

# **CITY OF WILLARD, MISSOURI**

224 W. Jackson Street P.O. Box 187 Willard, MO 65781 417-742-3033 417-742-3080 Fax



## **MEETING AGENDA AND PACKET**

### **PLANNING AND ZONING COMMISSION**

**Regular Meeting**

**April 26, 2016**

**7:00 p.m.**

**Willard City Hall**

**224 W. Jackson Street**

### **PLANNING AND ZONING MEMBERS**

**Adam Shelledy, Chairman**

**Lucille Murray-Vice-Chairman**

**Valorie Simpson, Secretary**

**Mayor Corey Hendrickson**

**Jamie Buckley-Alderman**

**Terry Kathcart**

**Dave Helton**

**Randy Brown, Director of Development**

**[www.cityofwillard.org](http://www.cityofwillard.org)**

CITY OF WILLARD  
PLANNING AND ZONING  
REGULAR MEETING  
April 26, 2016  
7:00 P.M.

Notice posted on April 20, 2016

Notice is hereby given that the City of Willard, Planning and Zoning will conduct a regular meeting at 7:00 p.m., April 26, 2016 at Willard City Hall, 224 W. Jackson, Willard, Missouri.

1. Call the meeting to order.
2. Roll Call.
3. Agenda Amendments/Agenda Approval.
4. Approval of the Minutes from the meeting on March 22, 2016.
5. Citizen Input.
6. Public Hearing regarding rezoning request for Robertson Estates.
7. Discussion/Vote on rezoning request for Robertson Estates.
8. Discussion/Vote on preliminary plat for Robertson Estates.
9. Old Business.
10. New Business.
10. Adjourn Meeting.

REPRESENTATIVES OF THE NEWS MEDIA MAY OBTAIN COPIES OF THIS NOTICE BY CONTACTING:

Jennifer Rowe  
224 W. Jackson  
Willard, Missouri 65781  
(417)742-5302

CITY OF WILLARD, MISSOURI  
PLANNING AND ZONING  
REGULAR MEETING  
March 22, 2016  
7:00 P.M.

Staff present: City Administrator, J. Everett Mitchell; City Clerk, Jennifer Rowe; and Director of Development, Randy Brown; Utility Clerk, Abigail Wilson; Police Corporal, Bob Bell; City Attorney, Ken Reynolds.

Citizens present: Alderman Sam Baird, Alderman Samuel Snider, Dr. Kent Medlin, Bob Goodwyn, Floyd Maggard, Mindy Latham, Jeff Jones, Doug Jones, Martin Addie, David Raney and 38 others.

Meeting opened by Chairman Adam Shelledy at 7:00 p.m.

**Roll Call**

Present: Lucille Murray, David Helton, Valorie Simpson, Adam Shelledy, Alderman Paul Hood, Terry Kathcart and Mayor Corey Hendrickson. Absent: none.

**Approval of Agenda**

The City Administrator requested two (2) additions to the Agenda. The first would be to conduct a public hearing regarding the annexation of WD1512AA and WD1512AB. The second item is a discussion/vote to recommend that the Board of Aldermen move forward with the annexations as proposed. Motion was made by Lucille Murray with a second by Valorie Simpson to approve the Agenda with changes. Motion carried with a vote of 7-0. Voting aye: Lucille Murray, David Helton, Terry Kathcart, Adam Shelledy, Alderman Hood, Mayor Hendrickson and Valorie Simpson.

**Approval of minutes from February 23, 2016**

Motion was made by Valorie Simpson with a second by David Helton to approve the Minutes from February 23, 2016. Motion carried with a vote of 7-0. Voting aye: Lucille Murray, David Helton, Terry Kathcart, Adam Shelledy, Alderman Hood, Mayor Hendrickson and Valorie Simpson.

