

Walnut Drive Stormwater Infrastructure Improvements

Presented By:

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Civil & Environmental
Consultants, Inc.



Walnut Drive Runoff Issues



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Drainage Area Contributing to Walnut Drive Lot 300



- 1" Storm Event Volume
- $V = R_v PA$
 - R_v = Impervious Coefficient
 - P = Rainfall
 - A = Drainage Area
- $V = (0.14)(1")(9.6 \text{ Acre})$
- $V = 0.11 \text{ Acre} - Ft$

$V \approx 36,500 \text{ Gallons}$

1" Storm Event



Supply over TWO

16' x 32' x 5' deep Swimming Pools



Drainage Area Contributing to Walnut Drive Lot 308



- 1" Storm Event Volume
- $V = R_v PA$
 - R_v = Impervious Area Coefficient
 - P = Rainfall
 - A = Drainage Area
- $V = (0.14)(1")(26.2 \text{ Acre})$
- $V = 0.31 \text{ Acre} - \text{Ft}$

$V \approx 99,700 \text{ Gallons}$

1" Storm Event



Supply over **FIVE**

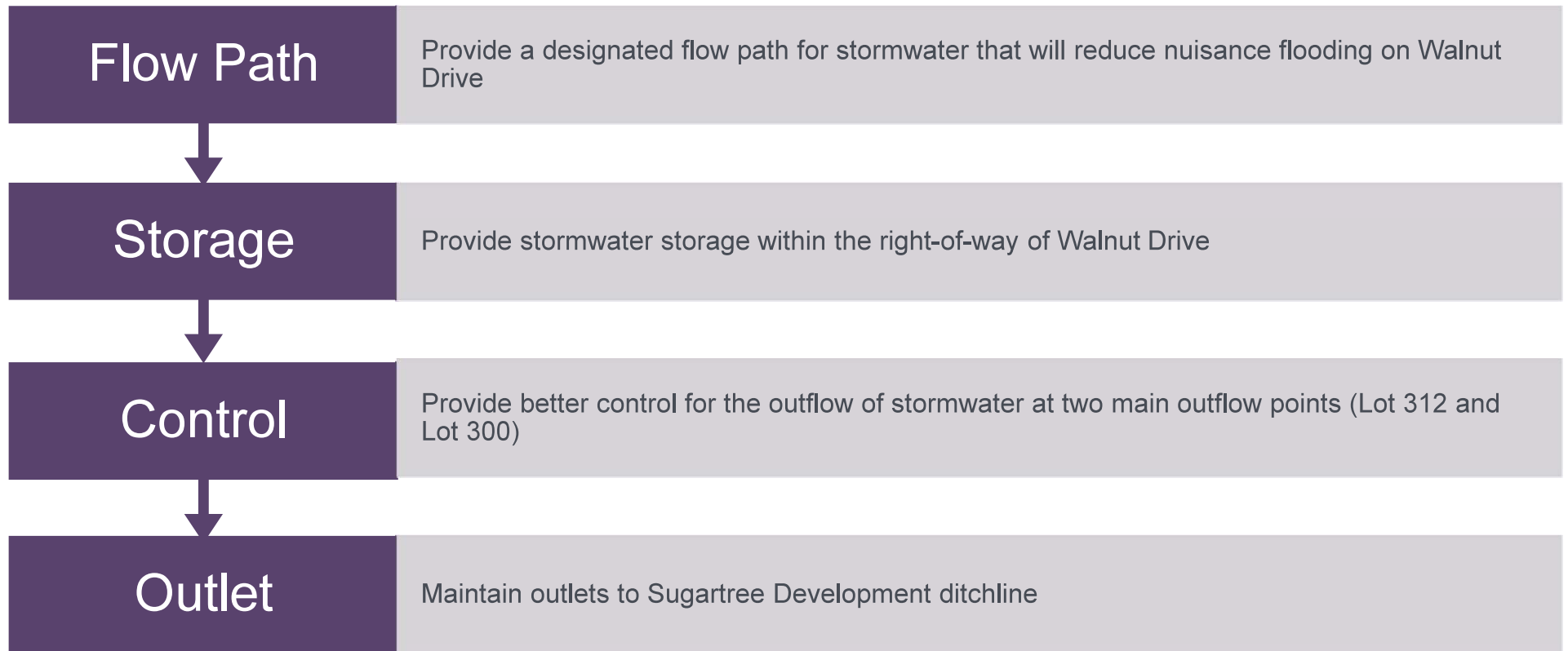
16' x 32' x 5' deep Swimming Pools



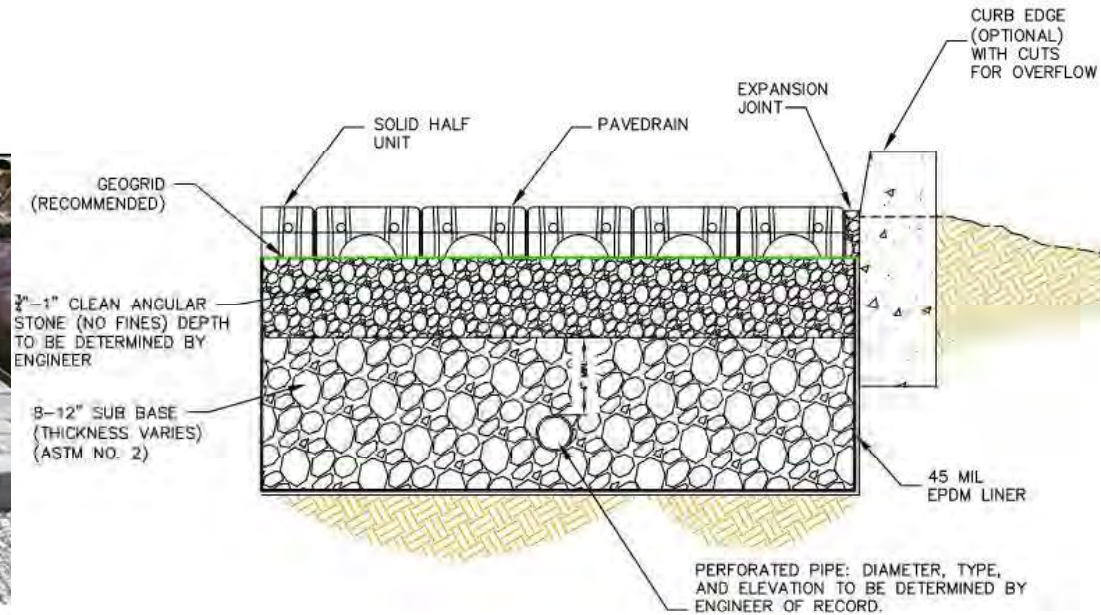
Lillywood Drainage

- Contributing area from Lillywood homes is less than 10% of the overall drainage area
- Bioretention/rain garden at end of roadway to collect water from 4301 and 4303 Lillywood Road
 - Still under consideration
 - May be challenging due to presence of subsurface utilities and trees

