

Clarksburg Ten Mile Creek Sewer Study

Clarksburg/Ten-Mile Creek Citizens Advisory
Committee

August 20, 2015

Agenda

1. Confirm Approval of Meeting Summary – June 25, 2015
2. Montgomery County Department of Environmental Protection (MCDEP) review of Clarksburg Alternatives 3 through 8
 - a. Presentation by MCDEP: *“TMC Sewer Alternatives – Environmental Analysis”*
 - b. WSSC overview of adjustment/revisions to sewer alternatives incorporating MCDEP comments.
3. Review of feasibility of a 100% grinder system/low pressure system concepts for Clarksburg/Ten-Mile Creek (property-by-property analysis).
4. Revised cost estimates for Alternatives 3 through 9
5. Olney Force Main Failure – Current and Future WSSC Developments
6. Questions/Comments from CAC in attendance
7. Next Steps/Next Meeting
8. Open Comments from Public
9. Adjournment

Ground Rules

Citizens Advisory Committee – Meeting Ground Rules

- Only CAC Members and official agency representatives are seated at tables and allowed to participate. All other please sit in the outer chairs.
 - CAC members can send a substitute if they are going to miss a meeting
- Comments/Questions from CAC Members and support staff during meeting. Members of the public will have an opportunity to comment near the end of the meeting
- Please be respectful of each others' opinions/comments. Membership of this CAC represent various and diverse points of views, goals, and perspectives.
- Reminder - WSSC proposed draft sewer infrastructure plan.
 - Plan will be provided to CAC for review and comment. WSSC will complete a final draft plan with documentation of CAC member input and comments in the plan.

Citizens Advisory Committee Approval of from June 25th Meeting Summary

Montgomery County Department of Environmental Protection (MCDEP) review of Clarksburg Alternatives 3 through 8

TMC Sewer Alternatives – Environmental Analysis

TMC SEWER ALTERNATIVES

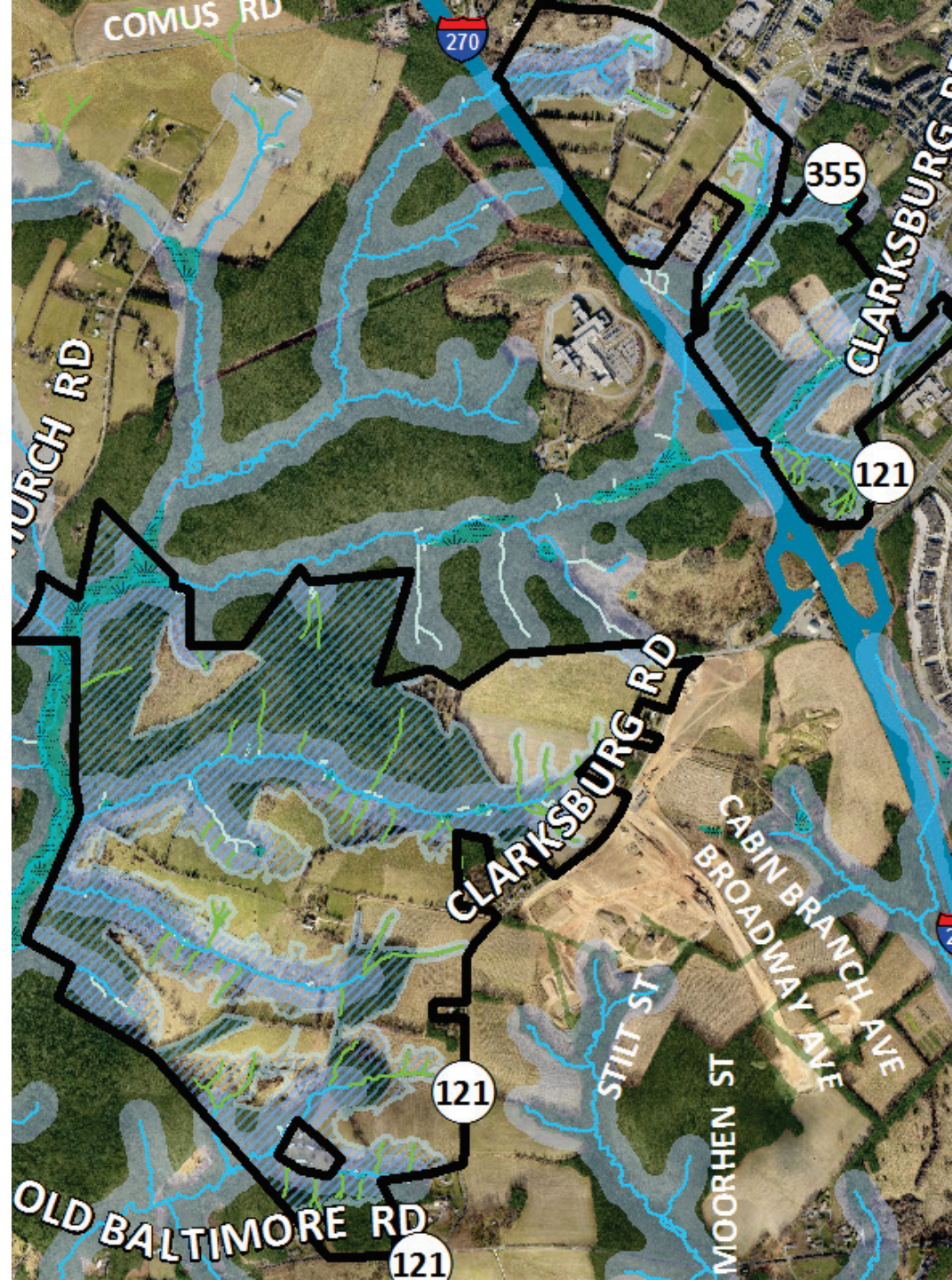
Environmental Analysis

August 13, 2015



DEPARTMENT OF
**ENVIRONMENTAL
PROTECTION**
MONTGOMERY COUNTY • MARYLAND

Working together for a cleaner, greener county.



OVERALL PURPOSE

- The purpose of this environmental analysis is to:
 - ✓ Describe potential environmental impacts to specific mapped environmentally sensitive features due to their proximity to various sewer alignment alternatives proposed by WSSC in the Ten Mile Creek sewer facility plan.
 - ✓ Provide guidance on the variable sensitivity of different environmental features to these proposed sewer alignments.
- The purpose of this environmental analysis is NOT to provide:
 - ✗ Recommendations to WSSC for sewer alignments
 - ✗ Recommendations for specific sewer technologies
- This review is consistent with the adopted master plan amendment.
- Sewer environmental analyses of this nature have not been performed in other SPAs. However, there are more stringent master plan limits on development and additional protections extended to Ten Mile Creek due to the extraordinarily sensitive nature of this watershed.

OVERALL COMMENTS

- Construction of sewerage infrastructure within environmental buffers should be avoided or minimized.
 - The likelihood of impacts within the environmental buffer increase with proximity to features such as streams, springs, seeps, wetlands, >15% slopes, and erodible soils.
 - Impacts to environmentally sensitive features should be avoided, particularly groundwater source features such as headwater springs & seeps. These features serve critical functions including a natural source of cold, clean water for the Ten Mile Creek system.
 - Clusters of groundwater source features have higher ecological significance and fragmentation of habitat should be avoided.
 - Ephemeral streams that run in direct response to surface runoff are less sensitive than groundwater source features.

OVERALL COMMENTS

- In areas where no comments are made, impacts were determined to be minimal.
- Potential impacts still exist where sewer alignments follow existing or planned roads, however, the significance of impact is less than if the sewer alignment were to impact environmental features that have had no prior existing impacts. Regardless, efforts should be taken to minimize any potential impacts of sewers within the buffers.

OVERALL COMMENTS

- If construction within buffer areas is unavoidable, recommend geotechnical analysis of soil suitability and further environmental analysis of impacts prior to final design and permit issuance.
 - Geotechnical analysis should include, at a minimum, soil borings to document depth to bedrock, depth to groundwater, presence of hydric soils, and other soil characteristics.
 - Further environmental analysis must include, at a minimum, herpetofauna surveys, biological inventories, and wetland vegetation surveys with the intent to provide additional information about the value of the habitat features. The field verification for these tasks will need to be completed during DEP & MDE approved sampling timeframes.
- Recommend DEP be involved with more detailed review of impacts during concept design phase. DEP will coordinate this with WSSC and M-NCPPC.

OUTLINE

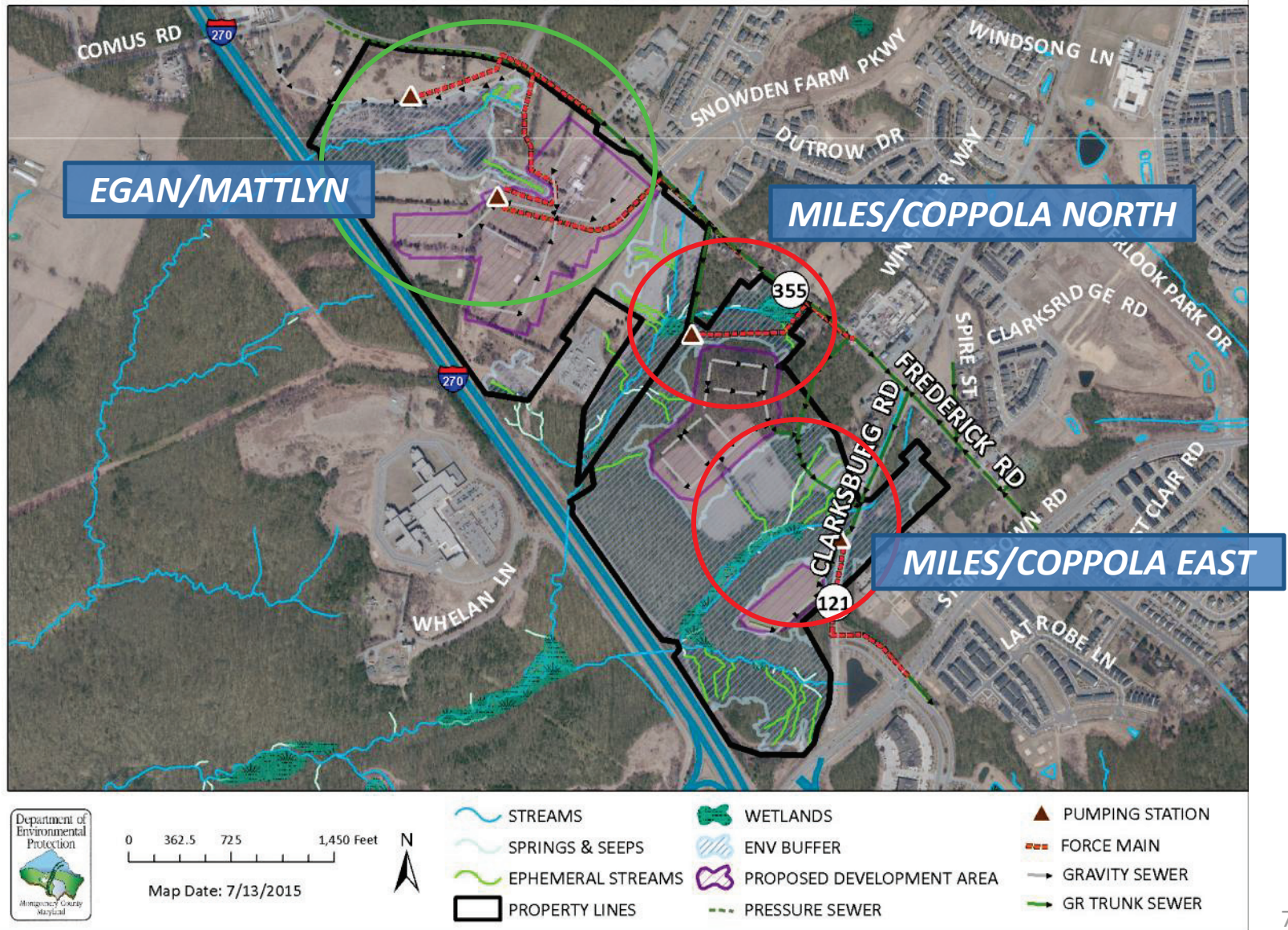
- Analysis broken out by property areas and by alignment alternatives
- Specific maps and comments generated to show varying levels of impacts for the following alternatives/property areas:
 - Alternatives 6, 7 & 8
 - Egan/Mattlyn
 - Miles/Coppola East
 - Miles/Coppola North
 - Alternatives 3-8 (same for Pulte/King)
 - Pulte/King North
 - Pulte/King South

