CITY OF NORTH PLAINS PLANNING COMMISSION
REGULAR SESSION AGENDA
WEDNESDAY, MAY 8, 2013, 7:00 P.M.
JESSIE MAYS COMMUNITY HALL, 30975 NW HILLCREST STREET

1. CALL TO ORDER

2. FLAG SALUTE

3. ROLL CALL

4. PUBLIC COMMENTS
(This time is provided for questions or statements by persons in the audience on any item of ***Commission business, except those items which appear on this agenda. Comments shall be limited as determined by the Chairperson.)***

5. CONSENT AGENDA
April 10 , 2013, Regular Session Minute Approval.

6. PUBLIC HEARING

A. Design Review for Construction of an Addition, File #13-018-01-DR. *Refer to the Staff Report.*

B. McKay Fields Modified Preliminary Subdivision Plat, File # 006-MOD/FPP/SNR. *Refer to the Staff Report.*

C. Variance to Reduce Flag Lot Setbacks, File #13-017-05-VAR. *Refer to the Staff Report.*

7. STAFF REPORT
City Manager

8. ADJOURNMENT

_____
Pamela L. Smith, Account Clerk II

City Planning Commission Meetings are scheduled to be held at the North Plains Senior Center, 31450 NW Commercial Street, North Plains, Oregon, on the following dates at 7:00 p.m.:

Wednesday, June 12, 2013 *Wednesday, July 10, 2013* *Wednesday, August 14, 2013*

CITY OF NORTH PLAINS PLANNING COMMISSION
REGULAR SESSION MINUTES
APRIL 10, 2013, 7:00 P.M.
JESSIE MAYS COMMUNITY HALL
30975 NW HILLCREST STREET

1. Chairman King called the meeting to order at 7:01 pm.

2. Chairman King led the pledge of allegiance.

3. **ROLL CALL**

Commission: Chairman Stewart King, Vice-Chairperson Heather LaBonte, Commissioners Jeff Low, Doug Nunnenkamp and Daryl Olson and Ex Officio Robert Kindel present. Commissioners Ethan Hagar and Aeron Braukman excused absence.

Staff: City Manager Martha DeBry, City Planner Angie Lehnert, and Account Clerk II Pam Smith present.

4. **PUBLIC COMMENTS**

No audience was in attendance.

5. **CONSENT AGENDA**

March 13, 2013 Regular Session Minute Approval. Olson moved to approve the March 13, 2013 Regular Session minutes as written, Nunnenkamp seconded the motion and it was approved unanimously.

6. **UNFINISHED BUSINESS**

A. Termination of Phasing Plan for Highland Court. DeBry said the City Attorney advised this termination was a technicality since the development was not built in the prescribed time frame. The idea was to void this old agreement and create a new one with DR Horton.

LaBonte moved to eliminate the condition of approval requiring a phasing plan as described on the Development Agreement dated April 1, 2008 (County document 23008-029438). Nunnenkamp seconded the motion and it was approved unanimously.

B. Approval of Variances and Partitions on Property Located at 10445 NW 311th Avenue and 31127 NW Claxtar Street. This application came before the Planning Commission as a Quasi-Judicial Public Hearing which was opened at 7:08 p.m. Chairman King stepped down due to a conflict of interest and LaBonte took over the meeting.

Lehnert presented the proposed application for three partitions and five minimum lot size variances. The variances would allow five 4,000 square foot lots instead of the 5,000 minimum square foot required in the R-5 zone, with the lot depth and width requirements being met. As a condition of approval the City would require the original lot line between lots 1 and 2 be reestablished and all existing structures not meeting setbacks be remove. The City requirements for partitions includes the improvement of public streets, curbing, storm sewers, sanitary sewers, waterlines, other necessary public utilities, and sidewalks. Within one year the City would review the final surveyed partition before it would be recorded at Washington County.

LaBonte asked if anyone wished to speak and Stewart King, 31470 NW Commercial Street, North Plains, OR 97133, came forward representing Signature Homebuilders. The current cost of these properties is above bare lot prices because of two existing structures, both of which are in such poor condition that they need torn down. Anyone purchasing these lots would need to increase potential sales revenue to absorb the cost of removing the two structures. Allowing one extra lot to be created makes the purchase more feasible. The variance would create five lots with two properties on NW Cottage, two properties on NW Claxtar, and one on NW 311th. Preference for builds would be five single family residences. It would not affect the looks of the area since the lots on Cottage and Claxtar would still be 50 feet across.

Kindel asked if the street improvements would be done now or later. DeBry noted NW Claxtar Street would be done this summer and NW Cottage and NW 311th would be covered by the Fee in Lieu. *(Which was waived by City Council on April 15, 2013 and is in effect through October 15, 2013.)*

Nunnenkamp asked if a condition for the variance could state only five single family residences be built to avoid five sets of duplexes being built which would increase density in that area. King noted an application for duplexes would come before Planning Commission because the area per unit would be less than 2,500 square feet per and could be addressed then. Lehnert noted Planning Commission could impose conditions now noting at a later date a new Commission could conceivably approve duplexes.

Olson liked this opportunity to replace old, substandard housing with new housing. He noted the density could increase as it is if duplexes were placed on the current lots; 4 sets of duplexes versus 4 single family homes. With no further discussion, LaBonte closed the hearing at 7:37 pm.

Nunnenkamp stated he couldn't approve the application without single family residences being a condition. Olson agreed about setting a precedence for the future,

but noted without the variance, the properties might never be developed. Even with a few people in the neighborhood objecting, he felt the visual impact would be minimal.

Low moved to approve variances and partitions on property located at 10445 NW 311th Avenue and 31127 NW Claxtar Street. Olson seconded the motion and it passed with a 3-1 vote. Commissioners voting in favor: LaBonte, Low, and Olson; Commissioner voting against: Nunnenkamp. Lehnert noted she would send out the notices for appeals and DeBry said the builders should know the decision within a month.

7. STAFF REPORT. DeBry said City Council liked holding their meetings at the Senior Center and are likely to stay there. She asked if the Planning Commission was interested in moving the meeting location. Next month's meeting will be moved to the Senior Center to try it out.

Lehnert noted next month's agenda would include a Design Review for a 1,000 square foot addition for DMI, a review of the McKay Fields subdivision, and a variance on flag lots from DR Horton. DeBry said there would also be the training of Becky Schulz to work with the Planning Commission.

8. COMMISSION REPORTS

Parks Advisory Committee (PAC). With no meeting held, there was nothing to report. DeBry noted the PAC has now been disbanded and a new committee formed in its place called the Parks Board. PAC members would need to fill out an application for the new board if they are interested and City Council wiould make the approvals. DeBry advised the Statement of Economic paperwork is due next week, needs to be postmarked by Monday, and the City could fax those if needed.

Kindel noted there was a problem with approval of the sign ordinance at the City Council level as to whether to grandfather in the McDonald's, Chevron, and 76 signs. Council would revisit this issue.

9. ADJOURNMENT

The meeting was adjourned at 7:58 pm.

Submitted by:

_____

Pamela L. Smith, Account Clerk II

Minutes Approved: _____

CITY OF NORTH PLAINS
PLANNING COMMISSION STAFF REPORT: DESIGN REVIEW APPLICATION

I. OVERVIEW

APPLICATION: The applicant is requesting Design Review for construction of a 1,050sf addition to the existing light industrial use at below location.

CITY FILE NUMBER: 13-018-01-DR

LOCATION: 30750 NW Hillcrest Street, North Plains, OR 97133 (Border highlighted lot in map to right. Aerial view below.)

TLID: IN3 IDA 02100

ZONE: C-2

LOT SIZE AND ZONING: Approx. 15,000 sq. ft.

OWNER: RAJ SAVARA

APPLICANT: DMI INTERNATIONAL, INC.

DATE OF PUBLIC HEARING: May 8, 2013

II. ZONING CODE REVIEW & FINDINGS

Below are applicable citations/applicable review criteria from the *North Plains Zoning Ordinance* and findings in response to the criteria. Unless discussed below, the applicant has met the requirements of the applicable review criteria fully, and/or the Code's criteria are not applicable to this proposal and therefore do not warrant discussion.

III. EXHIBITS

1. Design Review Application
2. Agency and citizen comments

IV. APPLICABLE REVIEW CRITERIA FROM THE *NORTH PLAINS ZONING AND DEVELOPMENT ORDINANCE*:

Chapter 16.40 General Commercial C-2 Zone
Chapter 16.145 Public Facility & Service Requirements
Chapter 16.155 Off-Street Parking & Loading
Chapter 16.170 Application Review
Chapter 16.175 Design Review

CHAPTER 16.40 GENERAL COMMERCIAL C-2

16.40.015 Conditional Use Permit.

A. Industrial, Light

Findings: Existing use does not require a conditional use permit.

16.40.020 Limitations on Use

The following conditions and limitations shall apply to development in the C-2 District.

A. The Commission may impose the following conditions before a building permit will be issued for the proposed development:
   1. Limit or prohibit access to streets not designated as major streets on an officially adopted plan where the principal uses along the street in the block are residential.
   2. Require sight or sound barriers.
   3. The use shall not be objectionable in relationship to surrounding residential zones because of odor, dust, smoke, cinders, fumes, noise, glare, heat, or vibration.

Findings:

1. Access to street was previously established, and requires no modification.
2. The site is well screened at present and does not need additional sight barriers. Installation of a sound barrier is unnecessary as the business does not generate significant volumes of sound. No sound complaints have been reported by the public.
3. No concerns about odor, dust, smoke, cinders, fumes, noise, glare, heat or vibration have been identified.

16.40.025 Dimensional Standards

The following dimensional standards shall be the minimum requirements for all development in the C-2 District except for modifications permitted under Lot, Building, & Yard Exceptions or Planned Unit Development sections of this chapter.

A. Lot Size
   1. The minimum lot area shall be 5,000 square feet.
   2. The minimum lot width shall be 50 feet at the street line.

B. Setback Requirements

1. Front Yard: 20 feet
2. Side Yard
   Adjacent to a Residential Zone: 10 feet
   Adjacent to any other zone: None required
   Adjacent to street: 20 feet
3. Rear Yard
   Adjacent to a Residential Zone: 10 feet
   Adjacent to any other zone: None required
   Adjacent to street: 20 feet

C. Height of Buildings

Buildings in the C-2 District shall not exceed a height of 45 feet.

Findings: The proposed addition meets dimensional standards.

16.40.030 Parking Requirements

Parking requirements for commercial uses are specified in Off Street Parking and Loading of this Ordinance.

Findings: The proposed addition meets parking requirements.

CHAPTER 16.145 PUBLIC FACILITY & SERVICE REQUIREMENTS

16.145.005 Application of Public Facility Standards

The provisions of Chapter 16.145 Public Facility and Service Requirements shall apply to development within the City of North Plains as listed in the following table. No development permit shall be approved unless the following required improvements are provided to City standards prior to occupancy or operation unless an exception is approved by the City Council per Chapter 16.145.020 or future provision of the improvement is assured per Chapter 16.145.030.

Public Facilities Improvement Requirements Table

	Fire Hydrants	Street Improvements	Water Line	Sewer Liner	Storm Drainage & Trees	Street Lights
Single Family Homes	N	C [2]	Y	C [4]	Y	N
Two Family & Multifamily Dwellings	Y	Y	Y	Y	Y	Y
Partitions, Subdivisions and Manufactured Home Parks	Y	Y	Y	Y	Y	Y
New Commercial Buildings	Y	Y	Y	Y	Y	Y

Commercial Expansions	C[1]	C [3]	Y	Y	Y	Y
New Industrial Buildings	Y	Y	Y	Y	Y	Y
Industrial Expansions	C[1]	C [3]	Y	Y	Y	Y
N = Not required Y = Yes, required C=Conditional, required in some case						
Note: Street lights shall be installed using PGE Option B.						

C[1] <u>Fire Hydrants for Commercial Expansions</u>

A fire hydrant is required when:

1. The total floor area of the building, including existing area and expanded area, is greater than or equal to 2500 square feet; or
2. A use is proposed which is classified as a Hazardous (H) use under the Uniform Building Code.

C [3] <u>Street Improvements for Commercial and Industrial Expansions</u>

Lots fronting on County roads must obtain access permits from the Washington County Department of Land Use and Transportation. The City will require improvement to full City standards when the use meets any of the following criteria:

a. The use generates an average of 100+ trips per day per 1000 gross square feet of building as documented in the Trip Generation Manual of the Institute of Transportation Engineers or other qualified source; or
b. The use includes daily shipping and delivery trips by vehicles over 20,000 pounds gross vehicle weight.

<u>16.145.010 Public Facility Standards</u>

B. **<u>Storm Drainage</u>**

No development permit shall be approved for any property until the City has reviewed and approved provisions for storm water drainage in accordance with the following criteria:

1. For storm drainage across or over the property on which the development is located, there are storm drainage facilities available which are capable of handling a one-hundred year flood without damage to any improvement on the property, or inundation of the lowest habitable floor of any residential structure thereon.
2. For storm drainage along or from streets adjacent to the property on which the development is located, there are storm drainage facilities available in accordance with the City of North Plains adopted street standard.

C. **<u>Sewage Disposal</u>**

No development permit shall be approved until the City and Clean Water Services has reviewed and approved provisions for connection to the public sewer system.