**Citizens Input**

None

**Public Hearing on the proposed Annexation of WD1512AA and WD1512AB**

The City Attorney opened the public hearing at 7:15 p.m. regarding the annexation of WD1512AA and WD1512AB. Citizens were invited to speak for a time limit of three (3) minutes. Comments were heard from Jeff Jones regarding resolving the sewer, but his fears were that the City is boxing in these residences with no opportunity for Springfield to annex at a later date. Doug Jones spoke next regarding his fears that the City is taking the first step in a forced annexation of the Meadows area into the City of Willard. Dr. Kent Medlin agreed that a plan is necessary but he appreciates the fact that we are moving forward. Martin Addie asked about associated costs that will be due if citizens were to annex into the City and what benefits would be available to them at that time. Finally, David Raney said he worries this is a veiled plan to incorporate everyone into City limits. The City Attorney closed the public hearing at 7:21 p.m.

**Discussion/Vote to recommend the Board of Aldermen to move forward with the annexation as proposed**

Randy Brown spoke about the proposed annexation of the two (2) areas on AB Hwy. The first area WD1512AA that spans from Hwy 160 south to the current City Limit sign is being annexed to clean up the City boundaries. The second area WD1512AB will extend from the City Limit sign and go south to a point two hundred (200) feet south of EE. The City has received a letter of concurrence from Greene County and is working on the details with the City of Springfield. Valorie Simpson brought up the Urban Boundary Agreement between the City of Springfield and the City of Willard indicating the

agreement that Springfield will never incorporate the Meadows area into their City limits as it is within the Willard boundary. The City has requested to table the proposed annexation of EE until further details can be obtained from Springfield regarding the fly zone. Motion was made by Terry Kathcart and seconded by Valorie Simpson to recommend the Board of Aldermen move forward with the annexation of WD1512AB as proposed. Motion carried with a vote of 7-0. Voting aye: Lucille Murray, David Helton, Terry Kathcart, Adam Shelledy, Alderman Hood, Mayor Hendrickson and Valorie Simpson. Motion was made by Terry Kathcart and seconded by David Helton to recommend the Board of Aldermen move forward with the annexation of WD1512AA as proposed. Motion carried with a vote of 7-0. Voting aye: Lucille Murray, David Helton, Terry Kathcart, Adam Shelledy, Alderman Hood, Mayor Hendrickson and Valorie Simpson.

**Discussion/Vote on sketch plan for Robertson Estates**

Randy Brown outlined the sketch plan for Robertson Estates. He informed the Board that the twenty (20) acre area is on the west side of Farmer Road, south of Wiley and north of the Bus Barn. It is currently R-1 for zoning and a rezoning request will be brought to the Board at the next meeting requesting a change for R-2 and R-3 to be added. Terry Kathcart asked if the floodplain was being addressed. Valorie Simpson asked Dr. Medlin if the school was in support of an R-3 zone being that close to a school. Dr. Medlin stated that the school was in support of it as they had no desire to pursue the use of that land. Motion was made by Lucille Murray and seconded by Terry Kathcart to proceed and approve the sketch plan for Robertson Estates. Motion carried with a vote of 7-0. Voting aye: Lucille Murray, David Helton, Terry Kathcart, Adam Shelledy, Alderman Hood, Mayor Hendrickson and Valorie Simpson.

**Old Business**

Randy Brown informed the Board that the City was moving forward with the Hwy 160 and Hughes Road project and the Board of Aldermen had signed an extension for it. The City is also close to getting the downtown sidewalk project out for bid and waiting for plans from the future site of Glenn's Automotive.

**New Business**

The City Administrator informed the Board that the City has granted an agreement with Great River Engineering to update the Comprehensive Plan and we are currently waiting on the contract from them. Graduate students from Missouri State University have also been assigned several of the chapters of the Comprehensive Plan to evaluate and update. The City has also begun a City wide wastewater study that should be complete by May 2016.

**Adjourn Meeting**

Lucille Murray made the motion to adjourn meeting at 7:47 p.m. with a second by Valorie Simpson. Motion carried with a vote of 7-0. Voting aye: Lucille Murray, David Helton, Terry Kathcart, Adam Shelledy, Alderman Hood, Mayor Hendrickson and Valorie Simpson. Meeting Adjourned.

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Valorie Simpson, Secretary

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Adam Shelledy, Chairman P&Z

Background Report for the Re-Zoning of  
Robertson Subdivision

**Date:** April 22, 2016

**Location :** The property is located on the west side of Farmer Road, south of Willey Street and north of the Willard School bus barn property.