ALTERNATIVES 6, 7 & 8

TMC Sewer Alternatives - Environmental Analysis

Base Map

Fig. 1

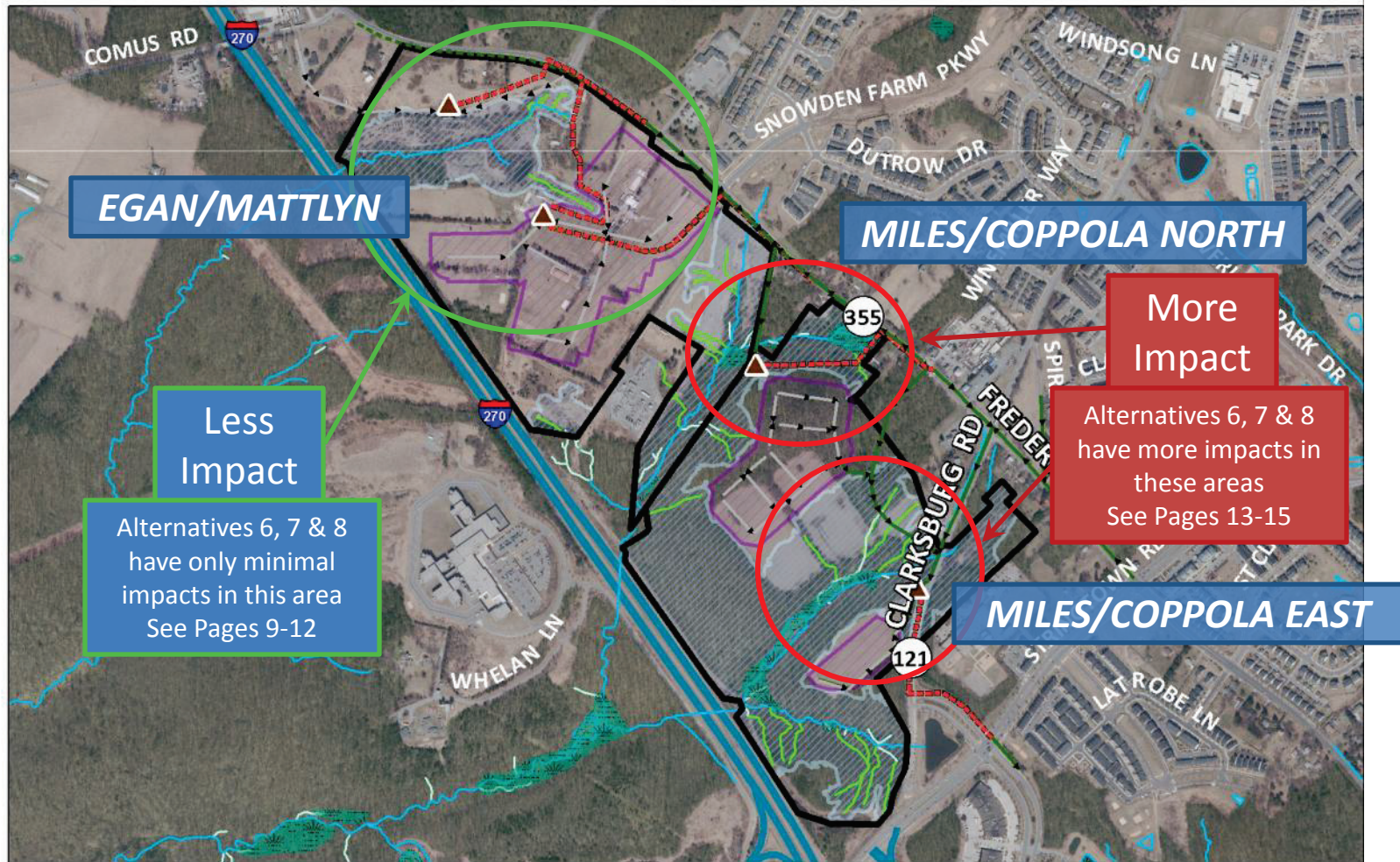


ALTERNATIVES 6, 7 & 8

TMC Sewer Alternatives - Environmental Analysis

Highlighted Areas

Fig. 2



0 362.5 725 1,450 Feet

Map Date: 7/13/2015



STREAMS

SPRINGS & SEEPS

EPHEMERAL STREAMS

PROPERTY LINES

WETLANDS

ENV BUFFER

PROPOSED DEVELOPMENT AREA

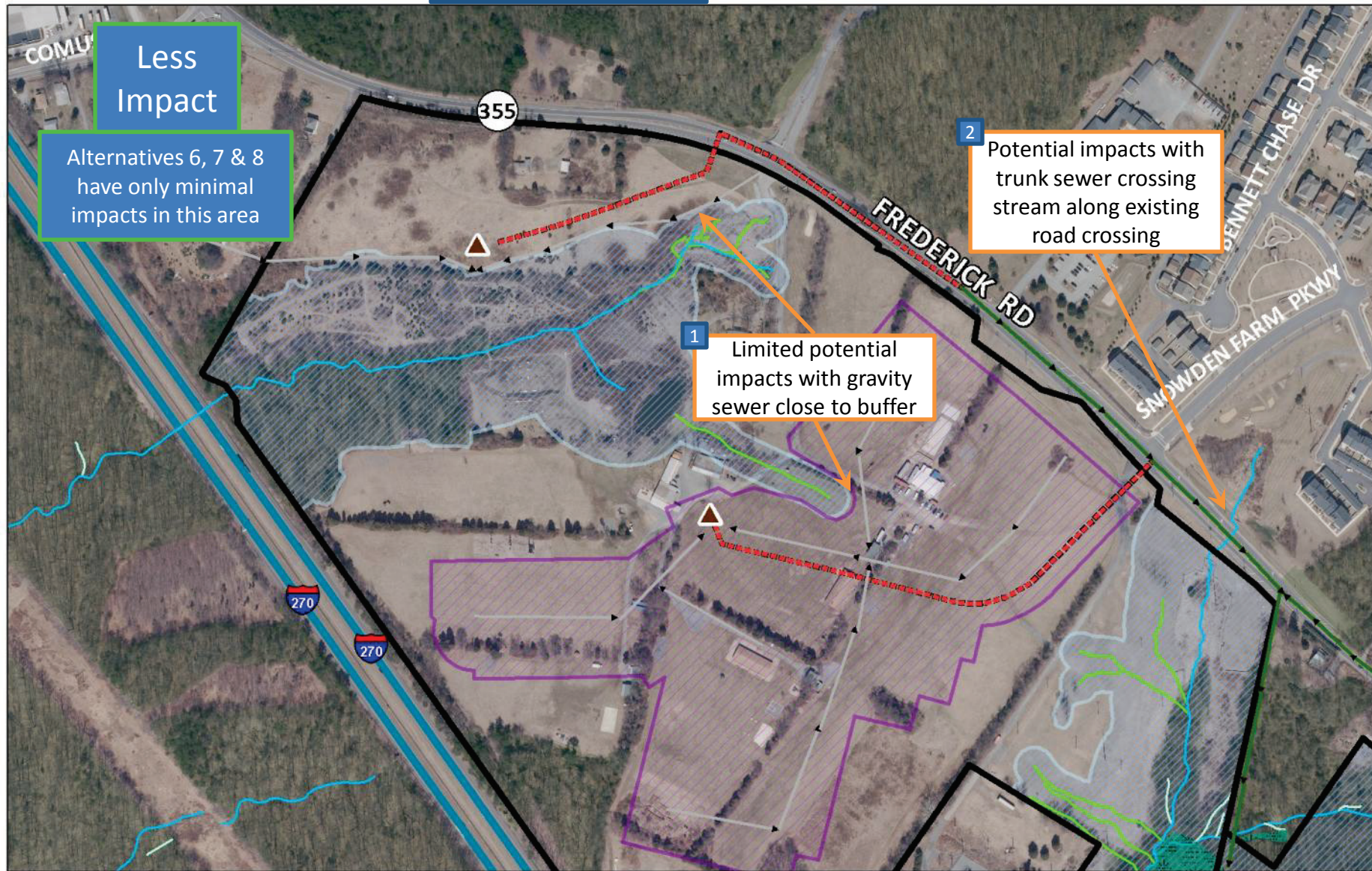
PRESSURE SEWER

PUMPING STATION

FORCE MAIN

GRAVITY SEWER

GR TRUNK SEWER



0 150 300 600 Feet

Map Date: 7/13/2015



STREAMS

SPRINGS & SEEPS

EPHEMERAL STREAMS

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PROPOSED DEVELOPMENT AREA

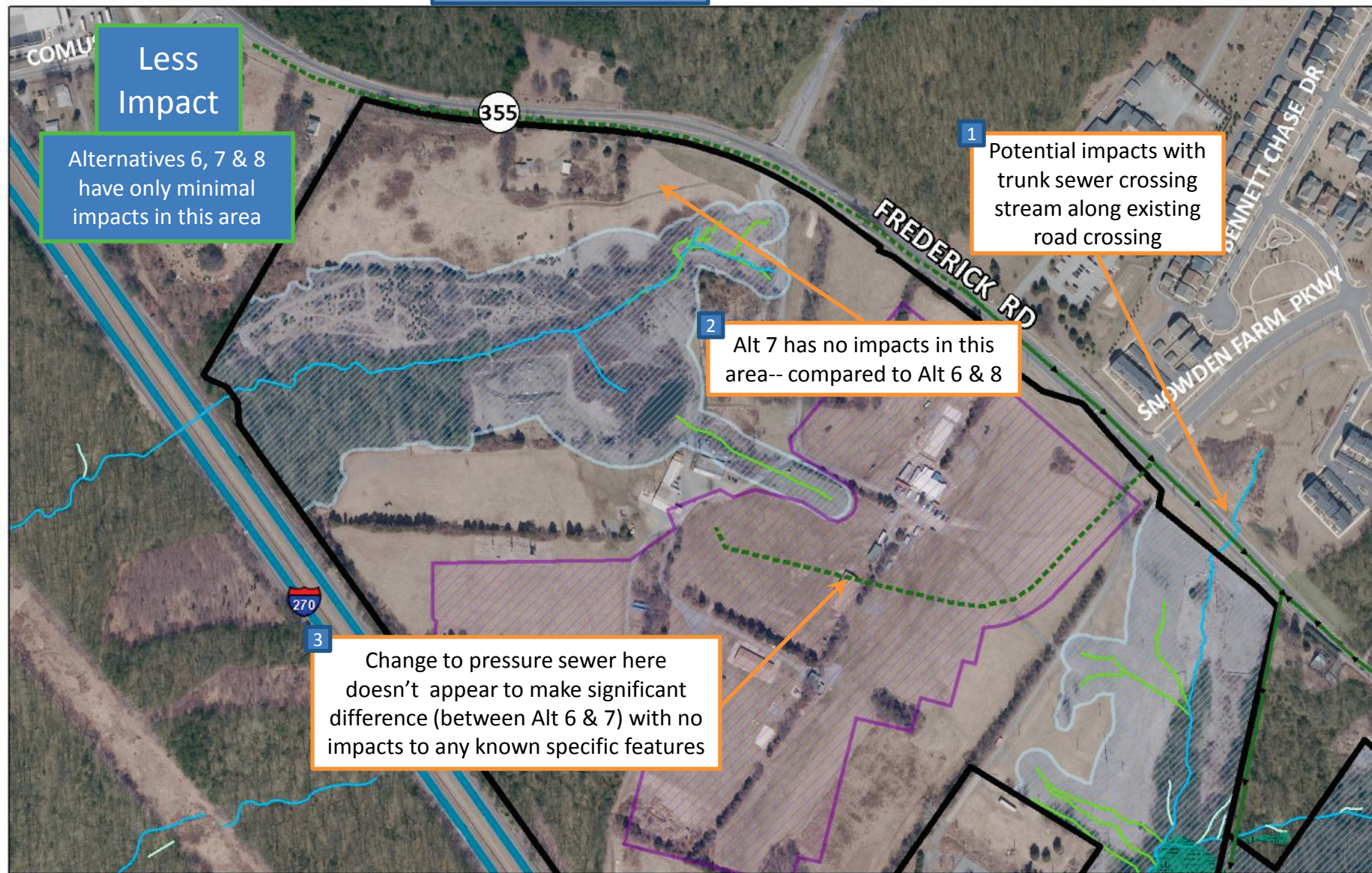
PRESSURE SEWER

PUMPING STATION

FORCE MAIN

GRAVITY SEWER

GR TRUNK SEWER



0 150 300 600 Feet

Map Date: 7/13/2015



STREAMS

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WETLANDS

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PROPOSED DEVELOPMENT AREA

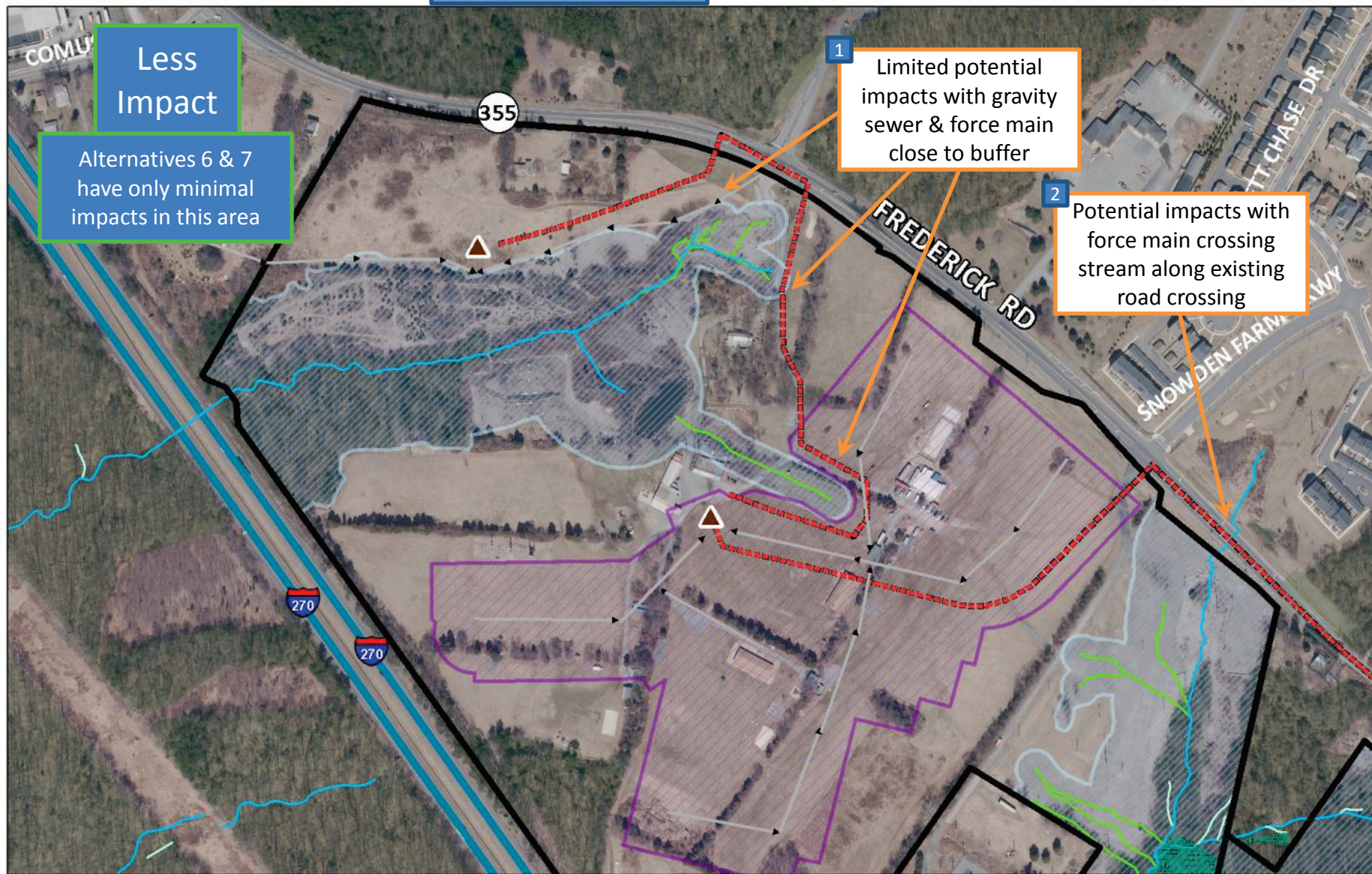
PRESSURE SEWER

PUMPING STATION

FORCE MAIN

GRAVITY SEWER

GR TRUNK SEWER



0 150 300 600 Feet

Map Date: 7/13/2015



STREAMS

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WETLANDS

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PRESSURE SEWER

PUMPING STATION

FORCE MAIN

GRAVITY SEWER

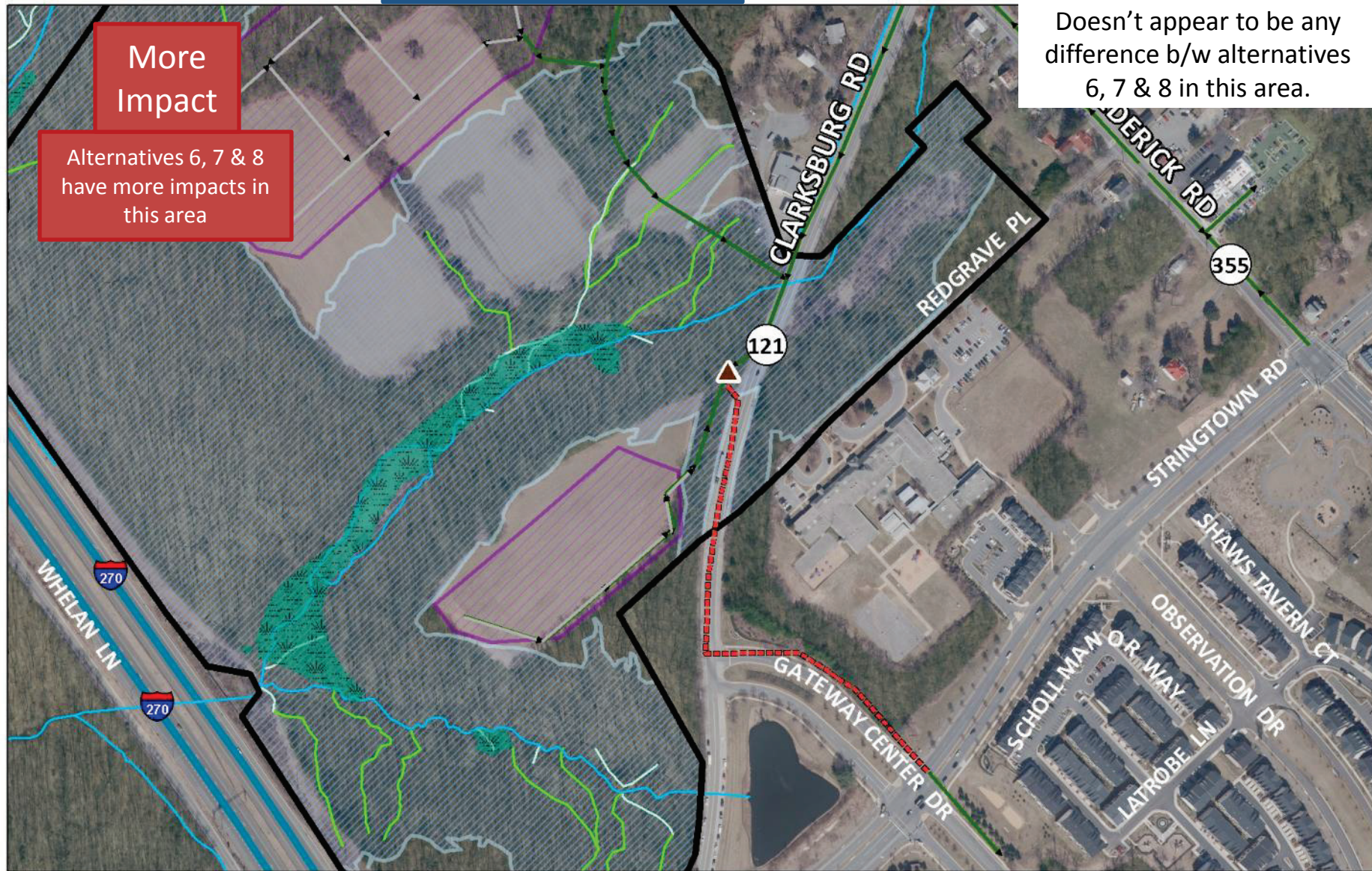
GR TRUNK SEWER

Specific Comments

Alternatives 6, 7 & 8 – Egan/Mattlyn

- On the Egan/Mattlyn property, Alternative 7 appears to have least impact compared to Alternatives 6 & 8.
- All three alternatives for the most part, are aligned outside of the environmental buffers, and environmental impacts appear to be minimal.

Doesn't appear to be any difference b/w alternatives 6, 7 & 8 in this area.



0 140 280 560 Feet

Map Date: 7/13/2015



STREAMS

SPRINGS & SEEPS

EPHEMERAL STREAMS

PROPERTY LINES

WETLANDS

ENV BUFFER

PROPOSED DEVELOPMENT AREA

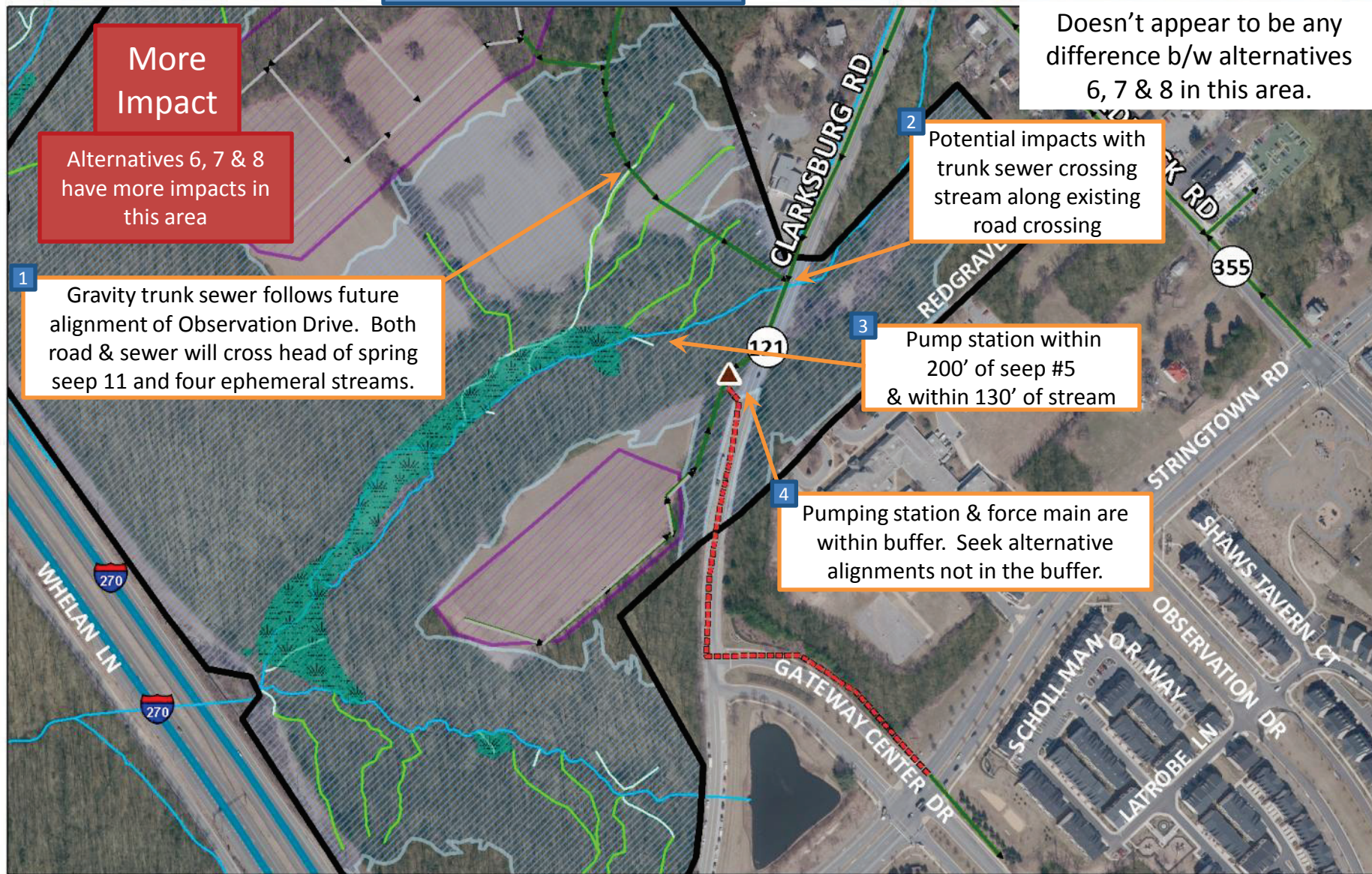
PRESSURE SEWER

PUMPING STATION

FORCE MAIN

GRAVITY SEWER

GR TRUNK SEWER



Doesn't appear to be any difference b/w alternatives 6, 7 & 8 in this area.



