



STAFF REPORT
September 1, 2015

AGENDA ITEM: File No. 15023

Consideration of a Class C Variance request to reduce rear yard and special stream setback to allow construction of a single family dwelling on two legally platted lots. The project site is located south of Taylor Road contiguous to Griffin Creek and is identified on the Jackson County Assessor's map as 37S 2W, Tax Lots 1801 and 1802. The zoning designation of the site is Low Mix Residential (LMR) within the Transit Oriented Development District. **Applicant:** Paul Williams

STAFF SOURCE:

Stephanie Holtey, Community Planner II

BACKGROUND:

On February 5, 2005 the City granted final plat approval of the Williams Partition (File No. 05021) (Attachment "A"). The partition created three (3) lots in the LMR zoning district on 0.54 acres south of Taylor Road and contiguous to Griffin Creek. At that time the site was located in the Special Flood hazard Area (SFHA), including minor floodway impacts (Attachment "B"). Per CPMC 17.60.090, a 25-foot special stream setback is required from the top-of-bank or floodway boundary, whichever is greater. Although the mapped floodway and special stream setback impacted the newly created lots, the lots were large enough to accommodate low density residential units consistent with the LMR zone.

In 2011 the Federal Emergency Management Agency (FEMA) published a revised Flood Insurance Rate Map that substantially increased the floodway impacts on each lot comprising the project site (Attachment "C"). Application of the special stream and rear yard setback per the revised flood map precludes development on each parcel. At this time the applicant is requesting a Class C variance to allow development of each lot with a single family residence (Attachment "D") as set forth below:

1. Reduce the rear yard setback from 15-feet to 10-feet; and,
2. Reduce the 25-foot special stream setback to be equivalent to the effective floodway boundary.

ISSUES:

There are two issues relative to this application:

1. **Minimum Variance Necessary, Tax Lot 1802.** To grant approval of the variance request, the applicant must demonstrate that the exception to the code standard is the minimum necessary to provide relief from a hardship that is not self-imposed. In the case of the southerly parcel (Tax Lot 1802), the variance request would allow construction of a single family residence to the effective floodway boundary. However, the proposal would provide the applicant with a building footprint that is 46.5% larger than the buildable area available at the time of final plat approval

(“original building envelope”). An online search of house plans yielded 246 plans that would fit the dimensions of the original building envelope. Since there are ample plans available to accommodate the original building envelope while respecting the effective floodway boundary, authorization of a variance that exceeds the original building envelope is not the minimum necessary to alleviate the hardship. Staff recommends the variance authorization be limited to the original building envelope to achieve the approval criteria set forth in CPMC 17.13.500(C)(2),(5-6).

2. Floodway Impacts.

A. Driveway Construction. Site access is provided via a legally non-conforming private access drive relative to its location in the effective floodway. Development of both parcels as proposed will require extension of driveways from the existing access within the floodway. As required by CPMC 8.240.200(A), development in the regulatory floodway is prohibited unless it can be demonstrated that the proposal will not aggravate flood levels. Although an engineering analysis is typically required, guidance for National Flood Insurance Program administration states that some projects are too small to warrant engineering study and certification. In such cases, a local official can utilize logic and common sense to make a no-rise determination. Driveway construction similar to this proposal is listed as an example of a minor project that does not warrant the engineering analysis and certification. On this basis, staff has evaluated the proposal and determined that the proposal will not increase flood levels for the following two reasons:

- i. The applicant’s findings (Attachment “D”) state that finished grades for the driveway will not be modified from existing conditions; and,
- ii. Pervious materials are proposed as an added measure to minimize impacts to the floodway and stream environment in excess of minimum requirements.

To assure compliance with the City’s floodway development standards staff recommends that the variance approval be contingent upon driveway construction as proposed.

B. Emergency Egress. Since the site access is located within the floodway, staff is recommending an alternate egress route be provided outside of the floodway. At this time, all three lots within the Williams Partition are owned by the applicant. Staff recommends that applicant dedicate an emergency egress easement from Taylor Road to Tax Lot 1802 prior to building permit issuance as a precautionary safety measure.

FINDINGS:

As conditioned, the proposal can be found to comply with Class C variance approval criteria set forth in Chapter 17.13 of the Central Point Municipal Code (Attachment “E” - Planning Department Supplemental Findings).

CONDITIONS OF APPROVAL:

-
1. Prior to building permit issuance, the applicant shall record an emergency egress easement across parcels 1 and 2 of the Williams Partition and provide a copy of the same to the Community Development Department. The easement shall be an unobstructed pathway located along the rear property lines no less than 5-feet wide.

2. Driveways constructed in the regulatory floodway shall have a finished grade that is equivalent to the pre-development/existing grade. The applicant shall demonstrate compliance with this requirement as follows:
 - a. A grading plan shall be submitted at the time of building permit application illustrating the existing and finished grades proposed on the site.
 - b. Prior to certificate of occupancy, the applicant shall provide written documentation from a licensed land surveyor verifying the finished grades within the regulatory floodway are equal to or less than the pre-development/existing grades.
3. The building envelope on Tax Lot 1802 shall be limited to the building envelope in effect at the time of final plat approval.

ATTACHMENTS:

Attachment "A" – Williams Partition

Attachment "B" – Floodway and Special Stream Setback

Attachment "C" – Revised Floodway and Special Stream Setback

Attachment "D" – Proposed Site Plan

Attachment "E" - Applicant's Findings

Attachment "F" – Planning Department Supplemental Findings

Attachment "G" – Resolution No. 821

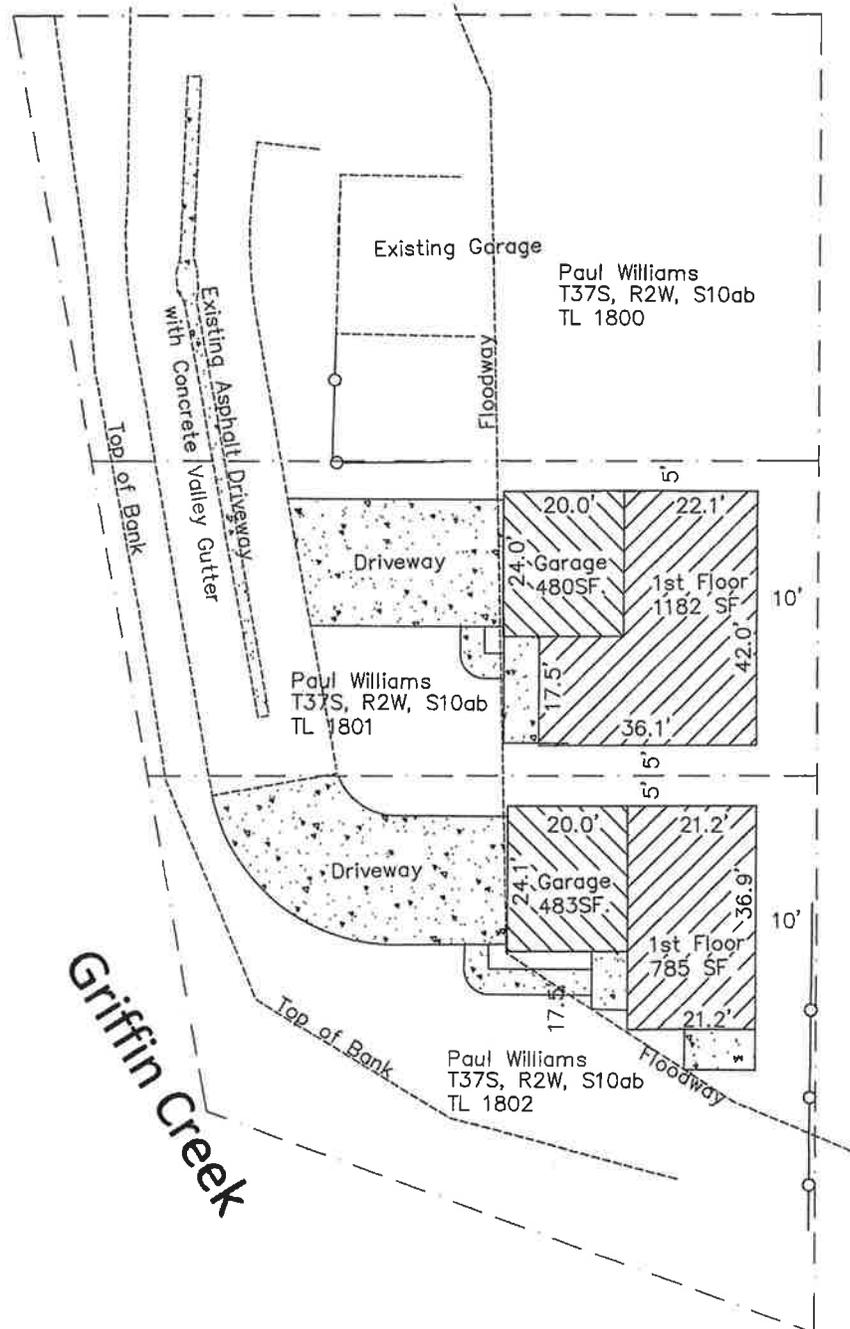
ACTION:

Consideration of a Class C Variance to the rear yard and special stream setback on two legally created lots, and 1) approve, 2) approve with conditions or 3) deny the request.

