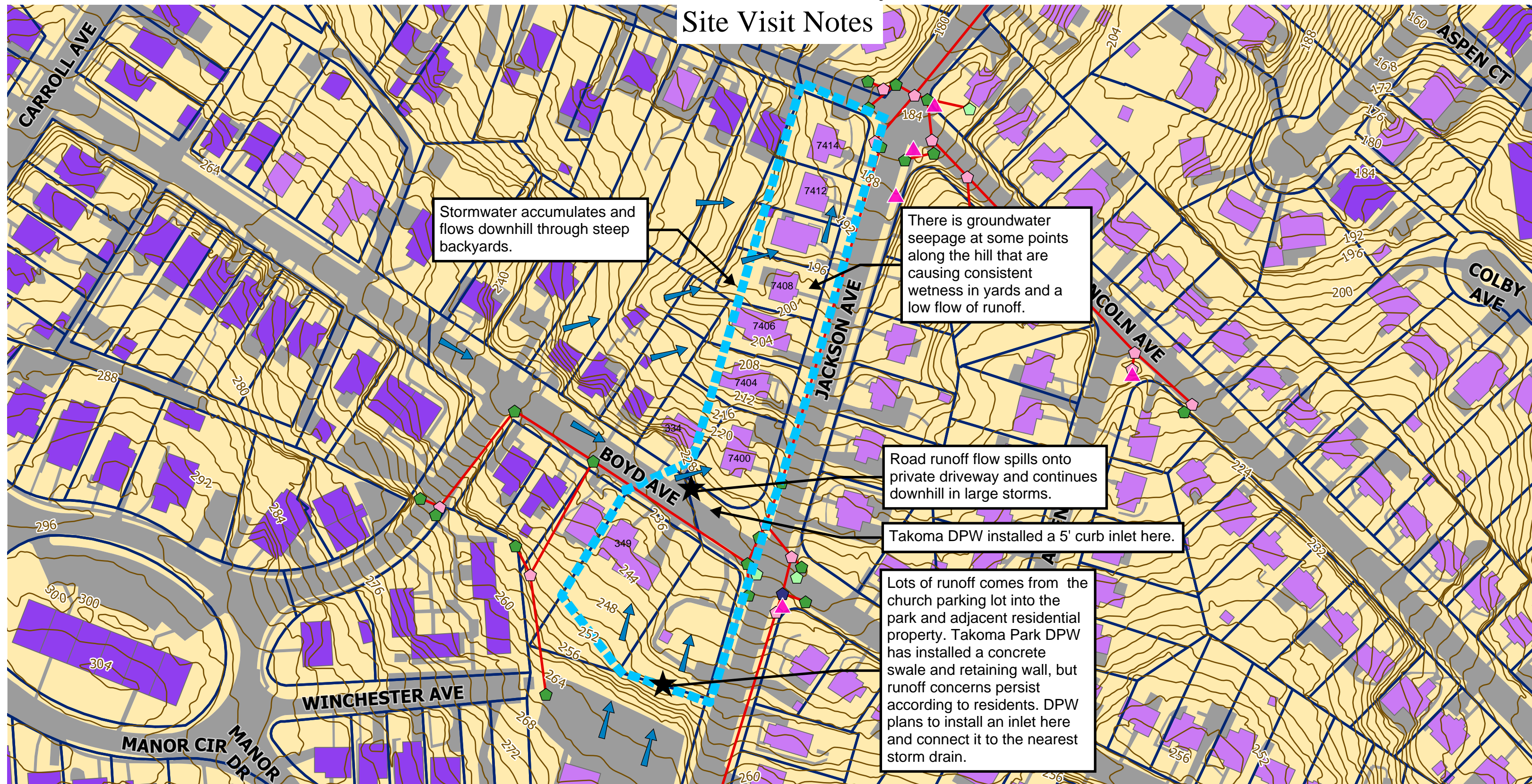


Low Impact Development Center



Takoma Park Study Area 7

Site Visit Notes

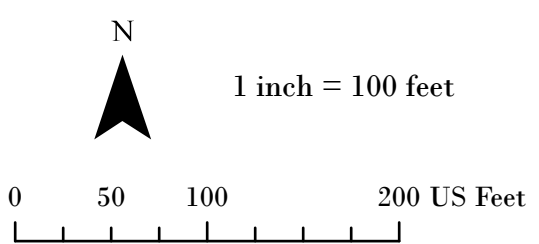


- Property Lines
- 2 ft Contours (2020)
- Study Area
- Stormwater BMPs
- Roads, Sidewalks, Driveways, etc.

- Pervious Surfaces
- Buildings by Roof**
- Flat
- Gable

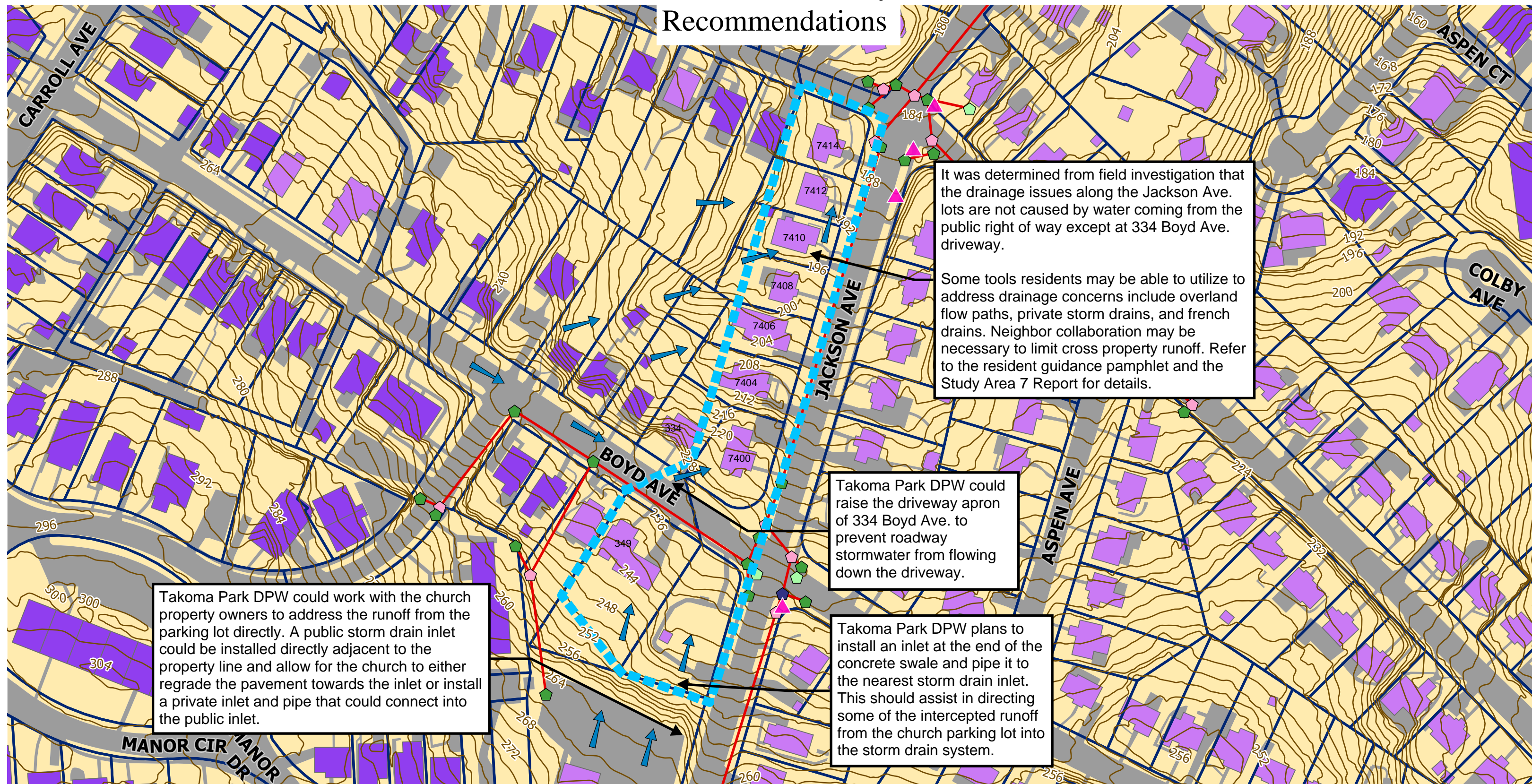
- Storm Drain Conveyance**
- Pipe
- Storm Drain Structures**
- Inlet

- Manhole Structure
- Pipe Connection
- Pipe Direction
- Runoff Flow Path
- Point of Concern



Takoma Park Study Area 7

Recommendations



It was determined from field investigation that the drainage issues along the Jackson Ave. lots are not caused by water coming from the public right of way except at 334 Boyd Ave. driveway.

Some tools residents may be able to utilize to address drainage concerns include overland flow paths, private storm drains, and french drains. Neighbor collaboration may be necessary to limit cross property runoff. Refer to the resident guidance pamphlet and the Study Area 7 Report for details.

Takoma Park DPW could raise the driveway apron of 334 Boyd Ave. to prevent roadway stormwater from flowing down the driveway.

Takoma Park DPW plans to install an inlet at the end of the concrete swale and pipe it to the nearest storm drain inlet. This should assist in directing some of the intercepted runoff from the church parking lot into the storm drain system.

Takoma Park DPW could work with the church property owners to address the runoff from the parking lot directly. A public storm drain inlet could be installed directly adjacent to the property line and allow for the church to either regrade the pavement towards the inlet or install a private inlet and pipe that could connect into the public inlet.



Low Impact Development Center

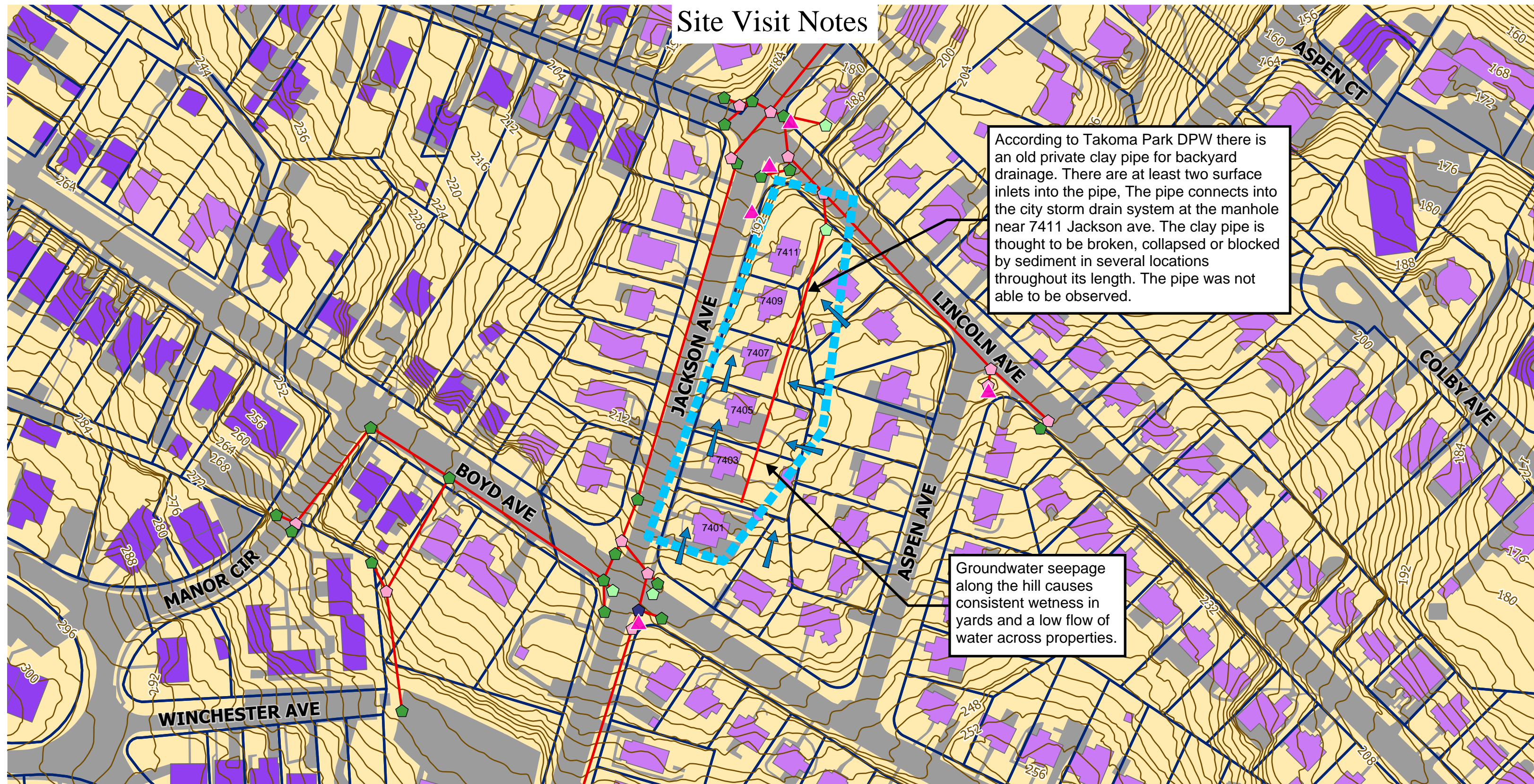
Property Lines	Pervious Surfaces	Storm Drain Conveyance	Manhole Structure	Runoff Flow Path	N 1 inch = 100 feet 0 50 100 200 US Feet
2 ft Contours (2020)	Buildings by Roof	Pipe	Pipe Connection		
Study Area	Flat	Storm Drain Structures	Pipe Direction		
Stormwater BMPs	Gable	Inlet			
Roads, Sidewalks, Driveways, etc.					

Takoma Park Study Area 8

Site Visit Notes

According to Takoma Park DPW there is an old private clay pipe for backyard drainage. There are at least two surface inlets into the pipe, The pipe connects into the city storm drain system at the manhole near 7411 Jackson ave. The clay pipe is thought to be broken, collapsed or blocked by sediment in several locations throughout its length. The pipe was not able to be observed.

Groundwater seepage along the hill causes consistent wetness in yards and a low flow of water across properties.



- Property Lines
- 2 ft Contours (2020)
- Study Area
- Stormwater BMPs
- Roads, Sidewalks, Driveways, etc.