Project Goals & Considerations



Permeable Paver Roadway



PERMEABLE – ARTICULATING CONCRETE BLOCK/MAT
TYPICAL SECTION



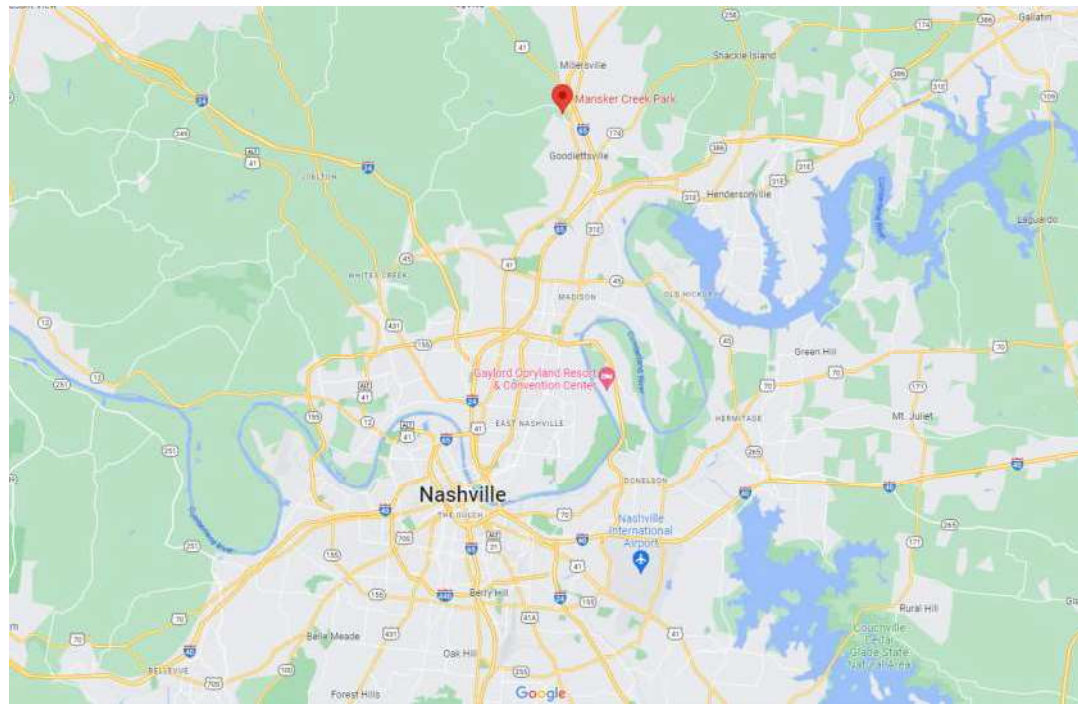
Permeable Paver Example Locations



- **Left:** Mansker Creek Park (7774 Old Springfield Pike Goodlettsville, TN)
- **Right:** Twice Daily (2112 Charlotte Avenue Nashville, TN)