**Applicant :** Matt Kelly, Tyler Robertson

**Tract size: Total:** 19.87 Acres

Lots #1 - #7- 1.94 acres

Lot #9 – 1.00 acre

Lot #8 – 16.93

**Existing Zoning:** R-1

**Proposed Zoning:** Lots #1- #7 – R-2

Lot #9 - R-1

Lot#8 – R-3

**Surrounding Land Uses:** North – R-1 - Residential

South – R-1 – Willard Schools

East - R-1 – Residential , Willard Methodist Church

West – R-1 – Residential, vacant undeveloped

**History :** This tract was recently purchased by the applicant's from Mr. David Snider. It is the developer's intent to further subdivide this tract, splitting the existing house and outbuilding, shown as (lot9) into a one acre parcel. This would be Phase #1. Phase #2 would be the infrastructure improvements and the development of lots #1- #7 into duplex buildings. Phase #3 would be the development of the remaining 16.93 acres into some type of multi-family plan , yet to be determined.

**Comprehensive Plan:** The Willard Comprehensive Plan shows this tract to be suitable for R-1 development.

**Staff Comments:** Staff would recommend that R-1 and R-2 zoning request be approved and that the R-3 zoning request be tabled pending further site plan/ development plan information from the owner/developer.

If you have questions or comments concerning this project feel free to contact me at City Hall.

Randy Brown  
Director of Development



City of Willard

Subdivision Case No. \_\_\_\_\_  
Application Date \_\_\_\_\_  
Application Fee \$250.00 + \$2.50 per lot Residential  
\$335.00 + \$3.35 per lot Commercial  
\$300.00 + \$6.00 per lot PDD

**APPLICATION  
MAJOR SUBDIVISION – PRELIMINARY PLAT**

We, the undersigned, request the City of Willard, Missouri Planning and Zoning Commission and Board of Aldermen to approve the preliminary plat attached to this application, and attest to the truth and correctness of all facts and information for the proposed plat presented in this application.

Name of Preliminary Plat: Robertson Estates

Is a subdivision variance being submitted with this application? Yes \_\_\_\_\_ No

If yes, applicant is to submit a subdivision variance application with this preliminary plat application.

Property Owner's Name Taylor Robertson

If corporation, Corporate Official: N/A

Mailing Address 4826 North Red Hawk Circle Springfield, MO 65803

Telephone Number (417) 844-4889 Fax Number \_\_\_\_\_

**PROPERTY OWNER'S SIGNATURE(S):**

[Signature]  
(If corporation, signature of corporation official)

Developer's Name: (If different from property owner)

SAME AS PROPERTY OWNER

Mailing Address \_\_\_\_\_

Telephone Number \_\_\_\_\_ Fax Number \_\_\_\_\_



City of Willard

Zoning Case No. \_\_\_\_\_  
Application Date 3-14-16  
Application Fee \$500

**APPLICATION  
ZONING CHANGE (REZONING)**

We, the undersigned, ask the City of Willard, Missouri Board of Aldermen to approve a zoning change as requested in this application on the tract of land described below. We attest to the truth and correctness of all facts and information presented with this application and agree to pay all advertising and mail notification costs for the public hearings as required by the *Willard Land Development Regulations*. The City of Willard is authorized to prepare and publish all required legal advertising and mail notifications, the cost of which is to be billed to the name listed below for payment.

Present Zoning Classification R-1 Requested Zoning Classification R-2/R-3

Legal Description of Property Requested to be Rezoned (attach additional sheet if needed):

SEE ATTACHED PRELIMINARY PLAT

Street Address or Other Common Property Description 309 Farmer Road Willard, Mo 65781

Property Owner's Name(s) Taylor Robertson

If corporation, Corporate Official Name and Seal: N/A

Mailing Address 4826 North Red Hawk Circle Springfield, Mo 65803

Telephone Number (417) 844-4889 Fax Number (417) 742-2130

**PROPERTY OWNER'S SIGNATURE:**

[Signature]  
(Not necessary if there is an authorized representative. Authorized representative must sign below).

**AUTHORIZED REPRESENTATIVE:**

I hereby certify that I am authorized to represent all of the property owners of the above described tract in this application. A power of attorney is attached.