D. **<u>Water Supply</u>**

No development permit shall be approved for any property unless all affected water mains are either:

1. Fully improved to a standard providing both adequate potable water and fire flows, as established by the applicable State Plumbing Code and approved by the City; or

2. Improved to a standard providing adequate potable water flows pursuant to the City Water Master Plan and approved by the City and the Fire Chief for Washington County Fire District No. 2

Findings: Public facility and service requirements are currently met. A fire hydrant is located 325 feet from the site at Glencoe Road and McKay Creek Court. The building is currently serviced by street, street light, water, sewer and storm drain facilities.

CHAPTER 16.155 OFF-STREET PARKING & LOADING

16.155.015 Automotive Parking Requirements

G. Industrial

1. Manufacturing establishment: One space per employee on largest shift.

Findings: Adequate off street parking is available on site.

16.155.020 Off-Street Loading Requirements

Off-street loading space shall be provided as listed below:

All office buildings shall require a minimum loading space size of 12 feet wide, 20 feet long and 14 feet high in the following amounts:

1. For buildings containing up to 5,000 square feet of gross floor area, one space; for each additional 10,000 square feet of gross floor area, or any portion thereof, one space.

Findings: Adequate loading space is available on site.

16.155.025 Parking and Loading Area Development Requirements

All parking and loading areas shall be developed and maintained as follows:

A. Surfacing: Areas used for standing and maneuvering of vehicles shall have durable and dustless surfaces maintained adequately for all weather use and drained to avoid flow of water across public sidewalks.

B. Screening: When any public parking or loading area is within or adjacent to a residential zone, such parking or loading area shall be screened from all residential properties with an ornamental fence, wall or hedge of at least five feet in height but not more than six feet in height, except where vision clearance is required.

C. Periphery: Parking spaces along the outer boundaries of a parking lot shall be contained by a bumper rail or a curb at least four inches high and set back a minimum of four feet from the property line.

D. Lighting: Artificial lighting which may be provided shall not create or reflect substantial glare in a residential zone or on an adjacent dwelling.

Findings: Site meets parking and loading area development requirements.

CHAPTER 16.170 APPLICATION REVIEW

- Describes general application review procedures for a Type III Quasi-judicial land use procedure before the Planning Commission.

- Describes the procedures for Traffic Studies:

  A. When a Traffic Impact Study is required. The City or other road authority with jurisdiction may require a Traffic Impact Study (TIS) as part of an application for development, a change in use, or a change in access. A TIS shall be required when a land use application involves one or more of the following actions:
     1. A change in zoning or a plan amendment designation;
     2. Any proposed development of land use action that a road authority states may have operational or safety concerns along its facility;
     3. An increase in site traffic volume generation by 300 Average Daily Trips (ADT) or more; or
     4. An increase in site traffic volume of a particular movement to and from the State Highway by 20 percent or more; or
     5. An increase in use of adjacent streets by vehicles exceeding the 20,000 pound gross vehicle weights by 10 vehicles or more per day; or
     6. The location of the access driveway does not meet minimum sight distance requirements, or is located where vehicles entering or leaving the property are restricted, or such vehicles queue or hesitate on the State Highway, creating a safety hazard; or
     7. A change in internal traffic patterns that may cause safety problems, such as back up onto a street or greater potential for traffic accidents.

Findings: Staff is administering this Design Review application in accordance with all criteria and procedures contained in 16.170. Notice of a public hearing before the North Plains Planning Commission was published, posted, and mailed to property owners within 250 feet of the site and to applicable agencies. A traffic study is not required for this application as it does not trigger any of the requirements under 16.170.A and the existing use has a relatively low impact on the area.

CHAPTER 16.175 DESIGN REVIEW

16.175.030 Filing

A design review application must be filed for any of the following uses, except for single family or duplex construction and accessory structures and unless determined to be a Type II limited land use review pursuant to 16.175.010(A).

A. New buildings or structures.
B. Building alterations substantially affecting the exterior design and/or dimensions of an existing structure.
C. Any exterior alteration to an existing nonresidential use, which has not previously been subject to design review, except for painting, the replacement of roofing and siding material.
D. Any exterior alteration to an existing nonresidential use which has been subject to design review.

Findings: A timely design review application was made for the expansion of the facility.

16.175.050 Type III Design Review Criteria

Approval of a Type III Design Review application shall be based on the following criteria:

A. **Relation of Site Plan Elements to the Environment**

1. The elements of the site plan shall be compatible with the natural environment and existing buildings and structures having a visual relationship with the site.
2. The elements of the site plan should promote energy conservation, and provide protection from adverse climatic conditions, noise and air pollution.
3. Each element of the site plan shall effectively, efficiently and attractively serve its function. The elements shall be on a human scale, interrelated, and shall provide spatial variety and order.
4. In commercial and industrial zones adjacent to State or Federal highways, and/or lying in County jurisdiction within urban growth boundaries, a coordinated circulation and access plan shall be submitted for the site and all properties in the immediate vicinity (no more than 1/4 mile to each site) to assure the public's safety in entering or leaving the site, as well as when traveling through the area. This requirement may be waived by the Planning Staff if adequate access control and efficient and safe circulation can be obtained without the development and approval of a coordinated circulation and access plan.
5. Safety and Privacy. The site plan should be designed to provide a safe environment while offering appropriate opportunities for privacy and transitions from public to private spaces.
6. Preservation of Natural Landscape. The landscape and existing grade shall be preserved to the maximum practical degree, considering development constraints and suitability of the landscape or grade to serve the applicant's functions. Preserved trees and shrubs shall be protected during construction.
7. Pedestrian and Vehicular Circulation and Parking. The location and number of points of access to the site, the interior circulation patterns, the separations between pedestrians and moving and parked vehicles, and arrangement of parking areas in relation to building and structures, shall be harmonious with proposed and neighboring buildings and structures.
8. Drainage. Surface drainage systems shall be designed so as to not adversely affect neighboring properties, streets and/or surface and subsurface water quality. All surface water shall be contained on-site.
9. Buffering and Screening. Areas, structures, and facilities for storage, machinery and equipment, services (mail, refuse, utility wires, and the like), loading and parking, and similar accessory areas and structures shall be designed, located, buffered, or screened to minimize adverse impact on the site and neighboring properties.
10. Utilities. All utility installations above ground, if such are allowed, shall be located so as to minimize adverse impacts on the site and neighboring properties.
11. For any access within the Light Industrial (M-1) zone, the access shall be spaced a minimum of 200 feet from the nearest access on the same side of the street; this is to be coordinated between O.D.O.T., Washington County and the City of North Plains.

Findings:

1. The elements of the site plan are compatible with adjoining sites.
2. The 1,050 foot addition serves primarily as a shelter for equipment, and will not creating a heavy demand for energy.
3. The addition is in proportion to the building and site, and of a similar design.
4. Site is not within ¼ mile of a State or Federal Highway.
5. Appropriate screening is in place between the public street and private property. Adjoining residential property to west has both a fence and high hedge. The property to the west appears to

be an equipment storage yard which does not require additional screening for privacy.

6. No changes in landscaping are proposed. The site has limited vegetation on the perimeter which shall be retained.
7. Site is already fully developed with asphalt-concrete covering the majority of the space. The proposed addition will replace an area covered by asphalt-concrete. The site has two large paved driveways providing ample space for circulation inside the property. No sidewalks are present on the north or south sides of the street.
8. The property has adequate drainage.
9. Site is screened by landscaping and fencing from neighboring properties.
10. No changes in utilities are proposed.

B. **Required Landscaping**

3. General Commercial. 5% landscaping of the gross lot area required. All areas subject to the final site plan and not otherwise improved shall be landscaped. Screening by tall trees between highway commercial and adjacent residential zones, on side of highway commercial zone from highway to which it relates, such that the trees provide an attractive backdrop to elevated signage and adjacent residential uses.

C. **Landscaping in Parking and Loading Areas**

In addition to the above provisions, the following landscape requirements apply to parking and loading areas.

1. A parking or loading area shall be separated from any lot line adjacent to a roadway by a landscaped strip at least 5 feet in width.
2. A landscaped strip separating a parking or loading area from a street shall contain:
   a) Street trees spaced as appropriate to the species, not to exceed 50 feet apart, on the average; and
   b) Low shrubs, not to reach a height greater than 3'0", spaced no more than 8 feet apart, on the average; and
3. Vegetative ground cover if required.
4. Landscaping in a parking or loading area shall be located in defined landscaped areas which are uniformly distributed throughout the parking or loading area.
5. The landscaping in a parking area shall have a width of not less than three feet.

D. Irrigation

Provisions shall be made for watering planting areas where such care is required. Underground sprinklers may be required.

E. **Maintenance**

Required landscaping shall be continuously maintained.

F. **Special Requirements**

The Planning Commission may require the following, in addition to the minimum requirements and standards of this ordinance, as a condition of Design Review Approval.

1. An increase in building separation, to afford improvement in light reception or air circulation or to afford greater fire resistance, based on building structural and fire flow requirements.

2. Additional off-street parking, according to specific requirements for the type of development.

3. Screening of the proposed use by a fence, or landscaping.
4. Limitations on the size, location, intensity and number of exterior lights.
5. Limitations on the number, and location of curb cuts.
6. Improvement or enlargement of utilities serving the proposed use, where existing facilities will be burdened by the proposed use.
7. Landscaping, or increases in landscaping requirements for the site.
8. Limitations on the number and size of signs.
9. Review of and adjustments in design for conformance with the historic architectural design theme.
10. Any other limitations or conditions it considers necessary to achieve the purposes of this ordinance and the Comprehensive Plan.

Findings: The proposed project meets all requirements of the City code. If additional lighting is affixed to the exterior of the building or installed elsewhere, it should not project light into or beyond the public right of way or into adjoining properties.

16.175.155 Design Review - Specific Use Standards

G. Commercial Use or Accessory Use Not Wholly Enclosed Within a Building, on a Lot Adjoining or Across a Street From a Lot in a Residential Zone

These uses may be permitted conditionally subject to the following standards:

1. *A sight-obscuring fence or evergreen hedge may be required by the Planning Commission when they find such a fence or hedge or combination thereof is necessary to preserve the values of nearby properties or to protect the aesthetic character of the neighborhood or vicinity.*
2. *In addition to the requirements of the applicable zone, the Planning Commission may further regulate the placement and design of signs and lights in order to preserve the values of nearby properties, to protect them from glare, noise, or other distractions or to protect the aesthetic character of the neighborhood or vicinity.*
3. *In order to avoid unnecessary traffic congestion and hazards, the Planning Commission may limit access to the property.*

Findings: Properties to north of project are zoned as residential and adequate screening is present. No concerns have been expressed by neighbors concerning traffic impacts.

VI. CONCLUSION

The City finds that given the above discussion, all applicable requirements of the City Ordinances can be satisfied by the applicant with appropriate conditions of approval.

VII. RECOMMENDATION

Based upon the findings contained in this Staff Report, the application materials and information submitted by the applicant, and testimony before the Planning Commission, approval is hereby recommended for a Design Review Permit DR-12-003 subject to the following conditions of approval:

1. The applicant/owner shall construct the improvements consistent with design submitted to City.
2. The applicant/owner shall comply with all applicable City Ordinance standards, including but not limited to City Business License requirements, signs standards, fence standards, and all requirements of the C-2 Zone.

3. The applicant/owner shall ensure that any newly installed lights have a cut-off shade to direct the light downward, reduce glare, and contain light on-site.
4. All conditions of approval must be completed within one (1) year of the date of this approval, or the approval is void. The applicant is responsible for obtaining an approval extension prior to expiration.

Appeal: This approval by the Planning Commission may be appealed by filing a written notice of appeal with the City within fifteen (15) days from the date of this approval.

Based upon the findings contained herein, the application materials, information submitted by the applicant, and testimony received; approval is hereby recommended to **approve** File # 13-018-01-DR.

Sample Motion: I move to adopt the findings contained within this Staff Report and approve File # 13-018-01-DR.

NORTH PLAINS
City to the Sunset

City of North Plains

31360 NW Commercial St. North Plains, OR 97133
Ph. 503-647-5555 Fax 503-647-2031
Email: info@northplains.org

LAND USE APPLICATION

Applicant General Information

Applicant Name: Raj Savara

Mailing Address: 30750 NW Hillcrest st
Street *Apartment/Unit #*

North Plains OR 97133
City *State* *ZIP Code*

(503) 647 - 5188

Email Address: raj@dmipallet.com Phone:

Property Owner: Raj Savara

Mailing Address: same
Street *Apartment/Unit #*

City *State* *ZIP Code*

( ) -

Email Address: Phone:

Property Description

Address: 30750 NW Hillcrest st
Street *Apartment/Unit #*

North Plains OR 97133
City *State* *ZIP Code*

Tax Lot ID (TLID): Existing Zoning:

Property Area: Existing Land Use:

General Development Description:

Fees

Land Use Process	Fee	Land Use Process	Fee
☐ Annexation	$10,000 deposit*	☐ Non-Conforming Use	$200
☐ Appeal	$226	☐ Subdivision	$1,895
☐ Comp Plan Amendment, Text	$8,000	☐ Manu Home Park	$2,910
☐ Comp Plan Amendment, Map	$5,000	☐ Modification – Minor	$134
☐ Conditional Use, Residential	$391	☐ Modification – Major	$1,423
☐ Conditional Use, Ind. & Comm.	$525	☐ SNR Permit	$1,047
☐ Design Review Type II	$137	☐ Similar Use	$403**
☒ Design Review Type III	$726	☐ Street Vacation	$1,169
☐ Floodplain Permit	$1,047	☐ UGB Expansion	$28,000

☐ Partition, with street dedication	$669	☐ Variance, Administrative	$98
☐ Partition, no street dedication	$331	☐ Variance, PC Hearing	$450
☐ Lot Line Adjustment	$312	☐ Zoning Code Amendment	$1,474
☐ Other:			

* plus $9,000 election deposit ** waived until 2013

Information to Include with Your Application

- Narrative describing the Development Proposal and addressing the Decision Criteria. *All applications will be reviewed based on the Criteria of North Plains Zoning Ordinance.* Ask Staff for the applicable chapters to address in your narrative.
- Application and Filing Fee
- Plans drawn to scale showing:
  - All property boundaries in which development is occurring
  - All adjacent roads (with names and dimensions)
  - Location and dimensions of all existing and proposed accessways/driveways
  - Location, size (area), and setbacks of existing and proposed buildings
  - Location, size, and layout of existing and proposed landscaping
  - Location, number and size of existing and proposed parking areas, including handicapped spaces
  - Location, number and size of existing and proposed loading areas
  - Location, number, size, and types of existing and proposed lighting
  - Location, number, size, and types of existing and proposed fencing and or/screening
  - Pedestrian circulation
  - Outdoor seating areas
  - Flood plains
  - Water courses
  - Significant vegetation,
  - Easements

After initial review, the City may require additional information.