0 140 280 560 Feet

Map Date: 7/13/2015



STREAMS

SPRINGS & SEEPS

EPHEMERAL STREAMS

PROPERTY LINES

WETLANDS

ENV BUFFER

PROPOSED DEVELOPMENT AREA

PRESSURE SEWER

PUMPING STATION

FORCE MAIN

GRAVITY SEWER

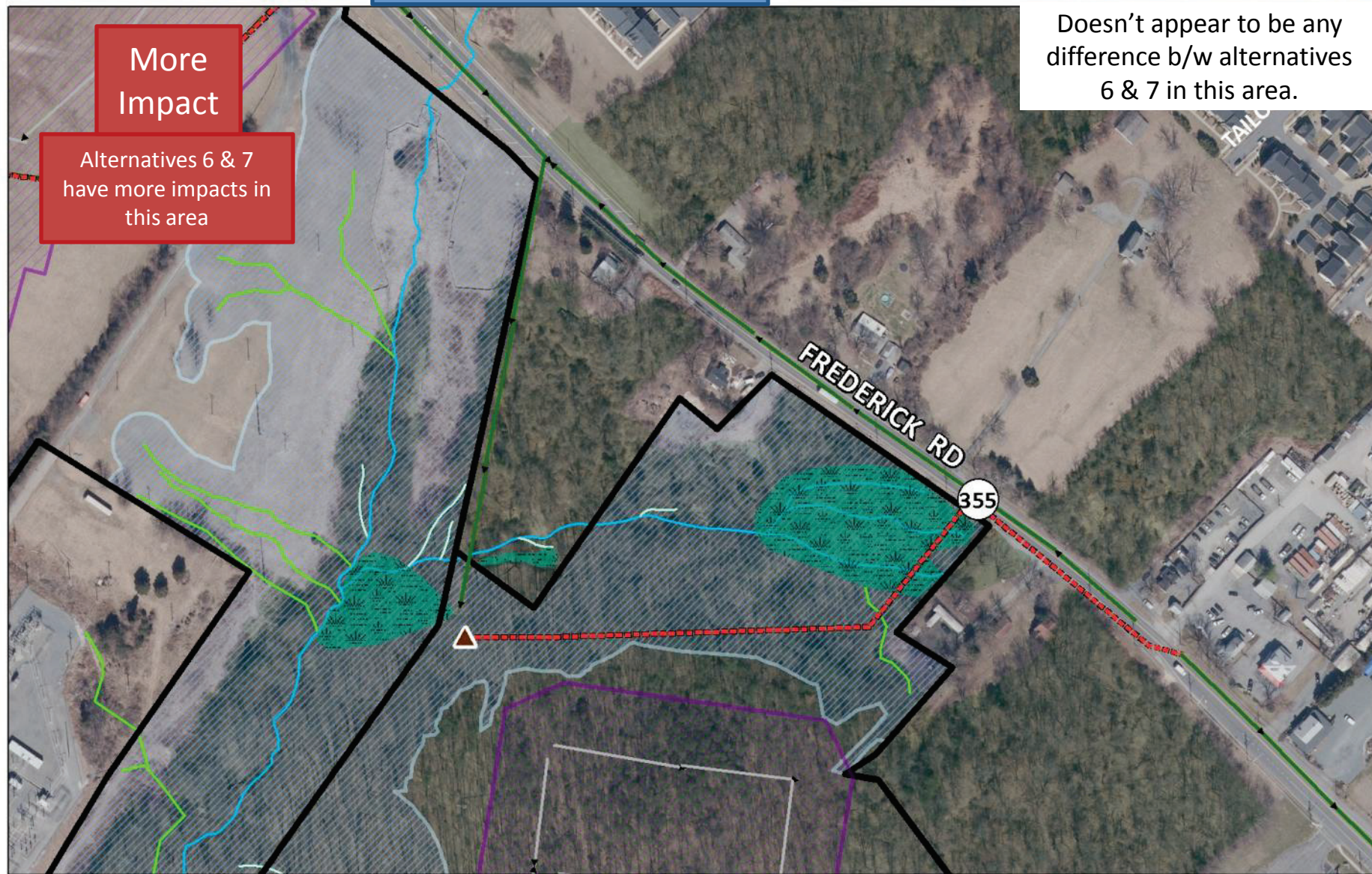
GR TRUNK SEWER

Specific Comments

Alternatives 6, 7 & 8 – Miles Coppola East

- In the East portion of the Miles Coppola property, Alternatives 6, 7 & 8 show a gravity trunk sewer that follows the proposed alignment of Observation Drive. Both the road and sewer will impact a spring seep and four ephemeral streams. Because these features feed into an extensive downstream floodplain wetland (Fig. 7, #1) impacts to these features may indirectly impact this wetland.
- Force main, pumping station and additional gravity trunk sewer are also within the buffer(Fig. 7, #s 2-4).

Doesn't appear to be any difference b/w alternatives 6 & 7 in this area.



More
Impact

Alternatives 6 & 7
have more impacts in
this area



0 90 180 360 Feet

Map Date: 7/13/2015



STREAMS

SPRINGS & SEEPS

EPHEMERAL STREAMS

PROPERTY LINES

WETLANDS

ENV BUFFER

PROPOSED DEVELOPMENT AREA

PRESSURE SEWER

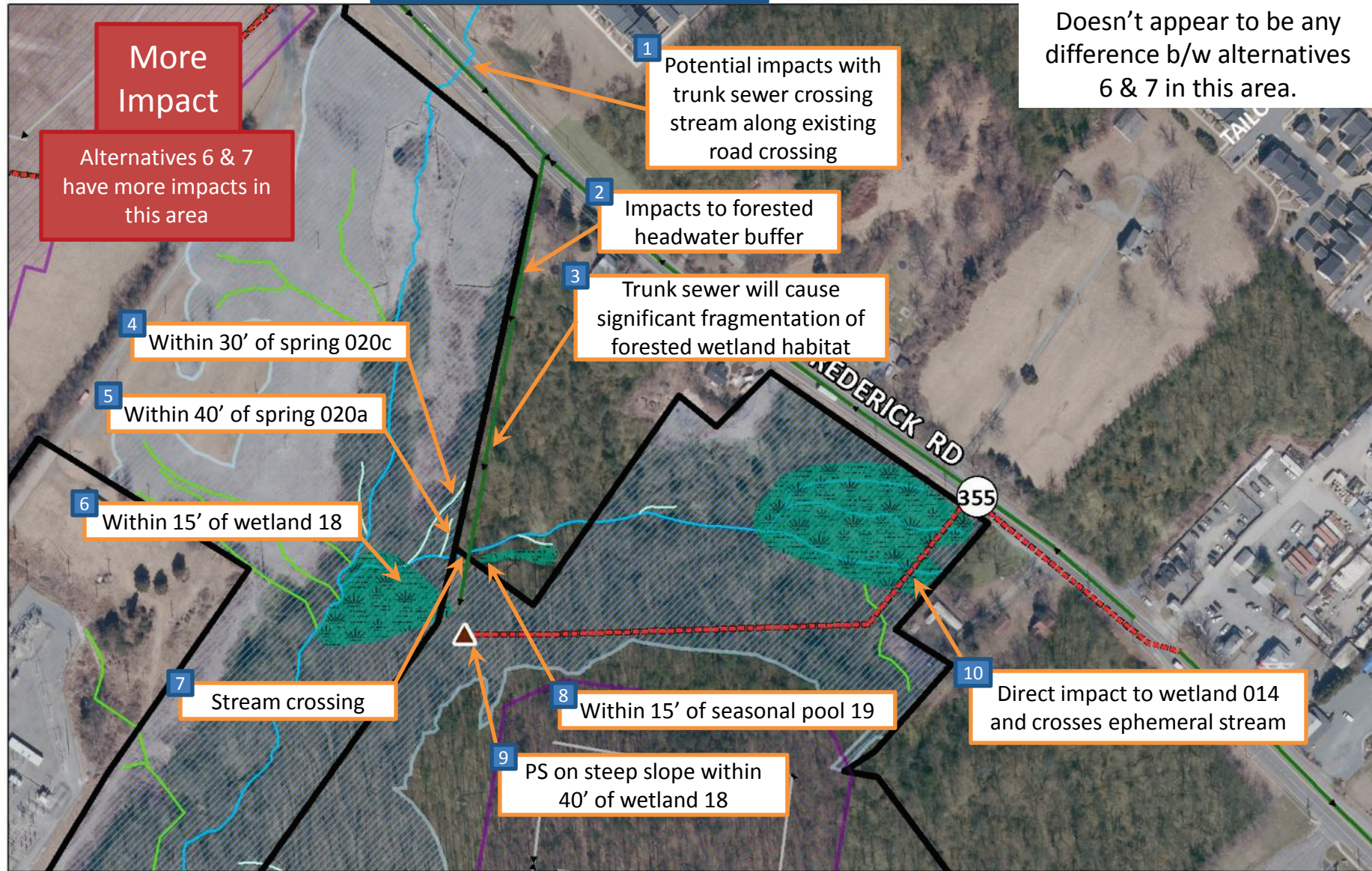
PUMPING STATION

FORCE MAIN

GRAVITY SEWER

GR TRUNK SEWER

Doesn't appear to be any difference b/w alternatives 6 & 7 in this area.



0 90 180 360 Feet

Map Date: 7/13/2015



STREAMS

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ENV BUFFER

PROPOSED DEVELOPMENT AREA

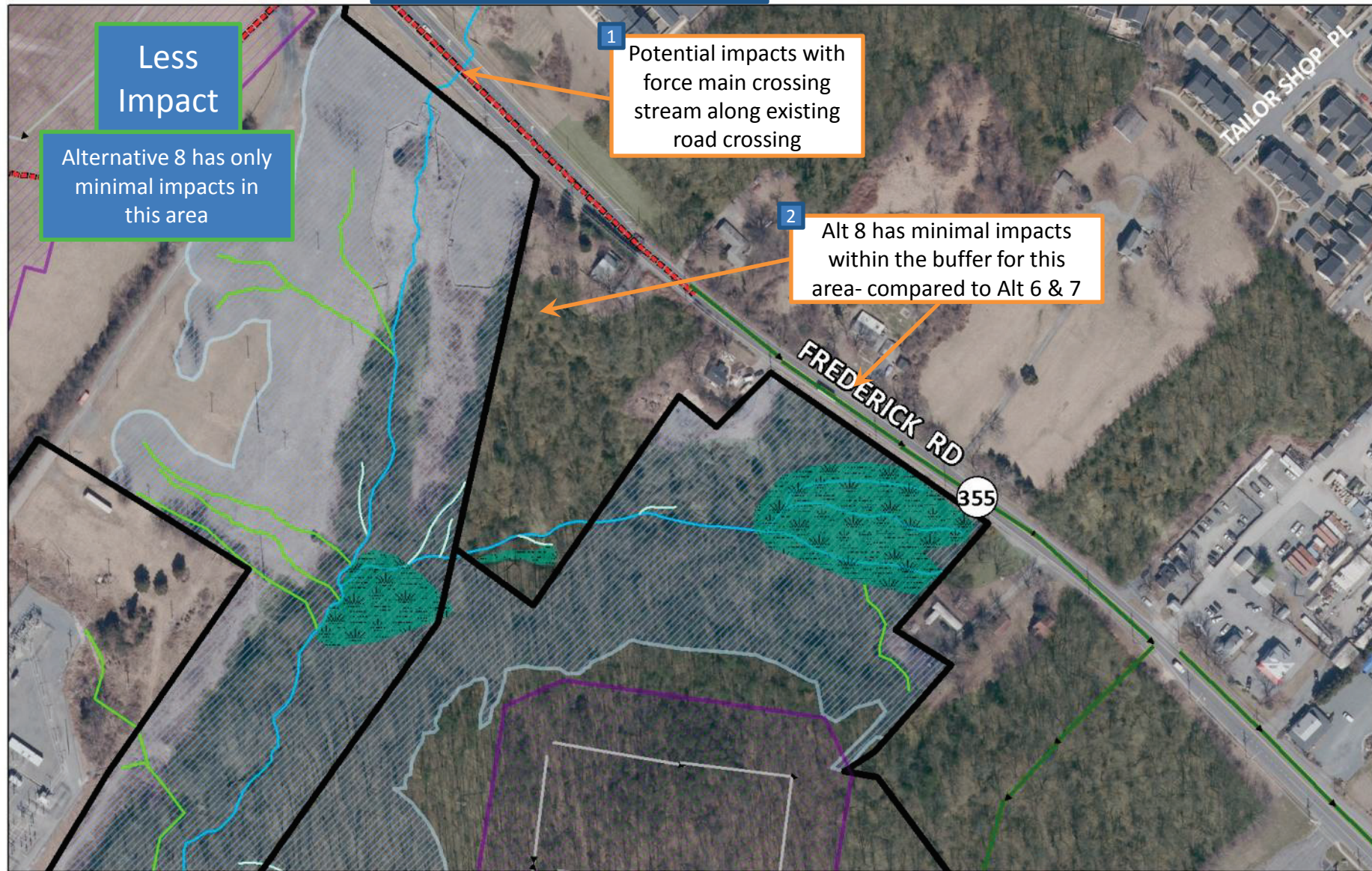
PRESSURE SEWER

PUMPING STATION

FORCE MAIN

GRAVITY SEWER

GR TRUNK SEWER



0 90 180 360 Feet

Map Date: 7/13/2015



STREAMS

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PRESSURE SEWER

PUMPING STATION

FORCE MAIN

GRAVITY SEWER

GR TRUNK SEWER

Specific Comments

Alternatives 6, 7 & 8 – Miles Coppola North

- In the Northern portion of the Miles Coppola property, Alternatives 6 & 7 show a Gravity Trunk sewer that goes directly through a complex of headwater stream, springs, wetlands/seasonal pools. Force main is also within the buffer, with direct impacts to a wetland and with pumping station proposed on a steep slope just above a wetland (Fig. 9).
 - Deforestation and excavation would have possible significant impacts on these features, with disturbance to hydrology, soils, and vegetation. Proposed removal of tree canopy will increase sunlight to the forest floor and potentially cause drying of wetlands. Disturbance of the forest may also introduce invasive species.
 - There will also be long term effects for this specific area. Utility conduits and tunnels can act as preferential flow channels for groundwater (Sharp et al., 2003), and features like springs, seeps and wetlands may lose their source of groundwater. Cracked pipes can also leak to groundwater, causing water quality impairment (Springer, 2009).
 - In addition to individual feature impacts, impacts to this system of closely related, clusters of seasonal pools and wetlands would also likely be caused by habitat fragmentation. This cluster of streams, wetlands and seasonally flooded areas serve as critical breeding habitat for highly specialized amphibians and other indicator wetland and seasonal pool species. Many of these species travel more than 1000 feet in all directions to and from their breeding pool and are very susceptible to habitat fragmentation (Fig. 9, #3).
- Alternative 8 minimizes impacts in this Northern portion of the Miles property (Fig. 10), compared to Alternatives 6 & 7 (Fig. 9).

Feature Photos

Spring 16



Spring 020 a



Spring 020c



Stream near 020 springs



Wetland 18



Seasonal Pool 19

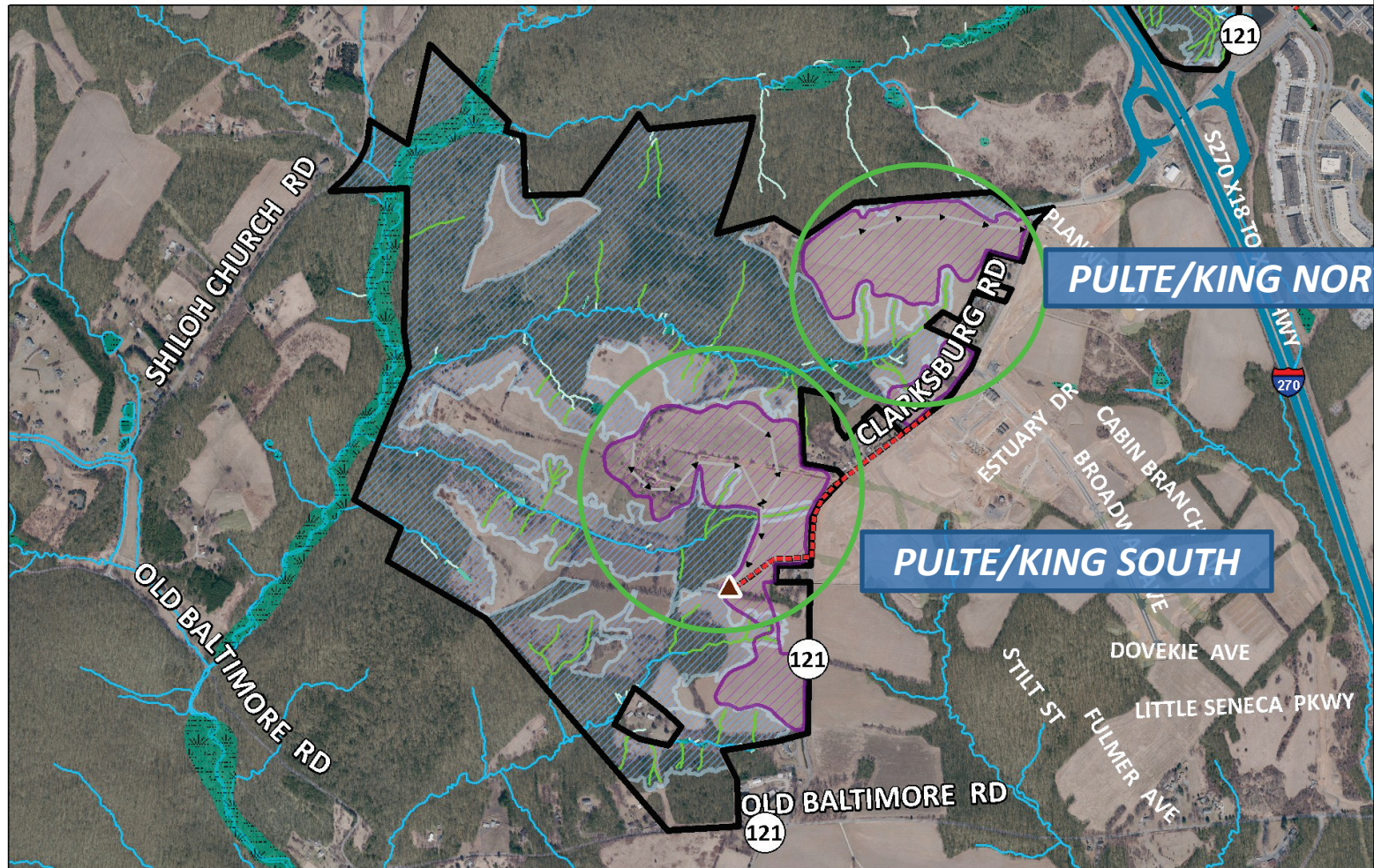


ALTERNATIVES 3-8 – PULTE/KING

TMC Sewer Alternatives - Environmental Analysis

Base Map

Fig. 11



0 500 1,000 2,000 Feet

Map Date: 7/20/2015



STREAMS

SPRINGS & SEEPS

EPHEMERAL STREAMS

PROPERTY LINES

WETLANDS

ENV BUFFER

PROPOSED DEVELOPMENT AREA

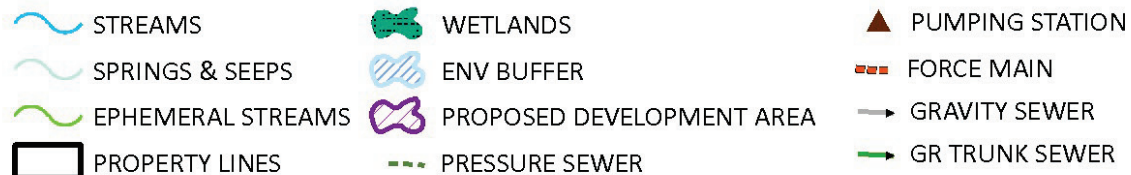
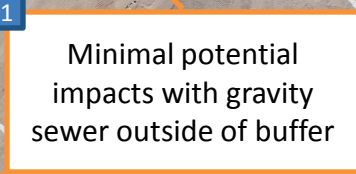
PRESSURE SEWER