- Pervious Surfaces
- Buildings by Roof**
- Flat
- Gable

- Storm Drain Conveyance**
- Pipe
- Storm Drain Structures**
- Inlet

- Manhole Structure
- Pipe Connection
- Pipe Direction
- Runoff Flow Path

N

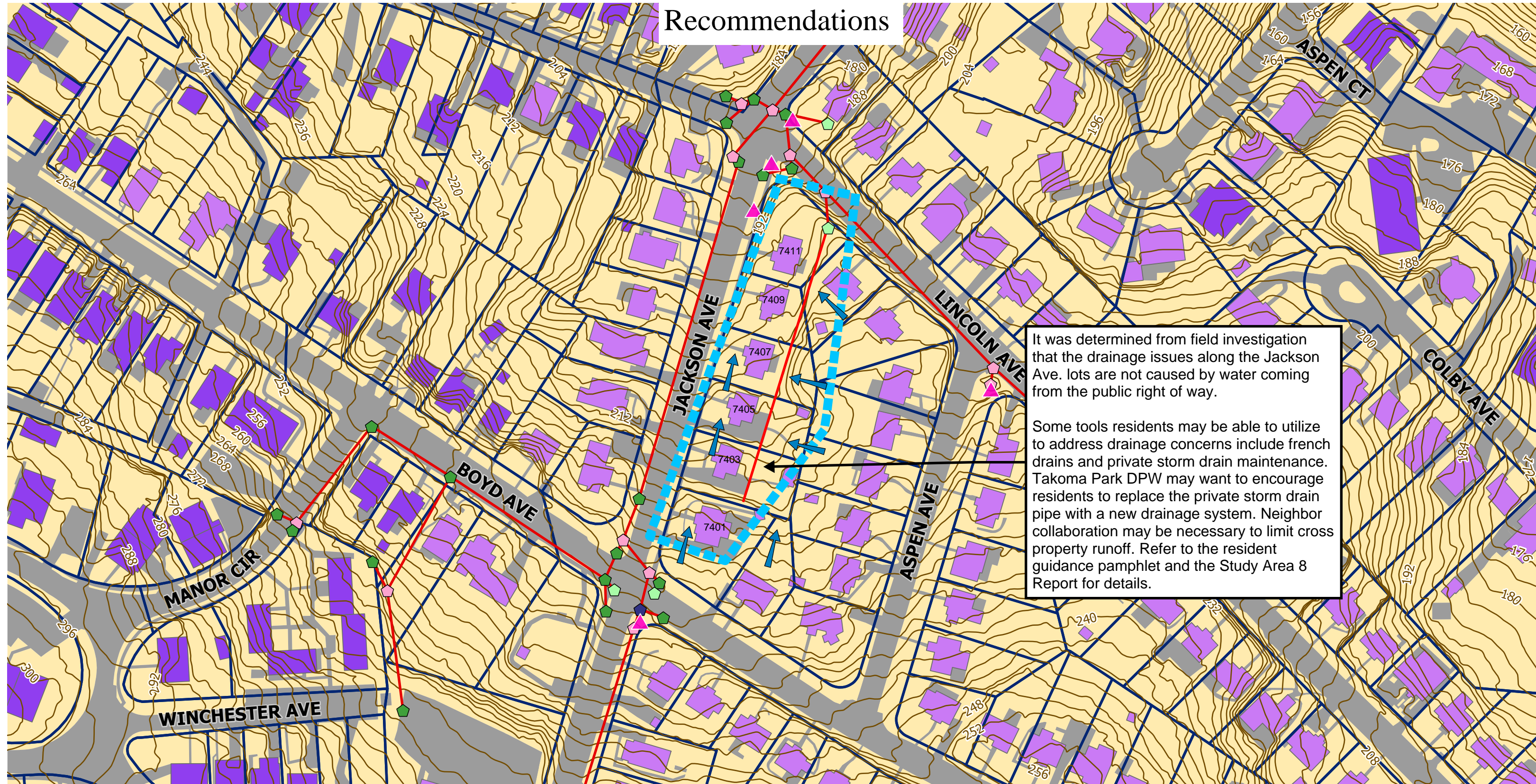
1 inch = 100 feet



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Takoma Park Study Area 8

Recommendations



It was determined from field investigation that the drainage issues along the Jackson Ave. lots are not caused by water coming from the public right of way.

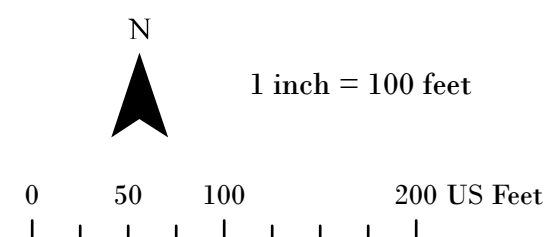
Some tools residents may be able to utilize to address drainage concerns include french drains and private storm drain maintenance. Takoma Park DPW may want to encourage residents to replace the private storm drain pipe with a new drainage system. Neighbor collaboration may be necessary to limit cross property runoff. Refer to the resident guidance pamphlet and the Study Area 8 Report for details.

- Property Lines
- 2 ft Contours (2020)
- Study Area
- Stormwater BMPs
- Roads, Sidewalks, Driveways, etc.

- Pervious Surfaces
- Buildings by Roof**
- Flat
- Gable

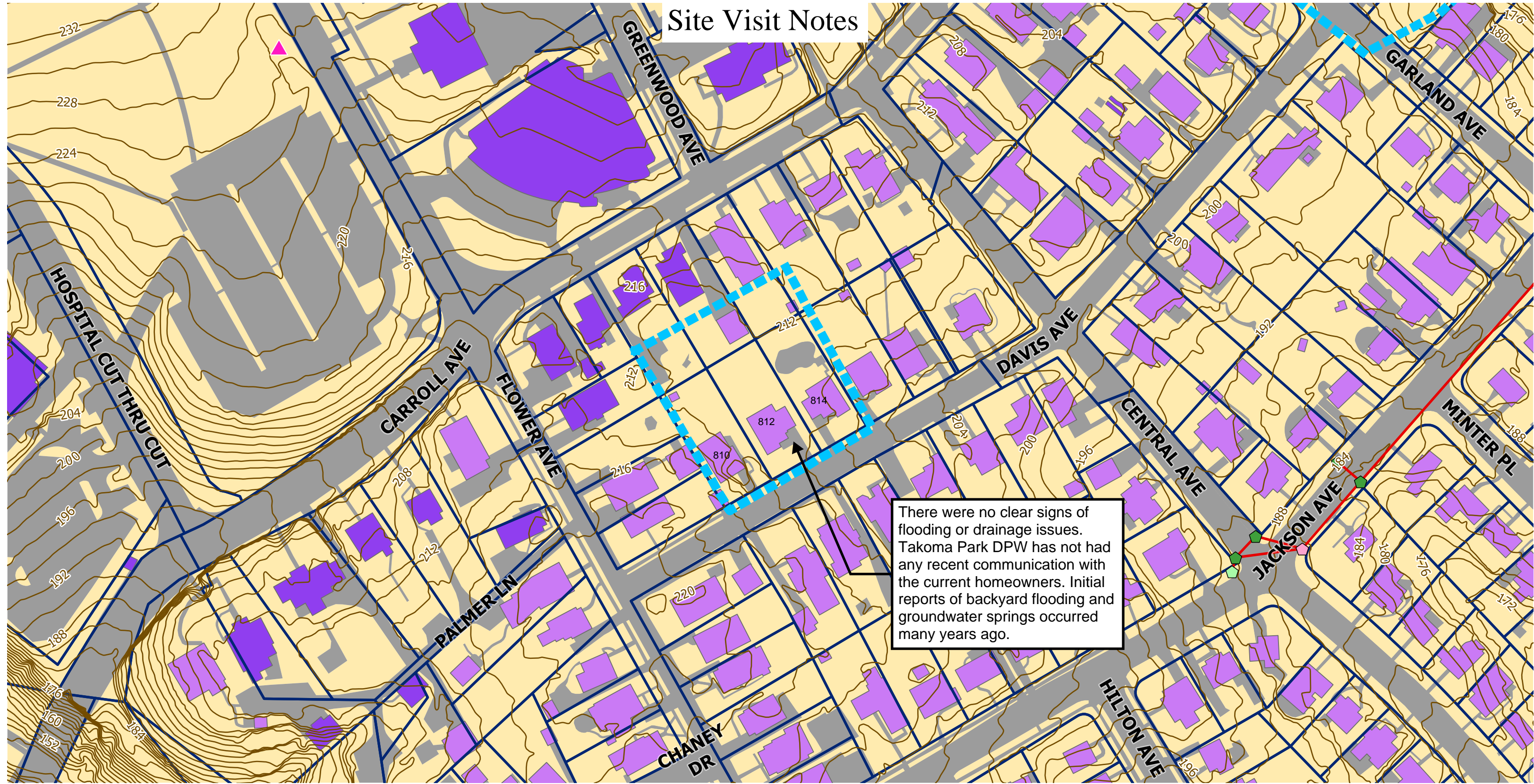
- Storm Drain Conveyance**
- Pipe
- Storm Drain Structures**
- Inlet

- Manhole Structure
- Pipe Connection
- Pipe Direction
- Runoff Flow Path



Takoma Park Study Area 9

Site Visit Notes



There were no clear signs of flooding or drainage issues. Takoma Park DPW has not had any recent communication with the current homeowners. Initial reports of backyard flooding and groundwater springs occurred many years ago.

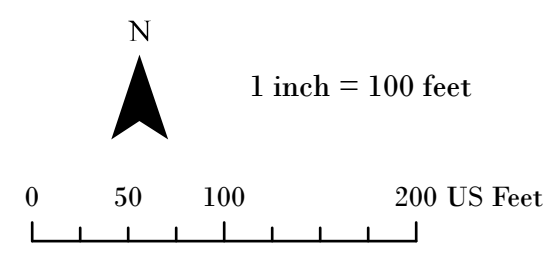


- Property Lines
- 2 ft Contours (2020)
- Study Area
- Stormwater BMPs
- Roads, Sidewalks, Driveways, etc.
- Pervious Surfaces

- Buildings by Roof**
- Flat
- Gable
- Storm Drain Conveyance**
- Pipe

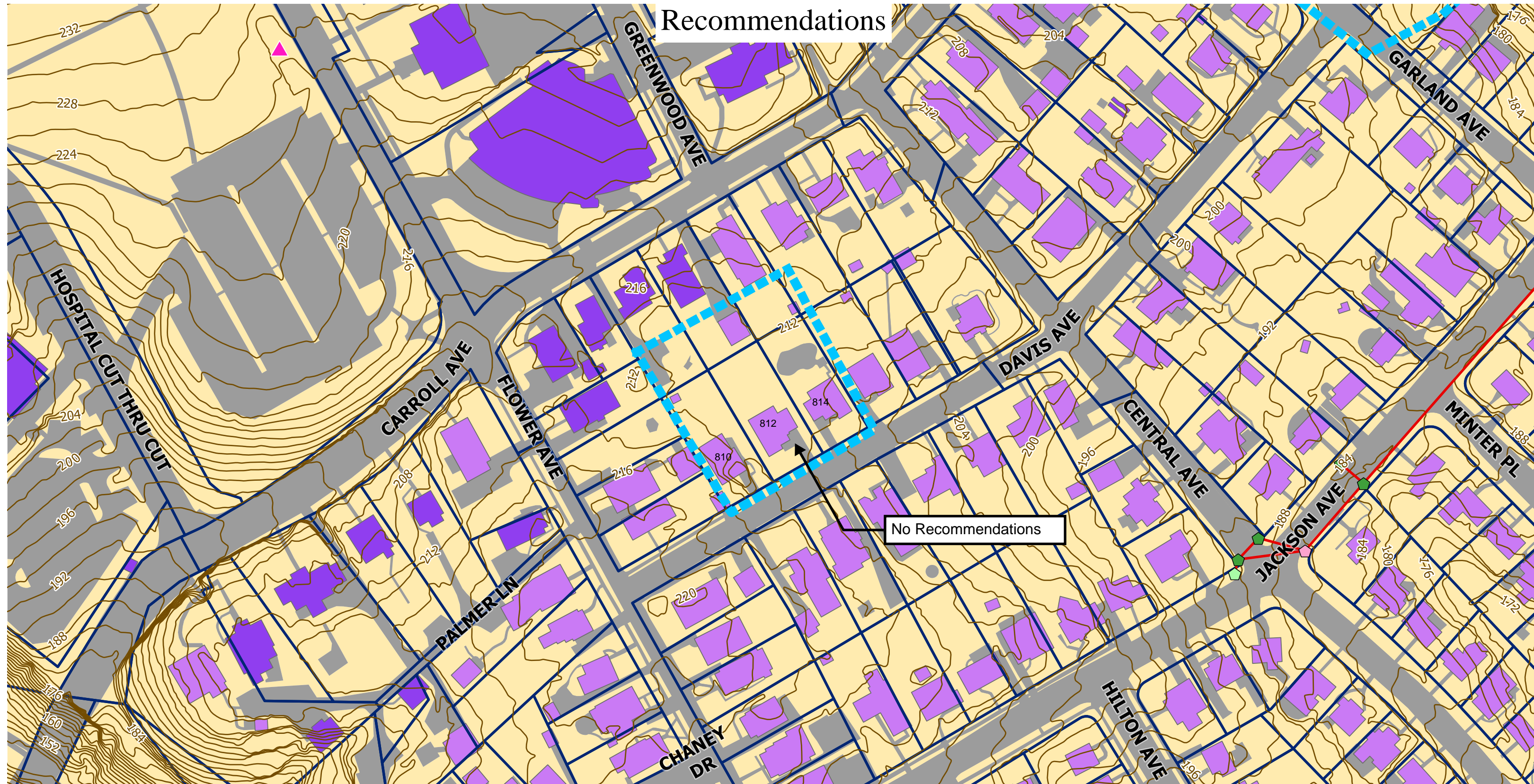
- Storm Drain Structures**
- Inlet
- Manhole Structure
- Pipe Direction







Runoff Flow Path









Takoma Park Study Area 9

Recommendations



-  Property Lines
-  2 ft Contours (2020)
-  Study Area
-  Stormwater BMPs
-  Roads, Sidewalks, Driveways, etc.
-  Pervious Surfaces

- Buildings by Roof**
-  Flat
-  Gable
- Storm Drain Conveyance**
-  Pipe

- Storm Drain Structures**
-  Inlet
-  Manhole Structure
-  Pipe Direction

-  Runoff Flow Path

N



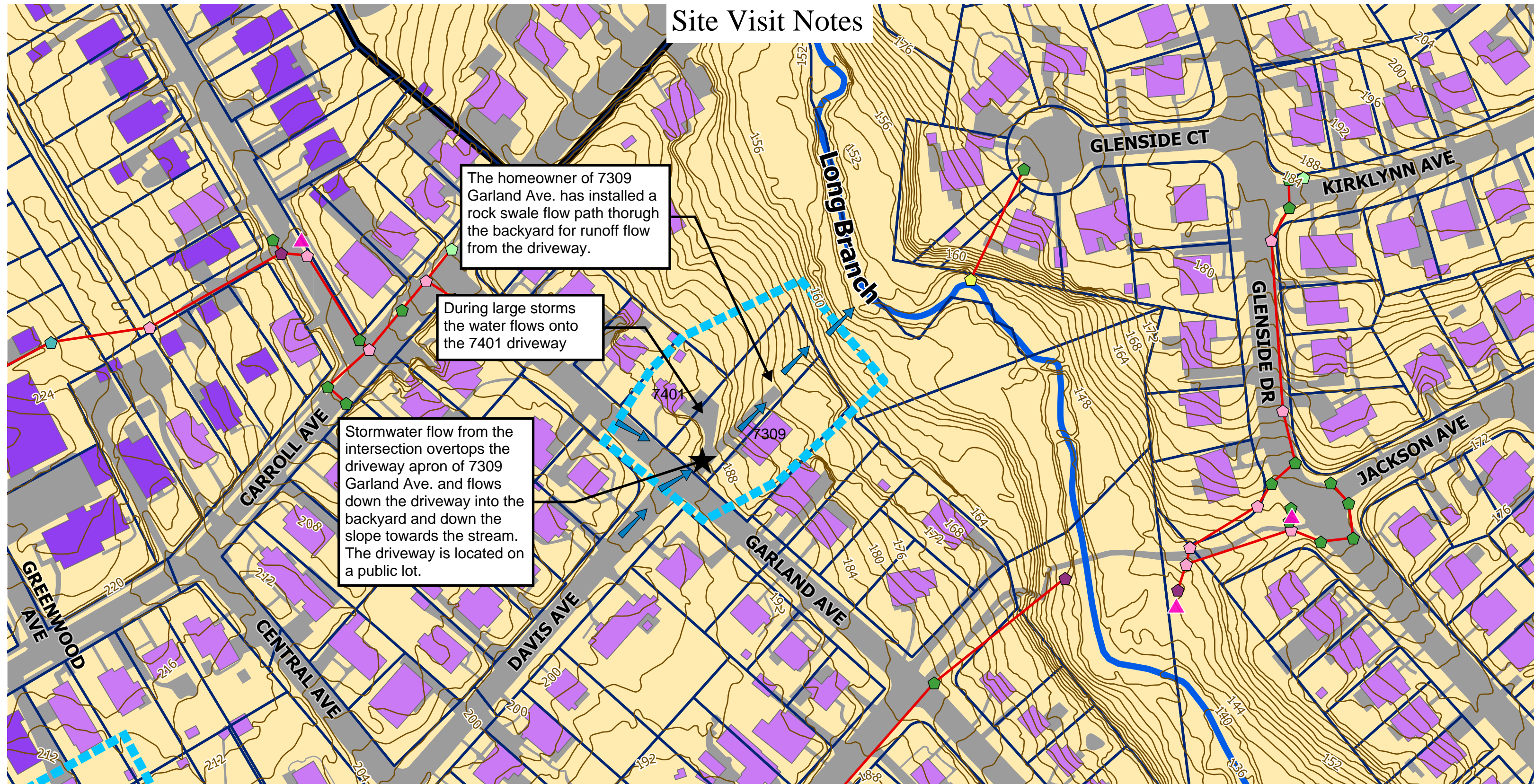
1 inch = 100 feet



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Takoma Park Study Area 10

Site Visit Notes



The homeowner of 7309 Garland Ave. has installed a rock swale flow path through the backyard for runoff flow from the driveway.