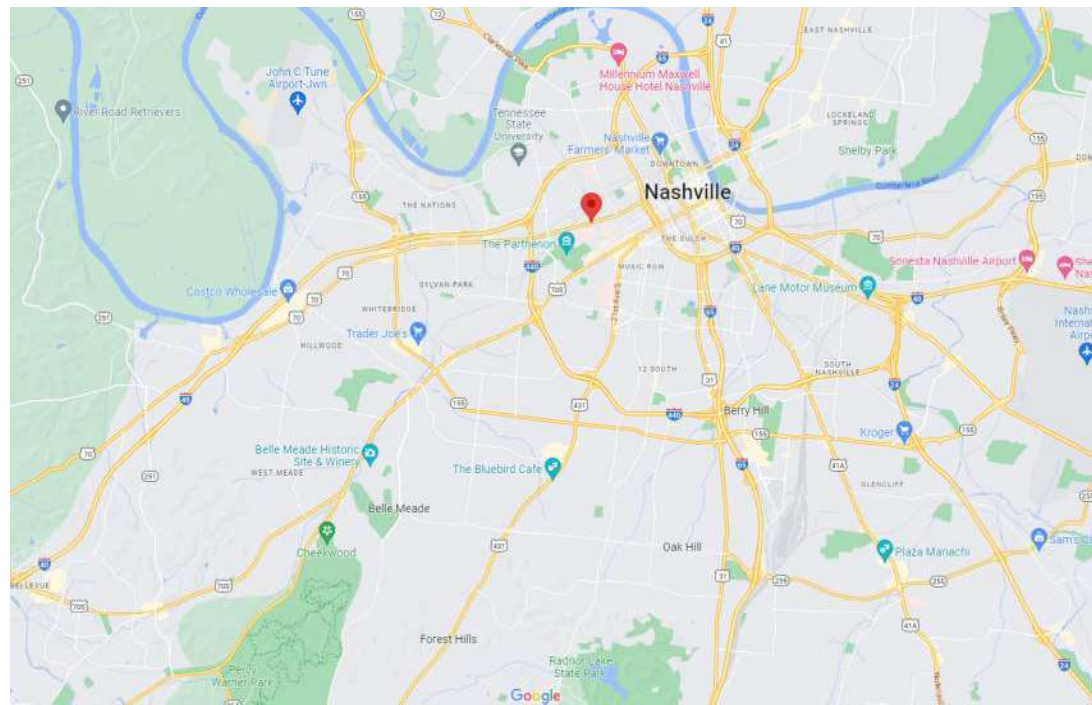
Permeable Paver Example Locations

Mansker Creek Park (7774 Old Springfield Pike, Goodlettsville, TN)



Permeable Paver Example Locations

Twice Daily (2112 Charlotte Avenue, Nashville, TN)