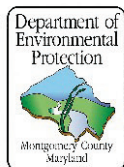
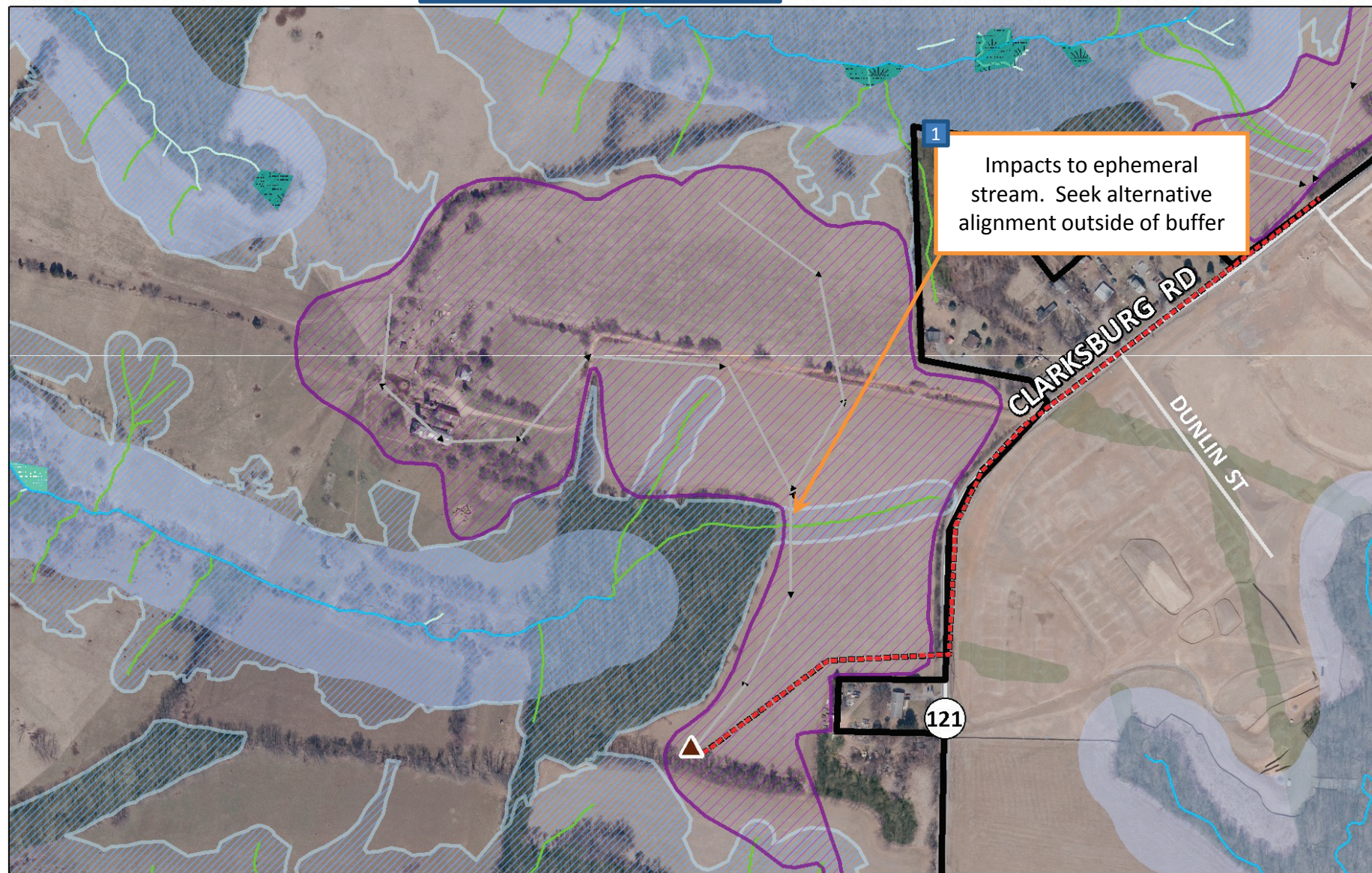
PUMPING STATION

FORCE MAIN

GRAVITY SEWER

GR TRUNK SEWER





0 170 340 680 Feet

Map Date: 7/20/2015



STREAMS

SPRINGS & SEEPS

EPHEMERAL STREAMS

PROPERTY LINES

WETLANDS

ENV BUFFER

PROPOSED DEVELOPMENT AREA

PRESSURE SEWER

PUMPING STATION

FORCE MAIN

GRAVITY SEWER

GR TRUNK SEWER

WSSC overview of adjustment/revisions to sewer alternatives incorporating MCDEP comments.

Egan – Alternative 6 Impacts

TMC Sewer Alternatives

EGAN

Alternative 6 Impacts

Fig. 3



0 150 300 600 Feet

Map Date: 7/13/2015



STREAMS

SPRINGS & SEEPS

EPHEMERAL STREAMS

PROPERTY LINES

WETLANDS

ENV BUFFER

PROPOSED DEVELOPMENT AREA

PRESSURE SEWER

PUMPING STATION

FORCE MAIN

GRAVITY SEWER

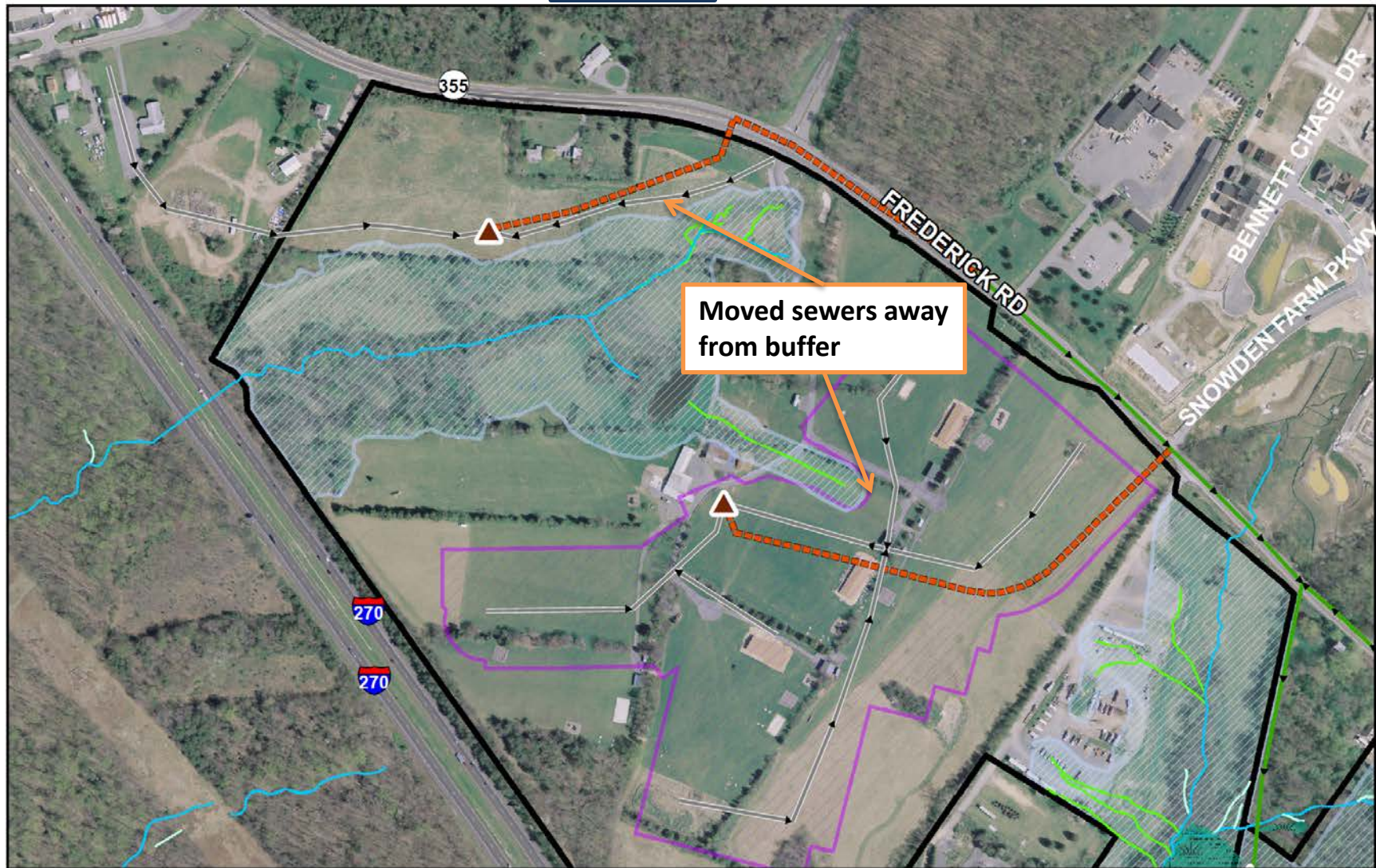
GR TRUNK SEWER

Egan – Alternative 6 Revisions

TMC Sewer Alternatives

EGAN

Alternative 6 Modifications



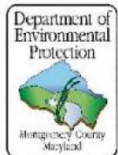
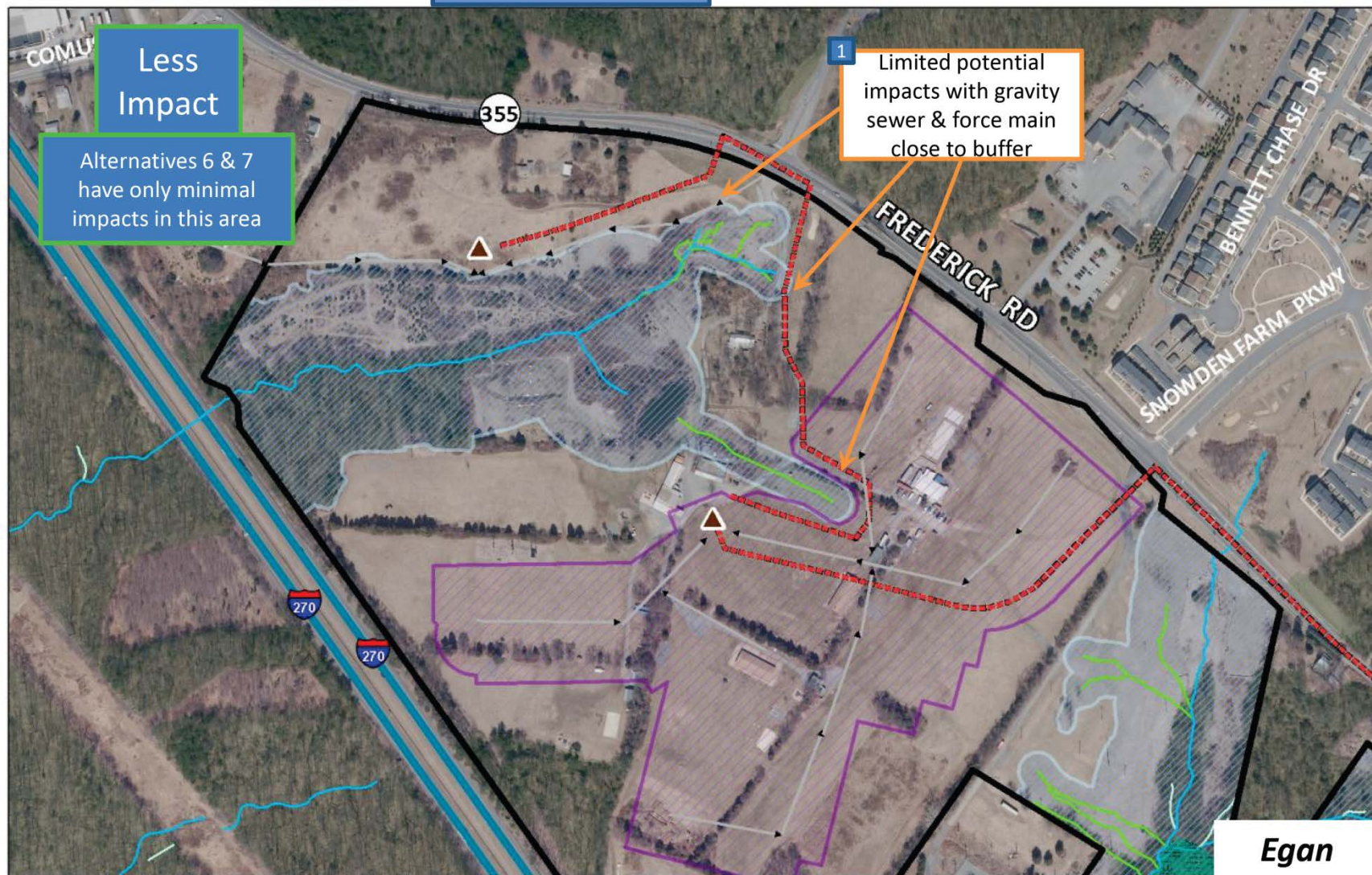
Egan – Alternative 8 Impacts

TMC Sewer Alternatives

EGAN

Alternative 8 Impacts

Fig. 5



0 150 300 600 Feet

Map Date: 7/13/2015



STREAMS

SPRINGS & SEEPS

EPHEMERAL STREAMS

PROPERTY LINES

WETLANDS

ENV BUFFER

PROPOSED DEVELOPMENT AREA

PRESSURE SEWER

PUMPING STATION

FORCE MAIN

GRAVITY SEWER

GR TRUNK SEWER

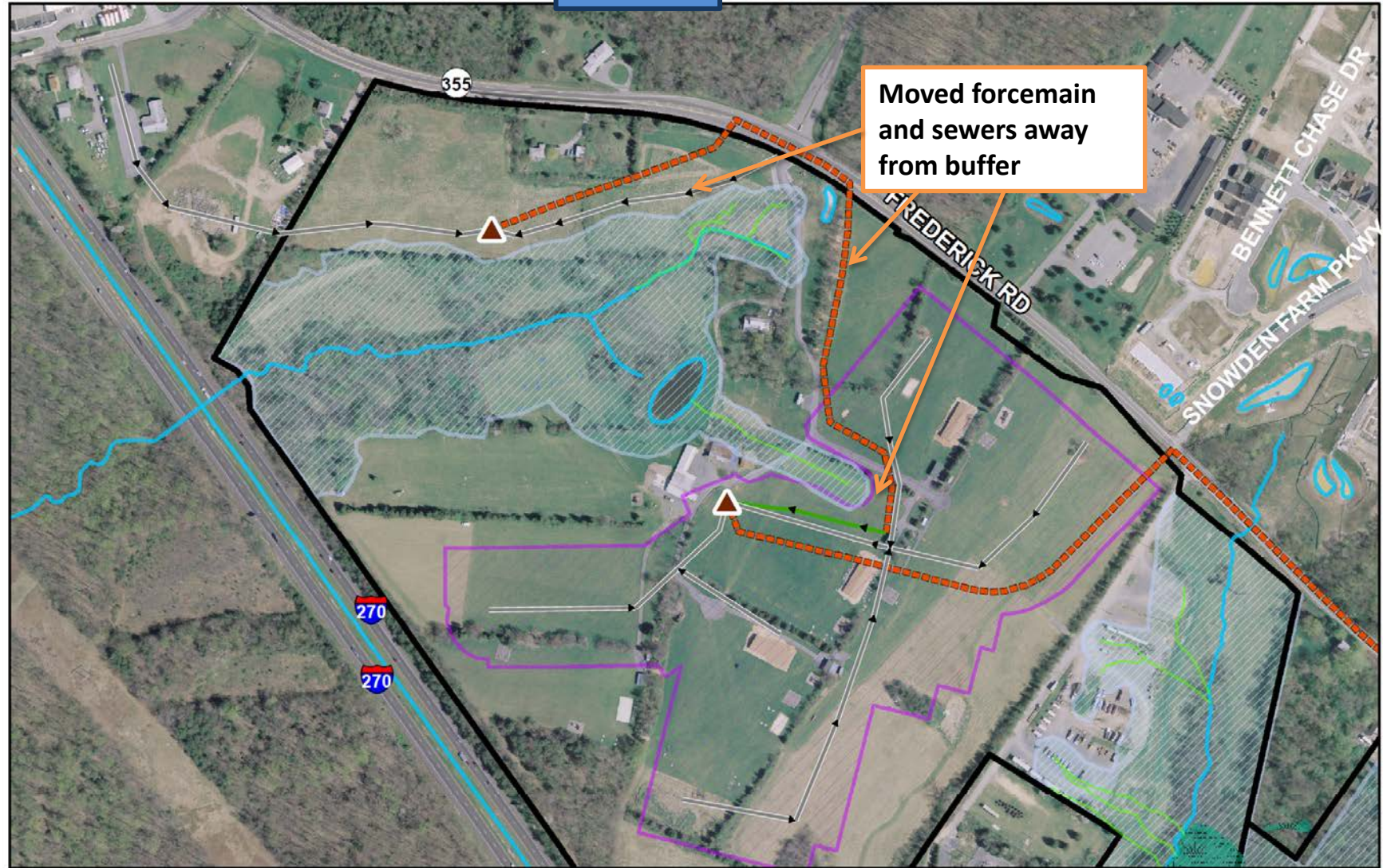
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Egan – Alternative 8 Revisions