During large storms the water flows onto the 7401 driveway

Stormwater flow from the intersection overtops the driveway apron of 7309 Garland Ave. and flows down the driveway into the backyard and down the slope towards the stream. The driveway is located on a public lot.

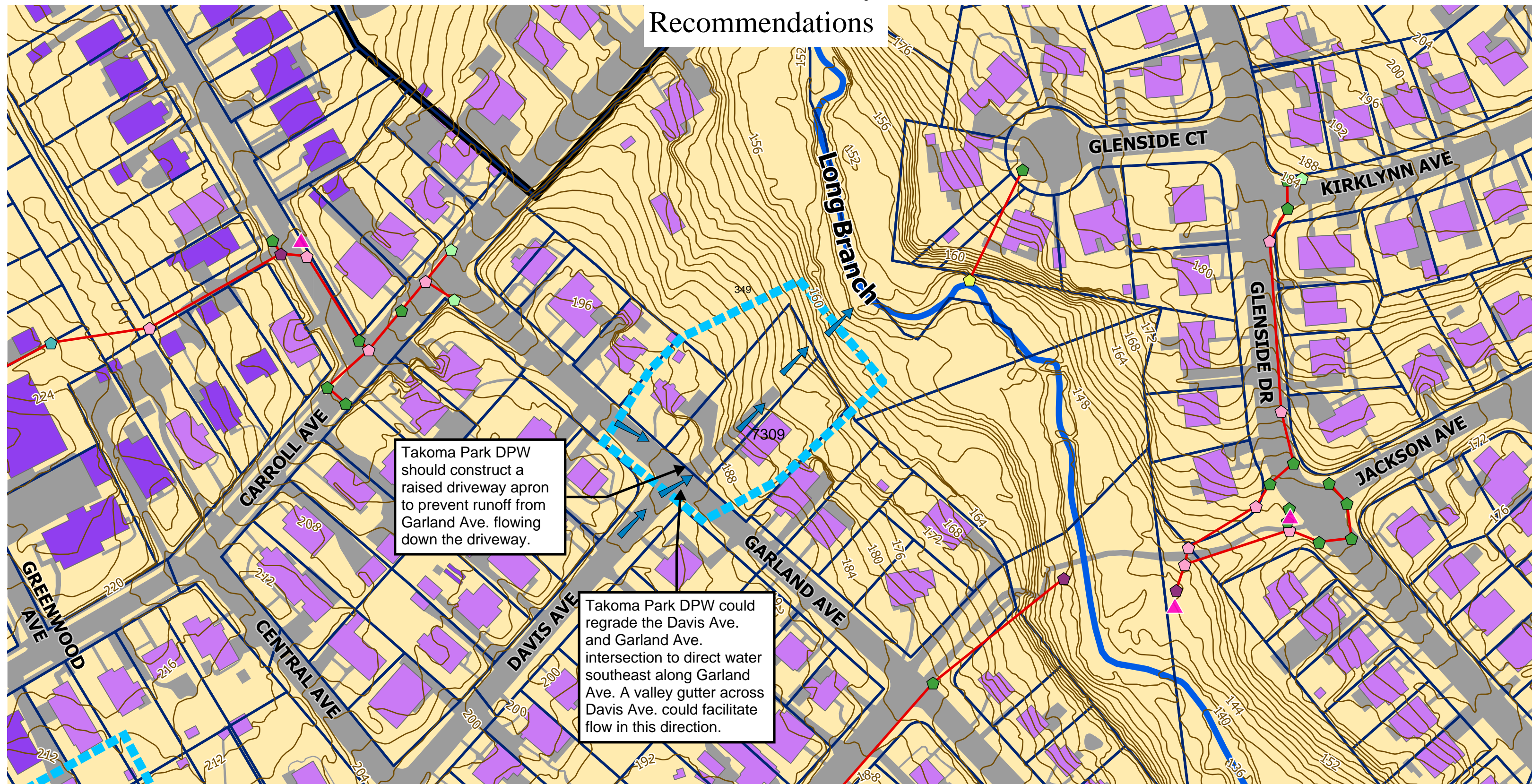


Low Impact Development Center

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|-----------------------------------|--------------------------|-------------------------------|-------------------|----------------------|---|
| Property Lines | Pervious Surfaces | Gable | End Wall | Runoff Flow Path | N |
| 2 ft Contours (2020) | Streams | Storm Drain Conveyance | Head Wall | Point of Concern | |
| Study Area | City Boundary | Storm Drain Structures | Inlet | 0 50 100 200 US Feet | |
| Stormwater BMPs | Buildings by Roof | Pipe | Manhole Structure | | |
| Roads, Sidewalks, Driveways, etc. | Flat | Endsection | Pipe Direction | | |

Takoma Park Study Area 10

Recommendations



Takoma Park DPW should construct a raised driveway apron to prevent runoff from Garland Ave. flowing down the driveway.

Takoma Park DPW could regrade the Davis Ave. and Garland Ave. intersection to direct water southeast along Garland Ave. A valley gutter across Davis Ave. could facilitate flow in this direction.



Low Impact Development Center

- | | | | | | |
|-----------------------------------|--------------------------|-------------------------------|-------------------|----------------------|---|
| Property Lines | Pervious Surfaces | Gable | End Wall | Runoff Flow Path | N |
| 2 ft Contours (2020) | Streams | Storm Drain Conveyance | Head Wall | 0 50 100 200 US Feet | |
| Study Area | City Boundary | Storm Drain Structures | Inlet | | |
| Stormwater BMPs | Buildings by Roof | Pipe | Manhole Structure | | |
| Roads, Sidewalks, Driveways, etc. | Flat | Endsection | Pipe Direction | | |

Takoma Park Study Area 11

Site Visit Notes

There is a small stream of water flooding the 812 Larch Ave. backyard. The water continues downhill along the backside of the house and towards the property line where it dries up. The water seems to flow up from an old grate inlet that may be connected to the clay drainage pipe.

Groundwater seeps out of hillside at multiple locations causing consistent yard wetness and low flow of water from property to property. This is especially prevalent at the bottom of the hill.

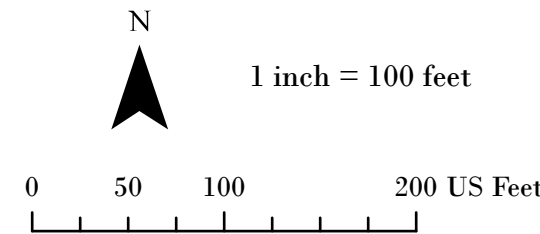
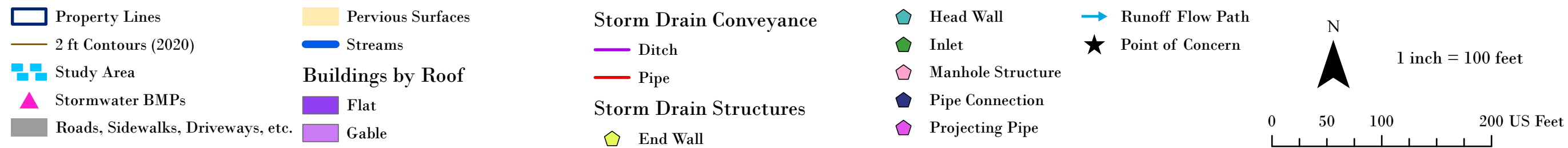
Old private clay pipe for backyard drainage of Larch Ave. properties

Stormwater runoff flows from Colby and Lincoln Ave. lots due to slopes in the area. Water flows downhill through private properties

The 810 Larch Ave. property installed dry wells that seem to have alleviated the wetness on their property. It was not clear where the outflow point is.

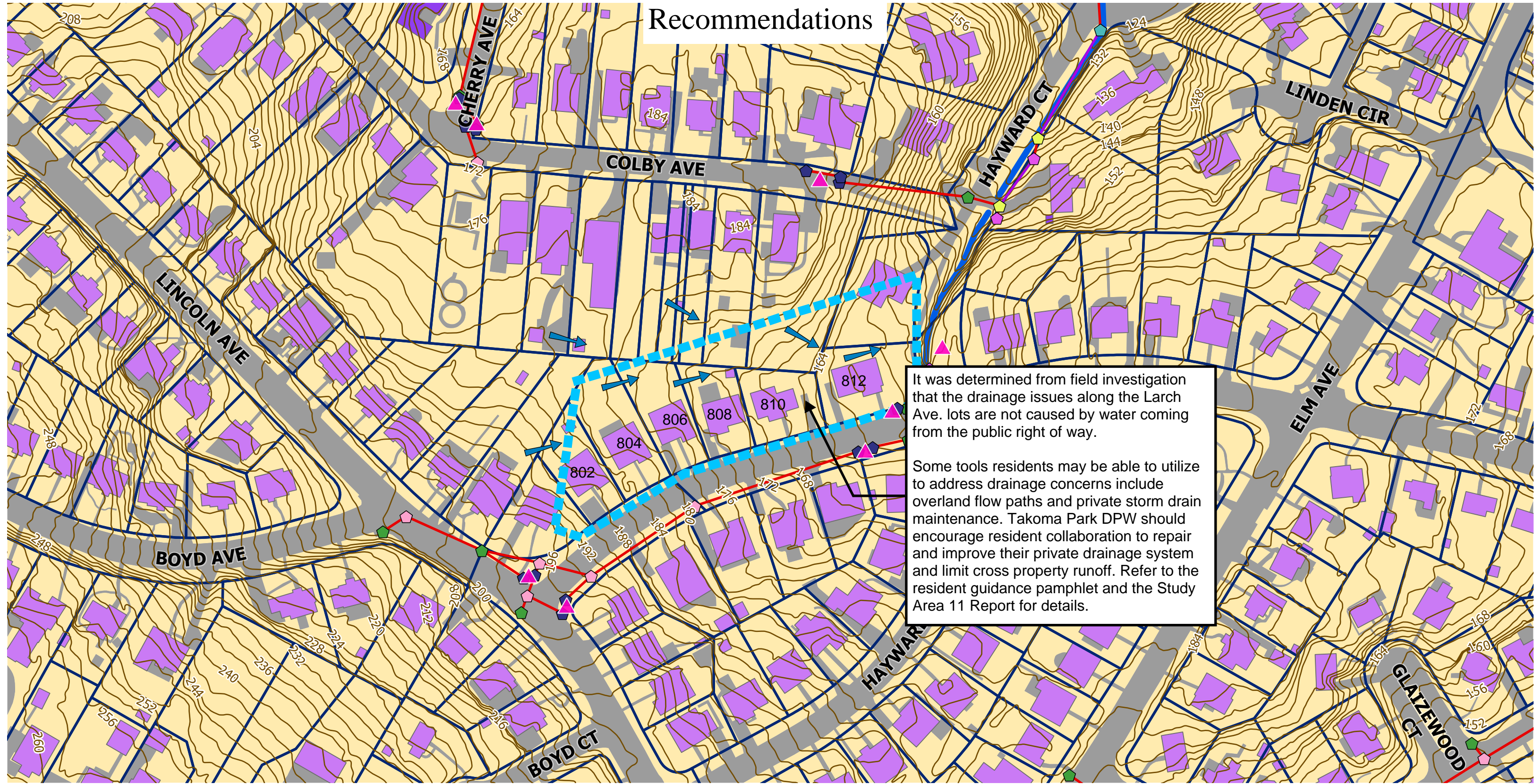
Successful restored stream. There are multiple small PVC drain pipe outlets along the stream bank wall. There is believed to be a perforated PVC pipe from the property at 812 Larch to the Hayward stream outfall. Takoma Park DPW is willing to allow for additional private drain outlets into the stream.

Small PVC drain pipe outlet near sidewalk. It was unclear if this is from the private clay pipe or not but it is in line with where the pipe could be.



Takoma Park Study Area 11

Recommendations



It was determined from field investigation that the drainage issues along the Larch Ave. lots are not caused by water coming from the public right of way.

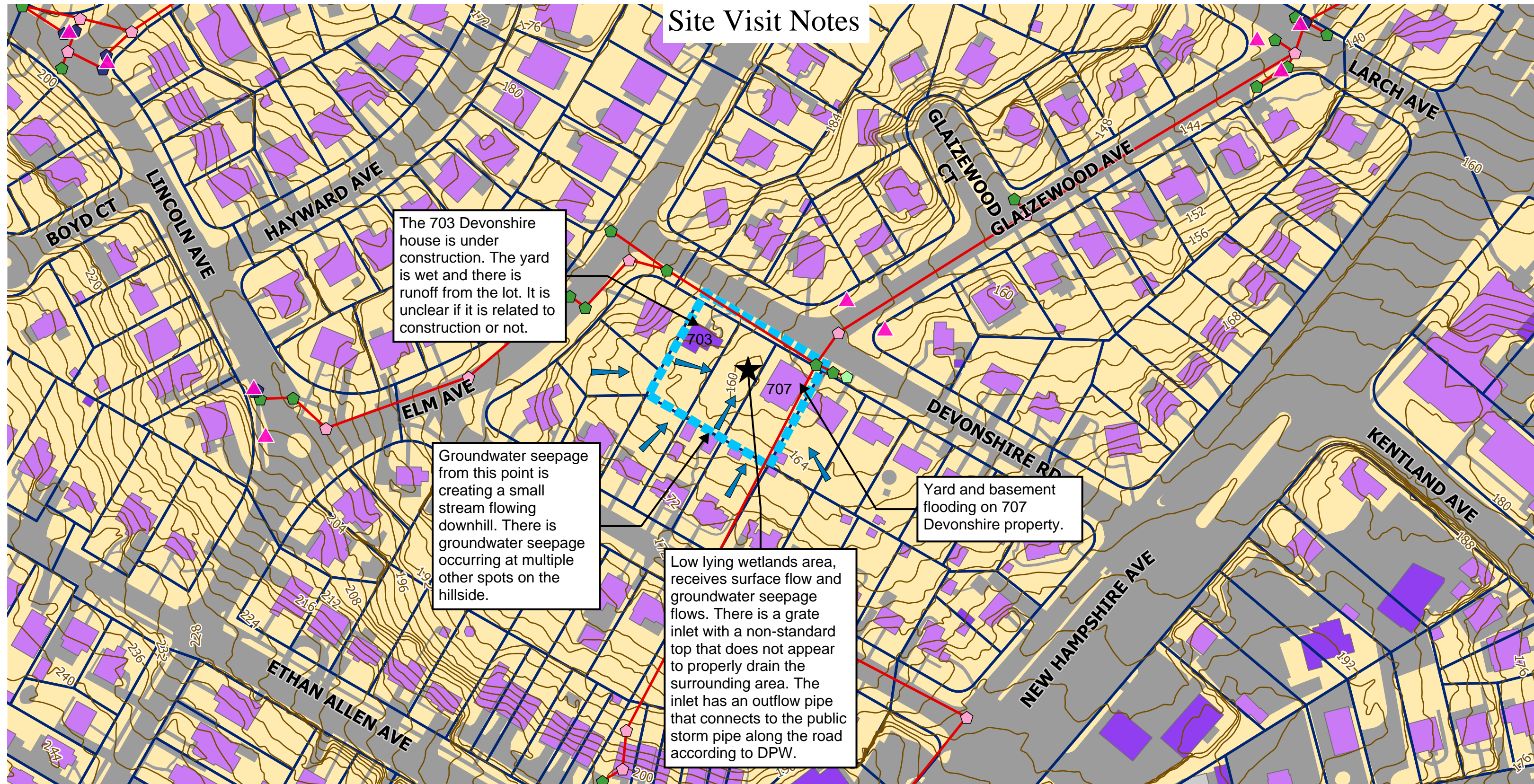
Some tools residents may be able to utilize to address drainage concerns include overland flow paths and private storm drain maintenance. Takoma Park DPW should encourage resident collaboration to repair and improve their private drainage system and limit cross property runoff. Refer to the resident guidance pamphlet and the Study Area 11 Report for details.