Additional Information

In order to expedite and complete the processing of this application, the City of North Plains requires that all pertinent material required for review of this application be submitted at the time application is made. If the application is found to be incomplete, review and processing of the application will not begin until the application is made complete.

I certify that the statements made in this application are complete and true to the best of my knowledge. I understand that any false statements may result in denial of this application.

I understand that there may be additional costs of processing this application including, but not limited to, planning, engineering, city attorney and administration. The City will notify the applicant if there will be additional costs.

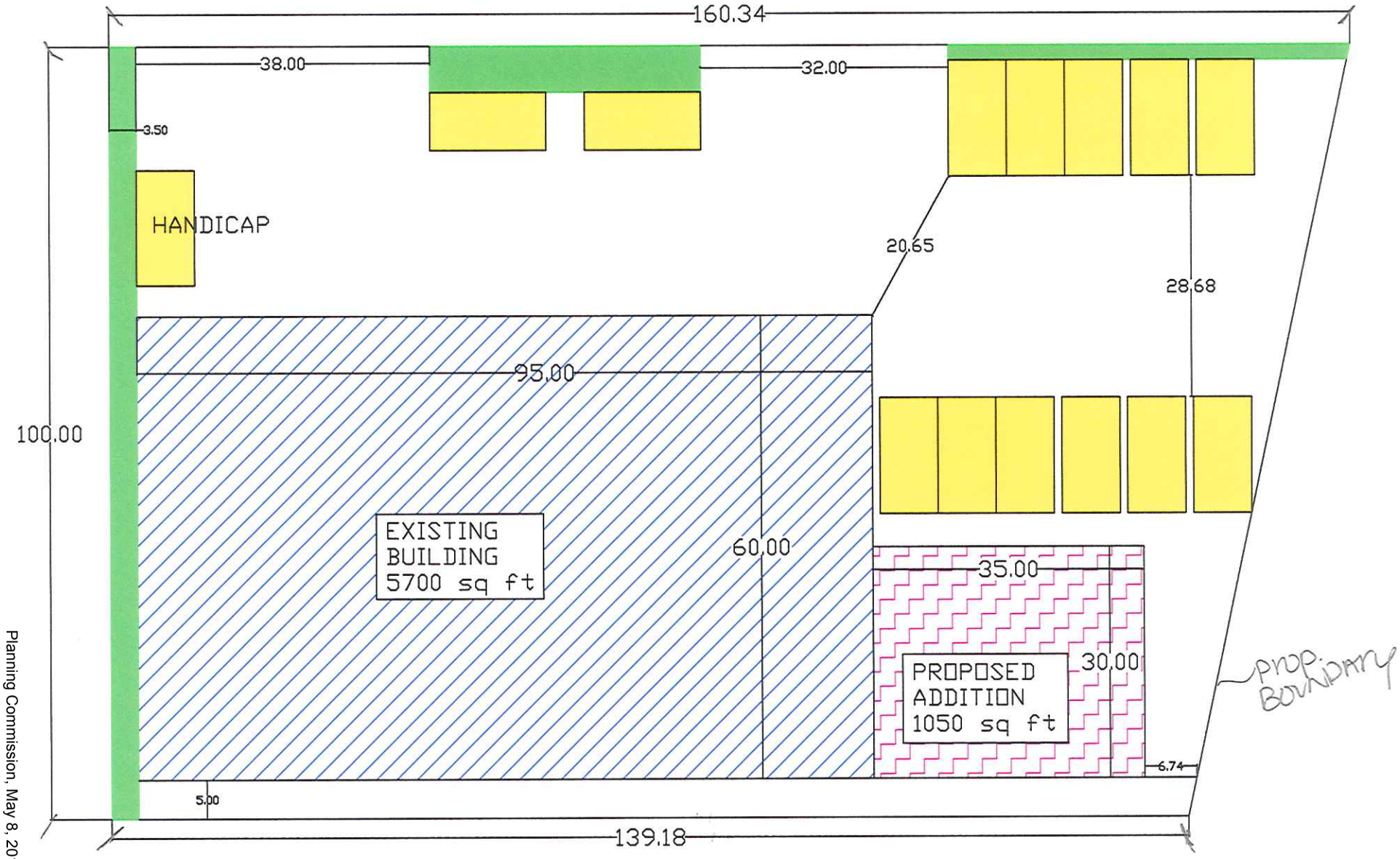
Date: 3/27/13 Signature of Applicant: _____

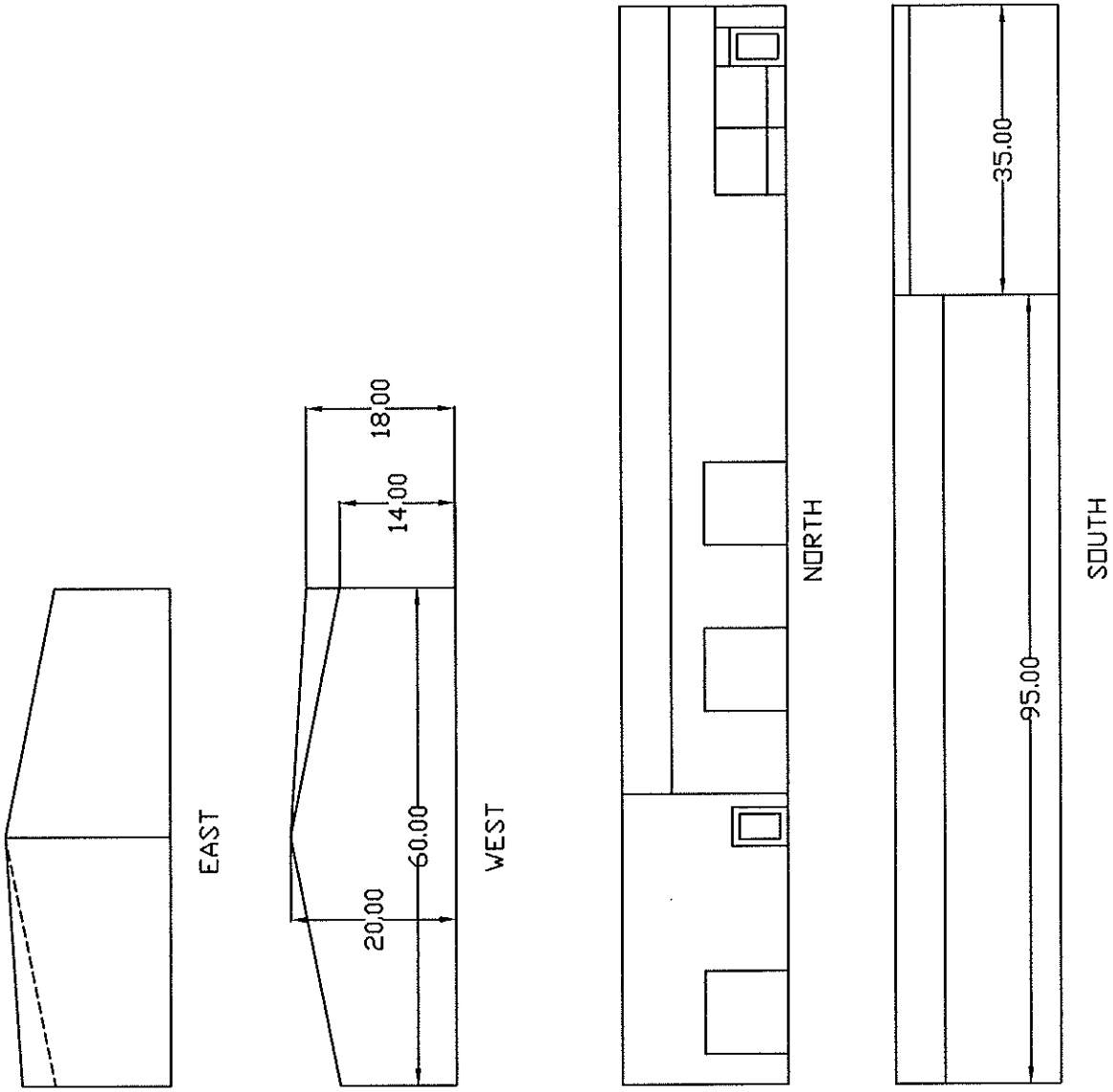
Date: 3/27/13 Signature of Property Owner: _____

FOR OFFICE USE

Received by: _____ Date: _____

Fee paid: _____ Receipt No. _____ Application No. _____


160.34
38.00
32.00
3.50
HANDICAP
20.65
28.68
95.00
100.00
EXISTING
BUILDING
5700 sq ft
60.00
35.00
30.00
PROPOSED
ADDITION
1050 sq ft
6.74
5.00
139.18
prop. BOUNDARY


EAST
18.00
14.00
60.00
20.00
WEST
NORTH
35.00
95.00
SOUTH

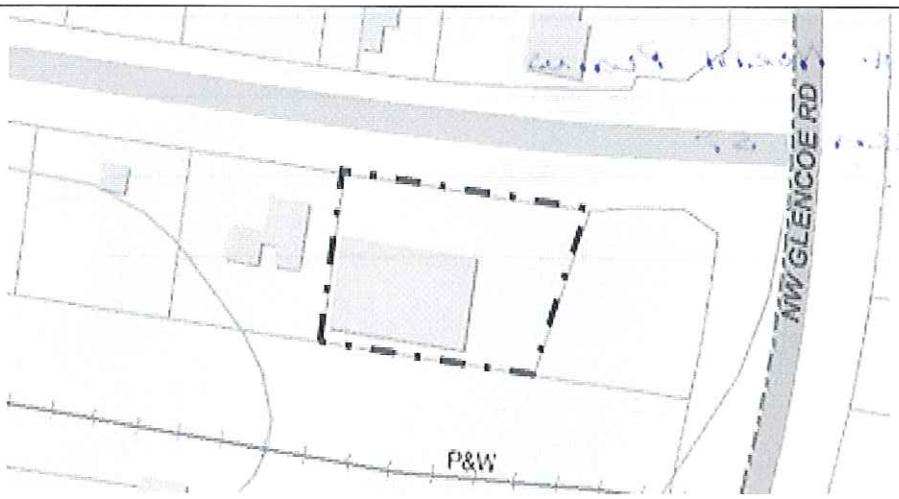
CITY OF NORTH PLAINS
CORRECTED
NOTICE OF PUBLIC HEARING &
REQUEST FOR COMMENTS

The purpose of this notice is to invite comments on the proposed application to construct a 1,050sf addition to the existing light industrial use at 30750 NW Hillcrest Street, North Plains, OR 97133. The City will accept all written comments received prior to the hearing on May 8, 2013, 7pm at Jessie Mays Community Center, 30975 NW Hillcrest Street. Thank you!

APPLICATION: The applicant is requesting Design Review for construction of a 1,050sf addition to the existing light industrial use at below location.

CITY FILE NUMBER: 13-018-01-DR

LOCATION: 30750 NW Hillcrest Street, North Plains, OR 97133 (bordered lot in map below)



TLID: IN3 IDA 02100, Zoned

LOT SIZE AND ZONING: Approx. 15,000 sq. ft. C-2

OWNER: RAJ SAVARA

APPLICANT: DMI INTERNATIONAL, INC.

DATE OF THIS NOTICE: April 11, 2013

DATE OF PUBLIC HEARING: May 8, 2013

WHAT IS THE DECISION PROCESS? The North Plains Planning Commission will make a decision after the public hearing on May 8, 2013 at Jessie Mays Community Hall, 30975 NW Hillcrest Street, North Plains, Oregon, at 7pm. The Planning Commission's decision may be appealed to the City Council.

HOW CAN I REVIEW THE DOCUMENTS AND STAFF REPORT? You can review application and staff report materials at City Hall. Copies are available at $0.25 per page or can be emailed.

INFORMATION TO INCLUDE IN COMMENTS: Issues which may provide the basis for an appeal to the Land Use Board of Appeals shall be raised in writing prior to the expiration of the comment period. Issues shall be raised with sufficient specificity to enable the decision maker to respond to the issue. Failure of an issue to be raised in a hearing, in person, or by letter, or

failure to provide statements or evidence sufficient to afford the decision maker an opportunity to respond to the issue, precludes appeal.