RECOMMENDATION:

Approve Resolution 821 approving the Class C Variance per the Staff Report dated September 1, 2015.

Taylor Road



Findings of Fact: Addressing criteria set forth in City of Central Point general regulations 17.30.500 (c) class C variances.

The intent of this application is to apply for and obtain approval for a class C variance, allowing construction of two residence within the 25 foot setback of the floodway.

In 2005 the applicant was successful in partitioning the property in to 3 developable tax lots per Partition Plat P-85-2005. Initially, the floodway was located outside of the applicant's building envelope, but in 2011, FEMA mapped the floodway to resulting in the majority of the applicants lawfully created tax lots to be included in the floodway.

Ideally, the applicant would like to construct a house on the easterly portion of each of these 2 tax lots, (T37S, R2W, 10AB, TL1801 & TL1802). Without a class C variance these 2 tax lots would not be developable. Also, as an important part of the variance, is to apply for and obtain a reduction of the 15' setback from the rear (east) tax lot line to a 10' setback. Without this variance, the developable space for a house would be only 16'-17' more/less for the depth of the house. An approved variance with a 10' setback, allows the house depth to be 21'-22' more or less. Each of these lots would have an access driveway to the residence as depicted on the proposed site plan. The driveway will be constructed within the 25 foot setback. To alleviate any no-rise analysis concerns, the applicant has agreed to construct those proposed driveway in a manner that would result that the finished driving surface to match the existing grade as it exists today. The construction material of that driveway will be of pervious pavers or similar materials. Ultimately, the finished driveway will be the same elevation as existing grade, the only change being the driving surface. The riparian area along these lots are an important part of the marketability to the applicant and all reasonable measures will be taken to mitigate any impacts to Griffin Creek

C. Approval Criteria. The city shall approve, approve with conditions, or deny an application for a variance based on all of the following criteria:

- 1. The proposed variance will not be materially detrimental to the purposes of this code, to any other applicable policies and standards, and to other properties in the same zoning district or vicinity;*

Response: By allowing this class C variance, those properties adjacent to the 2 tax lots are developed in similar fashion as this proposed development. No negative impacts to the properties in the area or in conflict with any other applicable policies and standards.

2. *A hardship to development exists which is peculiar to the lot size or shape, topography, or other similar circumstances related to the property over which the applicant has no control, and which are not applicable to other properties in the vicinity (e.g., the same zoning district);*

Response: Initial FEMA mapping had less impact to these 2 lots. By FEMA remapping this floodway, the floodway area was expanded to include more of these properties, resulting in a negative impact, causing an economic hardship by the nature of the proximity of the creek and existing topography. The applicant was in no way in control of the remapping, nor have they modified the topography of the site and has suffered hardships as a result.

3. *The use proposed will be the same as permitted under this title and city standards will be maintained to the greatest extent that is reasonably possible while permitting reasonable economic use of the land;*

Response: The development of these 2 tax lots has been the same intent since they were platted in 2005. What has changed is the downsizing of the floorplan to accommodate the smaller developable area available. The proposed improvements will conform to all current city and county requirements and regulations.

4. *Existing physical and natural systems, such as but not limited to traffic, drainage, natural resources, and parks, will not be adversely affected any more than would occur if the development occurred as specified by the subject code standard;*

Response: By developing these 2 lots, there will be no negative impacts to the existing drainage of Griffin Creek, which runs abutting these tax lots to the west and south. As a result of the improvements, the large existing deciduous and evergreen trees will remain and enhanced with additional shade trees, native to this area. Also added will be lawn or ground cover to minimize erosion, runoff and minimizing any impacts to Griffin Creek. The existing, invasive blackberry shrubs will be reduced to the extent possible. As identified earlier, the driveway will be constructed of pervious materials such as pavement, pavers, (see attached exhibit B) or similar approved materials and will treat any storm water runoff that may be generated by the proposed residences.

5. *The hardship is not self-imposed; and*

Response: The hardship created is a result of existing topography and FEMA mapping modifications, (See Exhibit C) both of which are completely out of the control of the applicant. Thus the hardship is not self-imposed.

6. *The variance requested is the minimum variance that would alleviate the hardship.*

Response: These requested variances are the least amount of variance allowing for a fair and reasonable developable, economic use of the land and as a result, alleviating the hardship.

Also worth noting, is the City of Central Point had a hydraulic analysis perform in 2010 to determine what effects to the floodway would be if the existing culvert system was replaced by a bridge. Those findings indicated that the floodway would be reduce and nearly removing all of the applicants property from the floodway.