- | | | | | | |
|-----------------------------------|--------------------------|-------------------------------|-------------------|------------------|--------------------------------|
| Property Lines | Pervious Surfaces | Storm Drain Conveyance | Head Wall | Runoff Flow Path |
N
1 inch = 100 feet
 |
| 2 ft Contours (2020) | Streams | Storm Drain Structures | Inlet | | |
| Study Area | Buildings by Roof | Ditch | Manhole Structure | | |
| Stormwater BMPs | Flat | Pipe | Pipe Connection | | |
| Roads, Sidewalks, Driveways, etc. | Gable | End Wall | Projecting Pipe | | |

Takoma Park Study Area 12

Site Visit Notes



The 703 Devonshire house is under construction. The yard is wet and there is runoff from the lot. It is unclear if it is related to construction or not.

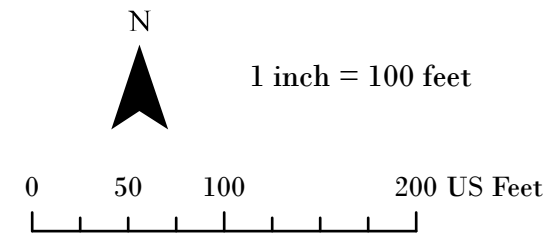
Groundwater seepage from this point is creating a small stream flowing downhill. There is groundwater seepage occurring at multiple other spots on the hillside.

Yard and basement flooding on 707 Devonshire property.

Low lying wetlands area, receives surface flow and groundwater seepage flows. There is a grate inlet with a non-standard top that does not appear to properly drain the surrounding area. The inlet has an outflow pipe that connects to the public storm pipe along the road according to DPW.

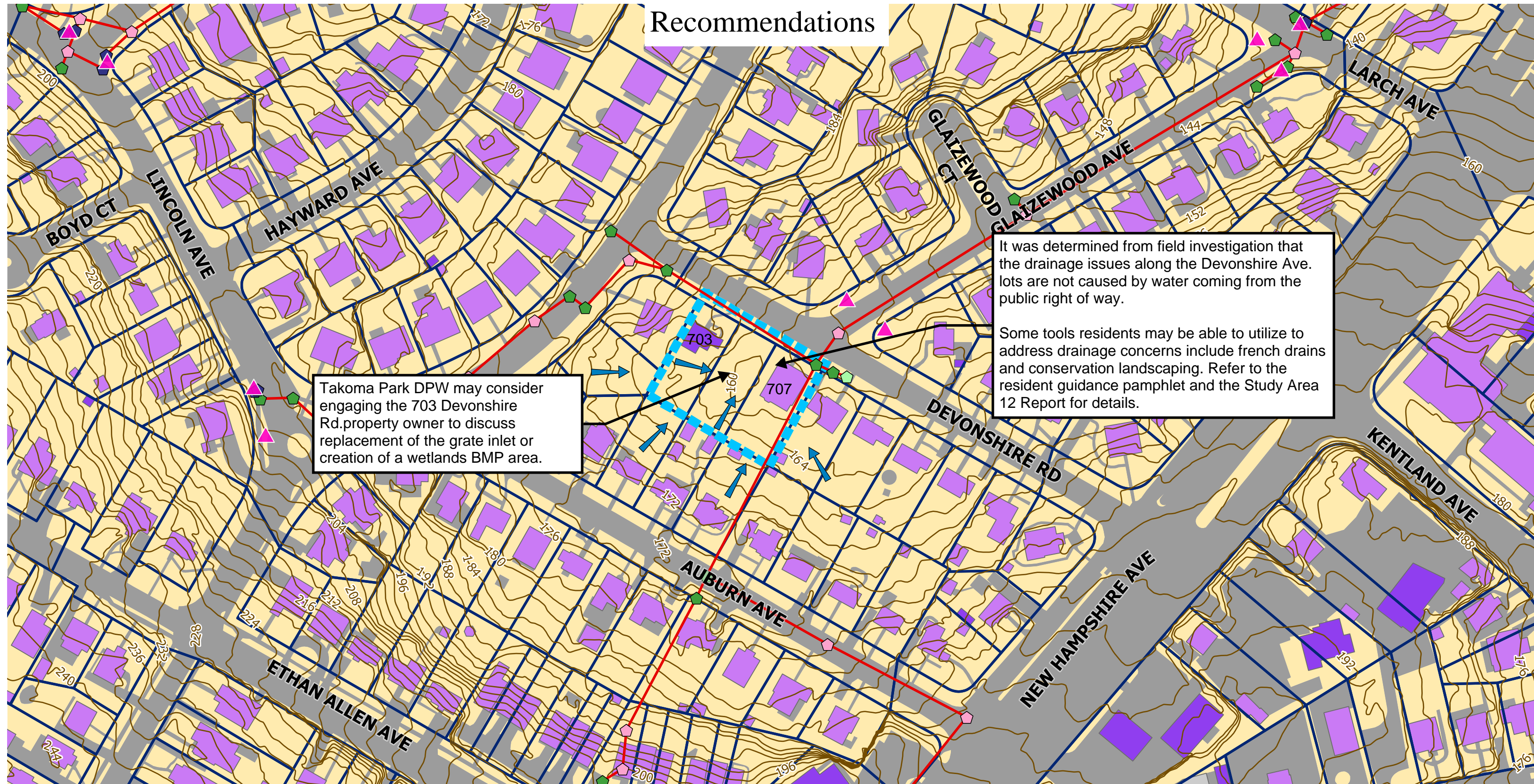


Property Lines	Pervious Surfaces	Storm Drain Conveyance	Manhole Structure	Runoff Flow Path
2 ft Contours (2020)	Buildings by Roof	Pipe	Pipe Connection	Point of Concern
Study Area	Flat	Storm Drain Structures	Pipe Direction	
Stormwater BMPs	Gable	Inlet		
Roads, Sidewalks, Driveways, etc.				



Takoma Park Study Area 12

Recommendations



Takoma Park DPW may consider engaging the 703 Devonshire Rd. property owner to discuss replacement of the grate inlet or creation of a wetlands BMP area.

It was determined from field investigation that the drainage issues along the Devonshire Ave. lots are not caused by water coming from the public right of way.

Some tools residents may be able to utilize to address drainage concerns include french drains and conservation landscaping. Refer to the resident guidance pamphlet and the Study Area 12 Report for details.

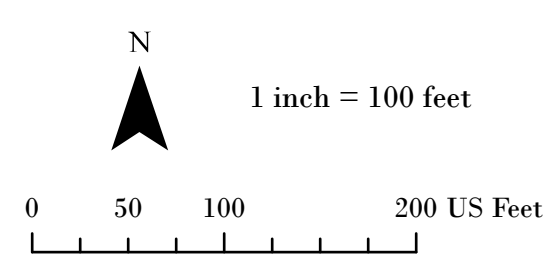


- Property Lines
- 2 ft Contours (2020)
- Study Area
- Stormwater BMPs
- Roads, Sidewalks, Driveways, etc.

- Pervious Surfaces
- Buildings by Roof**
- Flat
- Gable

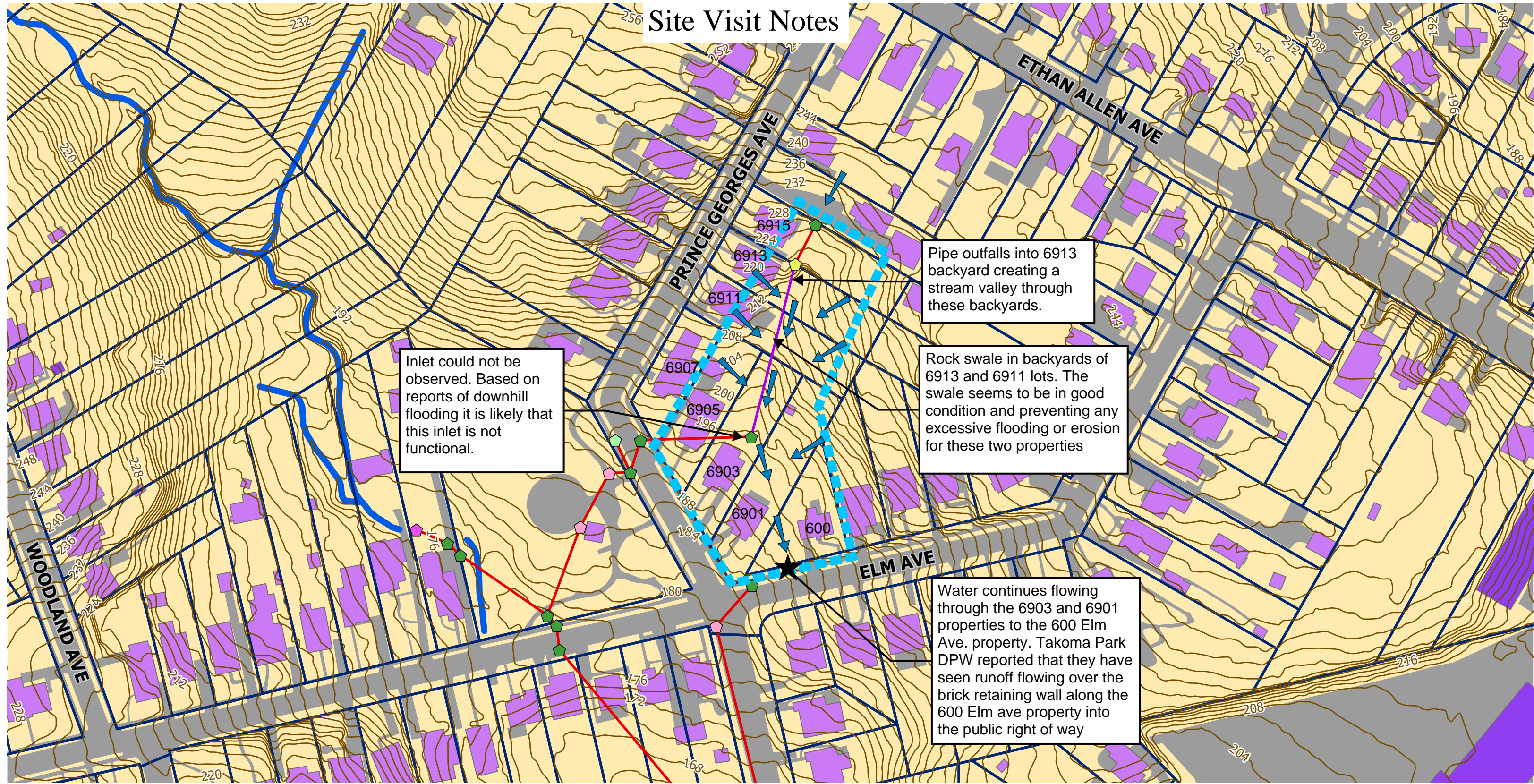
- Storm Drain Conveyance**
- Pipe
- Storm Drain Structures**
- Inlet

- Manhole Structure
- Pipe Connection
- Pipe Direction
- Runoff Flow Path

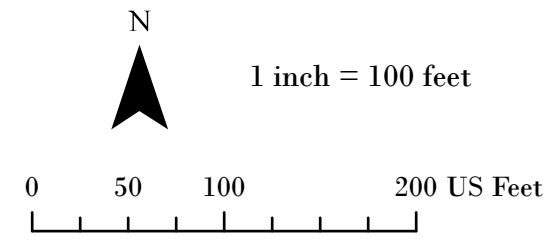


Takoma Park Study Area 13

Site Visit Notes

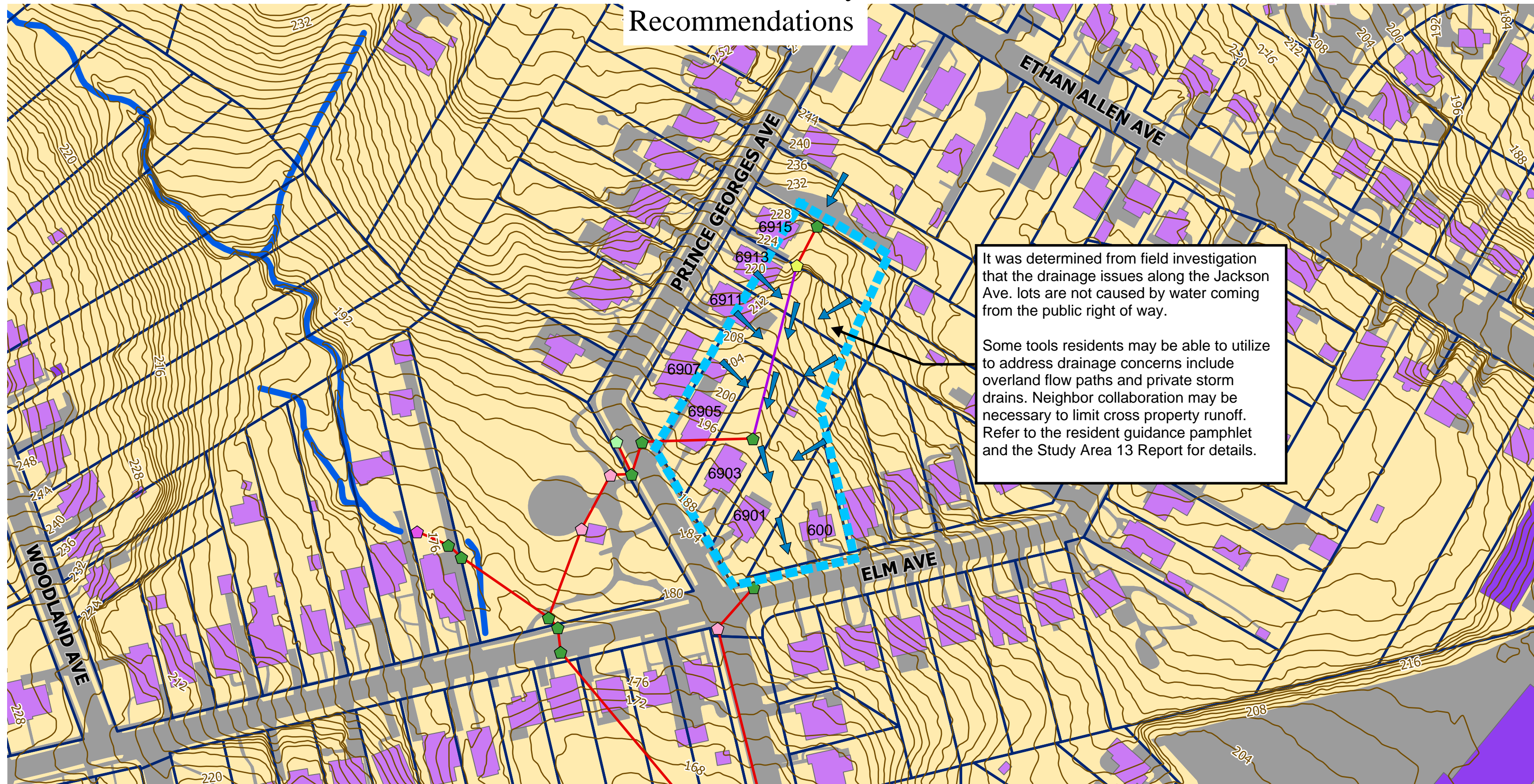


Property Lines	Pervious Surfaces	Storm Drain Conveyance	Inlet	Runoff Flow Path
2 ft Contours (2020)	Streams	Ditch	Manhole Structure	Point of Concern
Study Area	Buildings by Roof	Pipe	Pipe Direction	
Stormwater BMPs	Flat	Storm Drain Structures	Projecting Pipe	
Roads, Sidewalks, Driveways, etc.	Gable	End Wall		



Takoma Park Study Area 13

Recommendations



It was determined from field investigation that the drainage issues along the Jackson Ave. lots are not caused by water coming from the public right of way.