COMMENTS:

NO COMMENT

Name: BLAKE BOYLES

Organization or Business (If Any): CITY OF NORTH PLAINS

Address: 31360 NW COMMERCIAL ST

Phone # (Optional):

Date: 4/17/13

Please return by one of the following ways:

MAIL: 31360 NW Commercial Street, North Plains, OR 97133

IN PERSON: City Hall, 31360 NW Commercial Street, North Plains, OR

E-MAIL: angie@northplains.org

PHONE: (503) 647-5555

Please contact City Hall at (503) 647-5555 with any questions

Thank you!

AGENDA ITEM NO._____

CITY OF NORTH PLAINS
STAFF REPORT
For
McKay Fields Modified Preliminary Subdivision Plat
May 1, 2013

APPLICATION: An application for a thirty-three (33) lot preliminary subdivision plat including dedication of a city park, a variance request to the minimum side yard for lots 24, 25 & 33, a flood plain and a significant natural resource area alteration permit. This is a new review of a previously approved preliminary subdivision plat with a new developer.

APPLICANT: DR Horton
4380 SW Macadam Ave. Suite 100
Portland, OR 97239

OWNER: Kenneth & Patsy Fields (Tax lot 1202)
30240 NW West Union Road
North Plains, Oregon 97133

West Union LLC (Tax Lot 2000)
Ron Guillory
PO Box 12
Hillsboro, OR 97123

PUBLIC HEARING: May 8, 2013

SUMMARY

A 28-lot McKay Fields subdivision for attached homes was originally approved in 2006. Several extensions were requested and approved by the Planning Commission. The original plat expires in 2014. The primary differences between the two subdivisions are described as:

Table 1 Comparison

Improvements or Impacts	***McKay Fields approve 2006***	***McKay Fields Modified 2013***
Number of acres	7.69	6.37
No. of underlying tax lots	3	3 (after 2 illegal partitions creating TL 1201 & 1202)
Number of lots/housing type	27 attached SF duplexes	33 detached SF
Streets	28' - 34', parking and planter strip on north side only	30' – 34', parking on north side only – no planter strip
West Union dedication	15'	15'
West Union improvements	Half street per county	Half street per county
Floodplain fill	5 lots – approved by City and CWS	8 lots - 3,171 yds .fill & 3,448 yds. cut – net storage gain
Significant Natural Resource impact	No	Yes, vegetation removal
HOA	No	Yes
Public park dedication	No	Yes – 3.49 acres

I. APPLICABLE DEVELOPMENT CODE CRITERIA:

A. Chapter 16.30 of the Zoning and Development Code, Multi-Family Residential Zoning District, R-2.5.

B. Chapter 16.65 of the Zoning and Development Code, Flood Plain Overlay District, (FP).

C. Chapter 16.75 of the Zoning and Development Code, Significant Natural Resources Overlay District, (SNR).

D. Chapter 16.100 of the Zoning and Development Code, Duplex, Triplex and Attached Single Family Dwelling.

E. Chapter 16.125 of the ZDO, General Development Standards, Development Standards for Land Divisions.

F. Chapter 16.135 of the ZDO, Subdivisions.

G. Chapter 16.145 of the Zoning and Development Code, Public Facility and Service Requirements.

H. Chapter 16.150 of the ZDO, General Development Standards, Street Standards.

I. Chapter 16.155 of the ZDO, Off Street Parking and Loading.

J. Chapter 16.160 of the ZDO, Clear Vision Areas.

K. Chapter 16.165 of the ZDO, Street Dedications.

L. Chapter 16.170 of the ZDO, Application Review and Procedures.

M. Chapter 16.185 of the ZDO, Variances.

II. FINDINGS OF FACT:

A. Location: Property identified as Tax Lots 1200, 1202 and 2000 Map No. 1N2 06. The subject property is located on the south side of NW West Union Road east of McKay Creek and contains approximately 6.37 acres of which 3.69 acres would be retained in its natural state and dedicated as city park land. It is currently developed with one single family residences and several accessory structures. The address of the property is 30140-30240 NW West Union Road.

- Illegal partitions: According to Washington County staff, the original plat was approved prior to the original sale to West Union Road LLC. The sale to West Union Road LLC recorded on July 28, 2006- after plat approval. At that time Tax Lot 1200 was 6.30 acres and included land hooked pieces both north of West Union Rd and railroad Tax Lot 1N2060001201. On January 25, 2007 West Union Road LLC recorded a Warranty Deed to Kenneth W & Patsy A Fields which created tax lot 1202 (illegal, landlocked partition). On March 28, 2007 that original sale deed was re-recorded with a new surveyed legal description attached describing only 5.40 acres. This basically

partitioned those 3 areas lying north of West Union Rd (Tax Lot 1201), another illegal partition.

- Recently approved Lot Line Adjustment: On March 6, 2013 the owner of lots 2000 and 2100 (West Union LLC) received an approved lot line adjustment from the City enlarging Tax Lot 2000 and shrinking Tax Lot 2100 in order to separate the existing residence on Tax Lot 2100 from the proposed plat.

B. Comprehensive Plan Designation: The land use designation of the subject property is High Density Residential (R-2.5) on the City's Comprehensive Plan. Adjacent property to the west is the same designation. Property to the south and east is outside the city limits and urban growth boundary. Property to the north is designated Industrial (IND). The property is located within the 100 - year flood plain and is shown as containing Significant Wetlands, Significant Natural Resources, and Wildlife Habitat in the city's Significant Natural Resources Report.

C. Zoning: The site is zoned Multi/Family Residential (R-2.5). Adjacent property to the west has the same zoning designation. Property to the north is zoned General Industrial (M-2). Property to the south and east is outside the city limits.

D. Existing Improvements: The subject property is currently developed with one single family residential structure and several accessory structures. Public facility improvements constructed in the street frontage of the property include an open storm water system, sanitary sewer line, water line.

E. Availability of Public Services: The property currently has access to City water and Clean Water Services sewer. The water and sewer lines are located in the right-of-way of NW West Union Road. The subject property has direct access to NW West Union Road. The subject property is served by City police and Washington County Fire District No.2 fire protection.

F. Proposed Application: An application for a 33 lot subdivision with each lot ranging in size from 2,500 square feet to 5,266 square feet, dedication of land for the construction of West Union Road half-street improvements and a new street improvement to serve the newly created lots, and two fire turnarounds. The proposal includes dedication of 3.49 acres of public park in the McKay Creek floodplain, including a 12-foot wide asphalt access road terminating in the creek buffer.

Procedures: In accordance with ZDO Chapter 16.170 Application Review and Procedures, on April 18, 2013 Notices of Public Hearing were mailed to all property owners within 250 feet of the subject property and Land Use Action Referrals were mailed to all affected public agencies. On May 8, 20013 the Planning Commission will conduct a public hearing to discuss and make a decision regarding this application. The City must take final action including all appeals on this application no later than August 23, 2013.

G. Adjacent Land Uses: Adjacent land to the north and west are developed with a residence on large lots, land to the east and south is developed with a dairy farm with related accessory structures.

III. AGENCY RECOMMENDATIONS AND WRITTEN TESTIMONY:

Agency referrals were mailed to all affected agencies and organizations. The City relies on the technical analysis and recommendation of Washington County Department of Land Use and Transportation for improvement requirements to West Union Road. Regarding sanitary sewer and the implications of floodplain and sensitive area modifications, the City relies on the expertise of Clean Water Services, and in this case FEMA permitting. The City also relies on the Fire Department to evaluate emergency accessibility. Further, the City relies on its consulting engineer MSA to evaluate the grading and storm water drainage plans, the function and design of the internal streets and the construction of sanitary sewer and water services. In each of these areas, an approval is subject to compliance with agency and engineering conditions of approval.

Agency responses are included as attachments to this report. All agency recommendations should be considered as conditions of approval.

A. The Fire Department: comments and conditions are attached.

B. Clean Water Services: In 2006 issued a Service Provider Letter (SPL) approving the original plat.CWS comments and conditions regarding the modified plat dated April 29, 2013 are attached.

C. City Engineer Memorandum: The City Engineer indicated that the original conditions of approval still generally apply in accordance with their 2006 letter. In addition, the City Engineer provided comments via e-mails dated April 24 and April 29, 2013 accepting the applicant's Storm Drainage Report and Traffic Study analysis and additional comments specific to the modified plat. Specific concerns are incorporated into the text of this report and are recommended as conditions of approval.

D. Washington County Land Use and Transportation: County comments and conditions regarding West Union Road are attached.

IV. DEVELOPMENT CODE REVIEW CRITERIA AND EVALUATION

SUMMARY OF CODE COMPLIANCE –OUTSTANDING ISSUES

A. There were two illegal partitions recorded on a portion of the proposed subdivision after the McKay Fields plat was approved in May 2006. One created a new Tax Lot 1201 on the north side of West Union Road and the other a new Tax Lot 1202, a landlocked parcel within the subject subdivision. To make Tax Lot 1201 a legal lot of record it should be legally partitioned in accordance with city and state land division laws. Tax lot 1202 is within the proposed subdivision and would be nullified by a plat recording.

B. The proposal can comply with the R-2.5 zone standards. The applicant has requested that variances be granted for Lots 24, 25 and 33 which they have identified as having an 8' instead of a 10' setback from the West Union Road right-of-way. The applicant will need to request a variance for each through a separate application process, as insufficient information is available to determine if buildings will require variances.

C. A conflict in the City's code has been identified through this review process. Lot 1 meets the lot dimension requirements of the R2.5 zone, but does not have the minimum 20 feet of frontage on a street as required in 16.125.010. The lot has 12.64 feet of frontage. The City Engineer indicates 12.64 feet is an adequate driveway width. A variance from 16.125.010 should be considered as part of the subdivision approval.

D. Lots 17, 18, 19, 20, 21, 22, 23, and 24 are located entirely or partially within the McKay Creek 100-year floodplain, elevation 170.10'. According to the CWS and MSA the plan can comply with the requirements of the Floodplain Development Permit, subject to extensive code construction conditions. FEMA, CWS permitting and MSA approvals should be conditions of approval. Staff recommends a condition that grading and construction in the Floodplain and SNA be monitored by the City or their engineer in order to assure the extensive precautions and provisions of Code Chapters 16.65 and 16.75 are met.

E. To construct the access road into the floodplain, an estimated 2 feet of fill will occur in the creek floodway. The applicant indicates this could be eliminated if the access road slope was increased from 7 – 9%. The Planning Commission may determine there should be no fill in the floodway and that the slope of the road be increased to avoid fill. At a minimum, additional engineering and CWS and City review is required.

F. The curve radius of the local street intersection with West Union Road is 90 feet, whereas the city minimum is 100 feet. The Planning Commission may accept sharper curves if it is otherwise impractical to provide buildable sites. City staff recommends the plans be revised to meet the minimum 100 foot curve standard.

G. To construct the storm water outfall in the floodplain and Significant Natural Resource riparian area, existing vegetation will need to be removed and replaced in accordance with a mitigation plan per CWS and City specifications. According to CWS standards, excavated buffer must be removed from the buffer inventory and replaced at another location. According to the applicant, the area between the existing 50 foot CWS buffer and the flood plain excavation could be designated as additional buffer mitigation. A Tier II Buffer Alteration application must be approved by CWS before this excavation can occur.

H. The City believes plan policies support requiring a safe pedestrian access from the isolated McKay Fields neighborhood to the city core. The City recommends this be negotiated at the time a development agreement is formulated.

I. Development requirements of Washington County, Clean Water Services and the Fire District are attached and should be conditions of approval. The county defers street tree specifications in their planter strip on West Union Road to the City. This should be an additional condition of approval.

J. The City believes on-street parking should be available on both sides of "A" Street. But this would significantly increase the minimum street right-of-way width to 52 feet. The applicant believes the frequency of driveway cuts already restricts parking options on the street. The proposal includes on-street parking on the north side of "A" Street. The City is inclined to not place "no parking" signage on the street.

Development Code Review Criteria and Evaluation

16.30.005 Multi-Family Residential District (R-2.5) Zone

Permitted Uses in the R-2.5 zone permit Single family detached dwellings.

Response: The applicant is proposing 33 single-family residential detached dwellings, a permitted use in the R-2.5 district.

Dimensional Standards: The following dimensional standards shall be the minimum requirements for all development in the R-2.5 District except for modifications permitted under this code.

A. Lot Size: Single-family detached dwellings shall be on a minimum 2,500 square foot lot and a maximum 6,000 sq. ft. lot for lots created by subdivision

Response: The single-family detached lots comply with the minimum lot size of 2,500 square feet and the maximum lot size of the largest lot 33 is 5,266 square feet.

B. Lot Depth and Width: There is no minimum lot width or depth

Response: There are no minimum lot dimensional requirements. Most lots are an average of 30' x 90'. However, Lot 1 is only 12.64 feet wide at the street frontage then widens to 30' in the rear. According to the City Engineer, 12.64 feet is adequate for a driveway. However, each lot is required to have 20 feet of street access elsewhere in the code.