Name \_\_\_\_\_ Signature \_\_\_\_\_

Address \_\_\_\_\_ Telephone \_\_\_\_\_

**BILL ADVERTISING AND NOTIFICATION COSTS TO:**

Name Taylor Robertson Telephone (417) 844-4889

Address 4826 North Red Hawk Circle Springfield, Mo 65803

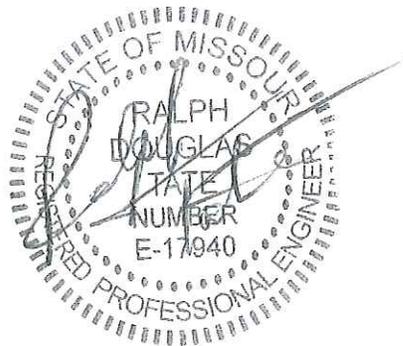
QUESTIONS ON REZONING APPLICATION

(Attach additional sheets if necessary)

1. What is the current use of the property? Current property use is R-1, which consists of a residential home and 20 acres.
2. Why are you requesting a change in zoning? Purchased the property with the intent of splitting off seven duplex lots and approximately a seventeen acre tract that will be most likely developed as multi-family.
3. Are there any deed restrictions or restrictive covenants that would affect the use of this property? If so, what are they?  
NO
4. Has a rezoning ever been requested for this property in the past by the current owner? What zoning classification was requested and when?  
NO
5. If the rezoning is approved, does the applicant intend to develop the property?  
The intent is to sell the seven duplex lots and keep the ~ 17 acre tract that will be developed in the future.

\* All of the property is currently zoned R-1. We are requesting to rezone tracts 1-7 to R-2 for duplex lots. We are also requesting that Lot 8 be rezoned to R-3.

ENGINEERING REPORT  
ROBERTSON ESTATES SUBDIVISION  
WILLARD  
GREENE COUNTY, MO.



April 7, 2016

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## ATTACHED EXHIBITS:

Ex. 1 REDUCED SIZE PRELIMINARY PLAT  
11" x 17"

Ex. 2 USGS MAP  
DRAINAGE AREA BOUNDARY LINES

Ex. 3 GREENE COUNTY BEACON AIR PHOTO OF SUBDIVISION AREA

Ex. 4 FLOOD PLAIN MAP OF AREA

Ex. 5 GREENE COUNTY LETTER CONCERNING STORM DRAINAGE IN  
SUBDIVISION AREA

## PROJECT DESCRIPTION AND LOCATION

Robertson Estates Subdivision consists of approximately 19.87 acres of land and is located on the west side of Farmer Street about 150 feet south of Willey Street in Willard, Greene County, Mo. The subdivision is located in the Northeast  $\frac{1}{4}$  of the Northwest  $\frac{1}{4}$ , Section 26, Township 30N, Range 23W.

The proposal is to subdivide the land into 9 lots.

Exhibit 1 is a reduced size copy of the Preliminary Plat (11"x17").

## LAND USES AND ALLOCATIONS

The proposed land use for the subdivision is R-1 Single Family Residential, R-2 Two-Family Residential and R-3 Multi-Family Residential.

Lots 1 through 7 will be zoned R-2, lot 8 zoned R-3 and lot 9 zoned R-1. The subdivision will be developed in 3 phases, phase 1 will be Lot 9 the R-1 lot which already has a residence constructed on it. Phase 2 will be lots 1 through 7 developed as duplex lots. Phase 3 will be lot 8 with the developed usage of the lot to be determined at a later date.

The lot size and land usage summary is:

Total project area = 19.87 Ac.  
Streets and roads = to be determined when lot 8 development determined  
Smallest lot size = 12,073 Sq. Ft. (Lot 7)  
Largest lot size = 737,414 Sq. Ft. (Lot 8)  
Total number of lots = 9

## BULK, AREA AND HEIGHT REQUIREMENTS

All lots, drives, parking, etc. will be situated in conformance to the Preliminary Plat. A reduced copy of the Preliminary Plat is attached as Exhibit 1.