18972

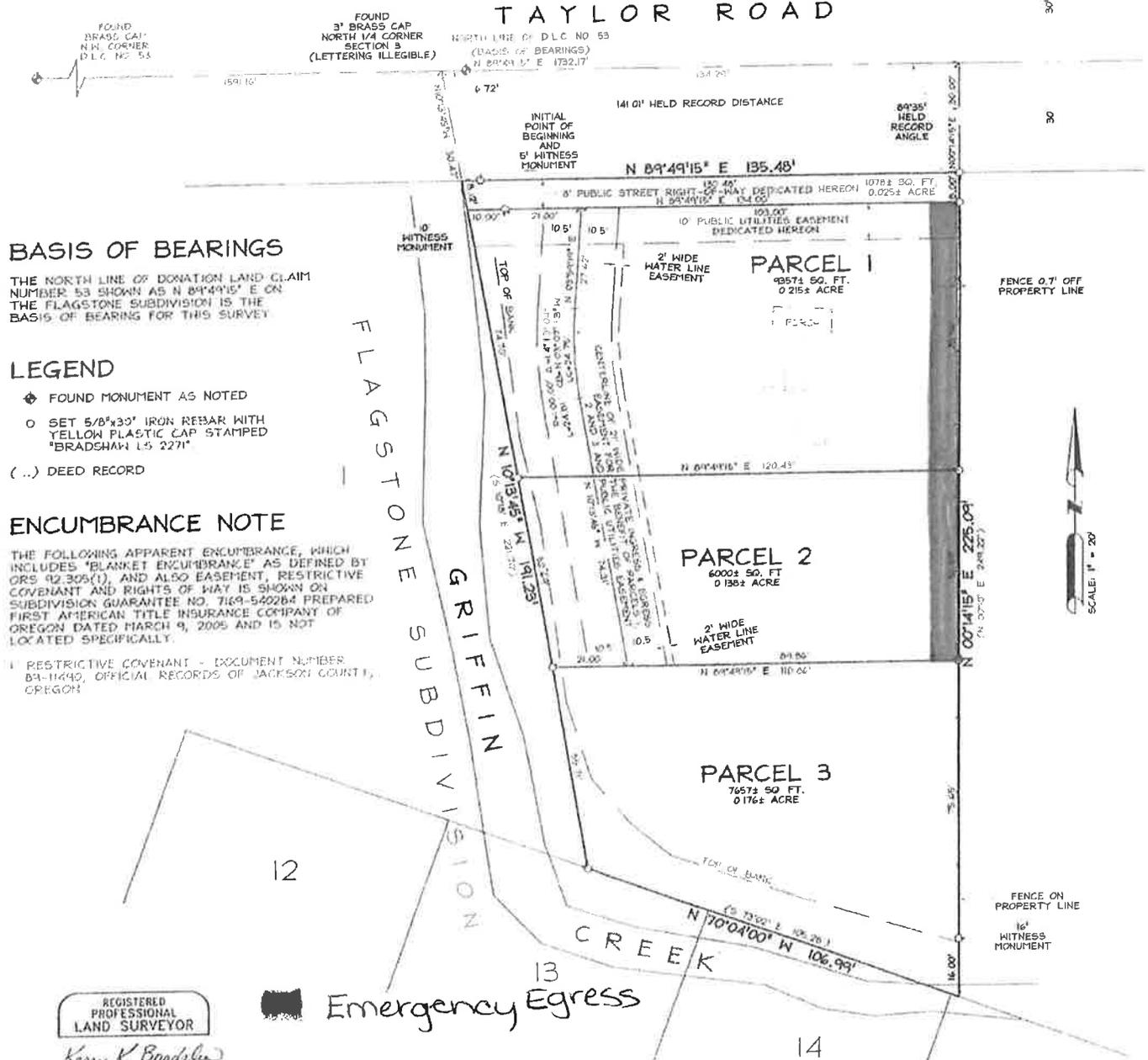
PARTITION PLAT NO. 1-85-2005

LOCATED IN
THE NORTHEAST QUARTER OF SECTION 10,
TOWNSHIP 37 SOUTH, RANGE 2 WEST,
WILLAMETTE MERIDIAN
CITY OF CENTRAL POINT,
JACKSON COUNTY, OREGON



FOR
PAUL WILLIAMS
1985 TAYLOR ROAD
CENTRAL POINT, OREGON 97502
AUGUST 4, 2005

SURVEY BY:
TIMBERLINE
LAND SURVEYING
INCORPORATED
KERRY K. BRADSHAW L.S. 2271
P.O. BOX 3064
CENTRAL POINT OREGON 97502
(541)664-7510 CELL 944-6692



BASIS OF BEARINGS

THE NORTH LINE OF DONATION LAND CLAIM NUMBER 53 SHOWN AS N 89°49'15" E ON THE FLAGSTONE SUBDIVISION IS THE BASIS OF BEARING FOR THIS SURVEY

LEGEND

- ◆ FOUND MONUMENT AS NOTED
- SET 5/8"x30" IRON REBAR WITH YELLOW PLASTIC CAP STAMPED "BRADSHAW L.S. 2271"
- (...) DEED RECORD

ENCUMBRANCE NOTE

THE FOLLOWING APPARENT ENCUMBRANCE, WHICH INCLUDES "BLANKET ENCUMBRANCE" AS DEFINED BY ORS 92.305(1), AND ALSO EASEMENT, RESTRICTIVE COVENANT AND RIGHTS OF WAY IS SHOWN ON SUBDIVISION GUARANTEE NO. 7169-540284 PREPARED FIRST AMERICAN TITLE INSURANCE COMPANY OF OREGON DATED MARCH 9, 2005 AND IS NOT LOCATED SPECIFICALLY.

- RESTRICTIVE COVENANT - DOCUMENT NUMBER BR-11440, OFFICIAL RECORDS OF JACKSON COUNTY, OREGON

REGISTERED PROFESSIONAL LAND SURVEYOR
Kerry K. Bradshaw
OREGON
AUG 18, 1983
KERRY K. BRADSHAW
2271
EXP 12-31-05

I HEREBY CERTIFY THIS TO BE AN EXACT COPY OF THE ORIGINAL PLAT

**FINDINGS OF FACT
AND CONCLUSIONS OF LAW
File No.: 15023**

**Consideration of a Class "C" Variance to the Rear Yard and
Special Stream Setback on two Legally Created Lots in the Low Mix Residential Zoning District**

Applicant:)	Findings of Fact
Paul Williams)	and
1985 Taylor Road)	Conclusion of Law
Central Point, OR 97502)	

**PART 1
INTRODUCTION**

The applicant proposes to develop two legally created lots with single family residences as permitted in the LMR, Low Mix Residential Zoning District. At the time the lots were created in 2005, the project site was located in a Special Flood Hazard Area (SFHA) with minor floodway impacts (Exhibit 1). In 2011 the Federal Emergency Management Agency (FEMA) published a revised Flood Insurance Rate Map that substantially increased the floodway impacts to each lot comprising the project site (Exhibit 2). Due to these changes and application of the required rear yard and special stream setback, development of each lot is prohibited. At this time the applicant is requesting a Class "C" Variance to the rear yard and Special Stream Setback to allow development of each lot with a single family residence (Exhibit 3).

The Class "C" Variance request is subject to Type III application procedures. Type III procedures set forth in Section 17.05.400 provide the basis for decisions upon standards and criteria in the development code and the comprehensive plan, when appropriate.

The project site is located in the LMR, Low Mix Residential zoning district and is subject to the standards and criteria set forth in CPMC 17.13, Exceptions to Code Standards.

The following findings address each of the standards and criteria as applies to the proposed application for the variance request.

**PART 2
ZONING ORDINANCE**

17.13.200 Applicability

- A. Exceptions and Modifications versus Variances. A code standard of approval criterion ("code section") may be modified without approval of a variance if the applicable code section expressly allows exceptions or modifications. If the code section does not expressly provide for exceptions or modifications, then a variance is required to modify that code section and the provisions of this chapter apply.
- B. Combining Variances with Other Approvals; Permit Approvals by Other Agencies. Variance requests may be combined with and reviewed concurrently by the city approval body with other land use and development applications (e.g., development review, site design review, subdivision, conditional use, etc.); however, some variances may be subject to approval by other permitting agencies, such as ODOT in the case of state highway access.

- C. Types of Variances. As provided in Sections 17.13.300, 17.13.400 and 17.13.500, there are three types of variances (Class A, B, or C). The type of variance required depends on the extent of the variance request and the discretion involved in the decision-making process

***Finding 17.13.200(A-C):** The proposed variance to the rear yard and special stream setback applies to two legally platted lots in the Williams Partition. Because the proposal affects more than one lot, and the applicable code sections (CPMC 17.60.090 and CPMC 17.65) do not expressly allow exceptions or modifications of the setback standards, the exception request is a Class "C" Variance.*

***Conclusion 17.13.200(A-C):** Consistent.*

17.13.500 Class C Variances

- A. Applicability. Class C variance requests are those that do not conform to the provisions of Sections 17.13.300 and 17.13.400 (Class A and Class B), and that meet the criteria in subsections (A)(1) through (4) of this section. Class C variances shall be reviewed using a Type III procedure, in accordance with Chapter 17.05:

1. The Class C variance standards apply to individual platted and recorded lots only.

***Finding 17.13.500(A)(1):** The variance request applies to two legally created lots within the Williams Partition (Land Use File No. 05021), which was recorded on November 18, 2005.*

***Conclusion 17.13.500(A)(1):** Consistent.*

2. The Class C variance procedure may be used to modify a standard for three or fewer lots, including lots yet to be created through a partition process.

***Finding 17.13.500(A)(2):** The variance request applies to two legally created lots within the Williams Partition (Land Use File No. 05021).*

***Conclusion 17.13.500(A)(2):** Consistent.*

3. An applicant who proposes to vary a standard for lots yet to be created through a subdivision process may not utilize the Class C variance procedure. Approval of a planned unit development shall be required to vary a standard for lots yet to be created through a subdivision process where a specific code section does not otherwise permit exceptions.

***Finding 17.13.500(A)(3):** The variance request does not apply to a subdivision yet to be created.*

***Conclusion 17.13.500(A)(3):** Not applicable.*

4. A variance shall not be approved that would vary the "permitted uses" or "prohibited uses" of a zoning district.

***Finding 17.13.500(A)(4):** Approval of the variance to reduce the rear yard and special stream setback would allow construction of a single-family dwelling on each lot consistent with the "permitted uses" in the LMR—Low Mix Residential zoning district.*

***Conclusion 17.13.500(A)(4):** Consistent.*

- B. Approval process. Class C variances shall be processed using a Type III procedure, as governed by Section 17.05.400, using the approval criteria in subsection C of this section. In addition to the

application requirements contained in Section 17.05.400, the applicant shall provide a written narrative or letter describing his/her reasoning for the variance, why it is required, alternatives considered, and compliance with the criteria in subsection C of this section.