C. Setback Requirements

1. Principle structures, accessory dwellings, attached accessory structures and detached accessory structures with a floor area greater than 120 square feet shall maintain the following minimum yard setbacks except that development on flag lots shall be subject to the setback standards for flag lots:

a. Front Yard (garage or carport)	20 feet
b. Front Yard (all other structures)	15 feet
c. Rear Yard	10 feet for street-access lots 6 feet for alley-access lots
d. Side Yard (interior) Attached (common wall) Detached	 0 feet 5 feet
e. Side Yard (adjacent to street)	10 feet plus additional necessary to comply with the standards of Clear Vision Areas
f. Flag lots	10 feet for all yards, except yard facing the garage shall be a minimum of 20 feet

Response: The preliminary plat illustrates a building envelope on each lot showing compliance with the required building setbacks, except for Lots 24, 25 and 33. These three lots adjoin West Union Road where planned street improvements will be constructed on most of the frontage. Instead of the required 10' setback, the applicant requests a Variance reducing the setback to 8 feet. The Planning Commission can:

- approve the variances which are likely to minimal visual impact or
- deny the request at this time as applicant has not identified why the building envelope cannot be adjusted to meet set back requirements, and instruct the applicant to apply for variances that identified the unique issues that merit a variance for each lot prior to submitting building permits.

There are no flag lots proposed in the development.

D. Height of Buildings: Buildings shall not exceed a height of 35 feet or two and a half stories, whichever is less.

Response: All of the new buildings can comply with the 35-foot height requirement.

E. Lot Coverage

In the R-2.5 District, the maximum lot coverage shall not exceed the following percentage of the total area of any lot.

1. Single family detached dwellings65%

Response: The applicant provided a sample lot house layout indicating the typical home, driveway and patio would cover 61% of the lot. All of the lots can comply with the 65% single family lot coverage requirement.

16.65 Flood Plain Overlay District (FP)

General Provisions

A. Area of Application

All property, regardless of the underlying zoning designation, which falls within the boundaries of the 100-year Flood Plain, also known as the area of special flood hazard, shall be subject to the provisions of Chapter 16.65 Flood Plain Overlay District (FP).

Response: The western portion of the subject site is located within the boundaries of the 100-year flood plain. The applicant is proposing that all of Lots 18 and 19 and a portion of Lot 17, as well as the rear of lots 20, 21, 22, 23, 24 will be located within the flood plain boundary.

B. Basis for Establishing the Areas of Special Flood Hazard

The areas of special flood hazard identified by the Federal Insurance Administration in a scientific and engineering report entitled "The Flood Insurance Study of the City of North Plains, Oregon, Washington County, Oregon," dated October 1, 1981, with the accompanying Flood Insurance Maps are hereby adopted by reference and declared to be a part of this Ordinance. The Flood Insurance Study is on file at the City of North Plains, City Hall, North Plains, Oregon. The City shall utilize all authoritative information available in determining the location of special flood hazard areas.

Response: The applicant has obtained information from Washington County identifying the boundary of the 100-year flood plain on the site is at an elevation of 170.10 feet. This elevation is subject to change when new maps are expected to be released and adopted by county and city jurisdictions in 2014. But rather than assuming the new standard is applicable now, the applicant proposes to fill the portions of the lots so that the lots are at an elevation of 172 to 173 feet, with a finished floor elevation of 173.5 to 174.5 feet. Current code requires the finished floor at one foot above the flood plain elevation (170.10 feet). The fill will necessitate an equal amount of cut in exchange to balance the impacts on flooding. The applicant proposes to cut more than an equal amount of land to further minimize and possibly reduce flood impacts in the area. The applicant has provided a sketch illustrating there will be 25,100 square feet of fill to raise the subject lots above the floodplain, compensated by 34,100 square feet of excavation, a 34% increase in the amount of cut versus the amount of fill.

C. Compliance

No structure or land shall hereafter be constructed, located, extended, converted, or altered without full compliance with the terms of this Ordinance and other applicable regulations.

Response: The applicant is required to comply fully with the provisions of Chapter 16.65. It is recommended that city staff or engineering staff provide regular on-site observations to assure standards are met.

Flood Plain Permit Administration

A. Development Permit Required

A development permit shall be obtained before construction or development begins within any area of special flood hazard. The permit shall be required for all structures including manufactured homes, as set forth in the Definitions, and for all other development including fill and other activities, also as set forth in the Definitions.

Response: The applicant is proposing to retain a majority of the area within the 100-year flood plain as open space and dedicate 3.49 acres to the city. A small portion of the flood plain will be within the development area, including all or portions of lots 17, 18, 19, 20, 21, 22, 23 and 24. These lots will be elevated above the 100-year floodplain. Staff recommends that upon correction of the partition that created Tax Lot 1201 the balance of flood plain area be shown on maps, designated as open space and dedicated to the City.

B. Application for Development Permit

Application for a development permit shall be made on forms furnished by the City Recorder and may include, but not be limited to, plans in duplicate drawn to scale showing the nature, location, dimensions, and elevations of the area in question, existing or proposed structures, fill, storage of materials and drainage facilities. Specifically, the following information is required:

1. Elevation in relation to mean sea level of the lowest floor (including basement) of all structures;
2. Elevation in relation to mean sea level to which the structure has been flood proofed;

3. Certification by a registered professional engineer or architect that the flood proofing methods for any nonresidential structure meet the flood proofing criteria of this chapter.
4. Description of the extent to which any watercourse will be altered or relocated as a result of proposed development.

Response: The required application has not been filed with the City yet and should be a condition of approval. The applicant intends to file a CLMR application with FEMA to amend the 100-year floodplain boundary. FEMA approval should be a condition of approval.

Provisions for Flood Hazard Protection

In all areas of special flood hazards the following standards are required:

A. Anchoring

1. All new construction and substantial improvements shall be anchored to prevent flotation, collapse or lateral movement of the structure.

Response: The applicant is proposing the eight (8) new homes located within the 100-year flood plain be filled to elevate the land above the 170.10 foot floodplain elevation. They may also be required to construct homes to prevent flotation, collapse or lateral movement in the event of a flood as determined by the floodplain permit conditions.

B. Construction Materials and Methods

1. All new construction and substantial improvements shall be constructed with materials and utility equipment resistant to flood damage.
2. All new construction and substantial improvements shall be constructed using methods and practices that minimize flood damage.
3. Electrical, heating, ventilation, plumbing, and air-conditioning equipment and other service facilities shall be designed and/or otherwise elevated or located so as to prevent water from entering or accumulating within components during conditions of flooding.

Response: If applicable after the fill, the applicant will be required to use materials, equipment, and practices that will minimize and resist flood damage.

C. Utilities

1. All new and replacement water supply systems shall be designed to minimize or eliminate infiltration of flood waters into the system;
2. New and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of flood waters into the systems and discharge from the systems into flood waters; and
3. On-site disposal systems shall be located to avoid impairment to them or contamination from them during flooding.

Response: If applicable, all new utilities supplying the development must be constructed to comply with this standard subject to City and Clean Water services review and approval.

D. Subdivision Proposals

1. All subdivision proposals shall be consistent with the need to minimize flood damage;
2. All subdivision proposals shall have public utilities and facilities such as sewer, gas, electrical and water systems located and constructed to minimize flood damage;
3. All subdivision proposals shall have adequate drainage provided to reduce exposure to flood damage; and
4. Base flood elevation data shall be provided for subdivision proposals and other proposed development which contain at least 50 lots or 5 acres, whichever is less.

Response: The applicant has added two (2) more lots in the floodplain from the original McKay Fields subdivision. In effect, the land area within the floodplain is the same but the lot sizes in the proposed plan are smaller so that there are two more lots affected. In the subject proposal the applicant has more than matched cut area with the area of floodplain fill, thereby reducing the amount of impact from in the floodplain as was originally approved by the City and CWS in 2006.

Specific Standards

In all areas of special flood hazards where base flood elevations data has been provided as set forth in this Chapter, the following provisions are required:

A. Residential Construction

New construction and substantial improvement of any residential structure shall have the lowest floor, including basement, elevated to one foot above base flood elevations. Fully enclosed areas below the lowest floor that are subject to flooding are prohibited. Parking, crawl spaces and storage is allowed below the lowest floor provided the area is designed to permit the entry and exit of flood waters.

Response: The applicant is proposing the homes on lots within the floodplain be elevated so the lowest floor is more than 1-foot above base flood elevation. The finished floor will be at 173.5 to 174.5 feet in elevation as compared to the required standard of one foot above the 170.10 foot floodplain elevation.

Flood Ways

Located within areas of special flood hazard established in this chapter are areas designated as flood ways. Since the flood way is an extremely hazardous area due to the velocity of flood waters which carry debris, potential projectiles and erosion potential, the following provisions apply, these provisions apply to all floodways:

1. Prohibit encroachments, including fill, new construction, substantial improvements, and other development within Zones A1 and A2 (as defined by the Federal Emergency Management Agency) unless certification by registered professional engineer or architect is provided demonstrating that encroachments shall not result in any increase in flood levels during the occurrence of the base flood discharge.

2. Indicate how the proposal minimizes flood damage.

***Response*:** According to the applicant, no fill is proposed in the floodway except for the last 20 feet of the access road into the flood plain. This fill ranges from 0 to 2 feet. This fill in the floodway can be eliminated by increasing the slope of the access road from 7% to 9%. Secondly, according to the applicant this fill will be outside the floodway with the new FIRM map to be adopted in 2014. Since mobile homes are not proposed, compliance with those standards is not necessary.

Staff Comments in the original McKay Fields subdivision review:

The structures on the affected lots will comply with the flood plain elevation requirements. However, staff is concerned that modifications in the yards on those properties may take place in violation of the flood plain development standards. In other words, an owner could make some cut or fill modifications in the yard, unaware that it is in the flood plain, in violation of the flood plain ordinance. If Lots 17 – 24 are to contain a portion of the flood plain, a statement should be recorded in the property title that these lots contain a portion of the flood plain, and that any development of the area shall comply with the flood plain ordinance, including cut or fill for landscaping and construction of fences or accessory structures.

16.75 Significant Natural Resource Overlay District

Purpose Significant Natural Resources Overlay District (SNR)

The Significant Natural Resources Overlay District provides protection for identified significant natural resources within the City of North Plains as designated under Statewide Planning Goal 5. For the purpose of this overlay zone, significant natural resources are designated as Significant Wetlands and Riparian Corridors. These resources have been inventoried within the City of North Plains according to procedures, standards and definitions established under Goal 5 and are identified on the Significant Natural Resources Map as adopted in the Comprehensive Plan. The Significant Natural Resources Overlay Zone District is intended to:

A. Protect valuable natural resources within the City of North Plains Urban Growth Boundary, while ensuring reasonable economic use of property;

B. Augment existing regulations of water quality sensitive areas, vegetated corridors wetlands and water resources, including Clean Water Services Design and Construction Standards, the Division of State Lands Removal Fill Law (ORS 196.800-196.990), and by the US Army Corps of Engineers' administration of Section 404 of the Clean Water Act;

C. Encourage public knowledge, understanding and appreciation of the City's natural resources;

D. Provide protection of wetlands and riparian corridors to maintain salmonid habitat, water quality, thermal regulation, sediment trapping, hydrologic control of flood waters; stream bank stabilization and other important functions and conditions;

E. Encourage restoration of wetlands and riparian corridors; and

F. Carry out the provisions of Statewide Planning Goal 5.

Response: According to the applicant, Definition "Q" below, the Riparian Corridor along McKay Creek is 75 feet from the top of bank or the edge of the delineated wetland, whichever is further landward. The only wetlands on the site are located in the McKay Creek channel and at the north end of the property in the West Union road right-of-way (see the wetland map in the SPL dated July 18, 2006 –Applicant's Exhibit "K"). This 75 foot Riparian Corridor is shown on Sheets 2, 3, 5 and 6 of the pre-plat plans. The flood plain excavation does not extend into the 75 foot corridor. The CWS sensitive lands buffer is 50 feet and less restrictive than the city's buffer.

According to the applicant, the resources of the property will be protected and proper economic use of the property will occur. The fill and excavation is in an area that does not contain vegetation. The only exception is the storm water outfall at the south end of the property. According to CWS standards, excavated buffer must be removed from the buffer inventory and replaced at another location. The area between the existing 50 foot CWS buffer and the flood plain excavation will be designated as additional buffer mitigation. A Tier II Buffer Alteration application must be approved by CWS before this excavation can occur. At a pre-application meeting, CWS indicated they would approve this Tier II application.

Exhibit "J" is an Endangered Species Act (ESA) report which indicates "No Effect' on fish, birds, vegetation or other species. The report was prepared for review by the US Department of Fish and Wildlife and the National Marine Fisheries. The applicant states they contacted both of these departments and they verbally indicted no issues with this flood plain fill and excavation. This report and a final drainage study will be submitted to FEMA along with a CLOMR-F (Conditional Letter of Map Revision) application to authorize the proposed flood plain fill and floodway excavation. FEMA compliance and permitting should be a condition of approval.

16.75.005 Definitions

Q. Riparian Corridor: A Goal 5 resource that includes the water areas, fish habitat, riparian areas, and wetlands within the riparian corridor boundary. In the City of North Plains, Riparian Corridor boundaries are measured as follows:

a. The unnamed tributary of McKay Creek: 50 feet from the top of bank or from the edge of a delineated significant wetland, whichever is further landward, and;

b. McKay Creek: 75 feet from the top of bank or from the edge of a delineated significant wetland, whichever is further landward.

***Response*:** The above definition for the Riparian Corridor requires a 75 foot buffer which is shown on Sheets 2, 3, 5 and 6 of the pre-plat plans.