Minimum setbacks are as follows:

R-1 Zone

Front Yard Setback = 35'  
Side Yard Setback = 15'  
Rear Yard Setback = 50'

R-2 Zone & R-3 Zone

Front Yard Setback = 25'

Side Yard Setback = 10'

Rear Yard Setback = 25'

### STORMWATER DRAINAGE

Exhibit 2 is a copy of the USGS Quadrangle map of the area indicating the contours of the area and the location of the subdivision. This map indicates the approximate drainage area boundary of the area.

The storm water and storm detention calculations will be submitted with the design and construction plans for the public improvements are submitted for City approval. As stated above the subdivision will be developed in 3 phases. Phase 1 will be the existing single family residence located on lot 9. This residence has been in existence for many years and there is no requirement for stormwater detention.

Phase 2 consists of the 7 duplex lots. These lots drain to the flood zone as indicated in Exhibit 4. The total area of the 7 lots is about 1.94 acres. These lots are at the downstream end of a drainage area consisting of about 36 acres. The 1.94 acres contained in the 7 lots is only about 5.4% of the total 36 acre drainage area. Since the 7 lots are less than 10% of the drainage area and drain directly to the flood zone the development of this phase will have no substantial effect on the storm runoff in the area so there is no need to construct storm detention facilities at the phase. The developers plan on submitting a storm detention buyout proposal for this phase. The calculations and application will be included in the design and construction plans for the public improvements for this phase.

The type and scope of the Phase 3 development will be determined at a later date. At that time the storm drainage and storm detention calculations and design will be submitted for approval by the City.

### WATER SUPPLY

The water supply for the subdivision will be the City of Willard water supply system.

### WASTEWATER DISPOSAL

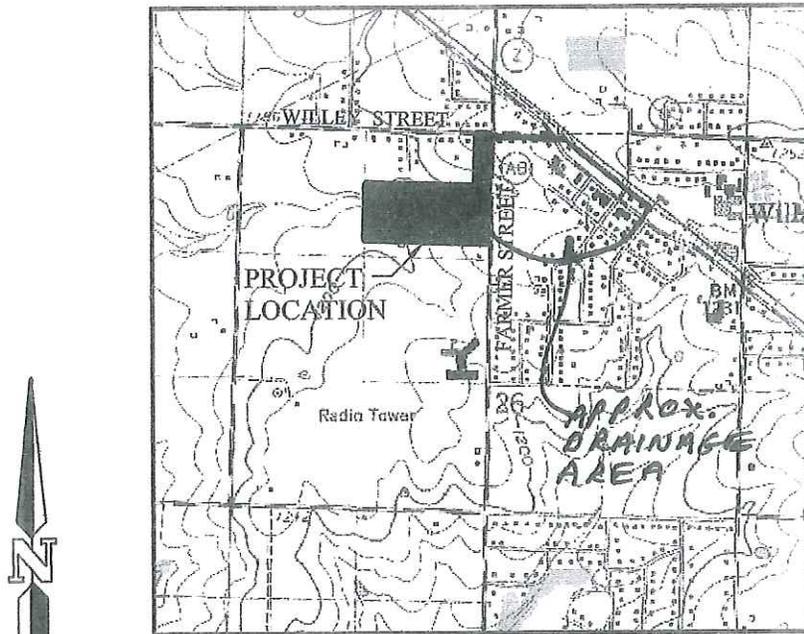
The wastewater disposal for the subdivision will be the City of Willard wastewater collection and treatment system.

EXHIBIT 1

REDUCED SIZE PRELIMINARY PLAT  
11" x 17"

EXHIBIT 2

USGS MAP  
DRAINAGE AREA BOUNDARY LINES



LOCATION MAP

SECTION 26

TWP-30-N, RNG-23-W

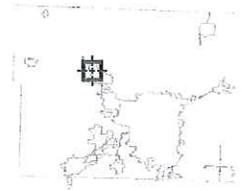
SCALE 1" = 2000'

EXHIBIT 3

GREENE COUNTY BEACON AIR PHOTO OF SUBDIVISION AREA



Overview



Legend

-  Area Numbers
-  S/T/R Numbers
- Parcel Lines**
-  <all other values>
-  DASHROW
-  MUNIRWD
-  PROPDASH
-  PROPLINE
-  RRROW
-  ZONING
- Section Lines**
-  Quarter Section Lines
-  Section Lines
- Streets**
-  <all other values>
-  8
-  County Boundary
-  Assessor's Parcels
-  Floodplains
-  City Limits