Finding 17.13.500(B): *The Class C variance application was accepted as complete on August 3, 2015 and is being processed using Type III procedures in accordance with Section 17.05.400. A duly noticed public hearing was held on September 1, 2015.*

Conclusion 17.13.500(B): *Consistent.*

C. Approval Criteria. The city shall approve, approve with conditions, or deny an application for a variance based on all of the following criteria:

1. The proposed variance will not be materially detrimental to the purposes of this code, to any other applicable policies and standards, and to other properties in the same zoning district or vicinity;

Finding 17.13.500(C)(1): *A as set forth below, authorization of this variance will not be materially detrimental to this code, other applicable policies and standards or to other properties in the same zoning district or vicinity:*

a. Code.

- i. ***Transit Oriented Development (TOD).*** *The Transit Oriented Development district zoning standards were established to promote the efficient and sustainable use of land and increase transit use. Of all of the zones within the TOD district, the LMR—Low Mix Residential zone is the lowest density residential zone that envisions single family detached dwellings as the principal use. Authorization of the variance request will not be materially detrimental to the LMR zone or the TOD district. On the contrary, reducing the minimum rear yard and special stream setback to allow single family construction is consistent with the purpose and intent of the LMR zone and the TOD district.*
- ii. ***Special Stream Setback.*** *The special stream setback was established to preserve the natural beauty and distinctive character of streams and to protect both public and private property from flood damage. The variance request would reduce the special stream setback; however, the applicant proposes to offset any impacts to the stream corridor and riparian environment by preserving existing deciduous and evergreen trees and enhancing both sites with new native trees, shrubs and ground covers. Since the current site conditions would be improved beyond existing conditions, the proposal would not adversely affect the aesthetic quality or character of the Griffin Creek environment.*
- iii. ***Flood Damage Prevention.*** *New construction in the SFHA is subject to floodplain development construction standards set forth in CPMC 8.24.250. Although the authorization of the variance would not be materially detrimental to the flood damage prevention construction standards in Chapter 8.24, there are concerns relative to site access via the legally non-conforming drive in the effective floodway. According to the FEMA Flood Insurance Study, flood water elevation is expected to range between 3.8 and 7.1 feet per second on the site with water depths up to 2.0 feet. A study of the flood benefits associated with replacement of the Taylor Road culvert over Griffin Creek with a free span bridge found reductions to floodway width at the project site comparable to 2005 flood conditions (Exhibit 4). According to the Public Works Department, the culvert replacement is identified in the City's 30-year Capital Improvement Program. Interim emergency egress recommended until the culvert replacement is completed as a precautionary safety measure. As conditioned, the applicant will be required to dedicate*

an emergency access easement along the easterly boundary of Parcels 1 and 2 of the Williams Partition sufficient to allow pedestrian evacuation if necessary (Exhibit 5).

- b. **Applicable Policies and Standards.** There are no policies or standards in the Comprehensive Plan Environmental Element that prohibit development in the SFHA, provided that such development is protected in accordance with the flood damage prevention provisions of CPMC 8.24. Authorization of the variance request would allow residential construction in the SFHA subject to CPMC 8.24 floodplain development standards consistent with the applicable policies and standards of the Comprehensive Plan and Central Point Municipal Code.*
- c. **Other Properties in the Same Zoning District or Vicinity.** The LMR zoning district establishes single family residential units as "permitted use." Granting the variance request to reduce the rear yard and special stream setback as necessary to accommodate the minimum building envelope necessary to construct a single family dwelling on each lot is consistent with the LMR zone and existing uses in the vicinity of the project site.*

Conclusion 17.13.500(C)(1): *Complies as conditioned.*

- 2. A hardship to development exists which is peculiar to the lot size or shape, topography, or other similar circumstances related to the property over which the applicant has no control, and which are not applicable to other properties in the vicinity (e.g. the same zoning district);

Finding 17.13.500(C)(2): *The basis of the variance request is a hardship caused by changes to the regulatory floodway in 2011 that expanded the special stream setback on both parcels. At the time of final plat approval, each lot had sufficient buildable area to allow the low density single family residential development intended in the LMR district. Unlike other properties in the vicinity, floodway revisions restrict development on the applicant's parcels. These changes were beyond the control of the applicant.*

Conclusion 17.13.500(C)(2): *Complies as conditioned.*

- 3. The use proposed will be the same as permitted uses under this title and city standards will be maintained to the greatest extent that is reasonably possible while permitting reasonable economic use of the land;

Finding 17.13.500(C)(2): *It is the applicant's intent to develop each parcel with a single family residence consistent with the "permitted uses" in the LMR zoning district. Authorization of this variance request will allow the applicant to enjoy reasonable economic use of the land consistent with the zoning code and existing uses in the vicinity by constructing two residences. As conditioned, site development shall comply with the flood damage prevention provisions of CPMC 8.24.*

Conclusion 17.13.500(C)(2): *Complies as conditioned.*

- 4. Existing physical and natural systems, such as but not limited to traffic, drainage, natural resources, and parks will not be adversely affected any more than would occur if the development occurred as specified by the subject code standard;

Finding 17.13.500(C)(2): *The project site consists of two vacant parcels adjacent to Griffin Creek. Existing vegetation includes ground cover and deciduous and evergreen trees. Unlike surrounding properties, non-native Himalayan blackberry plants do not occupy the stream bank or riparian area. The applicant is proposing to preserve the existing trees on the site and to enhance the riparian environment by planting additional native trees, shrubs and ground cover. As proposed, authorization of the variance*

would allow single family residential construction in a manner that preserves and restores natural resources on the site beyond what is normally required. These mitigation measures are sufficient to offset the impacts of the construction activities on Griffin Creek.

Conclusion 17.13.500(C)(2): Consistent.

5. The hardship is not self-imposed; and,

Finding 17.13.500(C)(2): The project site consists of two legally created lots. Revision of the FEMA Flood Insurance Rate Map for Central Point modified the floodway and special stream setback impacts to the parcels. The site constraints enacted following final plat approval create a hardship that is beyond the applicant's control.

Conclusion 17.13.500(C)(2): Consistent.

6. The variance request is the minimum variance that would alleviate the hardship.

Finding 17.13.500(C)(2): The applicant is proposing to construct residences on Tax Lot 1801 and 1802 with a building footprint of 1,162 and 1,268 square feet respectively. As shown in the table below, the proposed building envelope for Tax Lot 1801 represents approximately a 76% reduction in the building area as compared pre-2011 site development potential. It is the minimum variance recommended to alleviate the hardship on this lot.

Building Envelope	Tax Lot 1801 (Square Feet)	Difference (%)	Tax Lot 1802 (Square Feet)	Difference (%)
Original (2005)	2,250	N/A	865.5	N/A
Revised Floodway (2011)	541.8	-75.92	172	-80.13
Proposed (2015 Variance Request)	1,162	-48.36	1,268	46.50
Conditional (2015 Recommendation)	N/A	N/A	865.5	0