TMC Sewer Alternatives

EGAN

Alternative 8 Modifications



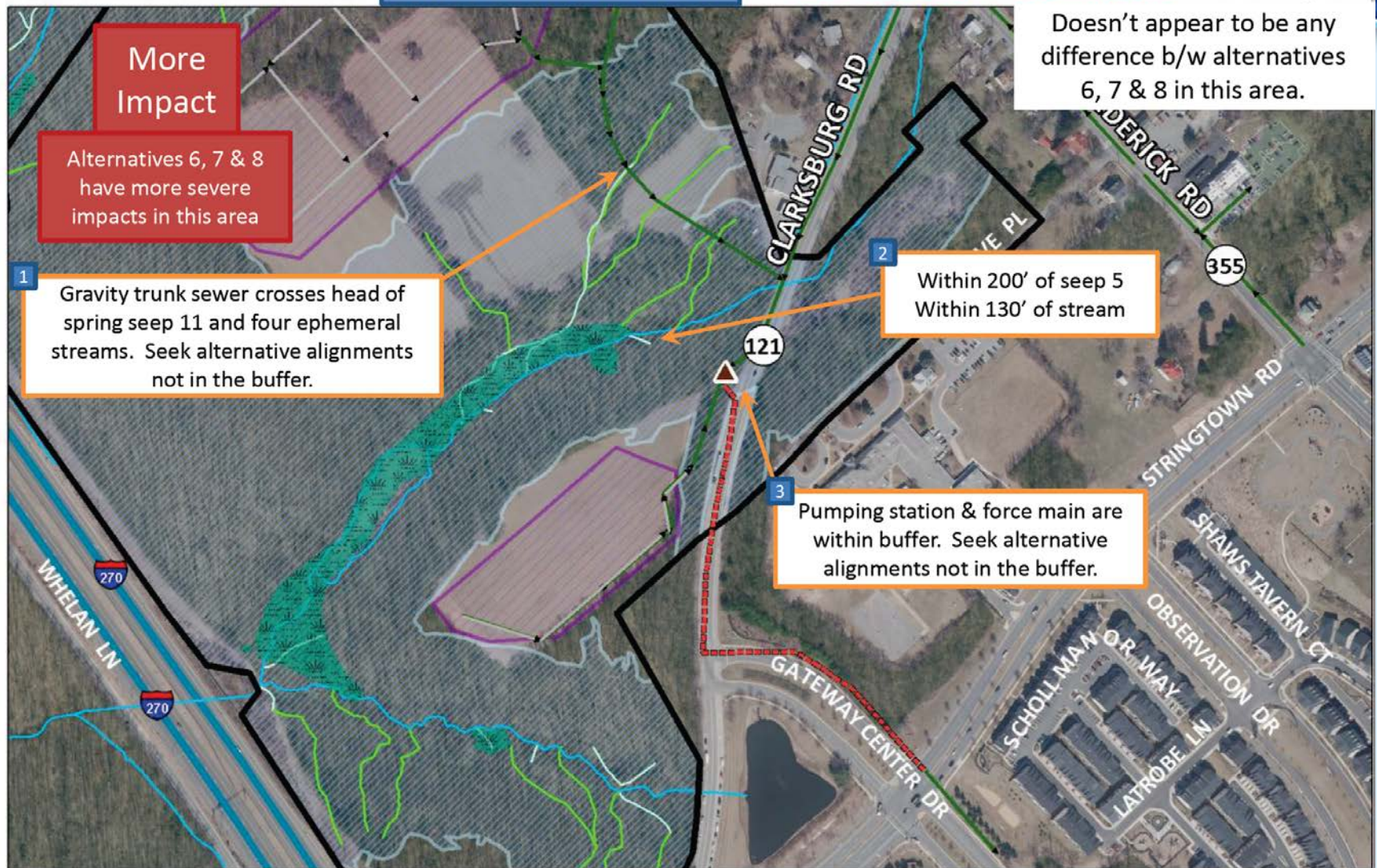
Miles/Coppola East – Alternatives 6,7 & 8 Impacts

TMC Sewer Alternatives

MILES COPPOLA EAST

Alternatives 6, 7 & 8 Impacts

Fig. 7



Doesn't appear to be any difference b/w alternatives 6, 7 & 8 in this area.

Within 200' of seep 5
Within 130' of stream

Pumping station & force main are within buffer. Seek alternative alignments not in the buffer.

Gravity trunk sewer crosses head of spring seep 11 and four ephemeral streams. Seek alternative alignments not in the buffer.

Alternatives 6, 7 & 8
have more severe
impacts in this area

More
Impact



0 140 280 560 Feet

Map Date: 7/13/2015



SPRINGS & SEEPS

 PROPERTY LINES WETLANDS ENV BUFFER PROPOSED DEVELOPMENT AREA

— — — PRESSURE SEWER

 PUMPING STATION

FORCE MAIN

→ GRAVITY SEWER

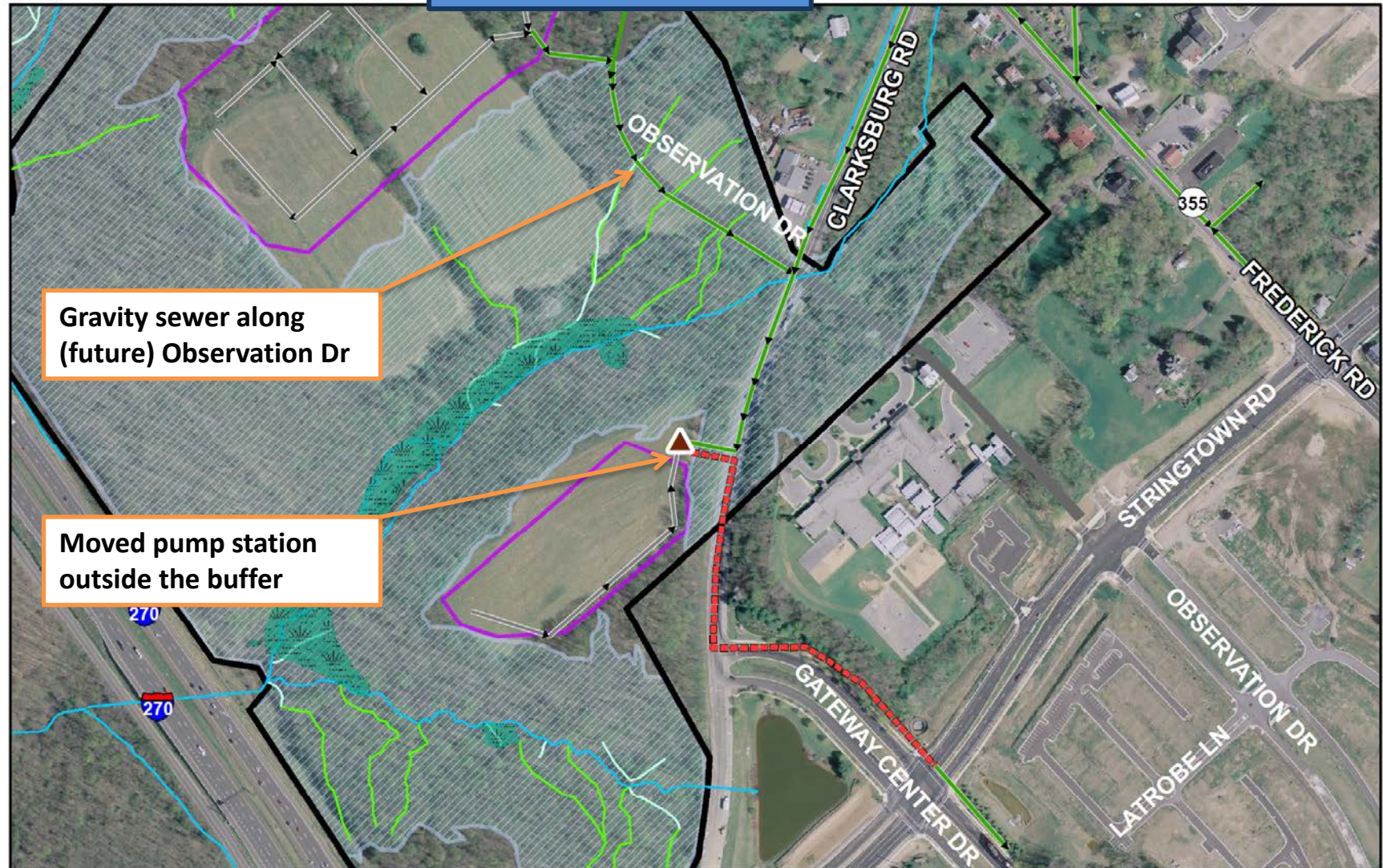
→ GR TRUNK SEWER

Miles/Coppola East – Alternatives 6,7 & 8 Revisions

TMC Sewer Alternatives

MILES COPPOLA EAST

Alternative 6, 7 & 8 Modifications



Miles/Coppola North – Alternatives 6 & 7 Impacts

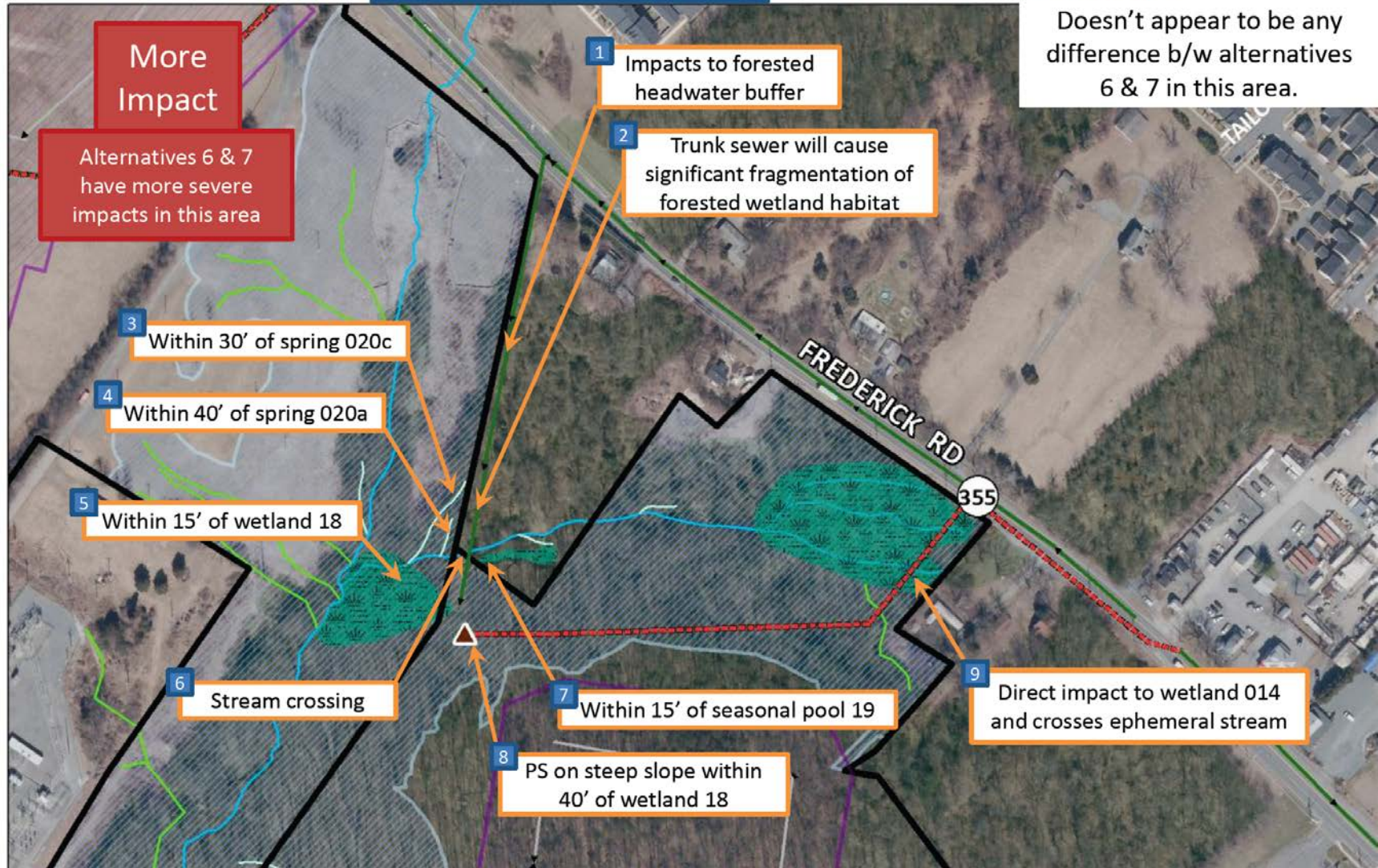
TMC Sewer Alternatives

MILES COPPOLA NORTH

Alternatives 6 & 7 Impacts

Fig. 8

Doesn't appear to be any difference b/w alternatives 6 & 7 in this area.