Parcel ID 880726201088  
 Sec/Twp/Rng 26-30-23  
 Property Address FARMER RD  
 WILLARD

Alternate ID n/a  
 Class R  
 Acreage 20.08

Owner Address SNIDER, JOHN D  
 309 FARMER RD  
 WILLARD MO 65781

District 180

Brief Tax Description WILLARD IRR 20.08A M/L S1/2 NE1/4 NW1/4 (EX N 64 FT W 69R) & (EX BEG 395 FT S SE COR WORD SUB S 7.94 FT W 235.98 FT N 7.76 FT E TO BEG) & (EX S 100 FTE 150 FT) & BEG 1R W NE COR  
 (Note: Not to be used on legal documents)

The sinkhole layer represents surface depressions from LiDAR imaging obtained in 2010 and 2011. Most of the sinkholes shown have not been field verified and are provided for informational purposes only. This layer should not be used as a substitute for a geological or geotechnical investigation. Questions regarding sinkholes should be directed to the Environmental Section of the Resource Management Department (417) 868-4147. For sinkhole information inside the city limits of Springfield, please call (417) 864-1901.

Date created: 12/18/2015

EXHIBIT 4

FLOOD PLAIN MAP OF AREA



EXHIBIT 5

GREENE COUNTY LETTER CONCERNING STORM DRAINAGE IN  
SUBDIVISION AREA



County of **GREENE** State of Missouri

GREENE COUNTY COMMISSION  
RESOURCE MANAGEMENT DEPARTMENT  
ENVIRONMENTAL SECTION

JIM VIEBROCK  
Presiding Commissioner  
HAROLD BENGSCHE  
Commissioner 1st District  
ROSEANN BENTLEY  
Commissioner 2nd District

940 Boonville Avenue  
SPRINGFIELD MO, 65802  
(417) 868-4147  
Fax (417) 868-4163

KEVIN R. BARNES, PE  
Stormwater Engineer

October 2, 2014

Rev. Dennis Gromer  
First Baptist Church  
202 W. Jackson  
Willard, MO 65781

RE: Mission House at 214 S. Farmer  
Study to remove the structure out of the FEMA floodplain

We have made a review of the request received from Gene Thomas concerning the subject house. The following comments are given to summarize our findings.

1. The drainage through the property is controlled by a 29x45-inch metal arch pipe located in the front yard running under South Farmer. The arch pipe has a flow capacity equivalent to a 36-inch round pipe. There is a channel extending from just east of the rear yard area of the house, thence along the north side, flowing back south to the culvert. The east side ditch line of South Farmer also drains into this culvert, draining west away from the property. The flow capacity of this culvert is diminished since the City installed a sidewalk along the west side of the street, installing two 12-inch pipes under a raised portion of walk in attempt to allow pedestrians a dry path in a storm event. Hydraulically this produces a tailwater effect on the pipe, reducing the head potential working to push flows through the pipe.
2. The street line north and south across the lot frontage exists in a sag condition, whereby drainage flows may overtop this entire length in the event that flows exceed the flow capacity of the culvert. A new paving surface has been recently applied on South Farmer. The new asphalt lift has also added height to the elevation of the street sag, in effect, raising the dam elevation of the roadway in the location of the point of overtopping.
3. We made a physical survey of the flow zones where water passes between the homes at 212 and 214, and also where backwater at the street might cause water ponding between 214 and 216 South Farmer. Elevations of crawl space vents, finish floors, and garage slabs were also obtained, relative to the top of street pavement and the culvert flowline.
4. We made a site visit the morning of September 17, approximately one hour after a significant rainfall event occurred. Gauged data in the area showed 1.25-inches of rainfall

within a 30-minute time frame, and about 1.5-inches of rainfall in one hour. This storm event equated to what we call a 2-year, or 50<sup>th</sup> percentile storm- one that we would make engineering design for when developing land. Photos were taken to record the flow regime through the yard and the culvert. Later that morning there was another quick burst of very similar intensity, fortunately occurring well after the peak conditions of the initial storm had passed.