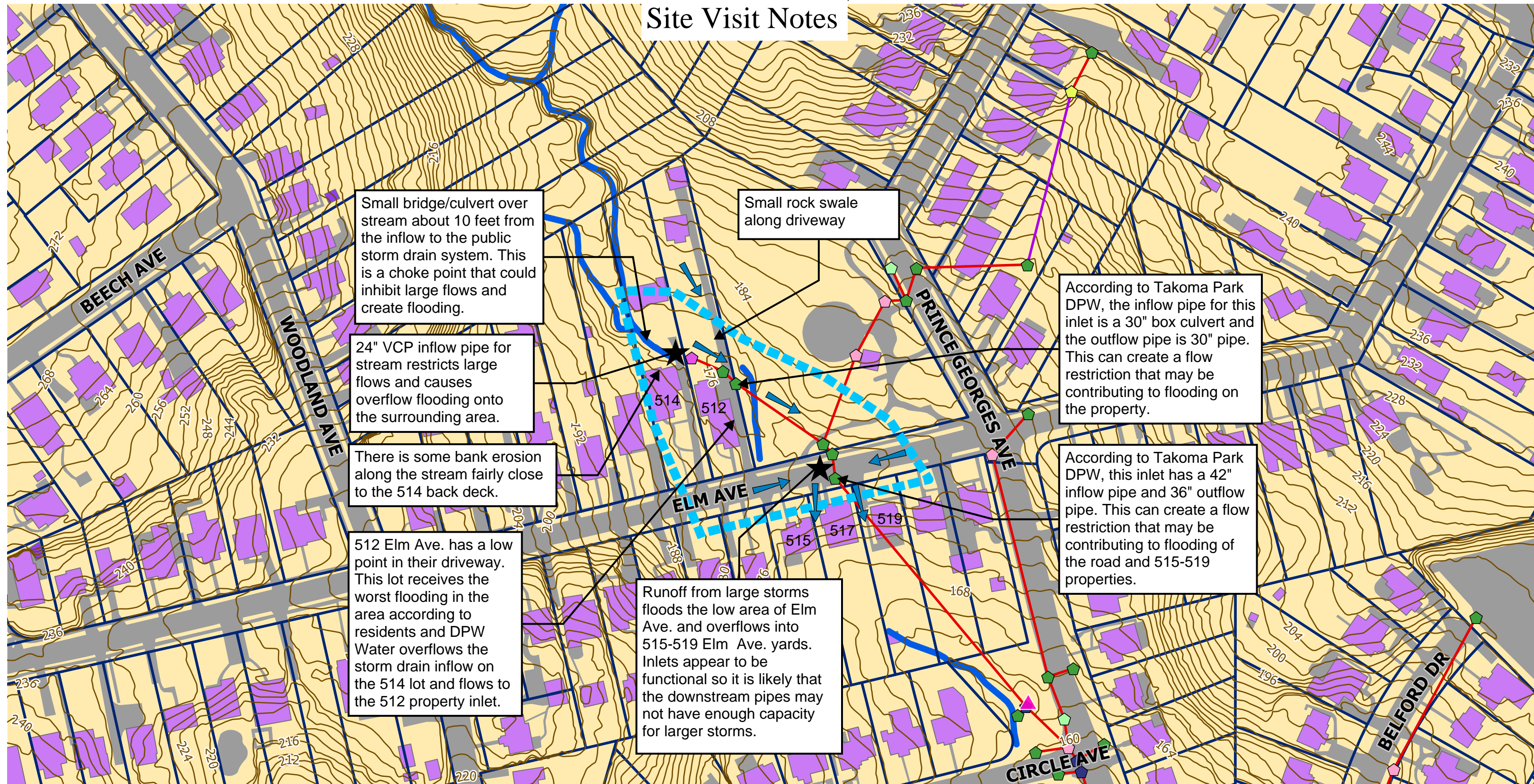
Some tools residents may be able to utilize to address drainage concerns include overland flow paths and private storm drains. Neighbor collaboration may be necessary to limit cross property runoff. Refer to the resident guidance pamphlet and the Study Area 13 Report for details.



Property Lines	Pervious Surfaces	Storm Drain Conveyance	Inlet	Runoff Flow Path
2 ft Contours (2020)	Streams	Ditch	Manhole Structure	N 1 inch = 100 feet 0 50 100 200 US Feet
Study Area	Buildings by Roof	Pipe	Pipe Direction	
Stormwater BMPs	Flat	Storm Drain Structures	Projecting Pipe	
Roads, Sidewalks, Driveways, etc.	Gable	End Wall		

Takoma Park Study Area 14

Site Visit Notes



Small bridge/culvert over stream about 10 feet from the inflow to the public storm drain system. This is a choke point that could inhibit large flows and create flooding.

Small rock swale along driveway

24" VCP inflow pipe for stream restricts large flows and causes overflow flooding onto the surrounding area.

According to Takoma Park DPW, the inflow pipe for this inlet is a 30" box culvert and the outflow pipe is 30" pipe. This can create a flow restriction that may be contributing to flooding on the property.

There is some bank erosion along the stream fairly close to the 514 back deck.

According to Takoma Park DPW, this inlet has a 42" inflow pipe and 36" outflow pipe. This can create a flow restriction that may be contributing to flooding of the road and 515-519 properties.

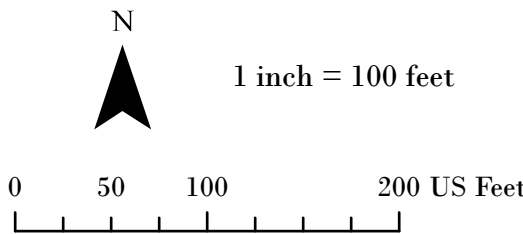
512 Elm Ave. has a low point in their driveway. This lot receives the worst flooding in the area according to residents and DPW. Water overflows the storm drain inflow on the 514 lot and flows to the 512 property inlet.

Runoff from large storms floods the low area of Elm Ave. and overflows into 515-519 Elm Ave. yards. Inlets appear to be functional so it is likely that the downstream pipes may not have enough capacity for larger storms.



Low Impact Development Center

Property Lines	Pervious Surfaces	Storm Drain Conveyance	Inlet	Runoff Flow Path
2 ft Contours (2020)	Streams	Ditch	Manhole Structure	Point of Concern
Study Area	Buildings by Roof	Pipe	Pipe Connection	
Stormwater BMPs	Flat	Storm Drain Structures	Pipe Direction	
Roads, Sidewalks, Driveways, etc.	Gable	End Wall	Projecting Pipe	



Takoma Park Study Area 14

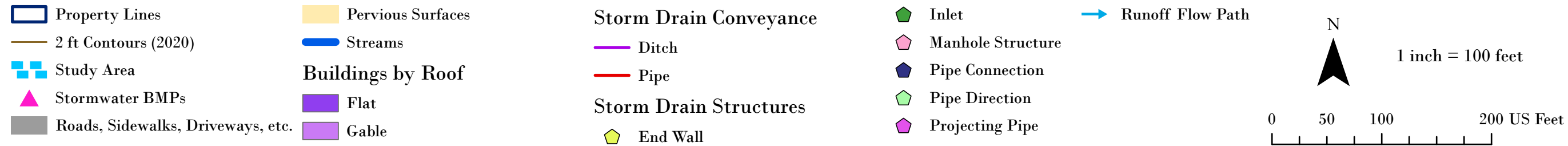
Recommendations

Takoma Park DPW may consider installing a standard headwall for the stream inflow and upsizing the pipe in order to limit stream overflow in this area. This work would need to be coordinated with the property owners.

Additionally, Takoma Park DPW may want to discuss with the property owner the alteration of the small walking bridge over the stream. The bridge could be raised to limit flow restriction when the stream levels rise.

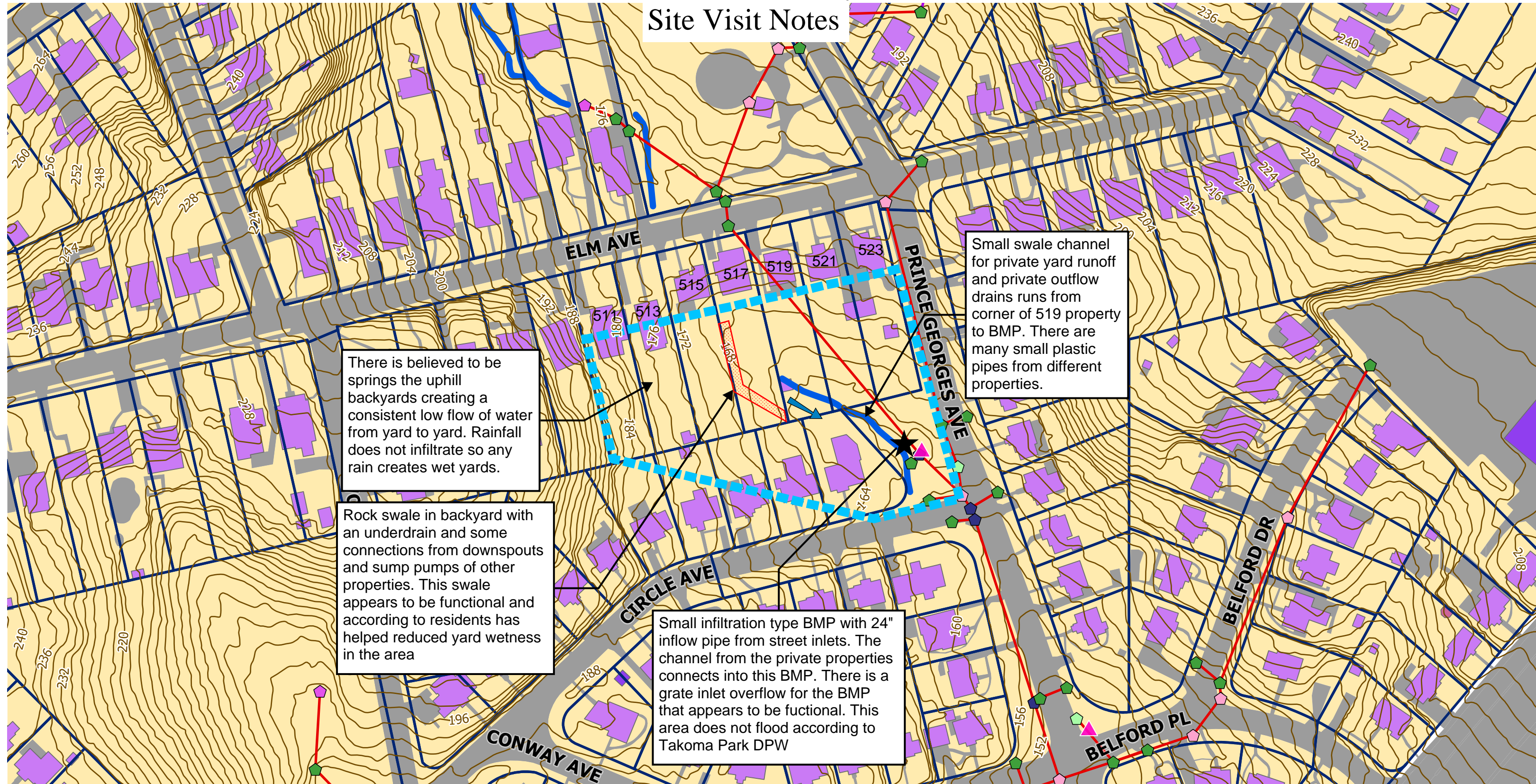
Takoma Park DPW may consider installing additional inlets uphill of the Elm Ave. sump and/or upsizing the inlets at the sump to limit ponding in the road during large storms. Driveway aprons may need to be raised if residents voice concerns about overflow from the road.

Takoma Park DPW may consider evaluating the storm main from the stream inflow point to the connection with the Circle Ave. main. Capacity and condition should be assessed to determine if any upgrades are needed. At a minimum, downstream pipes should be upsized to match the upstream pipe size in order to prevent any excessive head loss during large storms.



Takoma Park Study Area 15

Site Visit Notes



There is believed to be springs the uphill backyards creating a consistent low flow of water from yard to yard. Rainfall does not infiltrate so any rain creates wet yards.

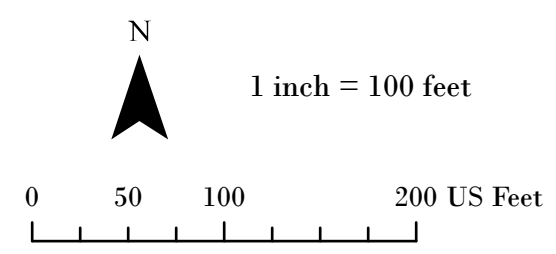
Rock swale in backyard with an underdrain and some connections from downspouts and sump pumps of other properties. This swale appears to be functional and according to residents has helped reduced yard wetness in the area

Small infiltration type BMP with 24" inflow pipe from street inlets. The channel from the private properties connects into this BMP. There is a grate inlet overflow for the BMP that appears to be fuctional. This area does not flood according to Takoma Park DPW

Small swale channel for private yard runoff and private outflow drains runs from corner of 519 property to BMP. There are many small plastic pipes from different properties.



Property Lines	Streams	Storm Drain Conveyance	Manhole Structure	Runoff Flow Path
2 ft Contours (2020)	Buildings by Roof	Ditch	Pipe Connection	Point of Concern
Study Area	Flat	Pipe	Pipe Direction	
Stormwater BMPs	Gable	Storm Drain Structures	Projecting Pipe	
Roads, Sidewalks, Driveways, etc.	Uncertain	Inlet		
Pervious Surfaces				

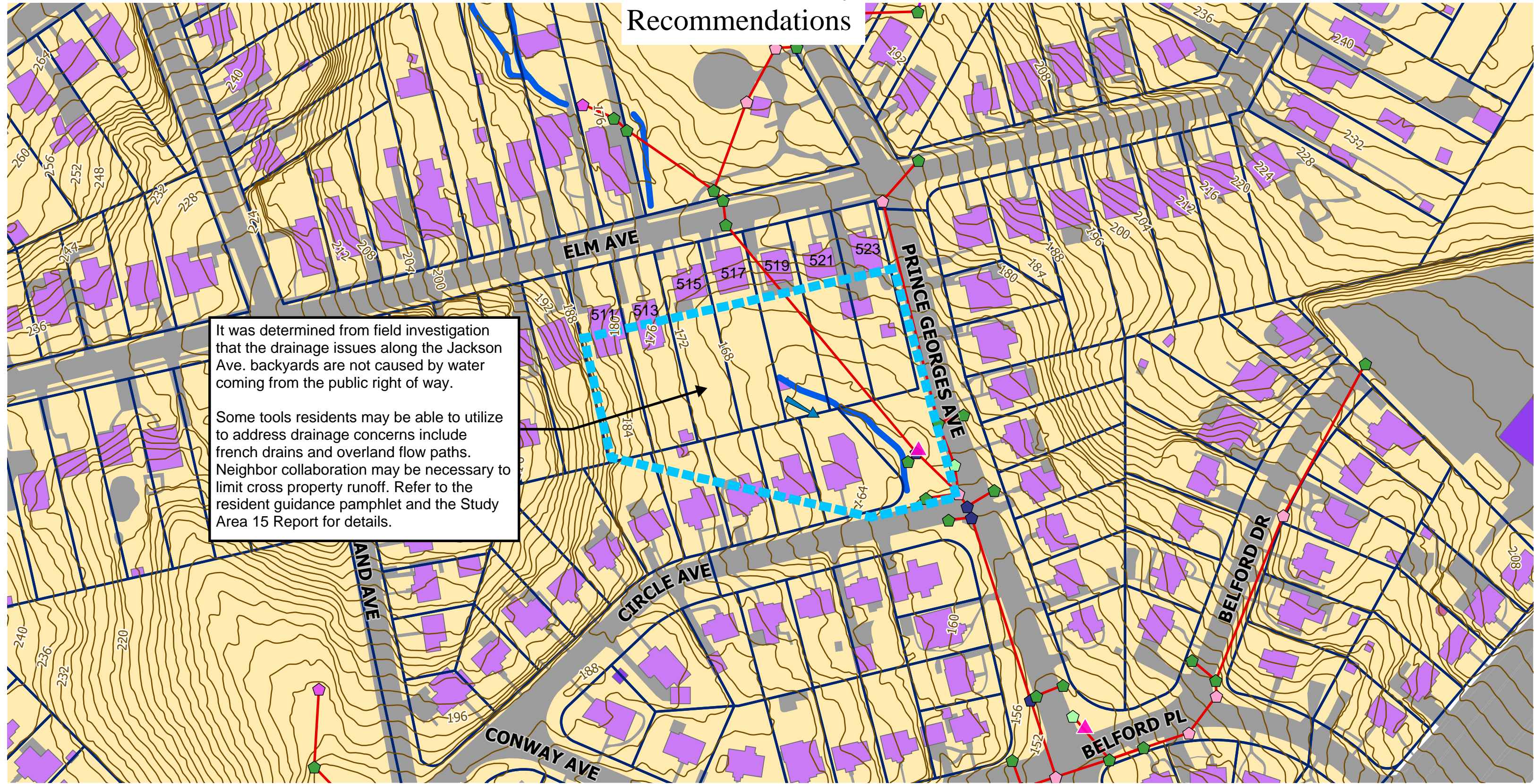


Takoma Park Study Area 15

Recommendations

It was determined from field investigation that the drainage issues along the Jackson Ave. backyards are not caused by water coming from the public right of way.