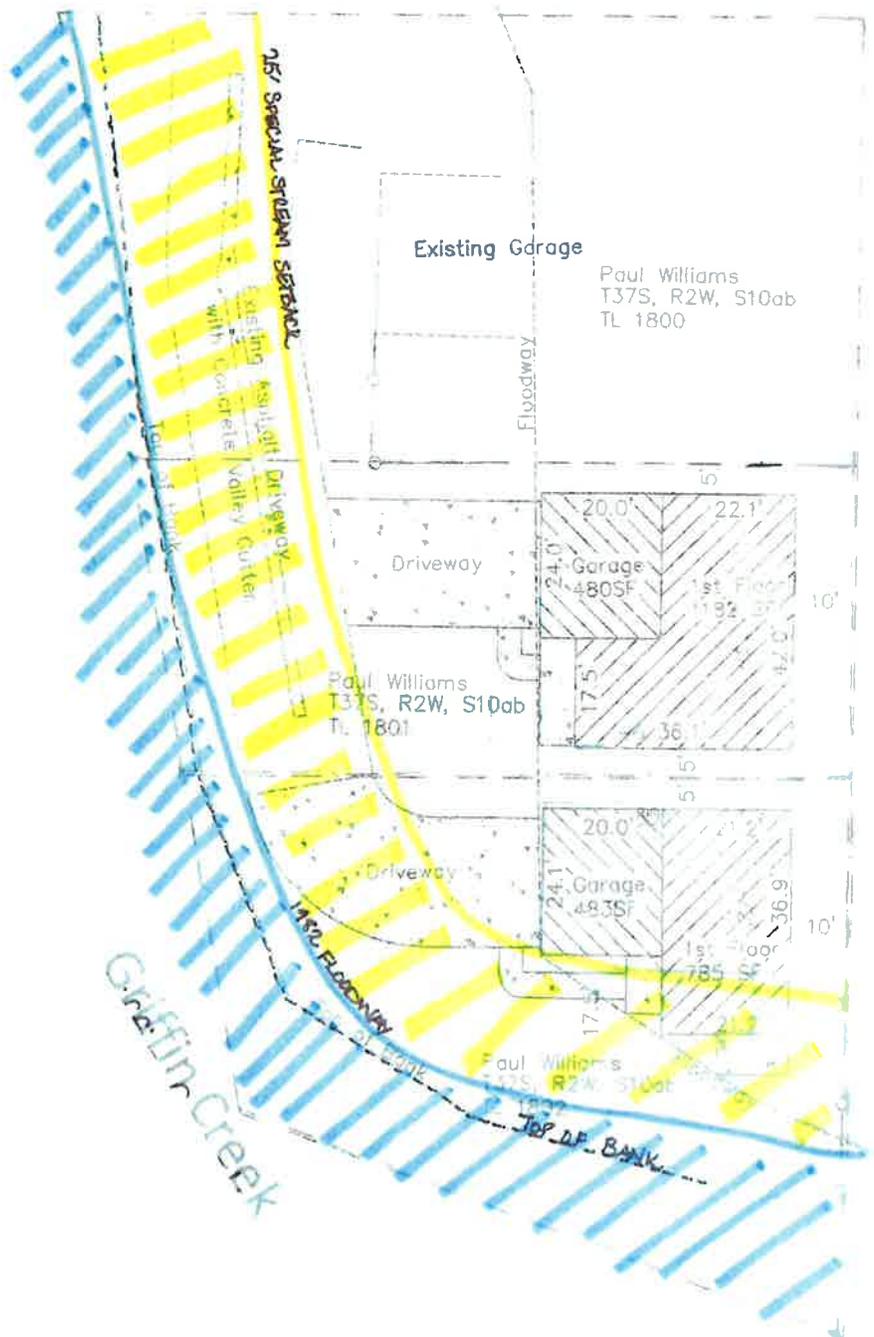
The proposed building envelope for Tax Lot 1802 represents a 46.5% increase in buildable area as compared to pre-2011 site development potential. There are sufficient house plans that would fit the original buildable envelope while respecting the effective floodway boundary. As conditioned, the minimum variance recommended to alleviate the hardship on Tax Lot 1802 is authorization to construct a single-family residence consistent with the original building envelope.

Conclusion 17.13.500(C)(2): Complies as conditioned.

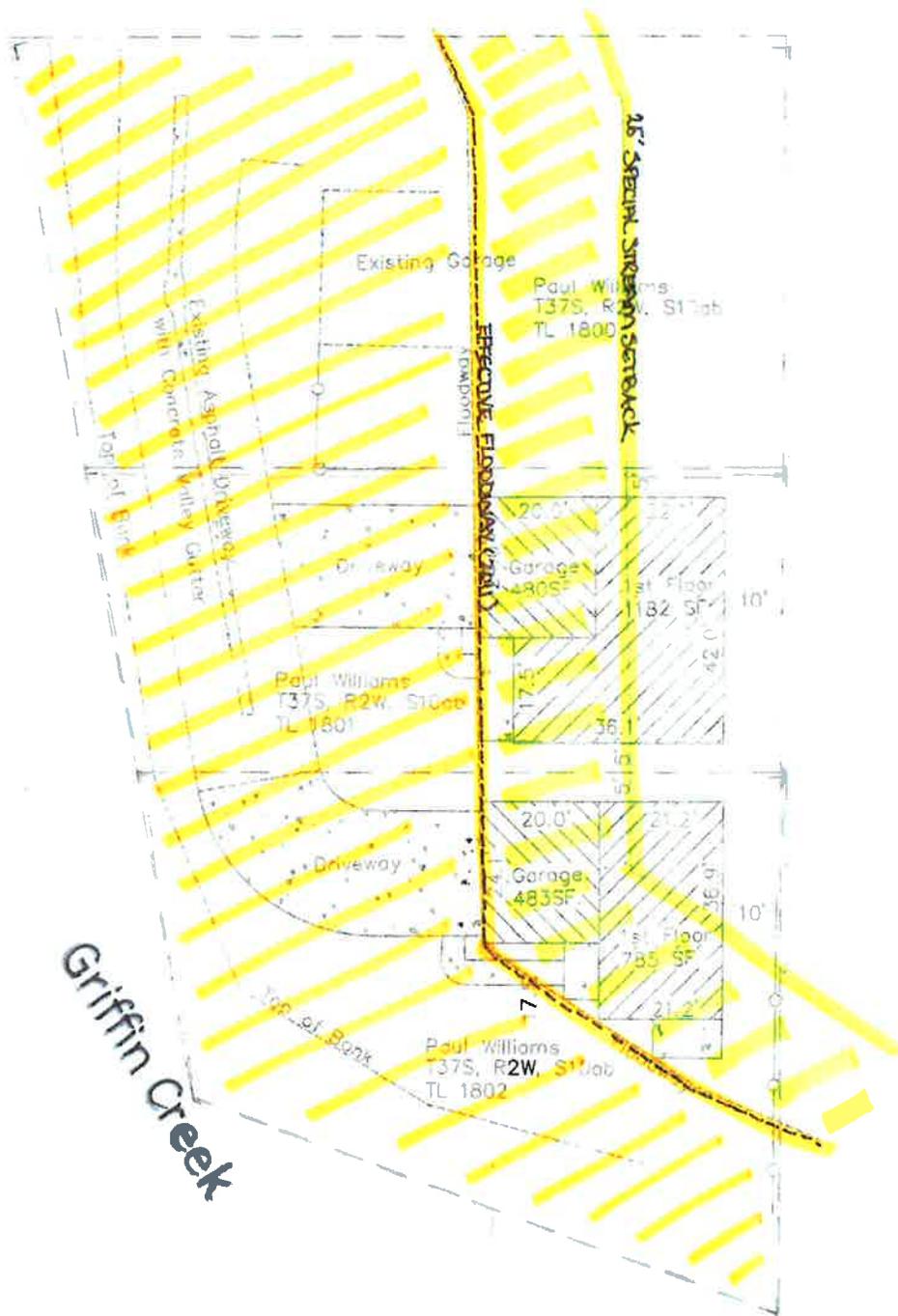
PART 3 SUMMARY CONCLUSION

As evidenced in findings and conclusions, the Class C variance is consistent with applicable standards and criteria in the Central Point Municipal Code as conditioned.