0 90 180 360 Feet

Map Date: 7/13/2015



STREAMS

SPRINGS & SEEPS

EPHEMERAL STREAMS

PROPERTY LINES

WETLANDS

ENV BUFFER

PROPOSED DEVELOPMENT AREA

PRESSURE SEWER

PUMPING STATION

FORCE MAIN

GRAVITY SEWER

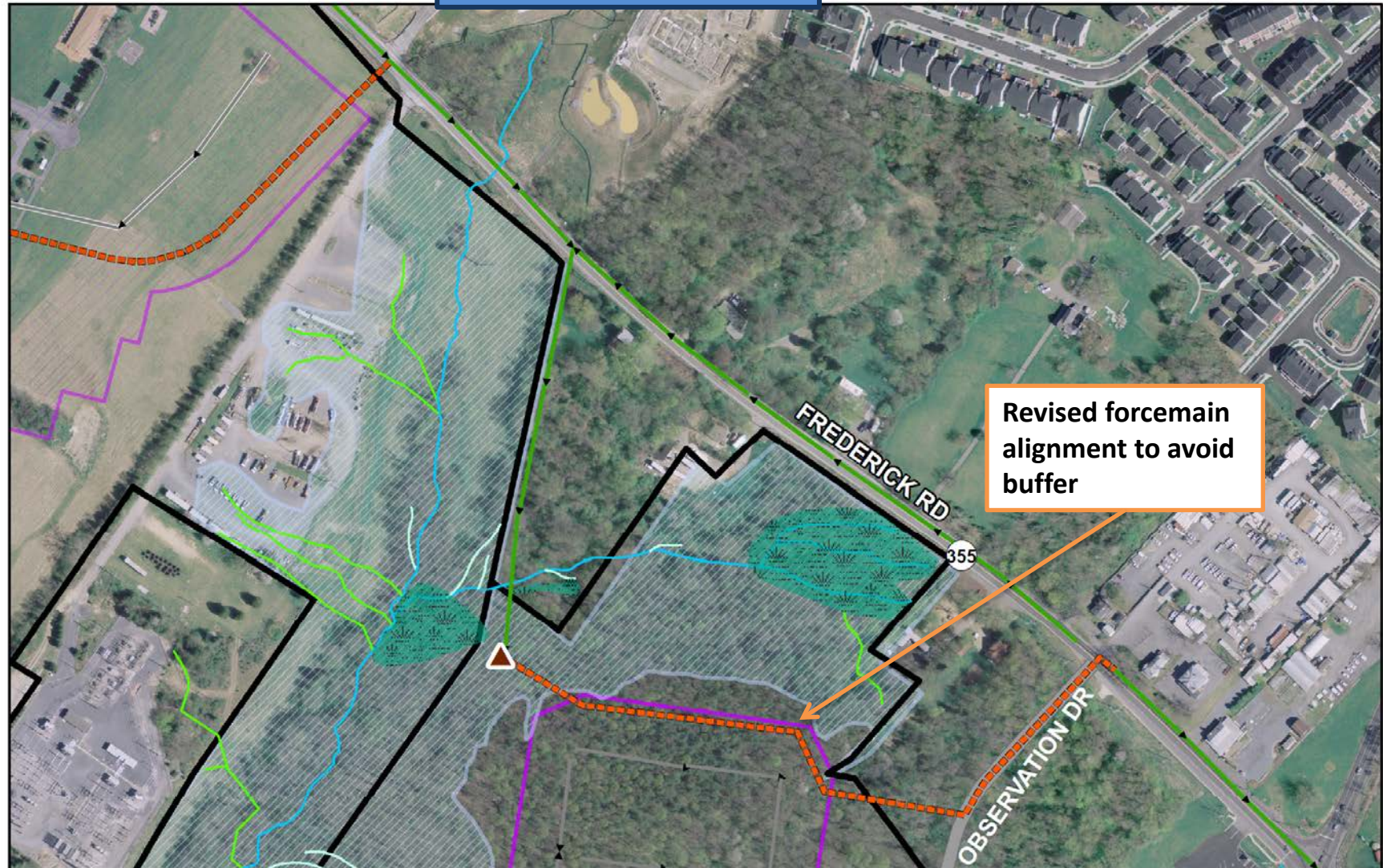
GR TRUNK SEWER

Miles/Coppola North – Alternatives 6 & 7 Revisions

TMC Sewer Alternatives

MILES COPPOLA NORTH

Alternative 6, & 7 Modifications



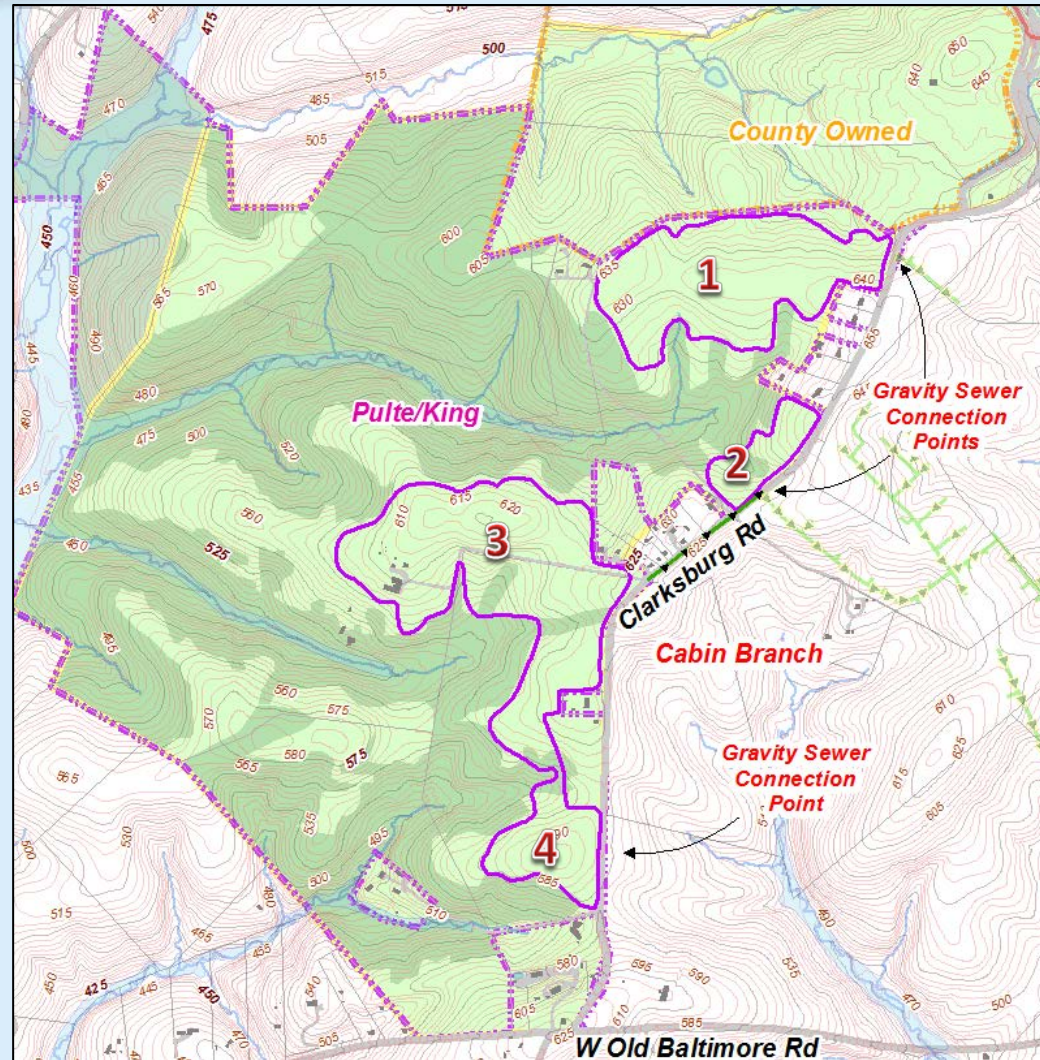
Review of feasibility of a 100% grinder
system/low pressure system concepts
for Clarksburg/Ten-Mile Creek
(property-by-property analysis).

Existing WSSC design guidelines for Grinder Systems

- General order of preference:
 - Gravity Service
 - Centralized wastewater pumping station/force main system
 - Grinder system, if the other methodologies are determined to be infeasible
- A grinder pump and pressure sewer system is to be considered only if the site cannot be serviced by conventional gravity systems (including pumping stations).
- Dedicated grinder systems for each Non-residential (Commercial) use needed.
- Residential and Non-Residential grinder systems cannot “share” the same pressure sewer.
- Hydraulics
 - Ideal conditions: Point of discharge to the gravity system higher than the rest of the system.
 - Uphill pumping is preferred in a pressure sewer system so as to maintain positive pressure throughout the system.
 - High and low points are to be avoided
 - Pressure sewer with high and low points are conducive to siphoning or gravity drain/air binding in downhill pumping conditions.
 - If high/low points are unavoidable:
 - Air and Vacuum release valves will be needed at high points
 - Odor issues

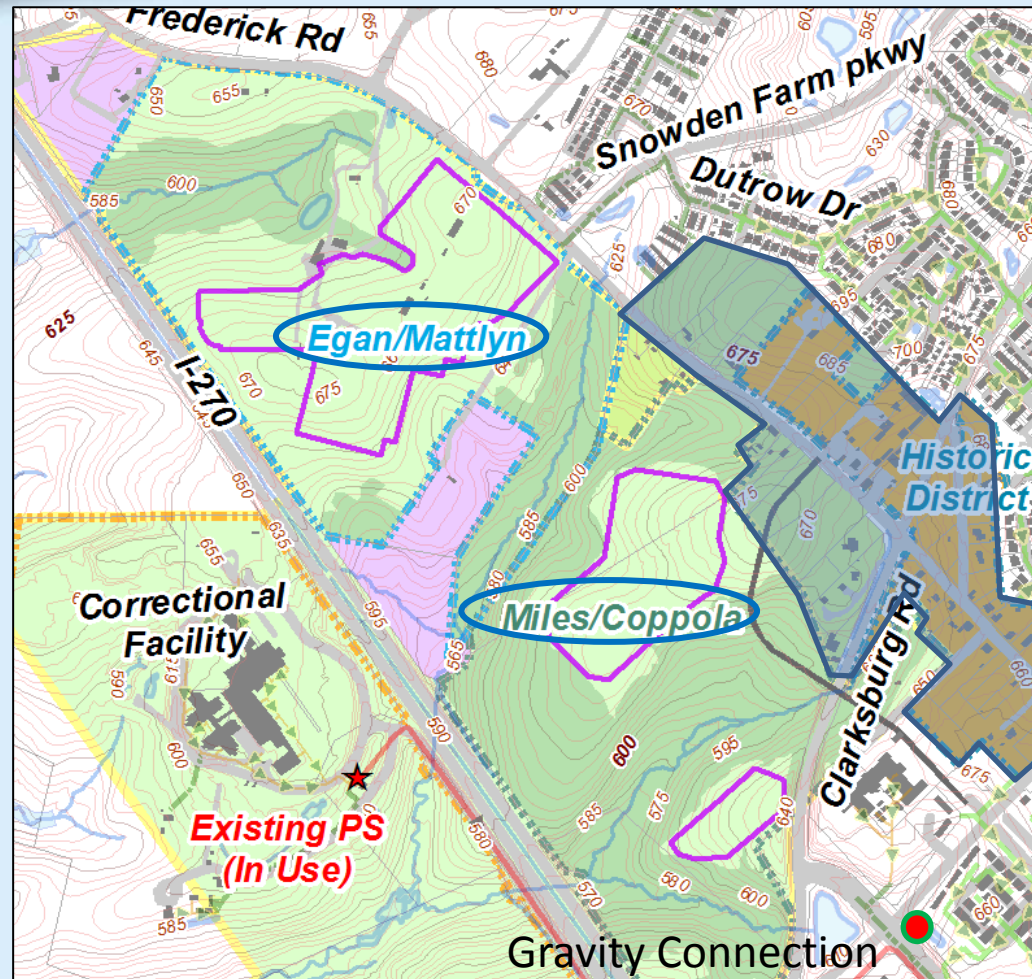
100% Grinder System Feasibility – West of I-270 (Pulte)

- Development Pod 1
 - Majority of the area higher than gravity sewer connection point.
 - Approximately 65-70% of the area can be served via gravity sewer.
 - Hydraulically, not a good candidate for a 100% grinder system because of downhill pumping issues. Partial grinder system possible.
- Development Pod 2
 - Can be served entirely by gravity sewers.
 - Hydraulically, not a good candidate for a 100% grinder system because of downhill pumping issues.
- Development Pod 3
 - Good candidate for implementing a 100% grinder pump solution
 - Might eliminate Pulte pump station.
- Development Pod 4
 - Like Pod 1, not a good candidate for a 100% grinder pump solution but can partially be served by grinder pumps



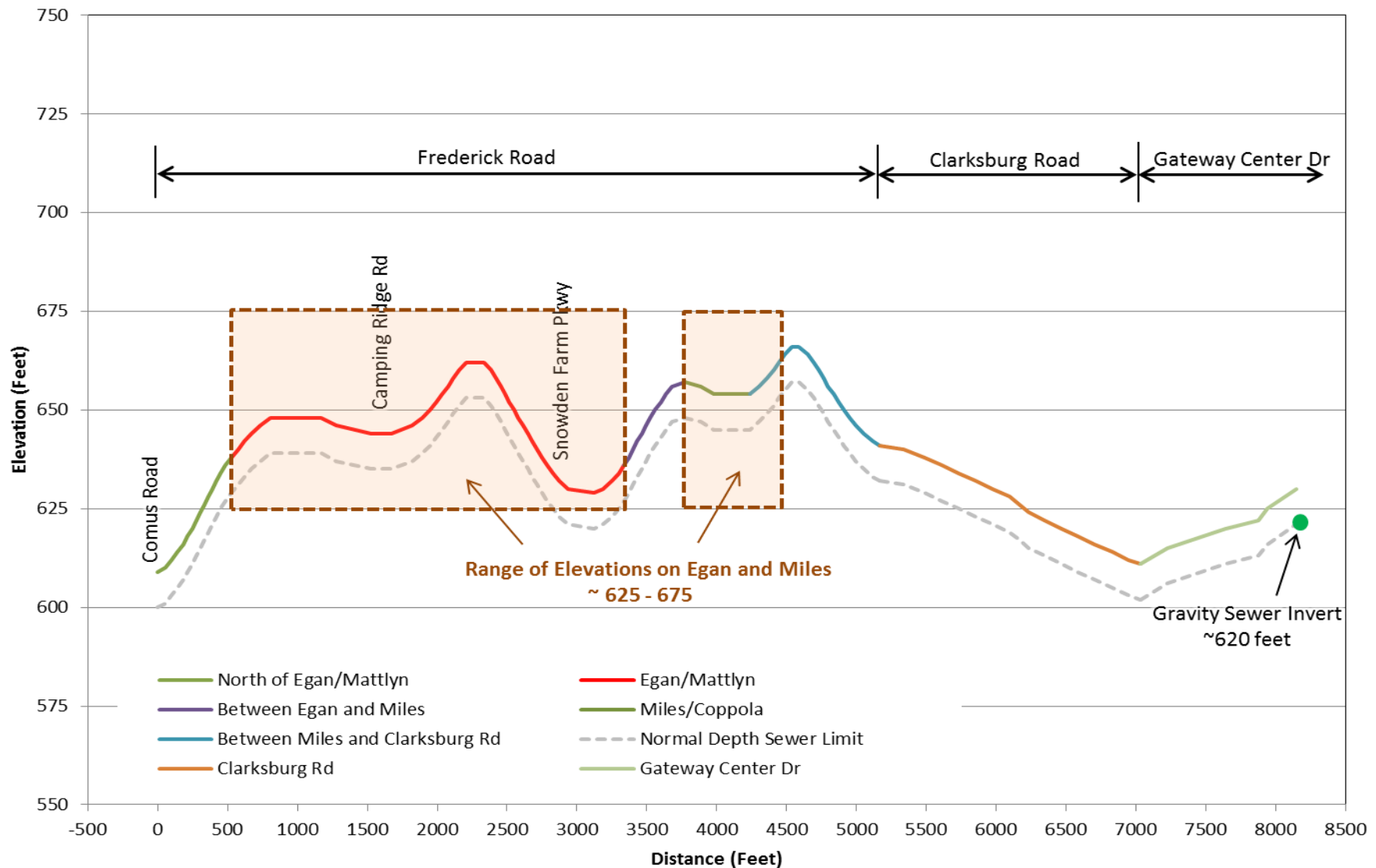
100% Grinder System Feasibility – East of I-270 (Egan, Miles and Others)

- A 100% grinder system solution for the properties east of I-270 does not appear to be feasible for the following reasons:
 - Elevation ranges of major properties are above the downstream gravity connection point.
 - Numerous high and low points – not ideal for a pressure sewer
 - CRT/CRN zoning in the study area necessitates the use of dedicated pressure sewers for a number of parcels in the study area.
- Egan and Miles properties
 - Both properties are higher than the downstream gravity connection point.
- Historic District and Other Parcels with CRT and CRN Zoning
 - This zoning allows for residential, commercial or both in these parcels.
 - As per WSSC design guidelines non-residential grinder systems need a dedicated low-pressure sewer and grinder system.



High points and Downhill Pumping – Elevation Profile East of I-270

Frederick Road - Clarksburg Rd - Gateway Center Drive

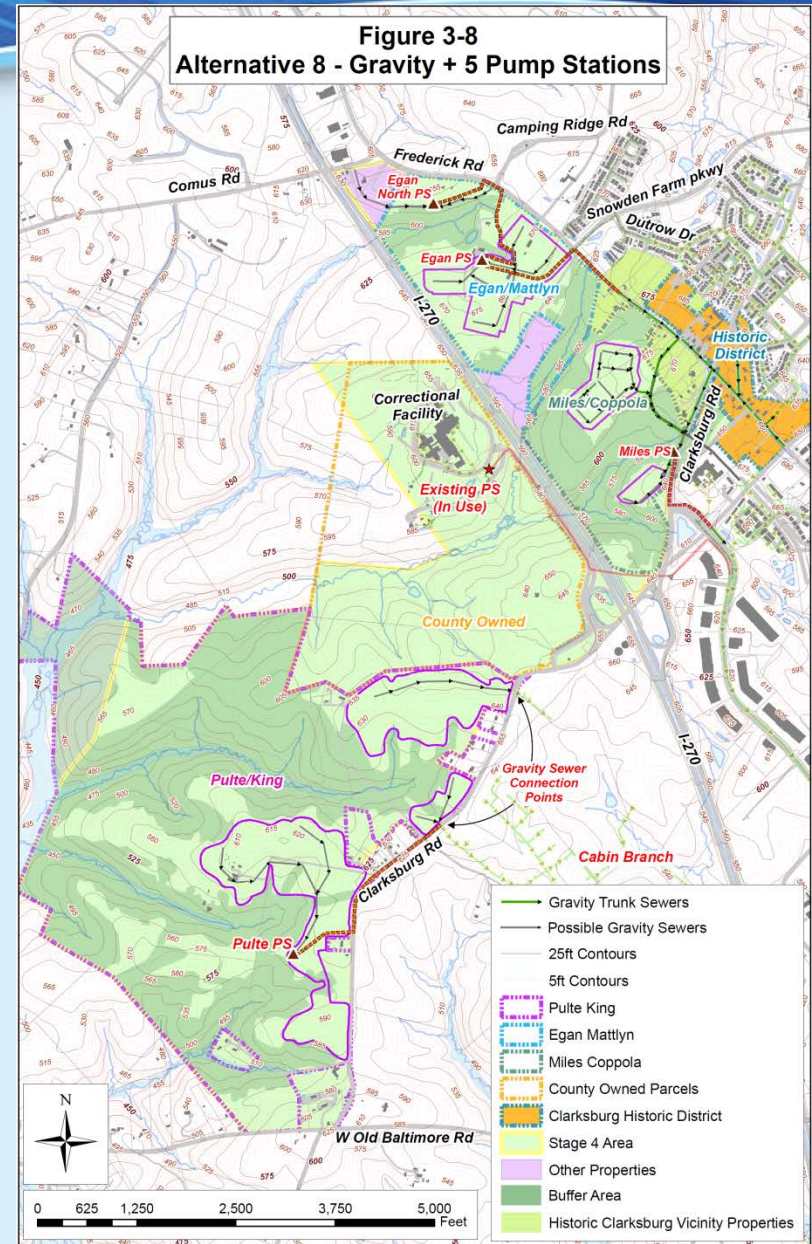


Conceptual Alternative 9

- Alternative 9 – Utilizes grinder system and low-pressure sewer instead of the pump station in development pod 3 of the Pulte property.
- Since this portion of the study area is independent of the overall “system”, it can be used in combination with any configuration east of I-270.
- For the purposes of this study, it is assumed that under this alternative, the portion of the study area east of I-270 will be served similar to Alternative 8.