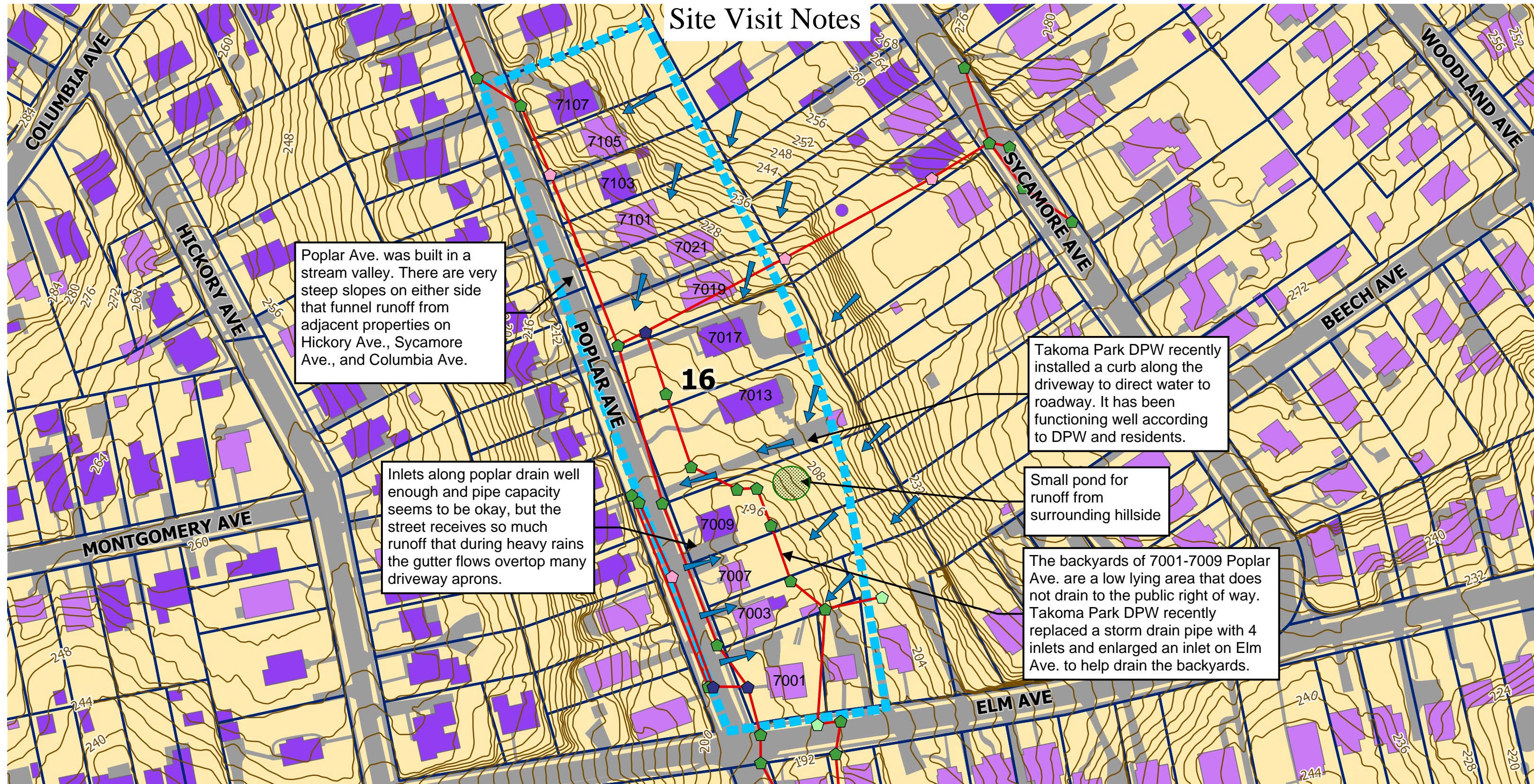
Some tools residents may be able to utilize to address drainage concerns include french drains and overland flow paths. Neighbor collaboration may be necessary to limit cross property runoff. Refer to the resident guidance pamphlet and the Study Area 15 Report for details.



Property Lines	Streams	Storm Drain Conveyance	Manhole Structure	Runoff Flow Path
2 ft Contours (2020)	Buildings by Roof	Ditch	Pipe Connection	 1 inch = 100 feet
Study Area	Flat	Pipe	Pipe Direction	
Stormwater BMPs	Gable	Storm Drain Structures	Projecting Pipe	
Roads, Sidewalks, Driveways, etc.		Inlet		
Pervious Surfaces				

Takoma Park Study Area 16

Site Visit Notes



Poplar Ave. was built in a stream valley. There are very steep slopes on either side that funnel runoff from adjacent properties on Hickory Ave., Sycamore Ave., and Columbia Ave.

Inlets along poplar drain well enough and pipe capacity seems to be okay, but the street receives so much runoff that during heavy rains the gutter flows overtop many driveway aprons.

Takoma Park DPW recently installed a curb along the driveway to direct water to roadway. It has been functioning well according to DPW and residents.

Small pond for runoff from surrounding hillside

The backyards of 7001-7009 Poplar Ave. are a low lying area that does not drain to the public right of way. Takoma Park DPW recently replaced a storm drain pipe with 4 inlets and enlarged an inlet on Elm Ave. to help drain the backyards.

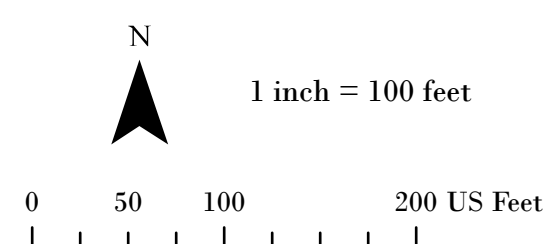


- Property Lines
- 2 ft Contours (2020)
- Study Area
- Roads, Sidewalks, Driveways, etc.
- Pervious Surfaces

- Buildings by Roof**
- Flat
- Gable
- Storm Drain Conveyance**
- Pipe

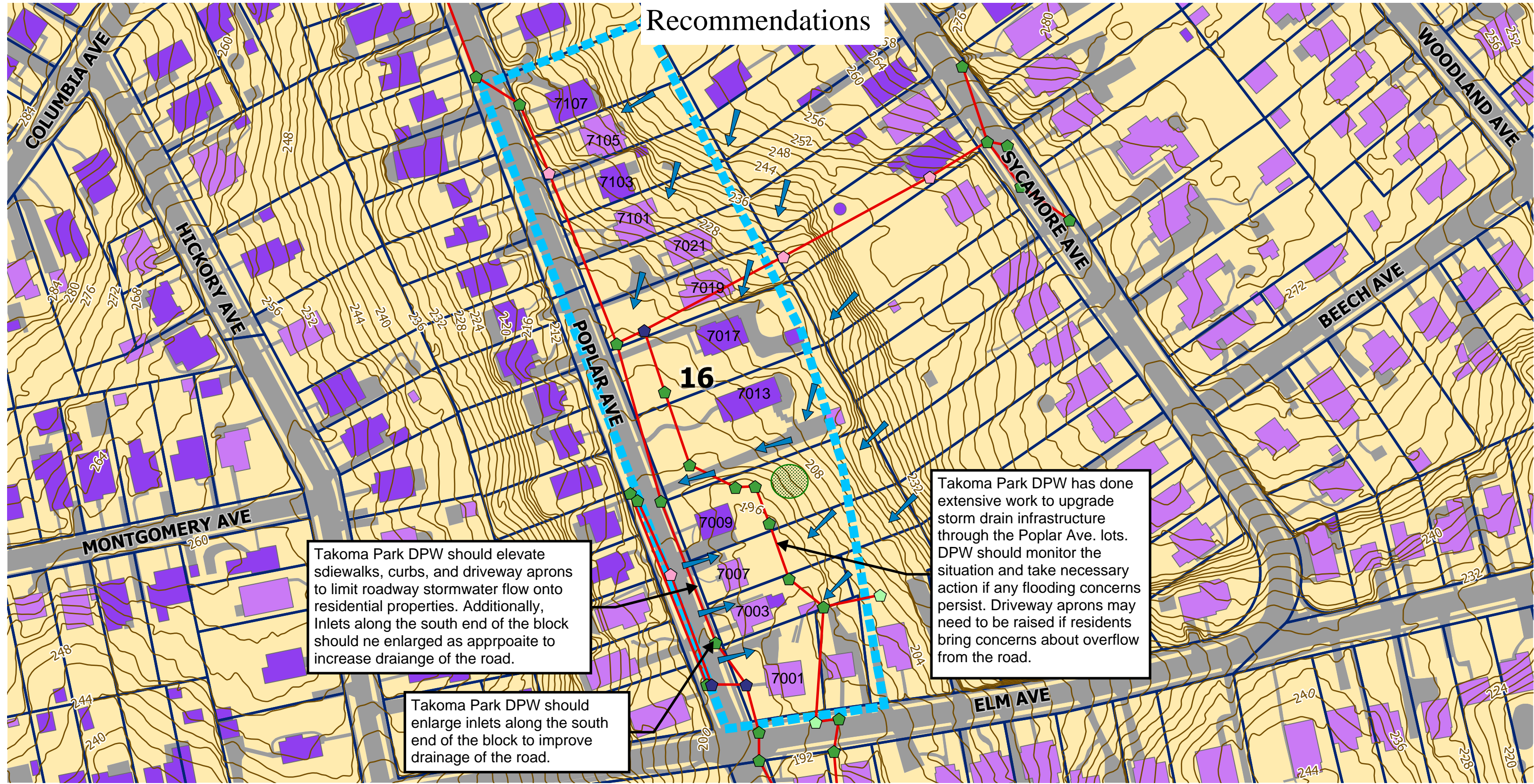
- Storm Drain Structures**
- Inlet
- Manhole Structure
- Pipe Connection
- Pipe Direction

- Runoff Flow Path



Takoma Park Study Area 16

Recommendations



Takoma Park DPW should elevate sidewalks, curbs, and driveway aprons to limit roadway stormwater flow onto residential properties. Additionally, inlets along the south end of the block should be enlarged as appropriate to increase drainage of the road.

Takoma Park DPW should enlarge inlets along the south end of the block to improve drainage of the road.

Takoma Park DPW has done extensive work to upgrade storm drain infrastructure through the Poplar Ave. lots. DPW should monitor the situation and take necessary action if any flooding concerns persist. Driveway aprons may need to be raised if residents bring concerns about overflow from the road.

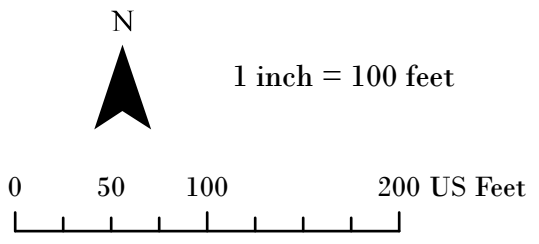


- Property Lines
- 2 ft Contours (2020)
- Study Area
- Roads, Sidewalks, Driveways, etc.
- Pervious Surfaces

- Buildings by Roof**
- Flat
- Gable
- Storm Drain Conveyance**
- Pipe

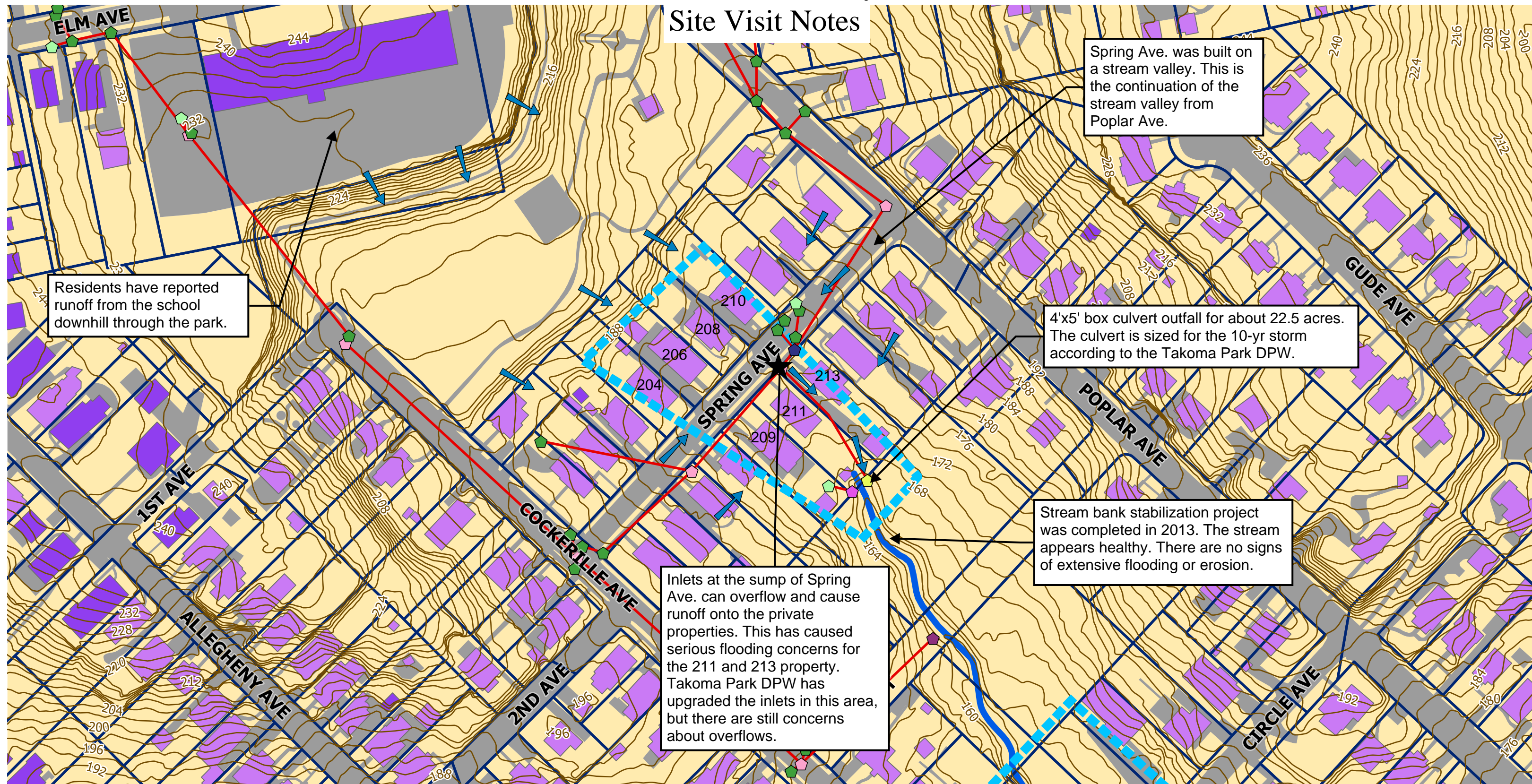
- Storm Drain Structures**
- Inlet
- Manhole Structure
- Pipe Connection
- Pipe Direction