16.75.0154 General Development Standards

A. The permanent alteration of the Significant Natural Resource by grading, by excavation or fill, by the placement of structures or impervious surfaces, or by the removal of native vegetation is prohibited, except for the following uses provided they

are designed to minimize intrusion into the significant natural resource, and no other options or locations are feasible:

1. Streets, roads, paths and driveways;
   Public or private streets, driveways, or paths may be placed within a Significant Natural Resource to access development activities if it is shown to the satisfaction of the reviewing authority that no other practicable method of access exists. If allowed, the applicant shall comply with the following requirements:

   a. Demonstrate to the reviewing authority that no other practicable access to the build able area exists or access from an off-site location through the use of easements is not possible;

   b. Design roads, driveways, and paths to be the minimum width necessary and for the minimum intrusion into the Significant Natural Resource while also allowing for safe passage of vehicles and/or pedestrians;

   c. Use bridges, arched culverts, or box culverts with a natural bottom for crossing of a Significant Natural Resource if the crossing is found unavoidable. The lower lip of any culvert must meet the channel bed at or below grade. The number of channel crossings shall be minimized through use of shared access for abutting lots and access through easements for adjacent lots;

   d. Consider the need for future extensions of shared access, access easements, or private streets to access potential new building sites at the time of this application in order to avoid subsequent encroachments into the Significant Natural Resource;

   e. Prior to construction, the Significant Natural Resource area shall be flagged, fenced or otherwise marked and shall remain undisturbed except as allowed by the provisions of this ordinance. Such markings shall be maintained until construction is complete;

   f. During construction, no stockpiling of fill materials, parking, or storage of equipment shall be allowed within the Significant Natural Resource;

   g. Erosion control measures, such as silt fences and bio-filter bags, shall be used to reduce the likelihood of sediment and untreated storm water entering the Significant Natural Resource.

   h. Permanent alteration of the Significant Natural Resource by the placement of public or private streets, driveways, or paths is subject to the mitigation requirements of Section VII.

Response: Applicant's Plan Sheet 6 shows an access road into the 75 foot Riparian Corridor. No other alternative is available because of the slope of the driveway and the required turning radius for a maintenance truck. This area is proposed to be dedicated to the City of North Plains as open space/park land. According to the applicant, most of the year this ground is dry and free from flood waters. During the fill and excavation,

compliance with all of the above requirements will occur, monitoring by either the City of Clean Water Services during construction shall be a condition of approval. Dedication of the open space to the city and compliance with the SNRA requirements should be a condition of approval.

2. Public and private utilities or drainage facilities may be placed within a significant natural resource when it is shown to the satisfaction of the review body that no other practicable alternative location exists. If a utility or drainage facility is allowed within a Significant Natural Resource the following standards shall apply:

    a. Demonstrate to the reviewing authority that no other practicable access exists or access from an off-site location through the use of easements is not possible;

    b. The corridor necessary to construct utilities shall be the minimum width practical so as to minimize intrusion into the Significant Natural Resource. Removal of trees and native vegetation shall be avoided unless absolutely necessary. The existing grade of the land shall be restored after construction. Native vegetation shall be used to restore the vegetative character of the construction corridor.

    c. Prior to construction, the Significant Natural Resource area shall be flagged, fenced or otherwise marked and shall remain undisturbed except as allowed by the provisions of this ordinance. Such markings shall be maintained until construction is complete;

    d. During construction, no stockpiling of fill materials, parking, or storage of equipment shall be allowed within the Significant Natural Resource.

    e. Erosion control measures, such as silt fences and bio-filter bags, shall be used to reduce the likelihood of sediment and untreated storm water entering the Significant Natural Resource.

Response: No utilities will be placed in the SNR area except for an outfall for the water quality swale. Removal of vegetation will be avoided <u>except</u> at the south end of the property where the storm water outfall will be excavated. During the flood plain cut and fill, compliance with the above requirements will occur. Monitoring should be a condition of approval.

3. Replacement of existing structures with structures in the same location that do not disturb additional surface area;

4. Structures or other non-conforming alterations existing fully or partially within the Significant Natural Resource may be expanded provided the expansion occurs outside of the Significant Natural Resource. Substantial improvement of a non-conforming structure in the Significant Natural Resource shall require compliance with the standards of this ordinance.

5. Existing lawn within the Significant Natural Resource may be maintained, but not expanded within the limits of the Significant Natural Resource. Development

activities shall not justify replacement of native vegetation, especially native riparian vegetation, with lawn.

6. Existing bank stabilization and flood control structures may be maintained. Any expansion of existing structures or development of new structures shall be evaluated by the Planning Department and appropriate state or federal natural resource agency. Such alteration of Significant Natural Resources shall be approved only if less-invasive or non-structural methods, such as bioengineering, will not adequately meet stabilization or flood control needs.

7. The types, sizes, and intensities of lights must be placed so that they do not shine directly into the Significant Natural Resource.

Response: According to the applicant, proposed flood plain fill and excavation complies with all of the above requirements. The new lots will be located on farm land that has been used for many years. The land only contains grass that is mowed every year. The excavation area also contains grass. The integrity of the SNR area will be maintained and improved. The Planning Commission has the authority to approve the flood plain fill and excavation for these subdivision lots and future development of the houses in accordance with Sub-Section 6 above. The City intends to build a pathway along McKay Creek in accordance with the City Trails Map (See Applicant's Exhibit "E"). Trails are allowed in accordance with Sub-Section A.1 above. Sub-Section 5 above allows lawns to be continued. The area between the excavation area, the water quality swale, West Union Road, the south property line and the flood plain excavation is intended to be used as a grass area public park. About 16,000 square feet may become usable park area. The developer intends to create a play field and irrigate the land. The City has not evaluated the best use of the open space/park land at this time. When the floodway is moved to the west in 2014, above ground structures could be installed along the east side of the park. An Agreement between the applicant and the City on the dedication and improvements of the area should be a condition of approval.

B. Removal of vegetation from the Significant Natural Resource is prohibited, except for:

    1. Removal of non-native vegetation and replacement with native plant species. The replacement vegetation shall cover, at a minimum, the area from which vegetation was removed, shall maintain or exceed the density of the removed vegetation, and shall maintain or improve the shade provided by the vegetation.

    2. Removal of vegetation necessary for the continued maintenance of dikes, drainage ditches, or other storm water or flood control facilities. Vegetation removal shall be kept to the minimum necessary.

    3. Trees in danger of falling and thereby posing a hazard to life or property may be removed, following consultation from a certified arborist and approval from the Planning Department. If no hazard will be created, the department may require these trees, if felled, to be left in place in the Significant Natural Resource.

4. The control or removal of nuisance plants should primarily be by mechanical means (e.g. hand-pulling). If mechanical means fail to adequately control nuisance plant populations, a glyphosate-based herbicide is the only type of herbicide that can be used in a significant natural resource area. No pre-emergent herbicides or auxin herbicides that pose a risk of contaminating water should be used. A herbicide application is preferred to be made early in the morning or during windless periods at least 4 hours before probable rainfall.

Response: All of the natural vegetation will be retained except at the south end of the property where the storm outfall will be excavated. Significant opportunities for mitigation are available on this site. According to the applicant, mitigation plans will be submitted with the final engineering plans. This should be a condition of approval.

16.75.020 Natural Resource Enhancement and Restoration

The City strongly encourages the enhancement or restoration of natural resources, such as riparian corridors along the unnamed tributary of McKay Creek and McKay Creek, in-channel habitat improvements, non-native plant control, and similar projects which propose to improve the quality of a Significant Natural Resource. However, no enhancement activity requiring the excavation or filling of material in a wetland shall be allowed unless all applicable State and Federal wetland permits have been granted.

***Response*:** Mitigation and enhancement plans in compliance with the standards of the City and CWS for the SNR area must be submitted with the final engineering plans.

16.75.30 Mitigation Standards

When approved impacts to any identified Significant Natural Resource occurs, mitigation will be required. For impacts to Significant Wetlands, the standards and criteria of Section 16.75.030 (A) shall apply. For impacts to Riparian Corridors, the standards and criteria of Section 16.75.030 (B) shall apply.

A. When mitigation for impacts to a Significant Wetland is proposed, the mitigation plan shall comply with all Oregon Division of State Lands and U.S. Army Corps of Engineers wetland regulations. The City may approve a development but shall not issue a building permit until all applicable State and Federal wetland permit approvals have been granted and copies of those approvals have been submitted to the City.

B. When mitigation for impacts to a non-wetland riparian area is proposed, a mitigation plan prepared by a qualified professional shall be submitted to the review authority. The mitigation plan shall meet the following criteria:

   1. Mitigation for negative impacts to a Riparian Corridor shall follow all of the requirements of Clean Water Services - Design and Construction Standards - Resolution and Order 00-7;

2. Mitigation shall occur on-site and as close to the impact area as possible. If this is not feasible, mitigation shall occur within the same drainage basin as the impact;

3. All vegetation planted within the mitigation area shall be native to the region. Species to be planted in the mitigation area shall replace those impacted by the development activity.

***Response*:** The applicant indicates no wetlands will be impacted or altered with this application, no permits are required by DSL or the COE. However, CWS buffer and the city riparian corridor will be impacted at the south end of the property. This impact will be required to be mitigated in accordance with the above requirements. Mitigation plans will be submitted with the final engineering plans. The CWS buffer planting has already occurred as evidenced by Applicant's Exhibits "L" and "M". This planting is clearly shown on the Sheet 3 aerial photo of the pre-plat plans. CWS and City approval of mitigation plans should be a condition of approval. Monitoring the construction within the floodplain and SNA to assure that the extensive list of regulations are followed is a condition of approval.

16.125 Development Code Standards for Lots

A. Minimum lot area: Minimum lot area shall conform to the requirements of the zoning district in which the lot is located.

Response: All of the lots comply with the minimum lot area requirements of the R-2.5 district as described earlier in this report.

B. Access: All lots created after the effective date of this Ordinance shall provide a minimum of 20 feet of frontage on an existing or proposed public street, with the provision for exceptions.

Response: All of the lots, except Lot 1, have a minimum of 20 feet of frontage along the new public street. Lot 1 has 12.64 feet of frontage on the street after the 15' of right-of-way dedication to the county. The lot widens to the rear where there is 30 feet of width. For engineering purposes the 12.64 feet is an adequate driveway width. The code permits an exception.

D. Through Lots: Through lots shall be avoided except where essential to provide separation of residential development from major traffic arteries, adjacent nonresidential activities, or to overcome specific disadvantages of topography and orientation. Screening or buffering may be required by the Planning Commission during the review of the land division request.

Response: The applicant is not proposing any through lots with the development. Lots 24, 25, 29, 30, 31, 32 and 33 have double street frontage, but no access to West Union Road.

E. Lot Side Lines: The side lines of lots, as far as practicable, shall run at right angles to the street upon which the lots face.

Response: All of the lots maintain a right angle, with the exception for the front portion of lots 1, 2, and 3 due to the street radius where it intersects with West Union Road.

F. Lot Grading: Lot grading shall conform to the requirements of Chapter 70 of the Uniform Building Code, hereby adopted by reference, and to the following standards unless physical conditions demonstrate the propriety of other standards:

1. Cut slopes shall not exceed one and one-half feet horizontally to one foot vertically.
2. Fill slopes shall not exceed two feet horizontally to one foot vertically.
3. The character of soil for fill and the characteristics of lots and parcels made usable by fill shall be suitable for the purpose intended.

Response: The lot grading required for the development must comply with the requirements of this section as much as practicable and be approved by the City.

G. Large Lots: In dividing tracts into large lots which at some future time are likely to be re-divided, the applicant's tentative plan shall also demonstrate that any redevelopment or re-subdivision may readily take place at the planned residential density without violating the requirements of this ordinance.

The Planning Commission may require that the blocks be of such size and shape, be so divided into building sites and contain such site restrictions as will provide for extension and opening of streets at intervals which will permit a subsequent division of any tract into lots of smaller size.

Response: Only lot 33 is large enough to be re-divided at a later time into two smaller lots, but due to the shape and double street frontage this is unlikely. A portion of this lot may also be lost when the street curve radius is redesigned to 100 feet.

H. Land for Public Purposes: Where a proposed park, school or other public use indicated on the Comprehensive Plan is located in whole or in part within a subdivision, the sub-divider shall dedicate and reserve said area for such purpose. Where the City or other public authority has declared its intention to acquire said area, it shall proceed to perfect the title or a contract right to the same within three (3) years from the date of platting, and failing such, this reservation shall automatically expire. The public body shall expeditiously proceed, within its financial ability, to consummate such acquisitions.

Response: This standard applies since there is proposed public park land and a trail system on the site identified in the City Parks Plan and Community Trails Plan. The applicant has agreed to dedicate a minimum of the 3.49 acre portion of the McKay Creek floodplain to the city in accordance with those plans and this policy. The dedication will be formalized in an agreement between the developer and the City.

Easements

A. Utility Lines: Minimum 5 foot wide easements for sewers, water mains, electric lines, or other public utilities shall be dedicated along the front, side, and rear lot or parcel lines of each lot. Easements shall be centered on lot lines.

Response: All public utility lines are proposed to adjoin the public street.

B. Water Courses: If a tract is traversed by a water course such as a drainage way, channel or stream, a storm water easement or drainage right-of-way shall be provided which substantially parallels the lines of the water course.