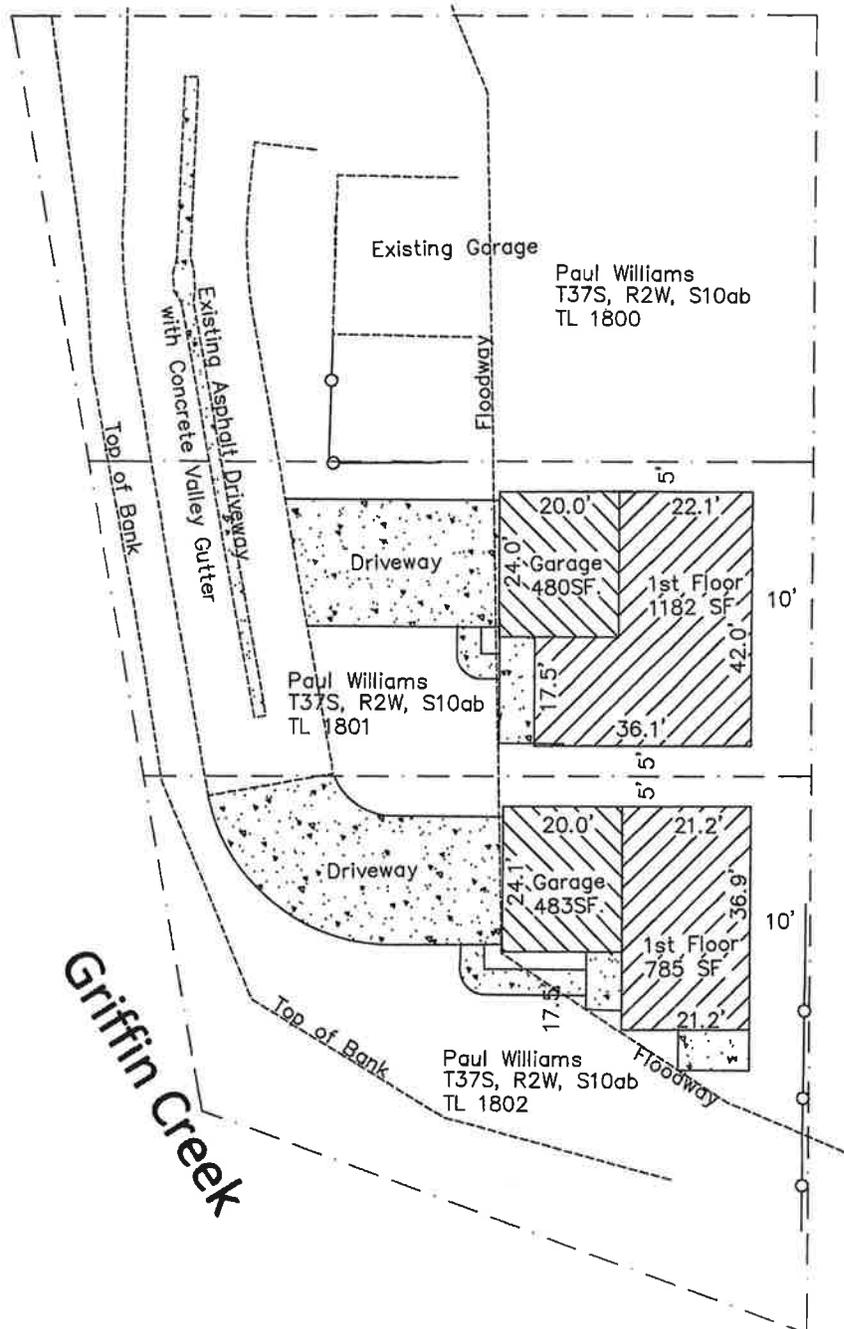
Taylor Road



Taylor Road



Taylor Road



Griffin Creek

Memorandum

Northwest Hydraulic Consultants
16300 Christensen Road, Suite 350
Seattle, WA 98188
206.241.6000
206.439.2420 (fax)

DATE: February 1, 2010
TO: Stephanie Holtey, CFM
COMPANY/AGENCY: City of Central Point, Oregon
FROM: Peter Brooks, P.E.
SUBJECT: Griffin Creek Floodway Mitigation

PROJECT: 21757

Introduction

Northwest Hydraulic Consultants (NHC) was retained by the City of Central Point to perform a hydraulic analysis on Griffin Creek between Taylor Avenue and West Pine Street. The objective is to evaluate the potential benefits; namely, a reduction in the FEMA regulatory floodway width, associated with increasing the size of the culvert openings at the West Pine Street and Taylor Avenue crossings of Griffin Creek.

Background

NHC previously completed a Flood Insurance Study (FIS) of Griffin Creek for the City of Central Point and the Federal Emergency Management Agency (FEMA). The results of this FIS were included as part of the Preliminary Jackson County Digital Flood Insurance Rate Map (DFIRM) which was released for public review in the summer of 2009 (FEMA 2009). Results on Griffin Creek, in the vicinity of Taylor Avenue and West Pine Street, indicate extensive flooding and overtopping of each of the roadways during the 100-year flood event. Furthermore, the FEMA encroachment analysis yielded broad floodway delineations extending into adjacent public and residential areas near each crossing, with widths ranging from 210 to 450 feet.

Hydraulic Analysis

To perform this analysis, NHC utilized the Griffin Creek HEC-RAS hydraulic model developed for the original FIS (this model has been reviewed and accepted by FEMA). The model was revised to replace the existing culvert structures at Taylor Avenue and West Pine Street (19-ft x 9-ft and 19-ft x 6-ft, concrete box culverts, respectively) with bridge structures. It was assumed the bridge deck for each structure would be located at the existing road grade on each side of the bridge, and the bridge deck would be 2-ft deep.

In addition to replacing the culverts with bridge structures, modifications were also made to the cross-section geometries immediately upstream and downstream of the crossings. First, cross-sections were widened 5 to 15 feet to account for bank re-grading that would likely occur if the bridges were installed. Figure 1a-b illustrates the cross-section modifications made at each crossing. Second, bed slopes were re-graded to remove accumulations of sediment upstream and scour holes downstream of the existing culverts. Were the bridges to be installed, the

existing channel would likely adjust to a more uniform gradient. Figure 2 illustrates channel re-grading made at each crossing.

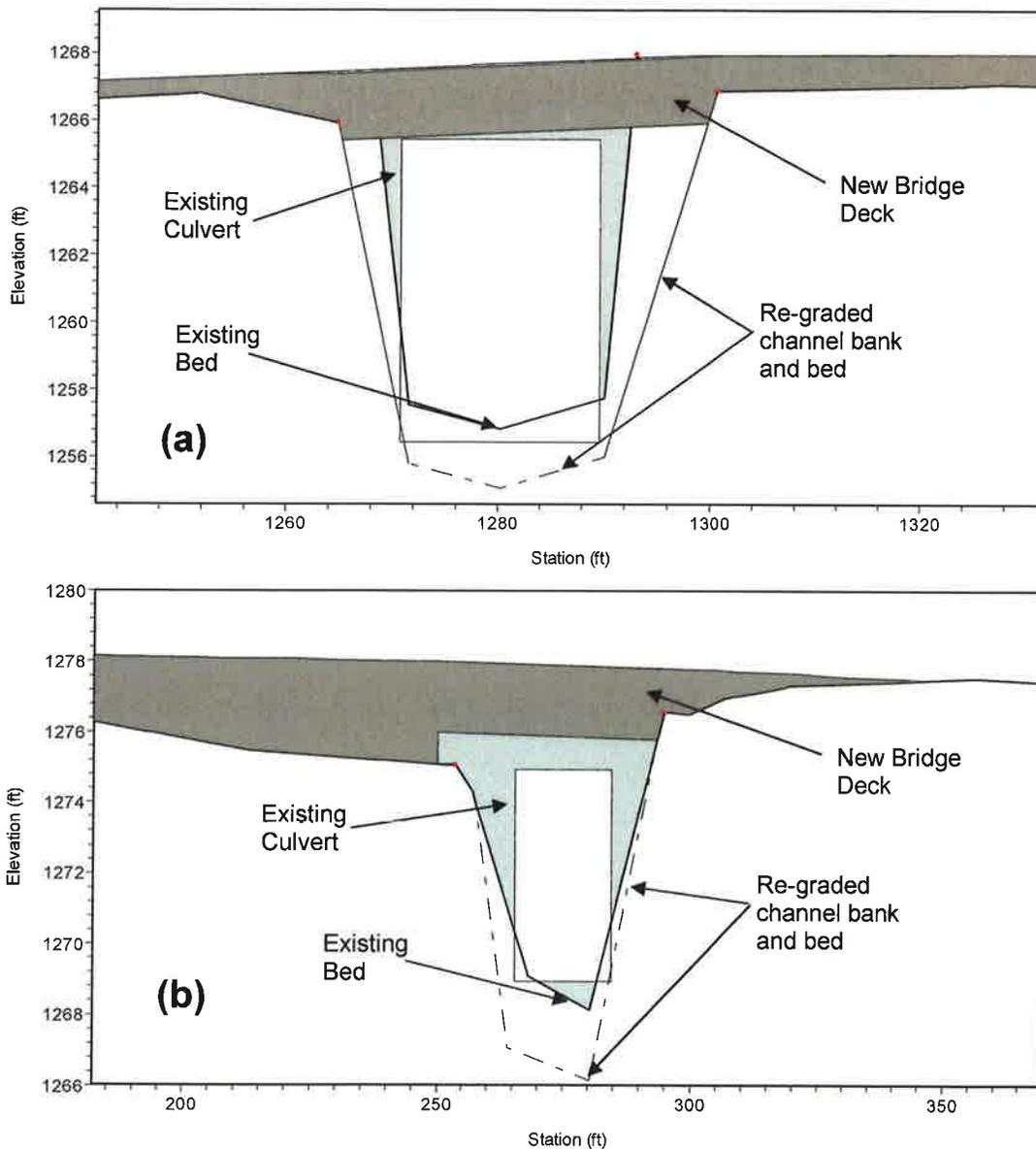


Figure 1. Bridge and cross-section modifications at (a) Taylor Avenue, and (b) West Pine Street.