- Runoff Flow Path

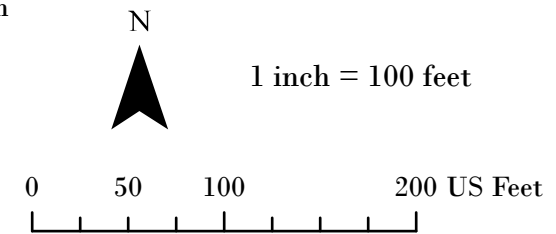


Takoma Park Study Area 17

Site Visit Notes

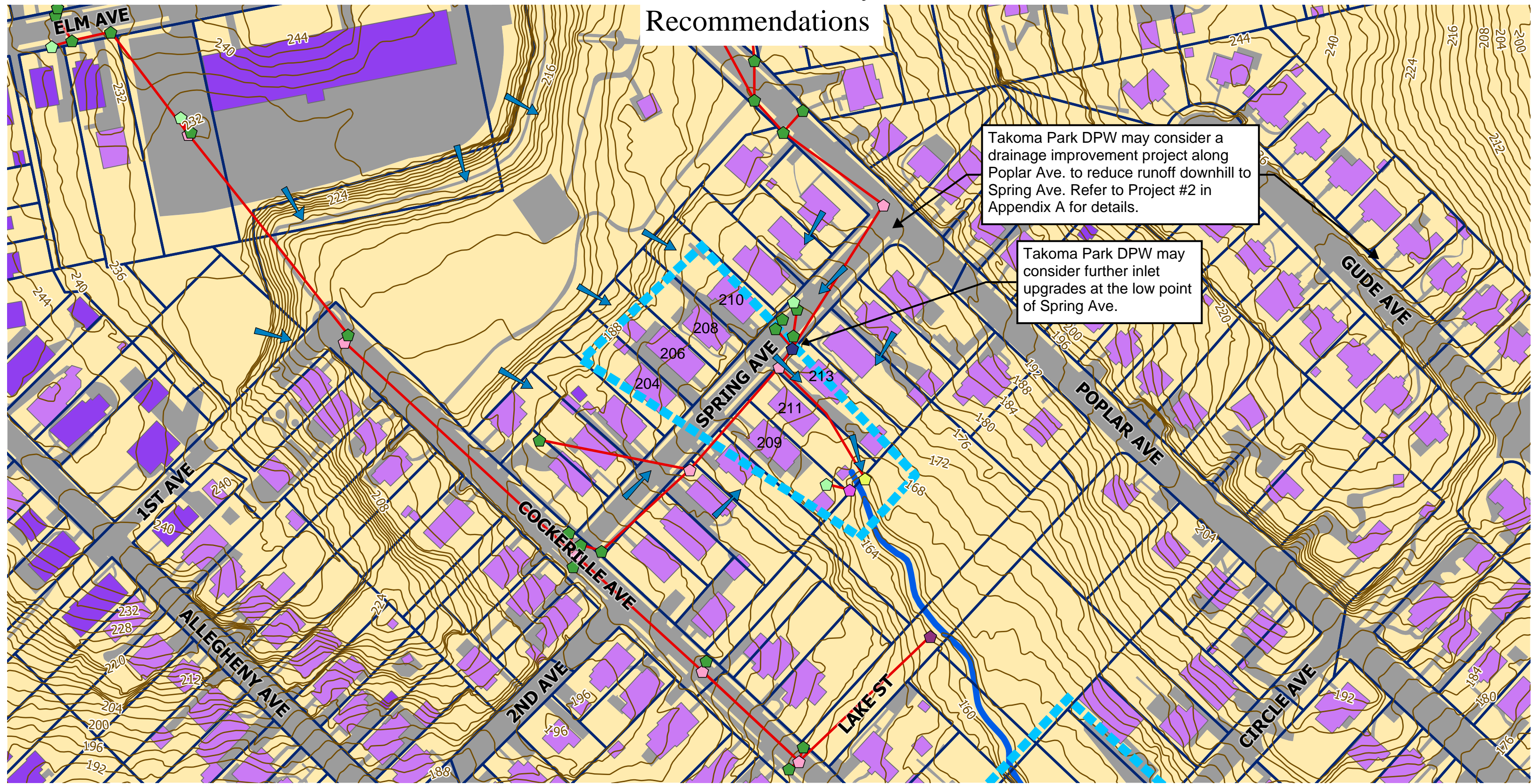


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|-----------------------------------|--------------------------|-------------------------------|-------------------|------------------|
| Property Lines | Streams | Storm Drain Conveyance | Inlet | Runoff Flow Path |
| 2 ft Contours (2020) | Buildings by Roof | Pipe | Manhole Structure | Point of Concern |
| Study Area | Flat | Storm Drain Structures | Pipe Connection | |
| Roads, Sidewalks, Driveways, etc. | Gable | Endsection | Pipe Direction | |
| Pervious Surfaces | | End Wall | Projecting Pipe | |



Takoma Park Study Area 17

Recommendations



Takoma Park DPW may consider a drainage improvement project along Poplar Ave. to reduce runoff downhill to Spring Ave. Refer to Project #2 in Appendix A for details.

Takoma Park DPW may consider further inlet upgrades at the low point of Spring Ave.



Low Impact Development Center

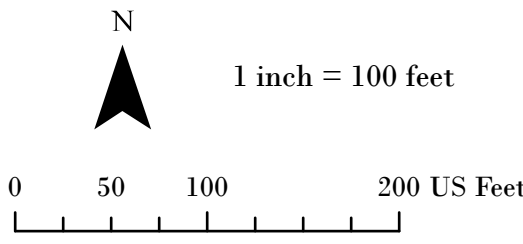
- Property Lines
- 2 ft Contours (2020)
- Study Area
- Roads, Sidewalks, Driveways, etc.
- Pervious Surfaces

- Streams
- Buildings by Roof**
- Flat
- Gable

- Storm Drain Conveyance**
- Pipe
- Storm Drain Structures**
- Endsection
- End Wall

- Inlet
- Manhole Structure
- Pipe Connection
- Pipe Direction
- Projecting Pipe

- Runoff Flow Path
- Point of Concern



Takoma Park Study Area 18

Site Visit Notes

48" diameter inflow pipe for the stream is a choke point. When the stream level gets high during large storms the stream overflows onto surrounding properties.

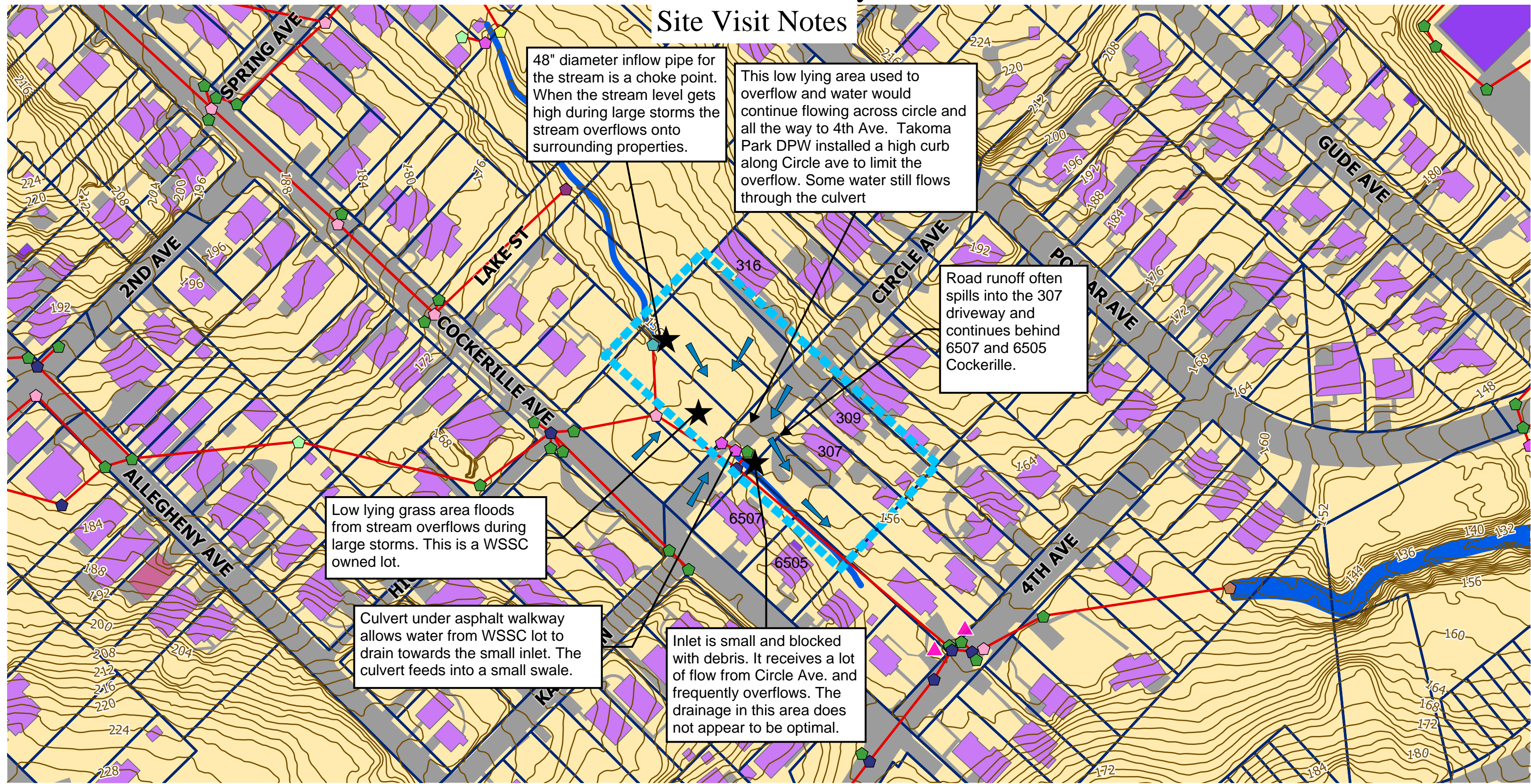
This low lying area used to overflow and water would continue flowing across circle and all the way to 4th Ave. Takoma Park DPW installed a high curb along Circle ave to limit the overflow. Some water still flows through the culvert

Road runoff often spills into the 307 driveway and continues behind 6507 and 6505 Cockerille.

Low lying grass area floods from stream overflows during large storms. This is a WSSC owned lot.

Culvert under asphalt walkway allows water from WSSC lot to drain towards the small inlet. The culvert feeds into a small swale.

Inlet is small and blocked with debris. It receives a lot of flow from Circle Ave. and frequently overflows. The drainage in this area does not appear to be optimal.



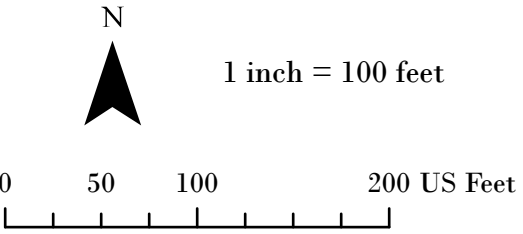
- Property Lines
- 2 ft Contours (2020)
- Study Area
- Stormwater BMPs
- Roads, Sidewalks, Driveways, etc.
- Pervious Surfaces
- Streams

- Buildings by Roof**
- Flat
 - Gable

- Storm Drain Conveyance**
- Ditch
 - Pipe
- Storm Drain Structures**
- Endsection
 - End Wall

- Head Wall
- Ditch Intersection
- Inlet
- Manhole Structure
- Pipe Connection
- Pipe Direction
- Projecting Pipe

- Runoff Flow Path
- Point of Concern



Takoma Park Study Area 18

Recommendations

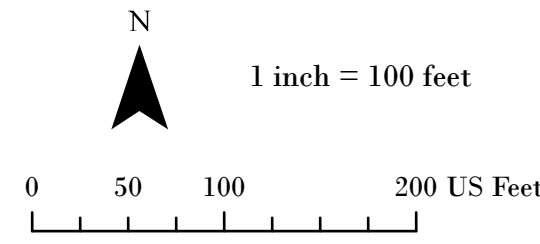
Takoma Park DPW may consider a stormwater BMP and underground storage project on Lake St. Refer to Project #3 in Appendix A for details.

Takoma Park DPW may consider a drainage improvement project on Circle Ave. Refer to Project #2 in Appendix A for details.

Takoma Park DPW may consider replacing the inflow pipe for the stream and installing a wetlands BMP in the open grass area. Refer to Project #1 in Appendix A for details.

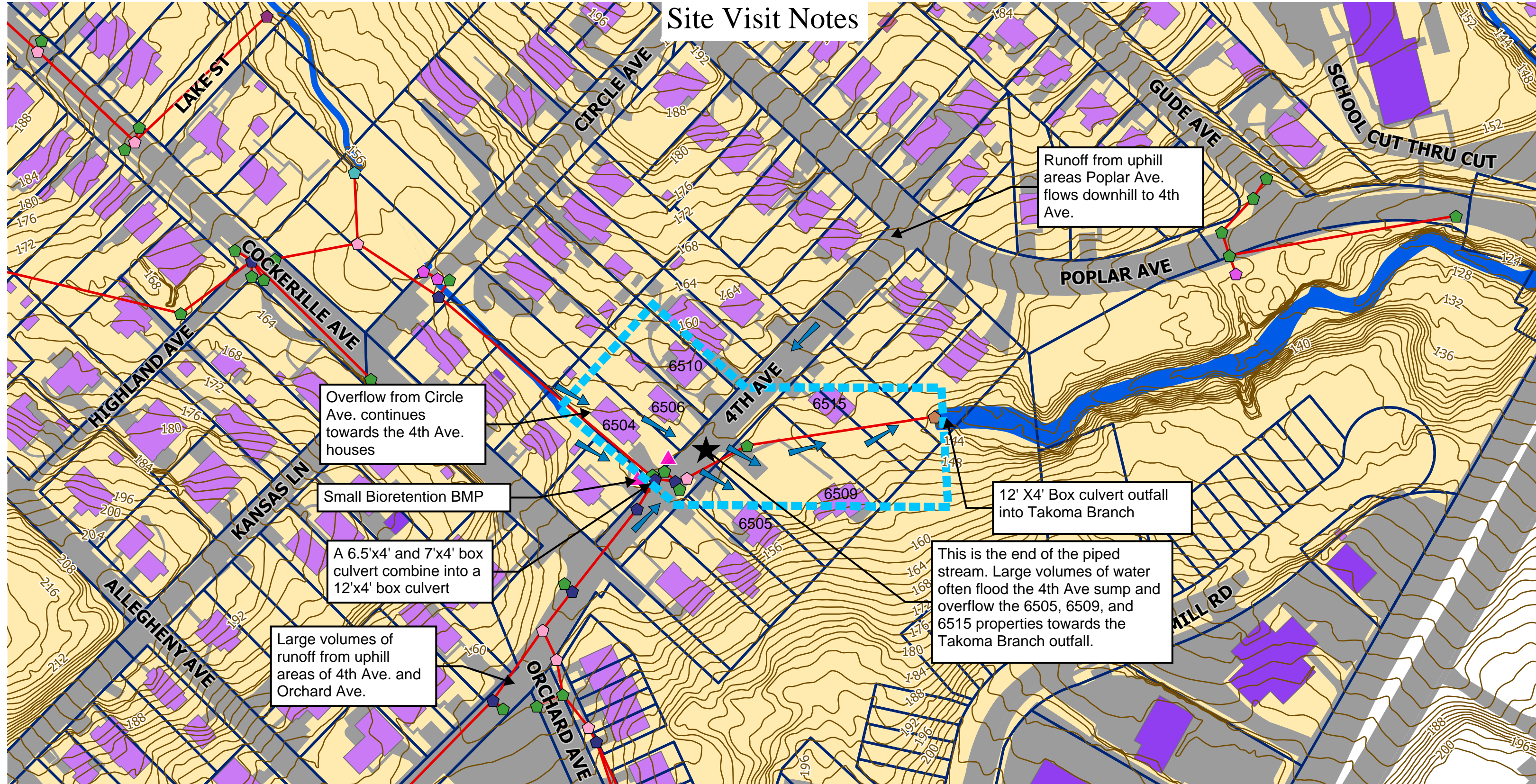


Property Lines	Buildings by Roof	Storm Drain Conveyance	Head Wall	Runoff Flow Path
2 ft Contours (2020)	Flat	Pipe	Ditch Intersection	Point of Concern
Study Area	Gable	Storm Drain Structures	Inlet	
Stormwater BMPs	Not Applicable	Endsection	Manhole Structure	
Roads, Sidewalks, Driveways, etc.	Uncertain	End Wall	Pipe Connection	
Pervious Surfaces			Pipe Direction	
Streams			Projecting Pipe	



Takoma Park Study Area 19

Site Visit Notes



Runoff from uphill areas Poplar Ave. flows downhill to 4th Ave.