5. Calculation of the 100-year flow rate: There is an upstream watershed of about 36 acres, and it is pointless to debate why the FEMA lines extend up the watershed this far. Typically they start at a drainage area of about 1 square mile. We used the "rational" formula to calculate the flow rate, since the drainage area is so small, but also used the USGS regression equations and hydrology software using SCS Type II as well as local rainfall distributions. The high value for q100 was 150 cfs, (cubic feet per second), while the low value was determined to be 60 to 75 cfs.

6. Analysis of the culvert capacity: The raised sidewalk across the daylight end of the culvert causes a loss of approximately 15 cfs through the culvert. The flow rate potential for the culvert was calculated to be about 51 cfs. This would indicate that for q100 flows as calculated, there would be ponding in the yard area of 214 South Farmer, and overtopping of the street as relief of the storm surge.

7. Calculated depth of flow over South Farmer: Using the LIDAR spot grades and contours the County obtained in 2011, and adding a 2-inch value for a new asphalt surface course done earlier this year, a cross section of the street, (dam), was generated. The sag elevation for the street was estimated at 1209.4, while the garage slab elevation of the house exists at 1209.8- which is also the street grade of South Farmer at the driveway apron. Using conventional channel design software, the calculated elevation for q100 over the street was 1210.21 for the low flow value, and 1210.93 for the high flow value. These calculations take into account the flow potential of the culvert under the road, only considering the surplus flows over the road surface.

8. Comparison of the q100 flow depth with the yard grades and structure features in the lot: The spot grades taken around the house at 214 South Farmer were as follows, (+) or (-) indicates the difference above or below the q100 HIGH flow elevation, then LOW elevation-

Finish floor elevation-	1211.3	+0.37 feet	+1.09 feet
Front porch elevation-	1210.5	-0.43 feet	+0.29 feet
Garage slab at front-	1209.8	-1.13 feet	-0.41 feet
Yard grades at structure-	1209.4	-1.53 feet	-0.81 feet
Ditch flowline north side-	1207.7	-3.23 feet	-2.51 feet
Crawlspace vent openings-	1209.7	-1.23 feet	-0.51 feet
Culvert flowline-	1205.5	-5.93 feet	-5.21 feet

9. Conclusions and considerations:

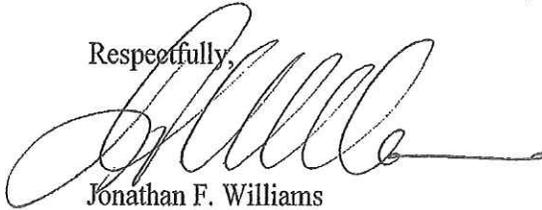
It will not be possible to approach FEMA with the data as collected and remove the structure out of the floodplain. The potential sale of the house and lot could be hamstrung with the mandate to provide flood insurance since the structure cannot be removed and also since the potential for ponding around the structure is essentially all about the front and sides.

Raising the structure is effectively not an option, but adding a new culvert under South Farmer could reduce the q100 flood elevation to allow for removal of the structure from the floodplain. FEMA form MT-EZ considers the lowest adjacent grade as well as the finish floor of the structure. A new culvert would need to have flow conveyance to lower the flood elevation to below elevation 1208.8 to have one foot of freeboard below the garage slab elevation. This would also insure that the flood elevation was lower than the lowest adjacent grade of 1209.4 around the front perimeter of the structure. The street has been raised over time adding to the flood potential for the structure. Changing out the pipe with an 8'x3' concrete box set at the same invert would allow the high q100 calculated flow rate to pass under the street without projected overtopping.

It would be wise to make contact with the City of Willard on the matter of whether or not a defined drainage easement should be delineated. They are the governing local authority for this property.

Please contact me, or Kevin Barnes, if you have any questions.