Walnut Drive Rendering



Walnut Drive Rendering



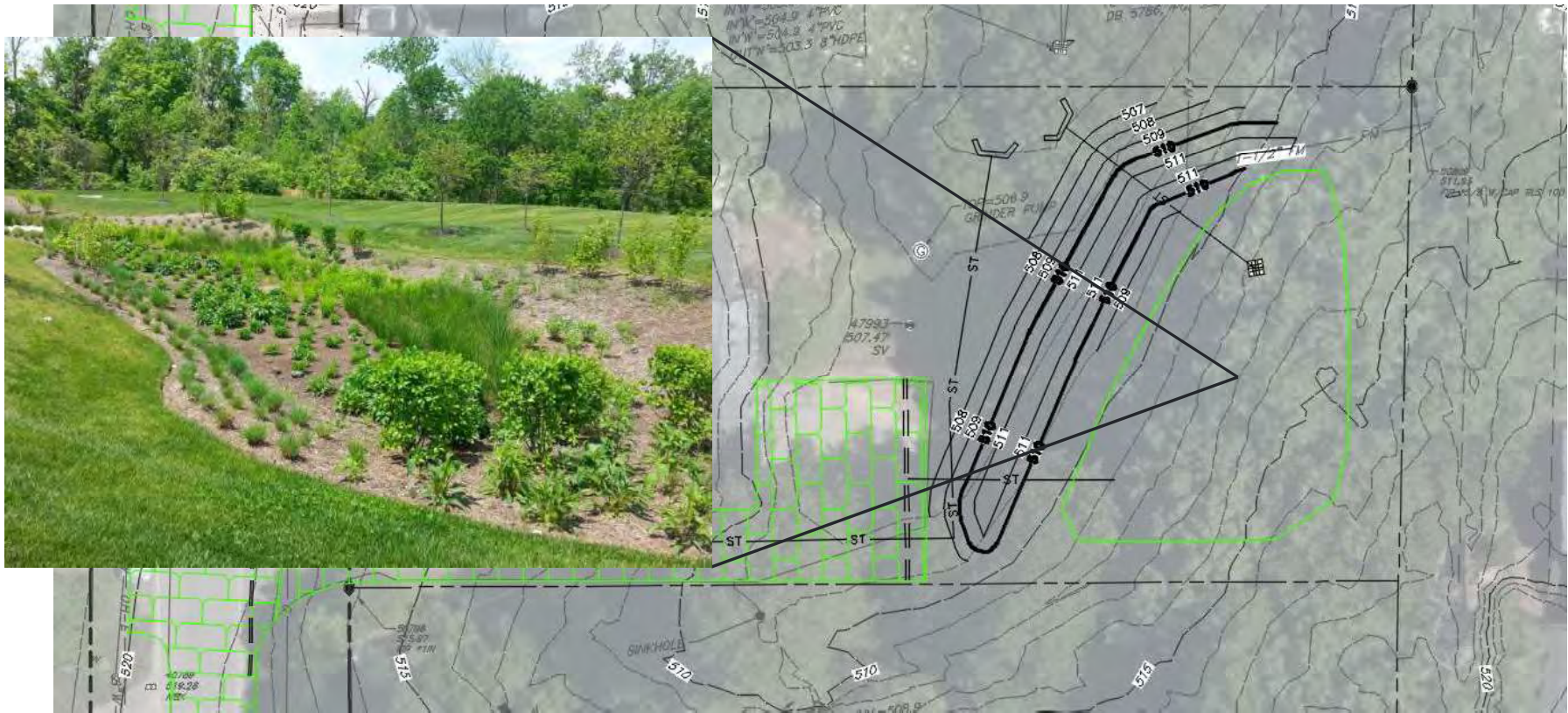
Walnut Drive Rendering



Lot 312 Existing Outflow



Lot 312 Proposed Plan



Lot 310 Proposed Plan



Lot 300 Existing Outflow



Lot 300 Existing Outflow

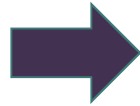


Construction

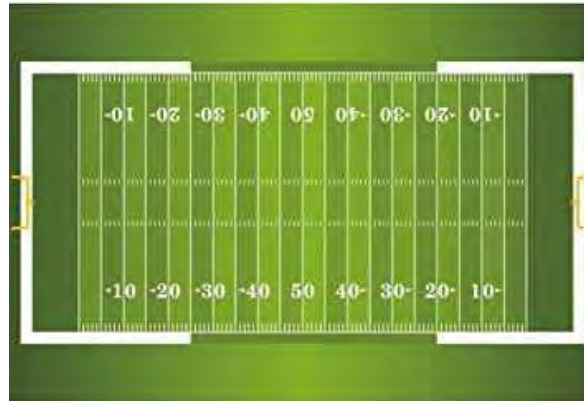
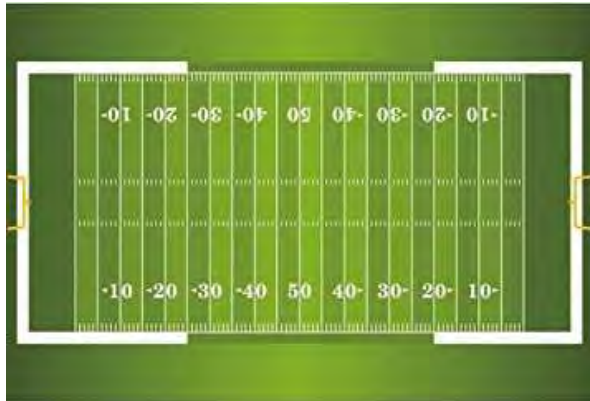


What Can You Do?

Roof Area is ~ 9%
of the Watershed
Area

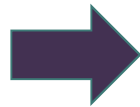


Roughly the Size of 2.5
Football Fields of
Impervious Area



What Can You Do?

Rain Gardens to Capture Stormwater from Roof Drains



Particularly – West Side of Walnut Drive



Next Steps



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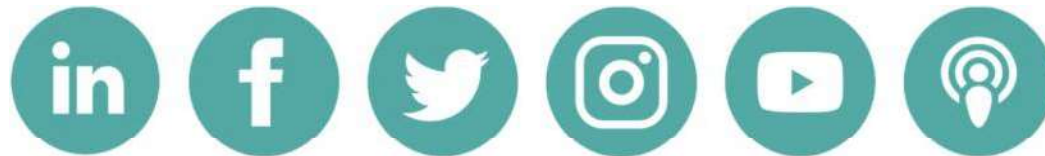
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Questions?

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