Overflow from Circle Ave. continues towards the 4th Ave. houses

Small Bioretention BMP

A 6.5'x4' and 7'x4' box culvert combine into a 12'x4' box culvert

Large volumes of runoff from uphill areas of 4th Ave. and Orchard Ave.

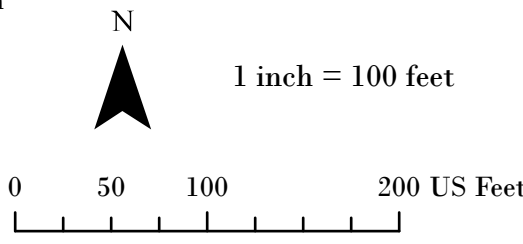
12' X4' Box culvert outfall into Takoma Branch

This is the end of the piped stream. Large volumes of water often flood the 4th Ave sump and overflow the 6505, 6509, and 6515 properties towards the Takoma Branch outfall.



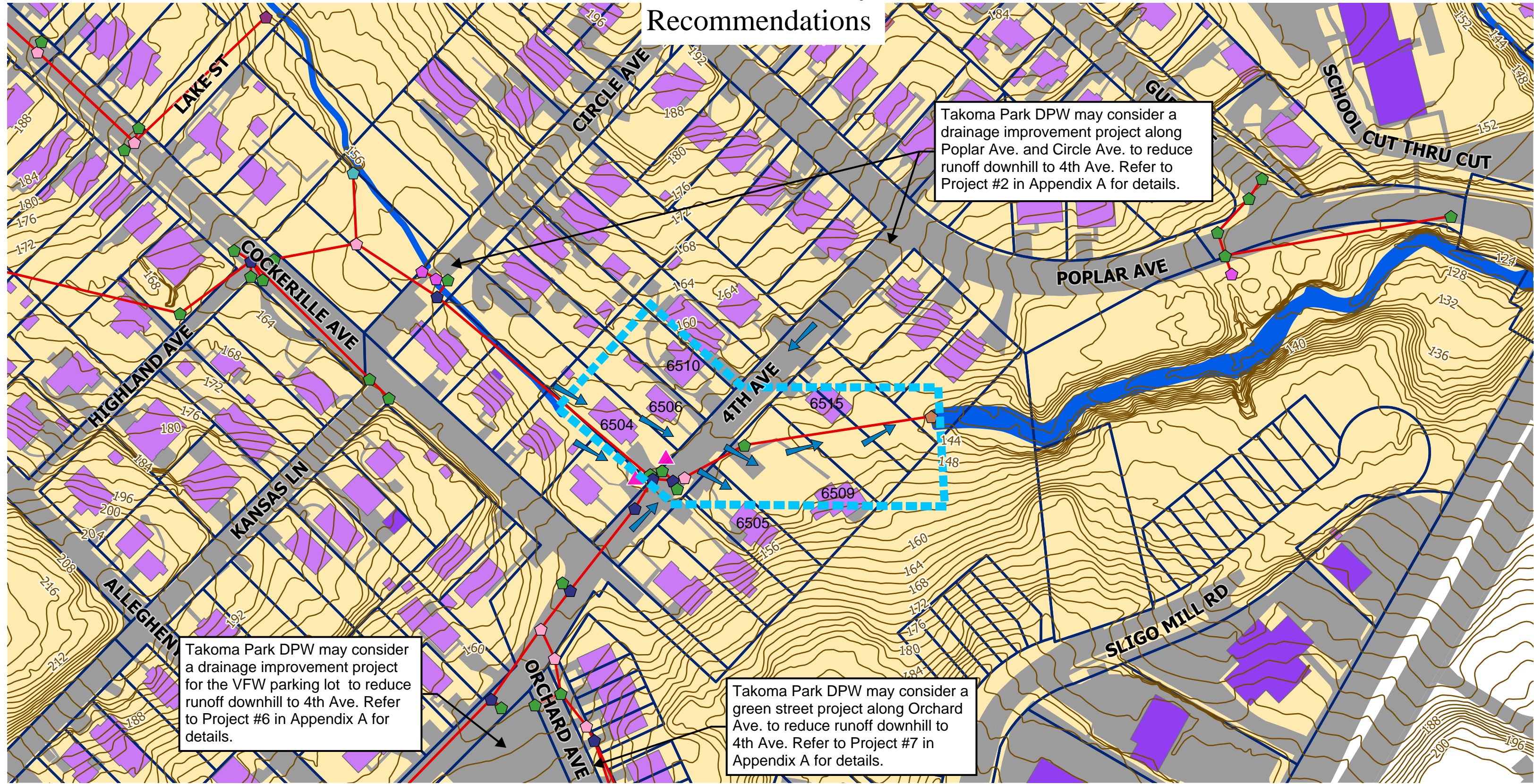
Low Impact Development Center

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|-----------------------------------|--------------------------|-------------------------------|--------------------|------------------|
| Property Lines | Streams | Storm Drain Conveyance | Ditch Intersection | Runoff Flow Path |
| 2 ft Contours (2020) | Buildings by Roof | Ditch | Inlet | Point of Concern |
| Study Area | Flat | Pipe | Manhole Structure | |
| Stormwater BMPs | Gable | Storm Drain Structures | Pipe Connection | |
| Roads, Sidewalks, Driveways, etc. | | Endsection | Projecting Pipe | |
| Pervious Surfaces | | Head Wall | | |



Takoma Park Study Area 19

Recommendations



Takoma Park DPW may consider a drainage improvement project along Poplar Ave. and Circle Ave. to reduce runoff downhill to 4th Ave. Refer to Project #2 in Appendix A for details.

Takoma Park DPW may consider a drainage improvement project for the VFW parking lot to reduce runoff downhill to 4th Ave. Refer to Project #6 in Appendix A for details.

Takoma Park DPW may consider a green street project along Orchard Ave. to reduce runoff downhill to 4th Ave. Refer to Project #7 in Appendix A for details.

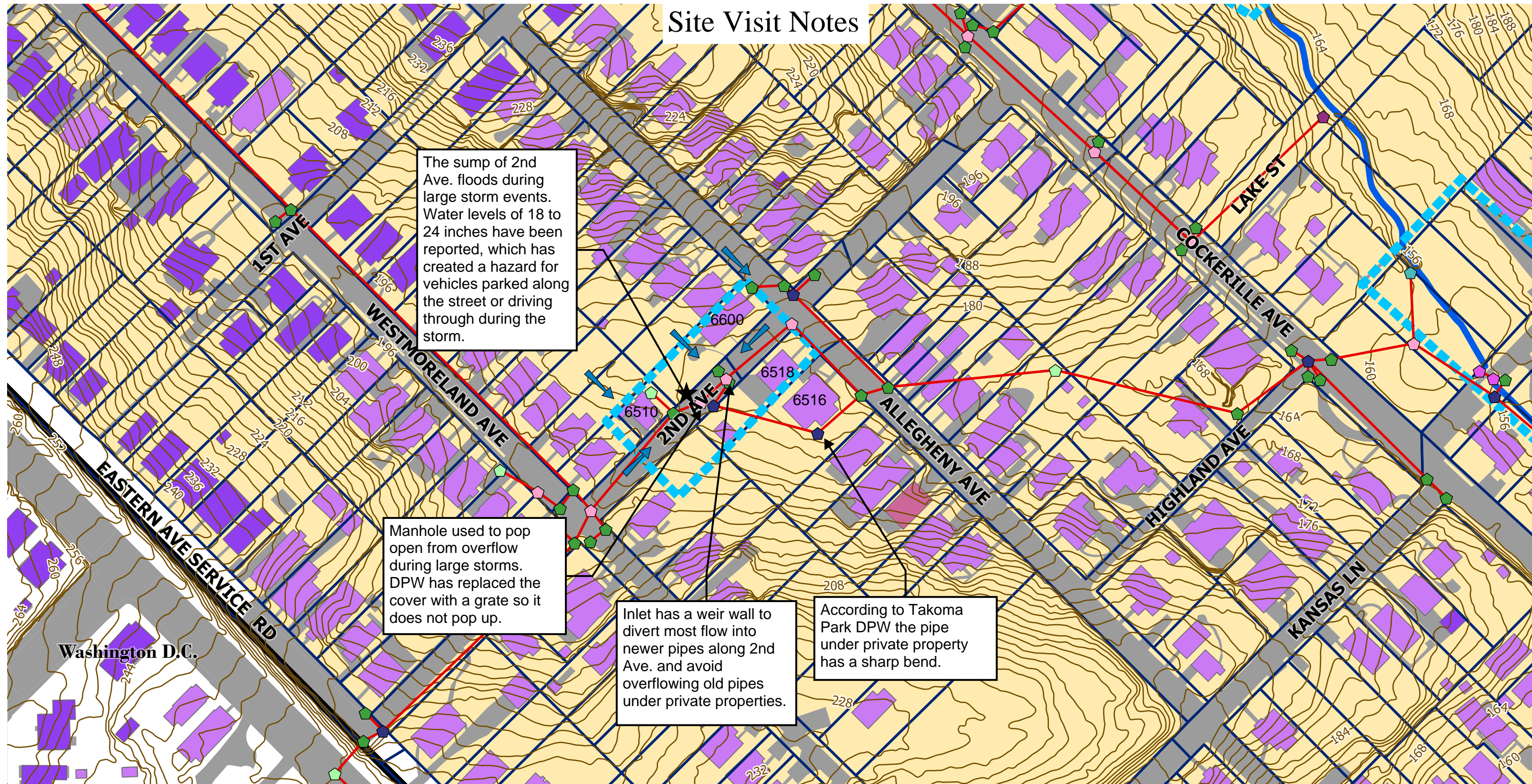


Low Impact Development Center

- | | | | | |
|-----------------------------------|--------------------------|-------------------------------|--------------------|--|
| Property Lines | Streams | Storm Drain Conveyance | Ditch Intersection | Runoff Flow Path |
| 2 ft Contours (2020) | Buildings by Roof | Ditch | Inlet | Point of Concern |
| Study Area | Flat | Pipe | Manhole Structure | N
1 inch = 100 feet
0 50 100 200 US Feet |
| Stormwater BMPs | Gable | Storm Drain Structures | Pipe Connection | |
| Roads, Sidewalks, Driveways, etc. | Not Applicable | Endsection | Projecting Pipe | |
| Pervious Surfaces | Uncertain | Head Wall | | |

Takoma Park Study Area 20

Site Visit Notes



The sump of 2nd Ave. floods during large storm events. Water levels of 18 to 24 inches have been reported, which has created a hazard for vehicles parked along the street or driving through during the storm.

Manhole used to pop open from overflow during large storms. DPW has replaced the cover with a grate so it does not pop up.

Inlet has a weir wall to divert most flow into newer pipes along 2nd Ave. and avoid overflowing old pipes under private properties.

According to Takoma Park DPW the pipe under private property has a sharp bend.

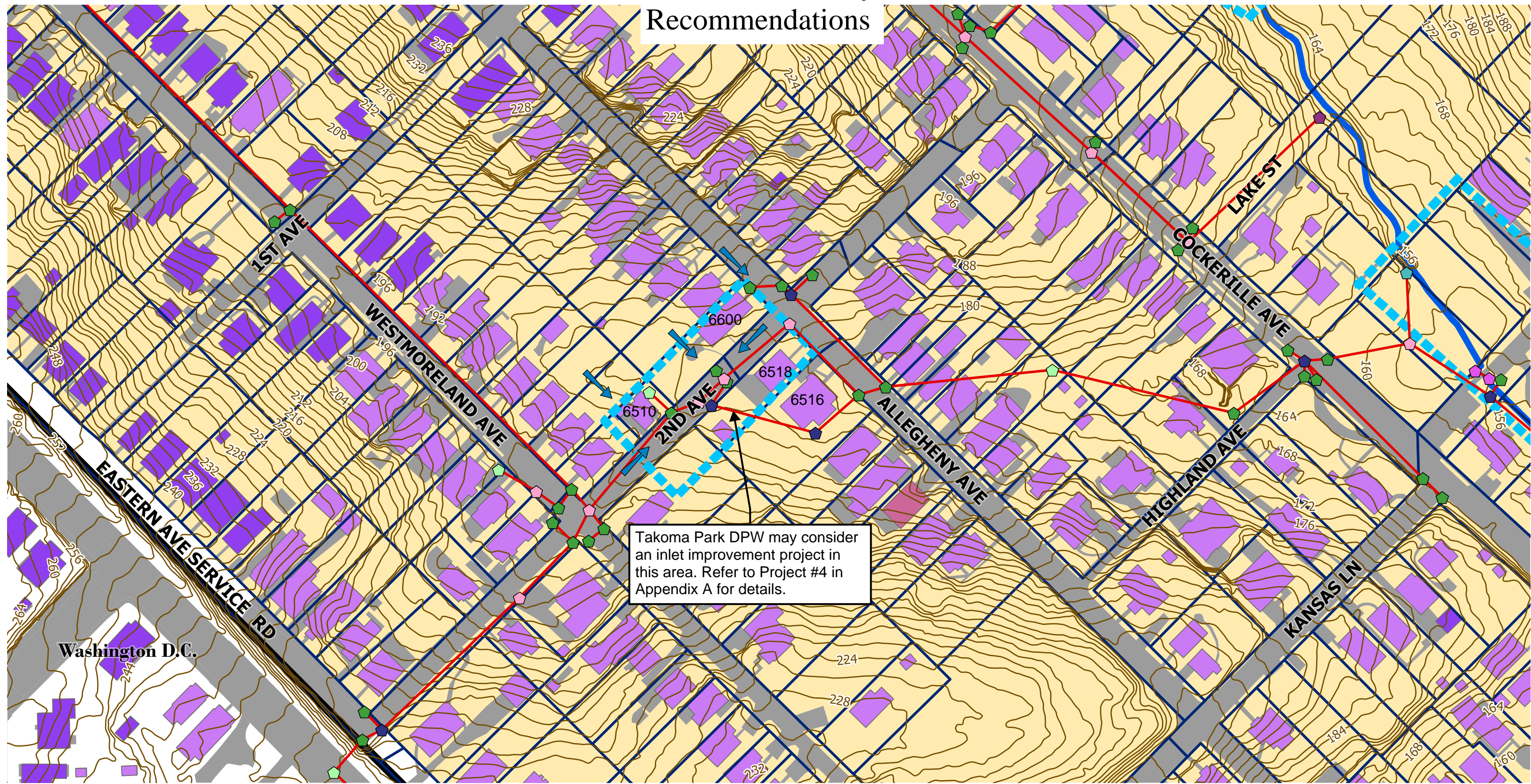


Property Lines	City Boundary	Storm Drain Conveyance	Head Wall	Runoff Flow Path
2 ft Contours (2020)	Buildings by Roof	Ditch	Inlet	Point of Concern
Study Area	Flat	Pipe	Manhole Structure	N 1 inch = 100 feet 0 50 100 200 US Feet
Roads, Sidewalks, Driveways, etc.	Gable	Storm Drain Structures	Pipe Connection	
Pervious Surfaces	Uncertain	Endsection	Pipe Direction	
Streams			Projecting Pipe	

Note: Pervious surface layer is confined to the City boundary.

Takoma Park Study Area 20

Recommendations



Takoma Park DPW may consider an inlet improvement project in this area. Refer to Project #4 in Appendix A for details.



Low Impact Development Center

Property Lines	City Boundary	Storm Drain Conveyance	Head Wall	Runoff Flow Path	 N 1 inch = 100 feet 0 50 100 200 US Feet
2 ft Contours (2020)	Buildings by Roof	Ditch	Inlet	Point of Concern	
Study Area	Flat	Storm Drain Structures	Manhole Structure	Pipe Connection	
Roads, Sidewalks, Driveways, etc.	Gable	Pipe	Pipe Direction	Projecting Pipe	
Pervious Surfaces	Uncertain	Endsection			
Streams					

Note: Pervious surface layer is confined to the City boundary.