Respectfully,



Jonathan F. Williams  
Assistant Stormwater Engineer

c: Chris Coulter, A.I.C.P., Acting County Administrator  
Kevin R. Barnes, PE, Acting Director  
Greene County Resource Management

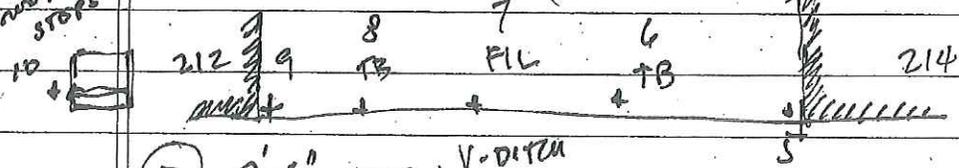
1. Porch @ 214 1210.5 1211.31 (-) FF

2. Garage @ front 2'-6" 1209.4 HIGHER

3. 29" x 45" F/L upstream 6'-5" 1205.5 + 4" 1209.5 STREET GRADE

4. STREET GRADE 2'-5" 1209.2 (1209.3) ← 2 WELLS with 4" ABOVE GRADE

212 FRONT STAIRS



5. 2'-6" 1209.4 V-DITCH

6. 2'-10" 1209.1

\* diff FF 214 to #4 STREET GRADE = 1'-10"

BELOW HIGH FLOOD ELEV

7. 4'-3" 1207.65

8. 3'-2" 1208.7

PONDED DEPTH OVER STREET FOR Q100 @

9. 1'-11" 1210.0

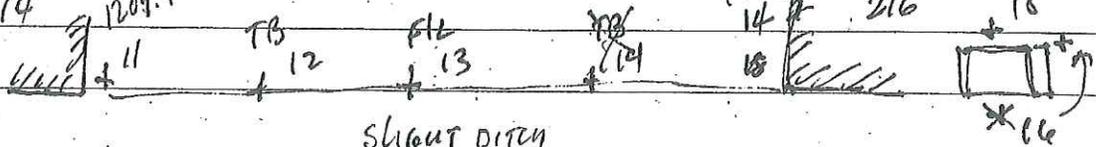
REF EL. 1210.21 low @

10. 1'-3" + 1'-8" to FF (-0'-5") @ 212 1212.3

BY HYDRANT 1210.93 HIGH @

BELOW FLOOD ELEV. FARMER RD

214 1209.4 ±



SLIGHT DITCH (PARABOLIC)

11. 2'-6" 1209.4

12. 2'-9" 1209.15

13. 3'-7" 1208.32

14. 2'-4" 1209.6

15. 0'-0" FF @ 216 1211.9 7 1/2" DOWN TO LANDING

16. 1'-11" 1210.0 2 STEPS

\* 1.5 INCH RAIN / 1 HR IN AM PRIOR TO VISIT

WMS 9-17-14

2'-2" - 1'-6" = 0'-8" vs 0'-7" @ 1

T-W

GARAGE SLAB @ DOOR + 4" ABOVE 11

9-5-14

FF + 18" ABOVE GARAGE

212, 214, 216 S FARMER

GARAGE SLAB @ GARAGE DOOR 1209.74

FF 1211.2 + vs 1211.3



$$L = 1500 \text{ ft} \quad \text{D.A.} = 36 \text{ AC}$$

$$1235 - 1207 \quad 1.9\% \text{ AVG SLOPE}$$

$C = .25$  CONSERVATIVE RESID SF UPSTREAM, OPEN SPACE DS

$$t_c = .0078 \left[ \frac{1500}{\sqrt{.019}} \right]^{.77} = 10 \text{ min.}$$

mostly GRASS,  $10(2) = 20 \text{ min.}$

$$Q_2 = (.25)(3.32)(36) = 30 \text{ cfs}$$

$$Q_{100} = (.25)(6.51)(36) = 60 \text{ cfs}$$

$$\left[ \text{USING } 10 \text{ min } t_c; Q_{100} = \underline{\underline{76 \text{ cfs}}} \right]$$

29" x 45" CULVERT EXISTS OF 4' HW ALTHOUGH DS  
END IS CONSTRUCTED BY 50% - RAISED SIDEWALK  
W/ 2-12" CMP BELOW ...

150 cfs	By REGRESSION EQ.	
150 cfs	SCS II	CN 80 (25% imp) 40 min $t_c$
100 cfs	PC-1 hr	CN 80 40 min $t_c$
80 cfs	Hoff's 1 <sup>st</sup>	1 HR