Response: The site does not contain any water courses; however, the McKay Creek 100-year flood plain is located within the western portion of the site and is intended to be dedicated to the city.

C. Pedestrian and Bicycle Ways: When desirable for public convenience and access, a pedestrian or bicycle way easement may be required to connect to a cul-de-sac or to pass through an unusually long or oddly spaced block, or to otherwise provide appropriate circulation.

Response: The applicant is proposing a 15-foot wide emergency vehicle access from the north/south cul-de-sac to West Union Road. This access will also provide pedestrian access to the improved sidewalk planned on the road. However, the new sidewalk on the property frontage will not provide "appropriate circulation" because the sidewalk will end before the bridge and the nearest sidewalk is several hundred feet west on Glencoe Road.

The North Plains Comprehensive Plan has several policies regarding parks and open space. Goal 5 encourages the recreational use of open space within the McKay Creek floodplain (15.02.35). The Plan encourages housing within safe pedestrian distance of downtown and schools on developed paths (15.02.80, 15.02.100, 15.02.105). *The North Plains Park Master Plan*, 2005 Section 3 Greenways and Open Space excerpts describe "the floodplains of McKay Creek as the most significant open space resources in North Plains." Section 5.3.4 Greenways, Open Space, Trails and Pathways states "McKay Creek and its tributaries are recommended as a system of public greenways and open space, including all-weather trails and pathways. New subdivisions should be encouraged to dedicate floodways and creek corridors to the City." The Plan's *Map B Existing and Needed Public Park and Recreation Facilities* identifies McKay Creek in the subject area as a recreation facility with a potential trail.

The *City of North Plains Community Trails Plan*, 2012 identifies the McKay Creek Greenway Trail in the subject area. It is intended that the trail tie into city streets and sidewalks in order to provide recreation and pedestrian safe accessibility to goods and services. "The desired pathway is owned by multiple private owners and public agencies. The trail will require multiple easements, dedications in lieu of park system development charges, grant acquisitions for improvements and pedestrian crossings across city and county roads", (page 20).

A trail alignment and creek crossing location in the subject area has not been determined. An alternative crossing on the West Union Road bridge may not be feasible or desirable since the bridge is only 31 feet wide. The City is concerned about the lack of pedestrian access in any direction from the McKay Fields neighborhood.

The proposed plat dedicates 3.49 acres of floodplain (described on the plat as Tract B) to the City for park purposes. The applicant describes the intention of the tract is to be used for public park including a 16,000 square foot play field on the upper portion adjoining the access just west of the water quality swale. The applicant states an irrigation system will be installed by the developer. Development of the park should be a condition of approval.

16.135 Subdivisions

Preliminary Plat Approval Criteria

The City may approve, approve with conditions or deny a preliminary plat based on the following approval criteria:

A. The proposed preliminary plat complies with the applicable Development Code chapters and all other applicable ordinances and regulations. At a minimum, the provisions of this section and the applicable sections of this chapter including Zoning Districts, Development Standards, and Streets and Facilities shall apply. Where a variance is necessary to receive preliminary plat approval, the application shall also comply with the Variance section of this chapter;

B. The proposed plat name is not already recorded for another subdivision, and satisfies the provisions of ORS Chapter 92;

C. The proposed streets, roads, sidewalks, bicycle lanes, pathways, utilities, and surface water management facilities are laid out so as to conform or transition to the plats of subdivision and maps of major partitions already approved for adjoining property as to width, general direction and in all other respects. All proposed public improvements and dedications are identified on the preliminary plat;

D. All proposed private common areas and improvements (e.g. homeowners association property) are identified on the preliminary plat;

E. Evidence that any required State and federal permits have been obtained, or shall be obtained before approval of the final plat;

F. Evidence the improvements or conditions required by the City, road authority, Washington County, Clean Water Services, special districts, utilities, and/or other service providers, as applicable to the project, have been or can be met;

G. A Traffic Impact Study (TIS) has been provided, if applicable, in accordance with the provisions of Chapter 16.170; and

H. If any part of the site is located within a Specific Area Plan District, Overlay District, or previously approved Master Planned Development, it shall conform to the applicable regulations and/or conditions.

Response: This subdivision application complies with all or the above requirements. Street access to adjoining property inside the Urban Growth Boundary is not necessary. Open space and street tracts will be dedicated to the City of North Plains. It is anticipated that the water quality facility will be dedicated to CWS or City. Formation of a HOA is being considered in order to maintain the landscape and fence improvements along the West Union Road frontage. Compliance with conditions of other public agencies will occur. A traffic study was prepared and accepted by the City Engineer and Washington County, with a level of service “A” being maintained on West Union Road after build-out of the neighborhood. As demonstrated in the reports, this application is required to comply with both the SNR and FP overlay district standards.

Lot Access Provisions

In addition to the provisions of this chapter, all lots and parcels shall conform to the specific requirements below, as applicable:

A. In conformance with the Uniform Fire Code (UFC), a 20-foot wide fire apparatus drive shall be provided to serve all portions of a building that are located more than 150 feet from a public right-of-way or approved access drive.

B. When a common drive is to be provided to serve more than one lot, a reciprocal easement which will ensure access and maintenance rights shall be recorded with the approved subdivision or partition plat. The minimum drive width shall be 10 to 15 feet, except as required by the UFC, and improved with an all- weather surface approved by the City.

C. Access reserve strips may be required to be granted to the City for the purpose of controlling access to adjoining undeveloped properties.

D. Street and building placement and alignment shall be designed so that all future street connections can be made as surrounding properties develop.

Response: All lots are less than 150 feet from a public right-of-way. The Street "A" cul-de-sac is 125 feet in length and the Street "B" cul-de-sac is 148 feet in length. However, Street "B" has an emergency access to West Union Road which effectively reduces the length by 74 feet. The emergency access is 15 feet in width, not 20 feet as described by the applicant.

16.145 <u>Application of Public Facility Standards</u>

The provisions of the Public Facility and Service Requirements shall apply to development within the City of North Plains as listed in the following table. No development permit shall be approved unless the following required improvements are provided to City standards prior to occupancy or operation unless an exception is approved by the City Council.

Response: Per the requirements of the following table (excerpt), the applicant is required to install the following improvements when developing a subdivision:

	Fire Hydrants	**Street Improvement**	**Water Line**	**Sewer Line**	**Storm Drainage**	**Street Lights and Trees**
Subdivisions	Yes	Yes	Yes	Yes	Yes	Yes

Response: The applicant will be required to provide construction plans for City and CWS approval illustrating compliance with all utility requirements prior to the issuance of a building permit for the new detached single-family homes. Approved utility construction plans should be a condition of approval.

Public Facility Standards

The following public facility standards shall be applicable to all development as specified for Public Hearings on Quasi-Judicial Actions.

A. Streets

Street improvements shall be provided in compliance with Chapter 16.150 Street Standards of this ordinance. utilizing the proposed 30 and 34' wide local street standards.

Response: The applicant will comply with the standards of Chapter 16.150 for the construction of the new public local street that provides access to NW West Union Road, utilizing the proposed 30 and 34' wide local street standards.

B. Storm Drainage

No development permit shall be approved for any property until the City Engineer has reviewed and approved provisions for storm water drainage in accordance with the following criteria:

1. For storm drainage across or over the property on which the development is located, there are storm drainage facilities available which are capable of handling a one-hundred year flood without damage to any improvement on the property, or inundation of the lowest habitable floor of any residential structure thereon.
2. For storm drainage along or from streets adjacent to the property on which the development is located, there are storm drainage facilities available in accordance with the City of North Plains adopted street standard.

Response: The applicant is required to obtain City and CWS approval for the proposed storm drainage system for the development and will be required to comply with the above listed requirements. All of the lots will be connected to the storm drainage system.

C. Sewage Disposal

No development permit shall be approved until the City Engineer and the Clean Water Services have reviewed and approved provisions for connection to the public sewer system.

Response: The applicant is proposing to connect a new public line from the existing public line within the right-of-way of NW West Union Road that will run down the new public road and provide service to all of the new lots within the subdivision. The applicant is required to receive approval for connection to the existing public sewer system in accordance with City and CWS specifications. Each of the lots will have individual sanitary sewer service.

D. Water Supply

No development permit shall be approved for any property unless all affected water mains are either:

1. Fully improved to a standard providing both adequate potable water and fire flows, as established by the applicable State Plumbing Code and approved by the City Engineer; or
2. Improved to a standard providing adequate potable water flows pursuant to the City Water Master Plan and approved by the City Engineer and the Fire Chief for Washington County Fire District No. 2.

Response: The applicant is proposing a new public water line connect to the existing public line within NW West Union Road that will run down the new public street and provide individual service to all of the new lots and to any required fire hydrants in the subdivision. The applicant must obtain city approval for the water supply to the development. Each lot is proposed to have individual water service. The fire hydrants must have an adequate flow. The City Engineer stated that "a fire hydrant instead of a blow off is recommended at the end of the new local access street."

16.150 Streets

General Provisions

The following general provisions shall apply to the dedication, construction, improvement or other development of all public streets in the City of North Plains**:**

A. The location, width, and grade of streets shall be considered in their relation to existing and planned streets, to topographical conditions, to public convenience and safety, and to the proposed use of the land to be served by the streets.

Response: The location, width and grade of the proposed public street providing the development access onto NW West Union Road was considered in relation to existing streets, topographical conditions, public convenience and safety, and to the proposed use of the land created from the subdivision.

B. Development proposals shall provide for the continuation of existing principal streets where necessary to promote appropriate traffic circulation in the vicinity of the development.

Response: The new public street is proposed to be closed. To the south acreage is zones as EFU and is outside the UGB, and the floodplain located along the west portion of the site.

C. Reserve strips: Reserve strips or street plugs controlling the access to streets will not be approved unless necessary for the protection of the public welfare or of substantial property rights, and in these cases they may be required. The control and disposal of the land composing such strips shall be placed within the jurisdiction of the City under conditions approved by the Planning Commission.

Response: The applicant is not proposing any reserve strips with this application.

D. Alignment: All streets other than minor streets or cul-de-sacs, as far as practical, shall be in alignment with existing streets by continuation of the center lines thereof. The staggering of street alignments resulting in "T" intersections shall, wherever practical, leave a minimum distance of 200 feet between the center lines of streets having approximately the same direction and otherwise shall not be less than 100 feet.

Response: The new public street is not in alignment with another street; therefore, this section is not applicable.

E. Future extension of streets: Where necessary to give access to or permit a satisfactory future development of adjoining land, streets shall be extended to the boundary of a tract being developed and the resulting dead-end streets may be approved without turnarounds. Reserve strips and street plugs may be required to preserve the objectives of street extensions.

Response: The new public street will not be able to be extended west due to the floodplain located in the western portion of the site.

F. Intersection angles: Streets shall be laid out to intersect at angles as near to right angles as practical, except where topography requires lesser angle, but in no case shall the acute angle be less than 80 degrees unless there is a special intersection design. An arterial or collector street intersecting with another street shall have at least 100 feet of centerline tangent adjacent to the intersection unless topography requires a lesser distance. Other streets, except alleys, shall have at least 50 feet of tangent adjacent to the intersection unless topography requires a lesser distance. Intersections which contain an acute angle of less than 80 degrees or which include an arterial or a collector street shall have a minimum corner radius sufficient to allow for a roadway radius of 20 feet and maintain a uniform width between the roadway and the right-of-way line.

Response: The new public street has been laid out to provide a nearly 90 degree angle intersection with NW West Union Road.

G. Existing streets: Whenever existing public streets adjacent to or within a tract are of inadequate width, additional right-of-way shall be provided at the time of subdivision or development.

Response: The applicant is proposing to dedicate 15 feet of additional right-of-way width to NW West Union Road in accordance with county standards.

H. Cul-de-sacs: Cul-de-sacs shall be as short as possible, and shall have maximum lengths of 600 feet and shall not serve more than 20 dwelling units. All cul-de-sacs shall terminate with circular turnarounds.

Response: Due to the lack of connectivity options in any direction, the applicant is proposing a cul-de-sac with this 33 lot development. The distance from the West Union Road intersection to Lot 19 is an estimated 522 feet, and about 485 feet to Lot 24.

I. Street names: No street name shall be used which will duplicate or be confused with the names of existing streets, except for extensions of existing streets. Street names and number shall conform to the established pattern in the City and shall be subject to the approval of the Planning Commission.

Response: The applicant will coordinate a street name for the new public street which does not duplicate an existing street name.

J. Grades and curves: Grades shall not exceed 6 percent on arterials, 10 percent on collector streets or 12 percent on any other street. Center line radii of curves shall not be less than 300 feet on arterials, 200 feet on collectors or 100 feet on other streets, and shall be to an even 10 feet. Where existing conditions, particularly topography, make it otherwise impractical to provide buildable sites, the Planning Commission may accept steeper grades and sharper curves. In flat

areas, allowance shall be made for finished street grades having a minimum slope of 0.5 percent.

Response: The grade of proposed public streets does not exceed the above requirements. The curve radius at the entrance road into the subdivision is 90 feet, not in compliance with the 100 foot minimum. The Planning Commission may accept sharper curves where existing conditions make it impractical to provide building sites. According to the applicant the 100-foot minimum would reduce the depth of lot 3 and 6 making those lots unbuildable. However the City Engineer indicated in an e-mail to staff on April 29, 2013 that the curve radii should be increased to the minimum 100 feet. This should be a condition of approval.