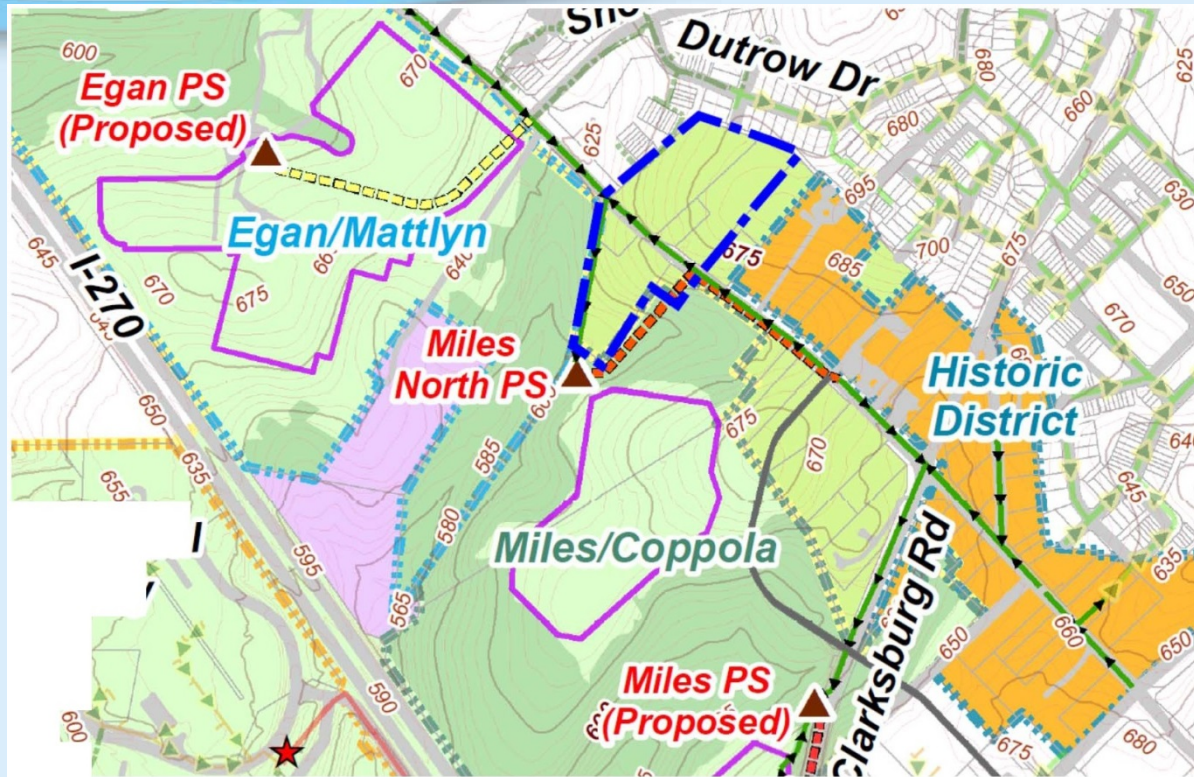
Conceptual Alternative 8 and changes with Conceptual Alternative 9

- Eliminates Miles North PS and its upstream gravity sewers (from Alt 6)
- Adds Deep gravity sewers along Frederick Rd and Observation Drive
- **For Alt 9, Miles PS, and other WWPS, gravity sewer, and FM alignments, where feasible, moved out of buffers (not shown on right)**
- Egan North PS pumps to Egan Proposed PS.
- **For Alt 9 (not shown on right), Pulte/King has no changes in Pods 1 and 2, Grinder pump/low pressure (Pod 3) and gravity/limited grinder-low pressure (Pod 4)**
- Egan Proposed PS pumps to the deep gravity sewers on Frederick Rd.
- Total Gravity Sewer Length – 5,170 feet **(No change in Alt 9)**
- Total Force Main Length – 7,140 feet **(5,490 feet in Alt 9)**
- Total Low Pressure Sewer Length – **3,500 feet in Alt 9**
- Deep Gravity Sewer – 1,750 feet **(no change in Alt 9)**
- Number of Pump Stations – 5 **(4 under Alt 9 including existing Correction Facility Pump Station)**
- New Tunnel Crossings under I-270 – None **(No change in Alt 9)**
- Alternative 8 involves fewer cascading of pumps. However, a few parcels north of Historic district are left out.



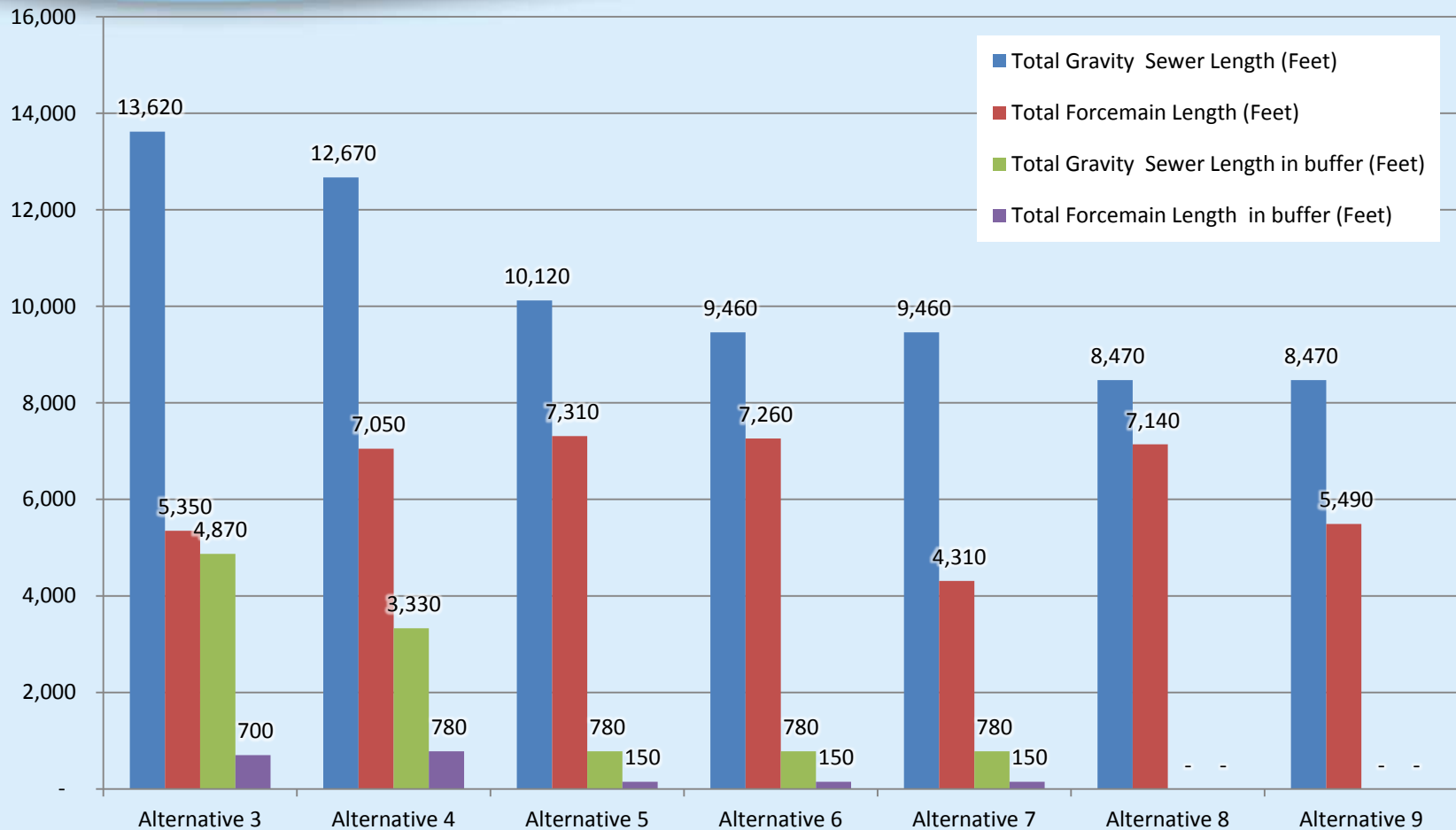
Conceptual Alternative 8 and 9 Refresher

– ‘Orphaned’ parcels



- Properties (outlined in blue) may be orphaned due to elimination of the Miles North PS and the implementation of deep gravity sewer along Frederick Road and the new alignment for Observation Drive. The parcels southwest of Frederick Road are zoned R-90 and the parcels northwest of Frederick Road are zoned CRT.

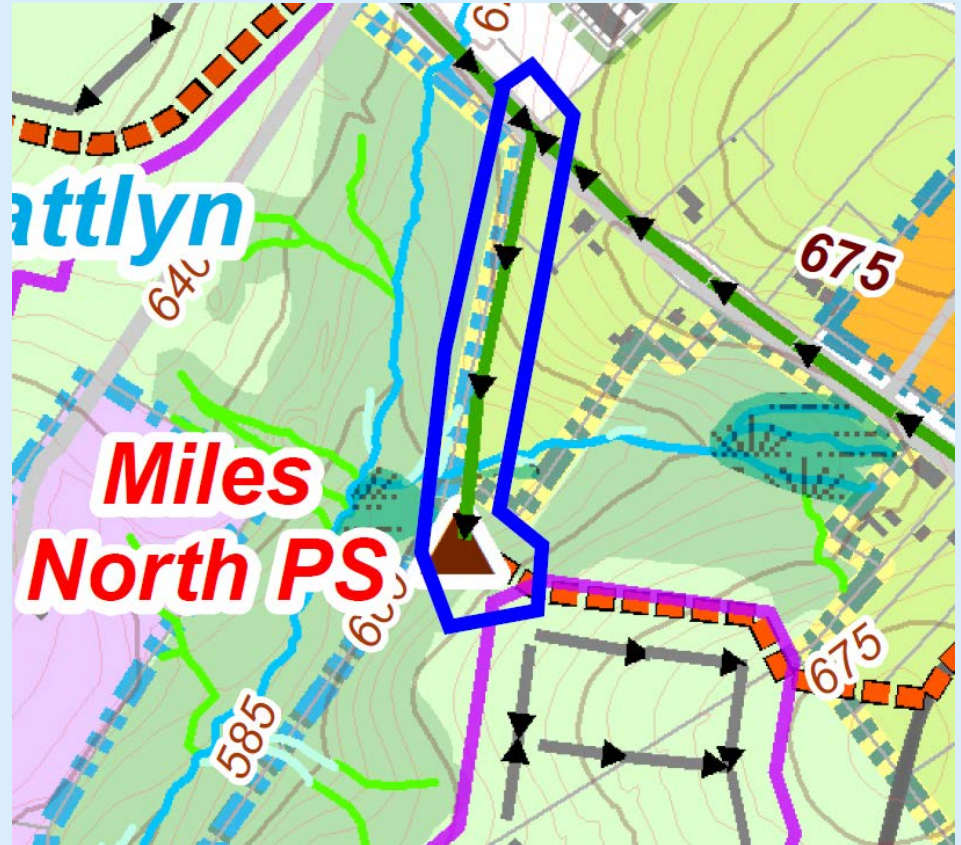
Summary – Sewer Lengths



Summary – Sewer Lengths in Buffer

The 700+ feet of gravity and 150+ feet force main in buffer are the sewer stretches leading up to and from Miles North PS

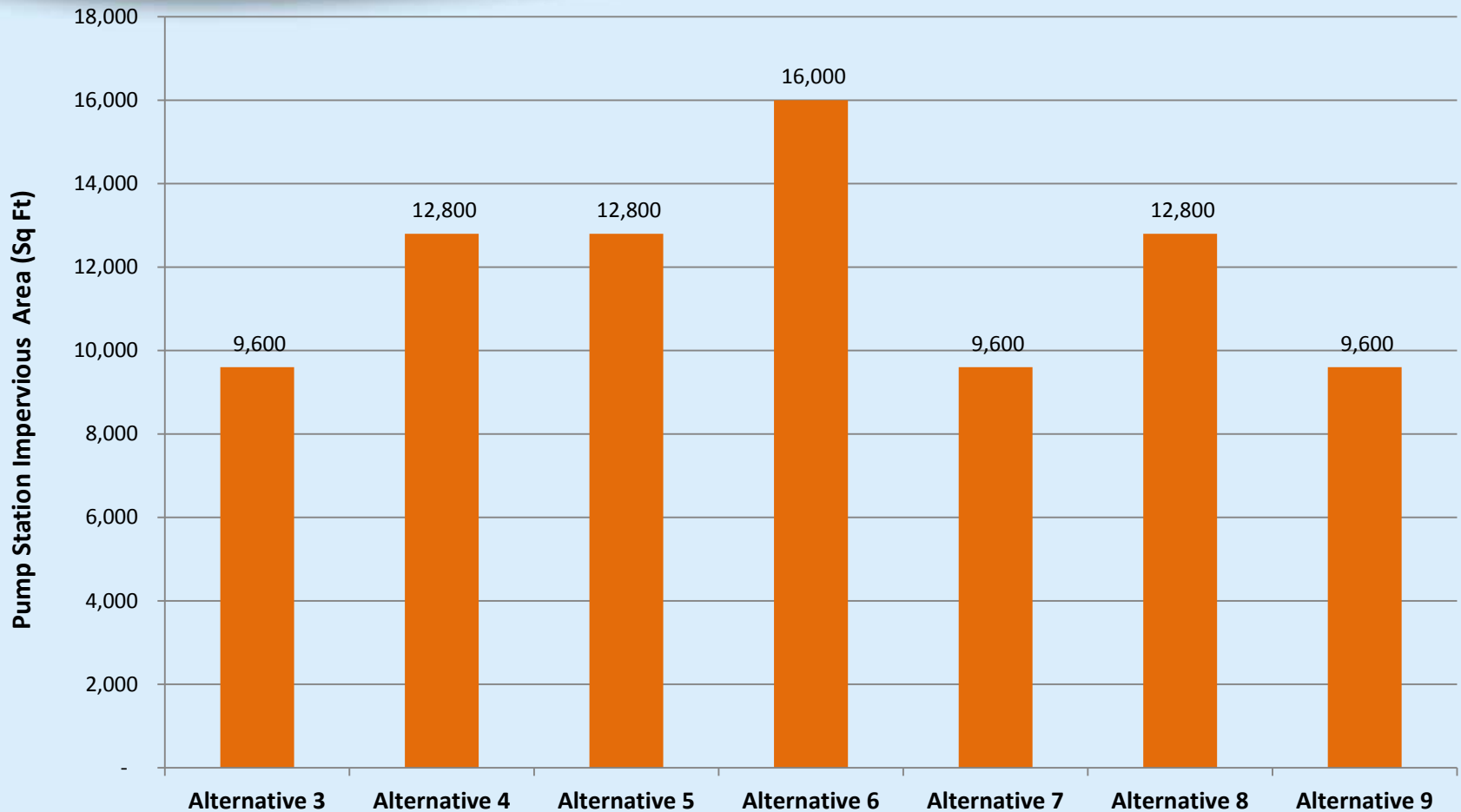
Only sewer and force main remaining in buffer for Alternatives 5, 6 and 7



Summary – Pump Station

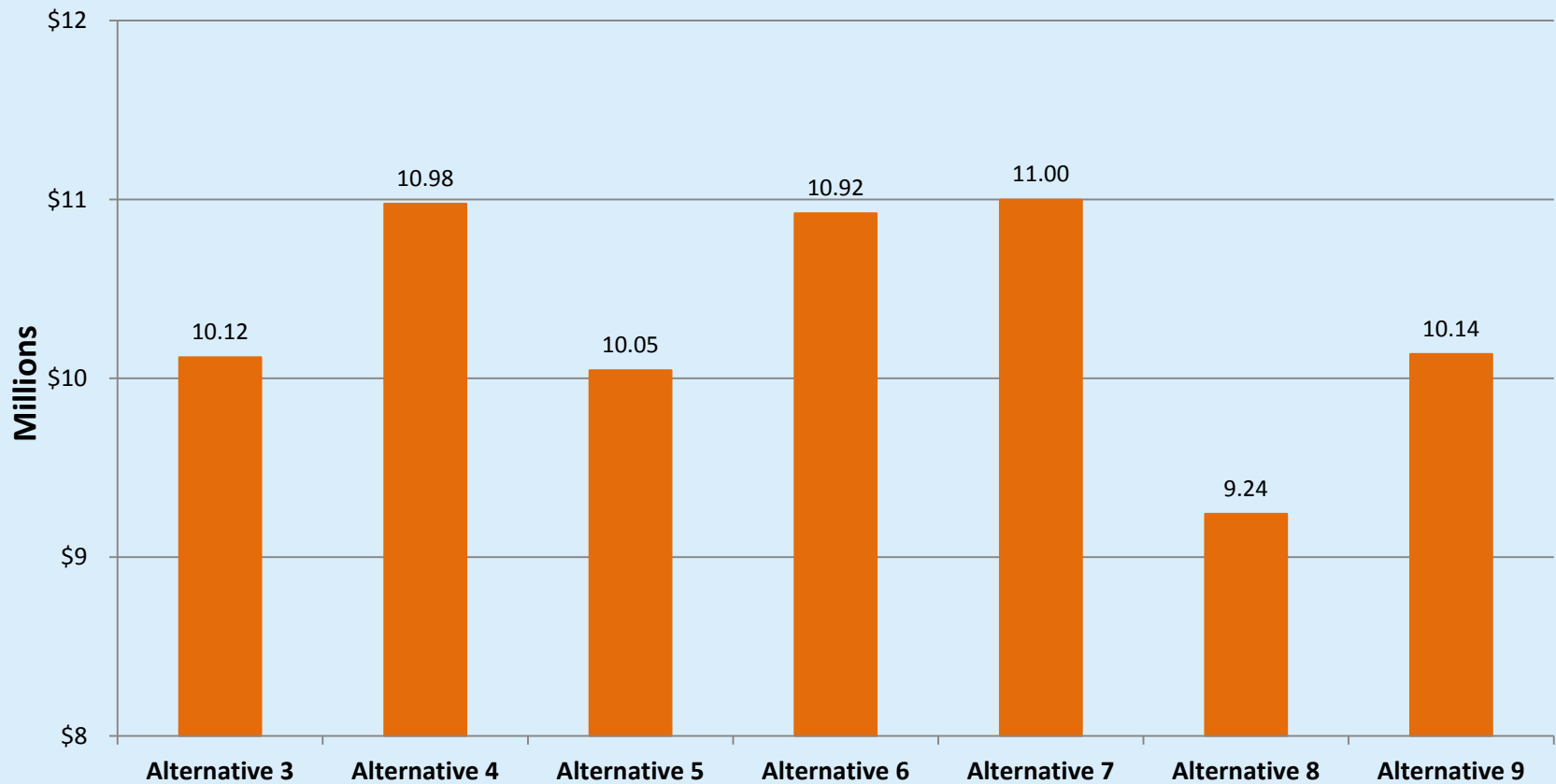
Alternative	Description	Pulte PS	Egan North PS	Egan PS (Proposed)	New PS at Correctional Facility	Clarksburg Rd PS	Miles North PS	Miles PS (Proposed)	Existing Correctional Facility PS in use	Total Number of Pump stations in service
Alternative 3	Gravity + 3 PS	Yes	Yes	No	Yes	No	No	No	No	3
Alternative 4	Gravity + 4 PS	Yes	Yes	No	Yes	Yes	No	No	No	4
Alternative 5	Gravity + 5 PS	Yes	Yes	No	No	Yes	Yes	No	Yes	5
Alternative 6	Gravity + 6 PS	Yes	Yes	Yes	No	No	Yes	Yes	Yes	6
Alternative 7	Gravity + 4 PS + Grinder Systems	Yes	No	No	No	No	Yes	Yes	Yes	4
Alternative 8	Gravity + 5 PS	Yes	Yes	Yes	No	No	No	Yes	Yes	5
Alternative 9	Gravity + 4 PS + Grinder Systems	No	Yes	Yes	No	No	No	Yes	Yes	4