Findings

Results of the hydraulic analysis indicate some improvement of flood conditions as a result of replacing the existing box culverts with bridge structures. With the added conveyance of the bridge structure, as well as channel revisions, maximum reductions in water surface elevations for the 100-year event, are seen to be approximately 0.7 feet at Taylor Avenue, and 0.9 feet at West Pine Street. Figure 2 compares the computed 100-year water surface profile for the existing (with culverts), and re-evaluated (with bridges) conditions.

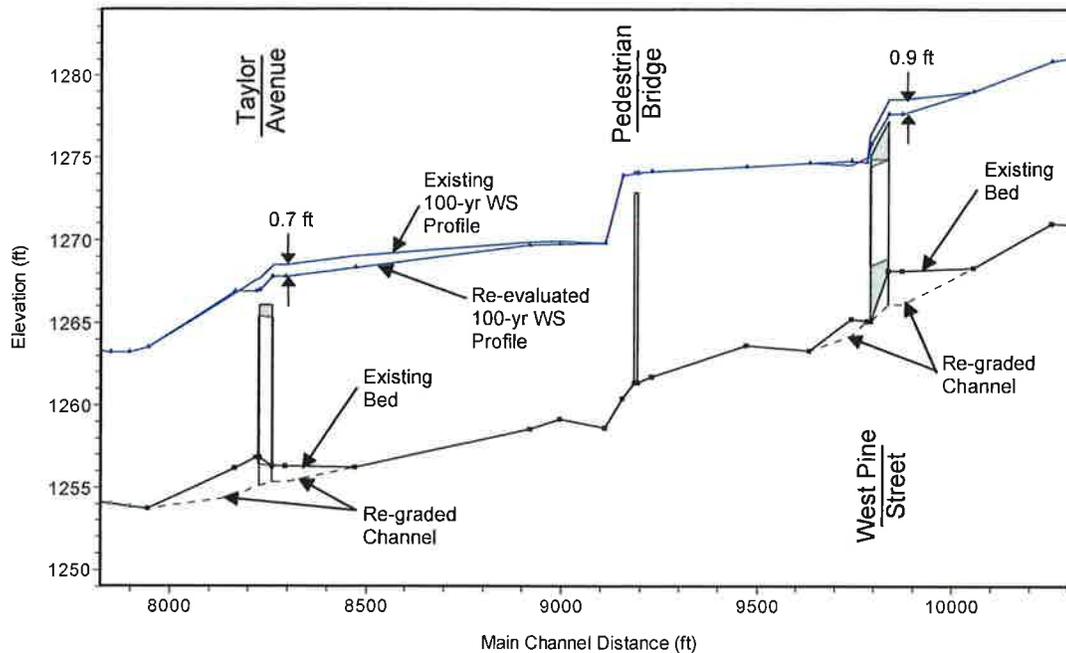


Figure 2. Comparison of computed 100-year water surface for existing and re-evaluated conditions.

A reduction in flood elevations continues upstream of Taylor Avenue for approximately 1,250 feet, but with decreasing magnitude further from the crossing. At West Pine Street, the decrease in flood elevation is isolated to only 200 feet upstream of the crossing. Regardless, the reduction in flood level does not result in a substantial reduction in floodplain extent near each of the crossings. As reported in FEMA (2009), much of the overbank 100-year flooding, primarily on the left bank, was determined to be shallow (< 1 ft), thus it was designated as Zone X. The only location where a measurable difference in flood extent occurs is on the right bank near the Taylor Avenue crossing, between cross-sections X and Z. Similarly, a 1.0 to 1.3 foot drop in the 500-year flood elevation does not result in significant change to the 500-year floodplain delineation. Figure 3 illustrates a comparison of the existing and re-evaluated 100-year floodplain.

The hydraulic analysis does result in improvement to the FEMA regulatory floodway at each crossing. The floodway width near Taylor Avenue is reduced from approximately 210 ft to 75 ft, effectively removing three to four residential structures from the delineation. At West Pine Street the floodway width is reduced from a maximum of approximately 460 ft to 170 ft, but only results in the removal of one apartment building complex (right bank) from the delineation. Figure 3 also illustrates a comparison of the existing and re-evaluated FEMA regulatory floodway.

Floodway width improvements downstream of West Pine Street are likely hampered by hydraulic conditions near the confluence with Daisy Creek and the existing pedestrian bridge, between cross-sections Z and AA. Currently, there appears to be a hydraulic constriction here that results in a significant rise in water surface elevation (see Figure 2). Removing or reducing this constriction may reduce flood extents and floodway widths. Therefore, we recommend additional analysis to determine the potential benefits of modifying the pedestrian bridge. Furthermore, upstream of West Pine Street the channel is observed to have a relatively steep slope and low banks. Both of these conditions contribute to why the floodway improvement at West Pine Street is limited to the immediate vicinity of the crossing.

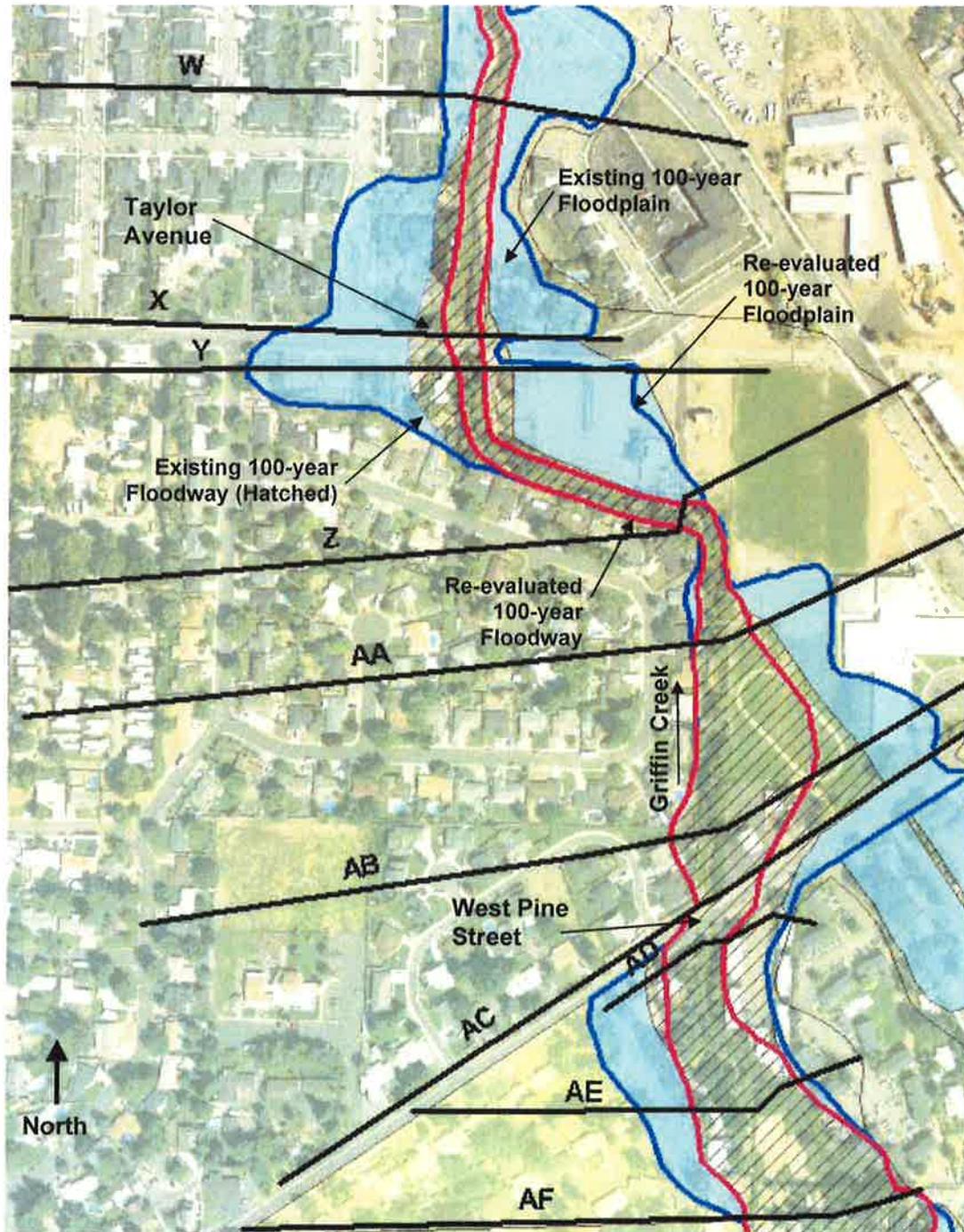


Figure 3. Comparison of existing and re-evaluated 100-year floodplain and floodway.

Conclusion

The hydraulic analysis considering the bridge replacements at Taylor Avenue and West Pine Street shows moderate reductions to flood levels and floodway widths, but only limited improvements to flood extents. Floodway improvements are more pronounced at Taylor Avenue than at West Pine Street; however, this is likely the result of downstream hydraulic controls rather than the bridge replacement itself. Future investigations are recommended to evaluate possible solutions to hydraulic limitations both upstream and downstream of the West Pine Street crossing, including modifications to the existing pedestrian bridge.

It should also be noted that any potential culvert replacements or other flood improvements in this reach would not have an impact on conditions downstream; namely, in the vicinity of the Twin Creeks development.

References

Federal Emergency Management Agency (FEMA). 2009. "Flood Insurance Study – Jackson County, Oregon and Incorporated Areas". Preliminary FIS Report released July 1.

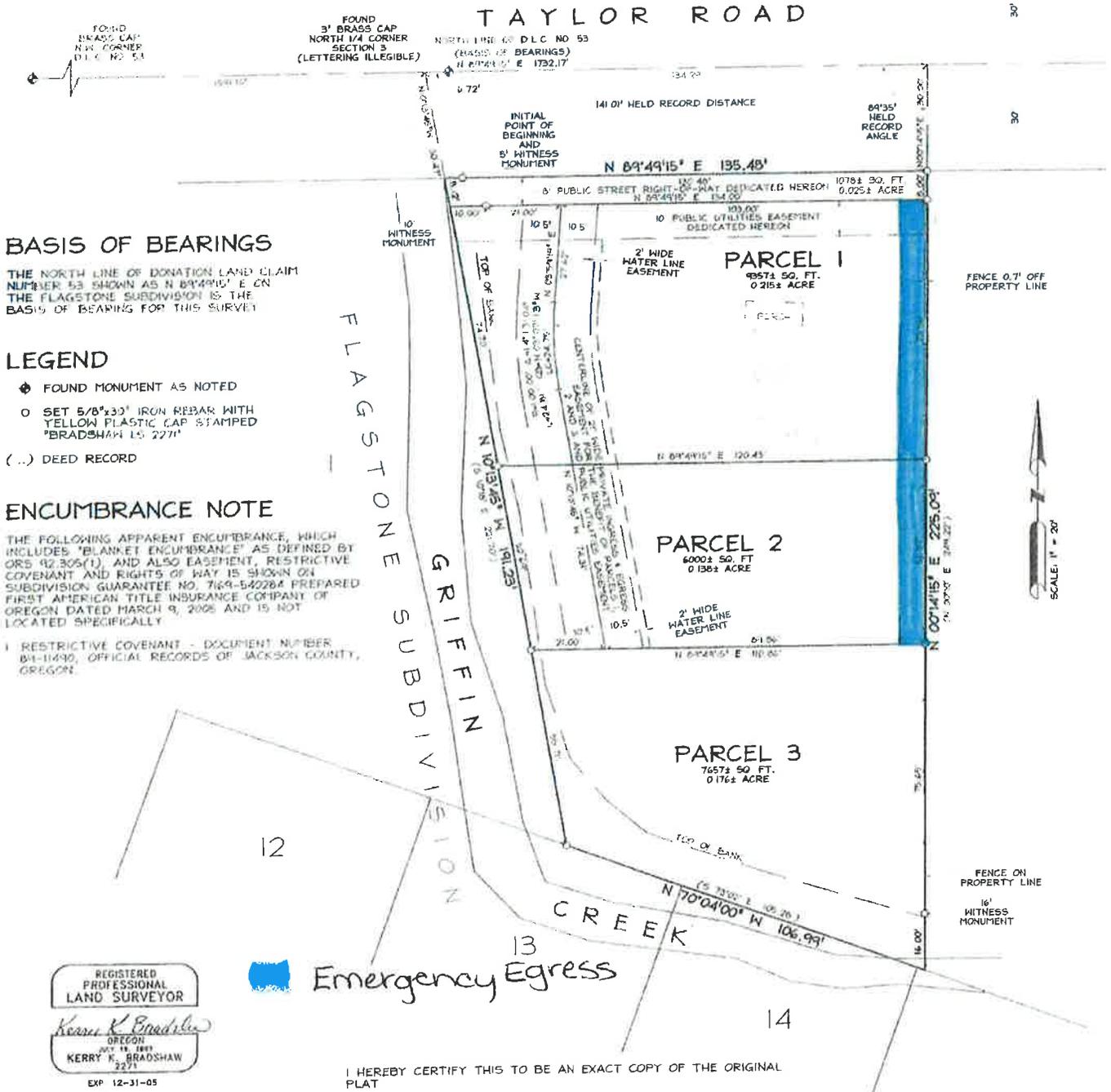
PARTITION PLAT NO. 1-85-2005

LOCATED IN
THE NORTHEAST QUARTER OF SECTION 10,
TOWNSHIP 37 SOUTH, RANGE 2 WEST,
WILLAMETTE MERIDIAN
CITY OF CENTRAL POINT,
JACKSON COUNTY, OREGON



FOR
PAUL WILLIAMS
1985 TAYLOR ROAD
CENTRAL POINT, OREGON 97502
AUGUST 4, 2005

SURVEY BY:
TIMBERLINE
LAND SURVEYING
INCORPORATED
KERRY K. BRADSHAW L.S. 2271
P.O. BOX 3064
CENTRAL POINT OREGON 97502
(541)664-7510 CELL 944-6692



BASIS OF BEARINGS

THE NORTH LINE OF DONATION LAND CLAIM NUMBER 53 SHOWN AS N 89°49'15" E ON THE FLAGSTONE SUBDIVISION IS THE BASIS OF BEARING FOR THIS SURVEY

LEGEND

- ◆ FOUND MONUMENT AS NOTED
- SET 5/8" x 30" IRON REBAR WITH YELLOW PLASTIC CAP STAMPED "BRADSHAW L.S. 2271"
- (...) DEED RECORD

ENCUMBRANCE NOTE

THE FOLLOWING APPARENT ENCUMBRANCE, WHICH INCLUDES "BLANKET ENCUMBRANCE" AS DEFINED BY ORS 42.305(1), AND ALSO EASEMENT, RESTRICTIVE COVENANT AND RIGHTS OF WAY IS SHOWN ON SUBDIVISION GUARANTEE NO. 7169-540284 PREPARED FIRST AMERICAN TITLE INSURANCE COMPANY OF OREGON DATED MARCH 9, 2005 AND IS NOT LOCATED SPECIFICALLY

1 RESTRICTIVE COVENANT - DOCUMENT NUMBER 84-11490, OFFICIAL RECORDS OF JACKSON COUNTY, OREGON.



I HEREBY CERTIFY THIS TO BE AN EXACT COPY OF THE ORIGINAL PLAT