Summary – Impervious Area for Pump Stations



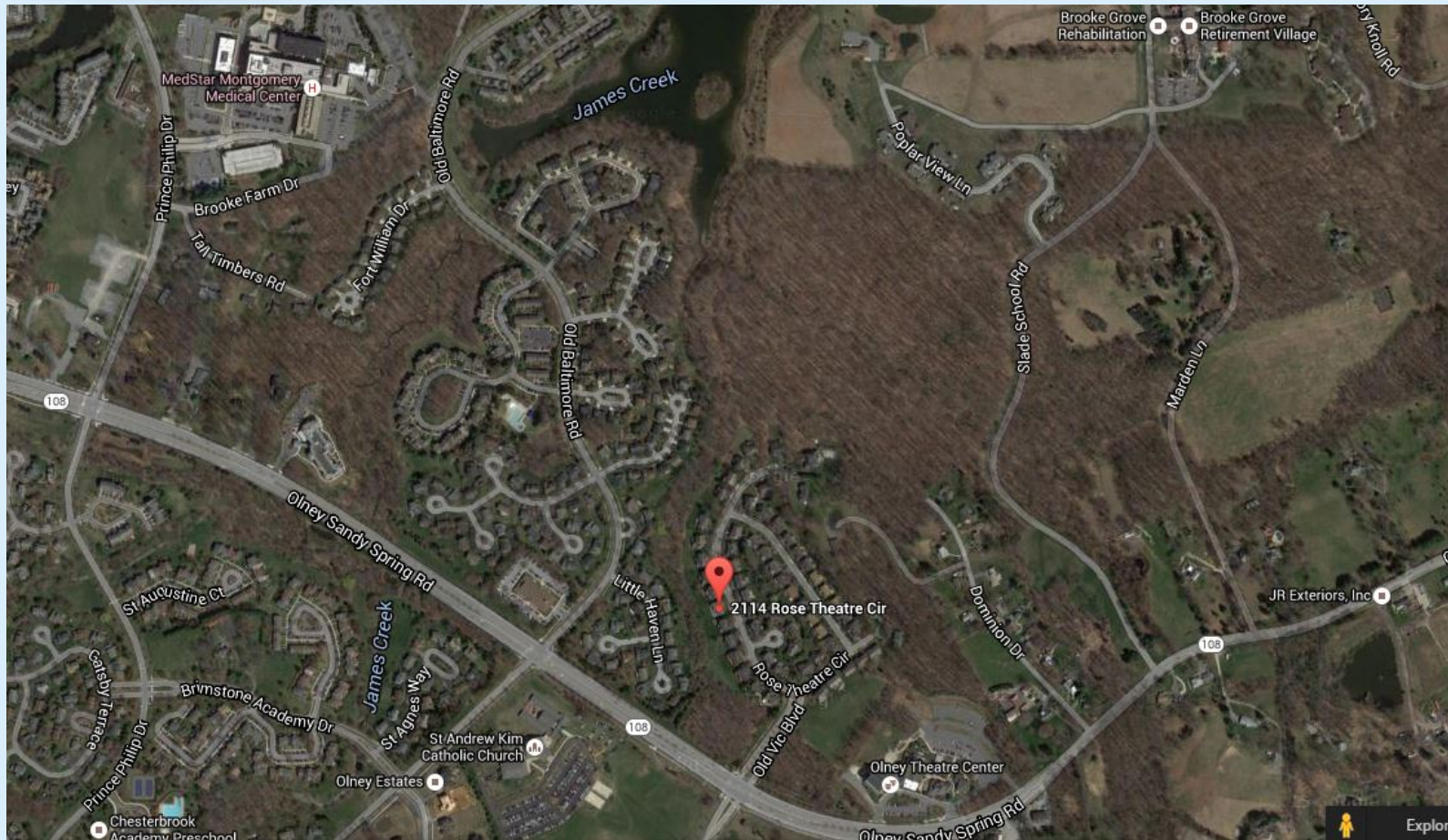
Summary – Cost Estimates

Present Worth

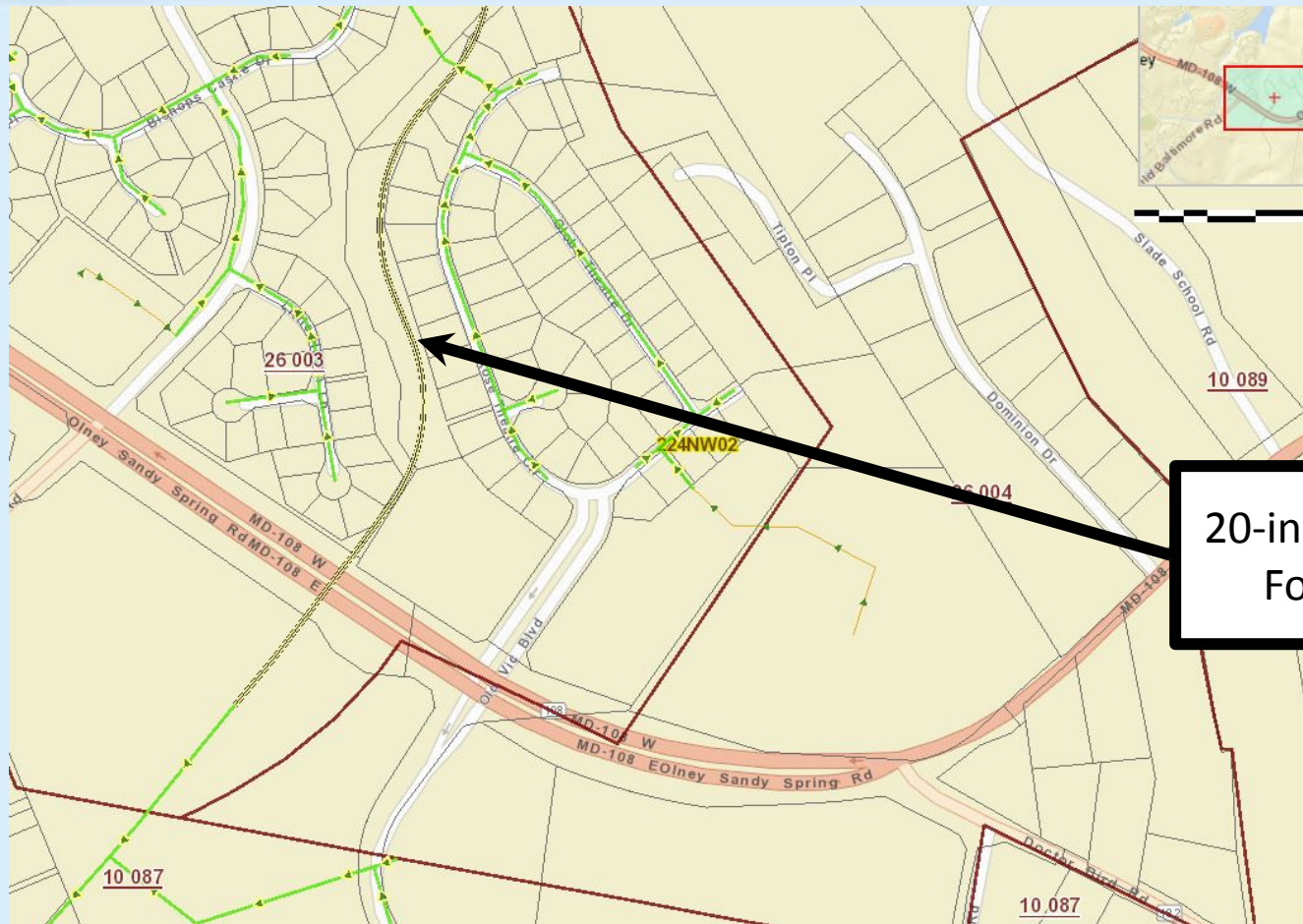


Oiney Force Main Failure – Current and Future WSSC Developments

Olney Force Main – Recent Force Main Breaks

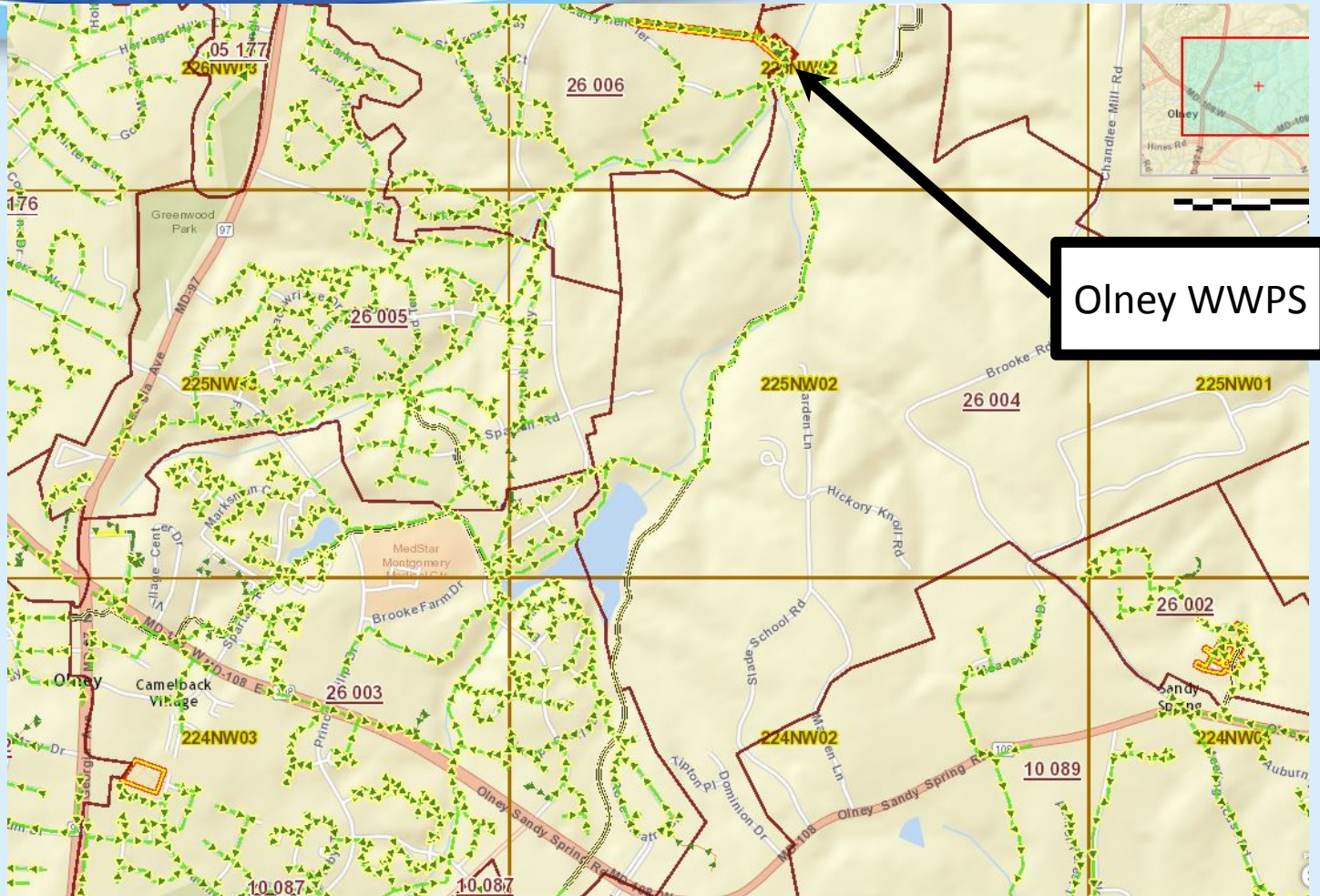


Oiney Force Main – Recent Force Main Breaks



20-inch Diameter
Force Main

Olney Force Main – Recent Force Main Breaks



Olney FM History

- Length is approximately 9,300 feet of 18- and 20-inch diameter force main (pipe material: ductile iron).
- Constructed 1992.
- Three (3) breaks with significant failures have occurred on 20-inch force main:
 - July 29, 2015 (460, 320 gallons)
 - July 30, 2015 (533,906 gallons)
 - August 12, 2015 (110,880 gallons); Olney WWPS overflow (159,911 gallons)
- Repairs completed as of August 13, 2015.
- Cause not fully determined, but preliminary indications are that hydrogen sulfide (H_2S) generation in the force main has contributed to these breaks.

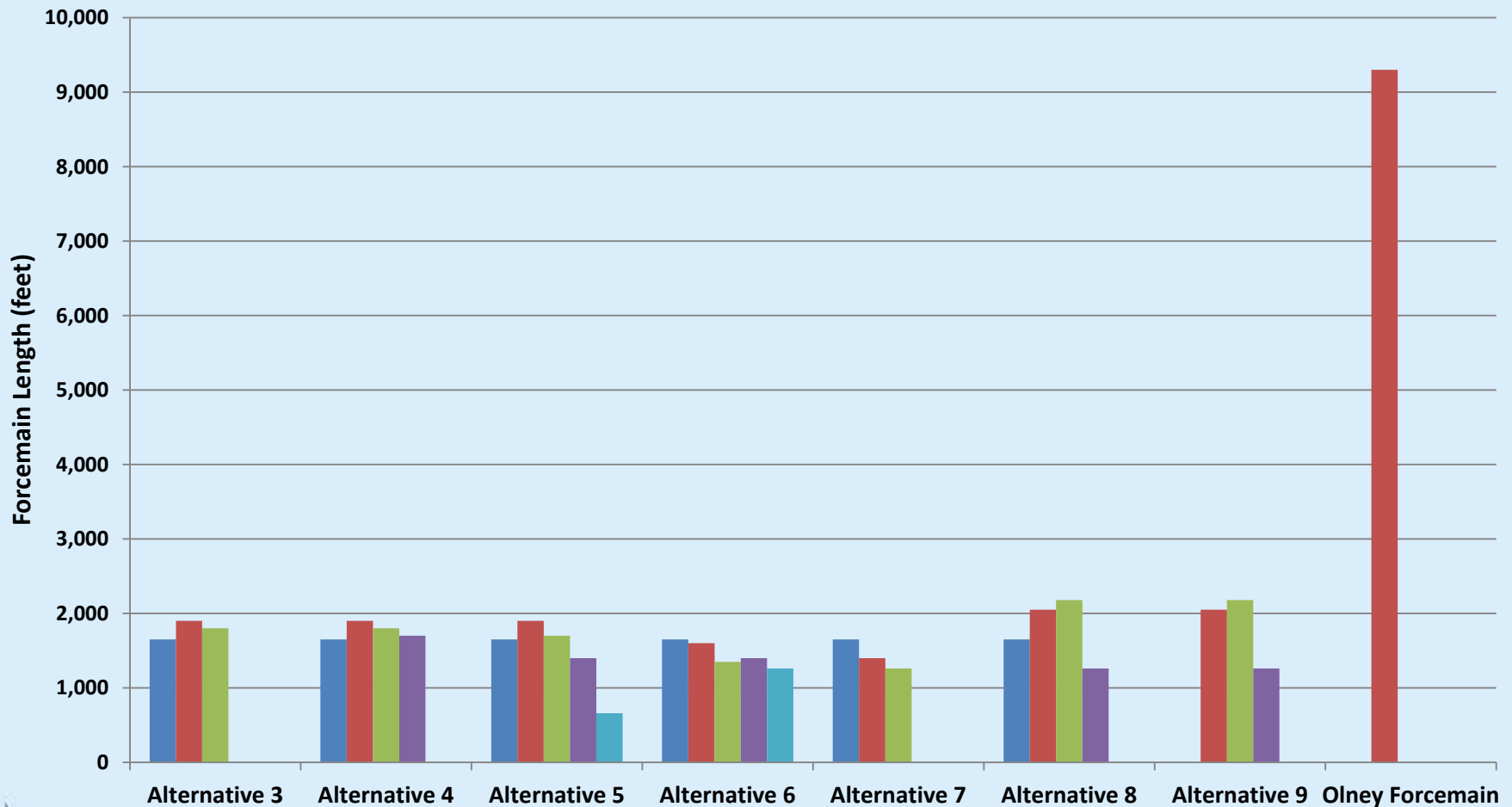
Other Recent FM Break History

- Three (3) other breaks with significant failures have occurred recently in the Sanitary District:
 - March 5, 2013 (2,028,000 gallons) – Reddy Branch WWPS, Montgomery County
 - October 29, 2013 (269,325 gallons) – Reddy Branch WWPS, Montgomery County
 - May 3, 2015 - near Forest Heights WWPS, Prince George's County (15,000 gallons)

WWPS Force Main	Length (feet)	Constructed	Diameter (inches)
Forest Heights	1,959	1949	14
Reddy Branch	4,693	1969	16
Olney	9,300	1992	18, 20

- Overall, annual overflow volume (in gallons) is trending lower in WSSC's service area since entering into the Consent Decree (December 7, 2005) but we acknowledge that the impact of force main breaks to the community can be significant and we are striving to do better.

Comparison of Forcemain Lengths: Clarksburg Alternatives Vs Olney



WSSC Pipeline Design Requirements (current) for Force Mains

- Force main design coordinated with design of wastewater pumping station.
- 'Uphill' pumping is preferred (force main discharge point elevation > rest of system 'upstream' to WWPS) in order to keep force main under pressure.
- Minimum sizing is 4 inches in diameter.
- Force main should be designed without intermediate high points.
- If high points cannot be eliminated or if the design requires air or vacuum valves for long, relatively flat alignments, the design may require air release and air and vacuum valves.
- Hydrogen sulfide corrosion mitigation requirements
 - Design may require downstream manholes and pipeline sections in gravity system to have interior coatings.

WSSC Pipeline Design Requirements (2008) for Force Mains (continued)

- Analysis required to determine potential for Hydrogen Sulfide generation into proposed or existing sewers (Pomeroy's Equation).
- Pipe layout design should minimize sewage detention time in system (preferably no downhill pumping or high points in the alignment).
- Selection of pipe and structure material (coatings, PVC, HDPE) important, if substantial Hydrogen Sulfide generation is predicted and design changes (slope, size) cannot prevent it.
- **WSSC Asset Tracking**
 - New Asset Management program underway to determine when assets (buried, facilities, etc.) should be repaired or replaced (e.g.: asset useful life, consequence of failure)
 - Force mains are a point of concern within the Asset Management Program.
 - Emergency Response Plans (ERP) for high risk force mains are being developed. The intent of the ERP is to help WSSC respond to a failure, if it does happen.
 - Currently, WSSC is working on a force main prioritization project that will provide us with a ranking of the force mains.
 - We are also conducting condition assessment on force mains when possible. Unfortunately, limited technology exists to execute these inspections on these assets. Many force mains are very long and cannot be out of service for extended periods of time.
 - Future Redundancy Planning? – example: parallel length along alignment to provide service, if failure occurs on force main (future planning/studies/evaluations required).

For Our Next Meeting...

Open Comments/Discussion from Public

Ten Mile Creek Sewer Study Web Page at WSSC Web Site

<https://www.wsscwater.com/business--construction/major-projects/ten-mile-creek--clarksburg-sewer.html>

Thank you for attendance. Have a safe and great evening.

**We appreciate your support, participation
and cooperation.**