K. Marginal access streets: If a development abuts or contains an existing or proposed arterial street, the Planning Commission may require marginal access streets, reverse frontage lots with suitable depth, screen planting contained in a non-access reservation along the rear or side property line, or such other treatment as may be necessary for adequate protection of residential properties and to afford separation of through and local traffic.

Response: The property abuts an arterial street, NW West Union Road; therefore, the applicant must comply with any requirements of Washington County.

L. Alleys: Alleys shall be provided in commercial and industrial districts unless other permanent provisions for access to off-street parking and loading facilities are made as approved by the Planning Commission. While alley intersections and sharp changes in alignment shall be avoided, the corners of necessary alley intersections shall have radii of not less than 10 feet**.**

Response: The applicant is not proposing any alleys with this development which is in a residential district.

M. Sidewalks shall be a minimum of five feet in width. Curbs and sidewalks shall be required along both sides of all public streets. All new development upon lots, tracts or parcels of land adjacent to a public street will be required to construct curbs and sidewalks.

Response: The applicant is proposing a sidewalk along the south side of NW West Union road and along the north side of the new public street within the development. The applicant is only proposing the sidewalk with no planter strip on Street “A” up to the intersection with Street “B”. The sidewalk is partially in right-of-way and partially within a front yard easement.

N. Street trees, where provided, shall not be of a species which has a shallow spreading root system which is likely to disturb sidewalk or street improvements.

Response: Street trees will be planted within the proposed planter strips along NW West Union Road, per the requirements of this section. Since there is no planter strip on the local street, as a condition of approval street trees should be planted by the developer in the front yard of each parcel.

General Right-of-Way and Improvement Widths

The following standards are the general criteria for public streets in the City of North Plains. These standards shall be the minimum requirements for all streets,

except where modifications are permitted or where the Street Standard adopted by the City Council of North Plains is less restrictive.

Street Classification	Minimum Right-of- Way	Minimum Improved Width	Minimum Roadway Width
Arterial	County Standard	County Standard	County Standard
Local Street	34 feet	28 feet	24 feet
Local Sidewalk		5 feet	

Response: The applicant is proposing the new public street be designed to Local Street standards. Up to its intersection with "B" Street, "A" Street is proposed to have a minimum right-of-way width of 34 feet with a minimum roadway width of 32 feet, thereon at "B" Street reducing to a minimum right-of-way width of 30 feet and an improvement width of 28 feet. There is proposed to be a curb-tight 5' sidewalk partially within an easement and adjoining the public utility easement in the front yard of each lot.

NW West Union Road is an Arterial Street, and the required street improvements are per Washington County Standards. The required street improvements cannot easily extend the entire length of the site's street frontage because of physical limitations at the west end where the floodplain, grade changes, roadway curve, right-of-way variation and guardrail and existing street improvements force the planned improvement to taper off and terminate just west of the emergency access way at its terminus at West Union Road. The county improvement includes 15 feet of dedication, paving, curb, planter strip, sidewalk and lighting. The county delegates the street tree provisions to the City. Meeting County improvements and City street tree specifications should be a condition of approval.

16.155 <u>Parking Requirements</u>

At least two (2) off-street parking spaces shall be provided for each single family detached dwelling unit.

Response: All of the detached dwelling units have a minimum of two (2) off-street parking spaces available in the garage and driveway and parking is confirmed when the applicant obtains a building permit.

<u>16.160 Requirement for Vision Areas</u>

A clear vision area shall be maintained on the corners of all property adjacent to the intersection of two streets, a street and a railroad, or a driveway providing vehicular access to a public street, including alleys.

A. Lots or parcels on street corners (public and/or private) shall maintain a sight triangle with no sight obstruction between three (3) feet and ten (10) feet in height as measured from street grade. Sight obstructions include, but are not limited to, fences, vegetation, berms, signs and structures. The sight triangle shall be measured from the street corner (apex), to a distance of twenty (20) feet along each street side

(See the diagram at the end of Exhibit "G"). For the purpose of this Section, a street corner is defined as that point where the extended edges of the road surface of two intersecting streets meet. The City may require additional vision clearance based on a hazard identified by the City. However, tree trunks and sign poles not exceeding 12 inches in diameter may be located within the vision clearance area, provided the diameter does not exceed 24 inches.

B. B.A private access shall be treated as a public street for the purpose of this section. The vision clearance area shall be determined in the manner set forth above. The edge of the paved surface area of the private access, be it roadway, curb or sidewalk, shall be treated as the right-of-way line in determining the vision clearance area.

Response: The front of the houses and garages will be located 20 feet from the property line or sidewalk, whichever is a greater distance. This automatically complies with the above vision clearance requirements.

16.165 Street Dedications

Response: The applicant indicates the proper street dedications will occur with this subdivision and that this issue was thoroughly discussed with the previous McKay Fields application (Exhibit "I").

Traffic Impact Study

A. When a Traffic Impact Study is required.

The City or other road authority with jurisdiction may require a Traffic Impact Study (TIS) as part of an application for development, a change in use, or a change in access. A TIS shall be required when a land use application involves one or more of the following actions:

1. A change in zoning or a plan amendment designation;

2. Any proposed development of land use action that a road authority states may have operational or safety concerns along its facility;

3. An increase in site traffic volume generation by 300 Average Daily Trips (ADT) or more; or

4. An increase in site traffic volume of a particular movement to and from the State Highway by 20 percent or more; or

5. An increase in use of adjacent streets by vehicles exceeding the 20,000 pound gross vehicle weights by 10 vehicles or more per day; or

6. The location of the access driveway does not meet minimum sight distance requirements, or is located where vehicles entering or leaving the property are restricted, or such vehicles queue or hesitate on the State Highway, creating a safety hazard; or

7. A change in internal traffic patterns that may cause safety problems, such as back up onto a street or greater potential for traffic accidents.

Response: A traffic study was prepared for this application (Exhibit "N") by Mike Ard, PE, with Lancaster Engineering. The site generates an estimated 314 trips per day, therefore the TIS is required. The City Engineer has accepted the conclusions in the TIS. The conclusions of the traffic study are as follows:

1) Sight distance at the West Union Road intersection meets county requirements.

2) The West Union Road left turns do not meet warrants to require a left turn lane.

3) Vehicle crash date was examined and no contributing design issues were identified and not safety mitigations are recommended.

4) Under year 2015 traffic conditions with full occupancy of the proposed subdivision, the site access intersection on NW West Union Road is projected to operate at **Level of Service "A"** during the morning and evening peak hours. No operational mitigation is recommended.

16.185 Variance Purpose and Scope

The purpose of a variance is to provide administrative relief when a strict application of the zoning requirements of lot width, lot depth, building height, setback, access, or other dimensional or site requirements would impose practical difficulties. These difficulties may result from geographic, topographic or other physical conditions on the site or in the immediate vicinity. No variance shall be granted which allows the establishment or expansion of use otherwise prohibited or subject to conditional use procedures.

Variance Proposal: Request to allow a reduction in the street-side yard setback from 10 feet to 8 feet for Lots 24, 25 and 33.

Variance Review Criteria

A variance may be authorized upon adequate demonstration by the applicant that the proposed variance satisfies the following criteria:

A. That special conditions and circumstances exist which are peculiar to the land, building or structure involved;

B. That granting the proposed variance would be in the public interest and would be in harmony with the purpose of the underlying zoning district and the intent and purpose of this Ordinance;

C. That the variance would result in minimal detriment to the immediate vicinity;

D. That the variance requested is the minimum variance which would make possible the reasonable use of the applicant's land, building or structure; and

E. That the special conditions and circumstances on which the application is based do not result from the negligent or knowing violation of this Ordinance by the applicant.

Applicant's Response: The code requires 10 foot street side yards for Lots 24, 25 and 33 on the West Union Road side. Because of the narrow width of the property and the angle of West Union Road, an 8 foot setback is requested. The average set back of the houses on these 3 lots is well over 10 feet as shown by the Applicant's Exhibit "G". An opaque fence will be provided along West Union Road. Visualizing the 8 foot street side yard setback compared to a 10 foot setback will be very difficult for the average person. These reduced setbacks will not be adjacent to any other property. Generally 10 foot setbacks are necessary for sight clearance and to keep houses from being too close to a street right-of-way.

Response: It should be noted as proposed the applicant has not indicated if a more narrow building envelope was considered or what other unique conditions are that demand a variance. The Commission can deny or defer a decision the variance at his time while approving the subdivision.

Variance Conditions of Approval

In approving an application for a variance, the Planning Commission may impose such conditions as it deems appropriate to ensure that the intent of this Section is carried out. Such conditions shall be reasonably related to the variance criteria set forth in this chapter.

Response: To mitigate the close proximity of the three affected lots to the noise and impacts of a busy arterial roadway, staff recommends that an opaque concrete masonry fence and landscape barrier along the West Union Road frontage be constructed to minimize negative impacts to homes on those lots.

V. RECOMMENDATION – Approval subject to conditions

Based upon the findings contained in the staff report, the application packet submitted by the applicant dated Revised 4-17-13, and testimony before the Planning Commission, approval is hereby recommended for the McKay Fields Preliminary Subdivision Plan, a Flood Plain Development permit, a Significant Natural Resource area alteration permit and a Variance to the street side yard setback for three lots subject to the following conditions of approval:

Prior to issuance of a grading permit in accordance with the Uniform Building Code Chapter 70 and relevant agency approvals:

General

1. Applicant shall comply with the Municipal Code including the R-2.5 zone development standards of Zoning and Development Code Chapter 16.65; the Flood Plain development standards of Chapter 16.65; the Significant Natural Resource alteration standards of Chapter 16.75; the public utility and street standards of Chapter 16.145 and 16.150; and the Subdivision standards of Chapter 16.135 as well as the state subdivision provisions of ORS Chapter 92.

2. The applicant/owner shall apply for a Minor Land Partition to separate the existing illegal Tax Lot 1201 in accordance with city and state partitioning requirements.

3. Applicant shall ensure that Tax Lot 1202 which was illegally partitioned by deed shall be

deleted from tax rolls with the new survey of the final subdivision plan.

4. Prior to obtaining approval to begin construction of any public improvements, the applicant/owner shall provide a performance bond to the City in the amount of 125% of the total cost of such construction.

5. A maintenance bond of 40% of the final accepted engineer's estimate is required prior to final acceptance of constructed public improvements. The maintenance bond shall remain in effect for a period of not less than one (1) year after all public improvements are accepted by the City.

6. Prior to City approval of the final subdivision plat for the subject property, the applicant/owners shall sign and record a Development Agreement with the City, covering all of the conditions of approval and pay all fees.

7. The applicant/owners shall have a licensed land surveyor prepare a final Plat of the McKay Fields subdivision in accordance with City and ORS 92 standards and submit it to the City for City approval, and then record it with the Washington County Surveyor's Office and County Clerk's Office.

8. The applicant/owners shall then send a copy of the recorded Plat to the City Recorder.

9. Approved plans do not guarantee the adequacy of the design, or guarantee that there will not be any design conflicts during construction. The design engineer should be notified of any design conflicts that are noted during construction and he/she should then immediately notify the City of North Plains. Modifications to the design must be approved by the City of North Plains in writing and the appropriate Agency prior to continuing with any relevant construction activities.

10. All conditions of approval must be completed within twenty four months of the date of this approval will be subject to a new subdivision application review and fee, unless specifically modified in writing by an approved phased construction schedule.

11. It shall be the responsibility of the applicant to comply with conditions of approval required by Washington County Fire District No. 2. Documentation of all written approvals and permits should be provided to the City for its records.

Streets

12. It shall be the responsibility of the applicant to comply with conditions of approval required by Washington County. Documentation of all written approvals and permits should be provided to the City for its records.

13. Applicant shall dedicate of right-of-way and construction of half-street improvements along West Union Road in accordance with Washington County specifications described in their letter dated May 1, 2013. The applicant shall provide a street tree plan for the West Union Road frontage improvements for City approval.

14. Applicant shall increase the curve radius at the intersection with West Union Road to the city minimum of 100 feet to conform with City of North Plains standards in accordance with Public Works Director and City Engineer approval (30/34' right-of-way, 5-foot curb-

tight sidewalk, street lights per IES standards).

15. The applicant shall uniformly plant a tree in the front yard of each lot to compensate for the absence of street trees in the design.

16. The applicant shall coordinate street names with city staff.

17. Applicant shall provide the City with an opaque landscape buffer and concrete masonry fence plan adjoining the north side of Lots 24, 25 and 33 for approval. Indicate how the improvements will be maintained. If a HOA is established, provide the City a copy of the HOA agreement.

Utilities

18. After Planning Commission review the Developer must submit separate construction plans that meet all Conditions of Approval, City of North Plains Public Works Design Standards, Clean Water Services to the City for review and approval. Prior to the start of construction the plans must be approved by the City and all City and Agency permits must be obtained.

19. It is the applicant's responsibility to coordinate with the City and all appropriate utilities and other agencies throughout the application, review and construction process.

20. It shall be the responsibility of the applicant to comply with conditions of approval and code requirements established by Clean Water Services, including the conditions in the letter dated April 29, 2013. Documentation of all written approvals and permits should be provided to the City for its records

21. Applicant shall locate a fire hydrant instead of a blow off at the end of the new local access road "A".

Flood Plain

22. The applicant shall provide the City with a copy of the approved FEMA CLMR permit and compliance with their conditions of approval.

23. In order to assure compliance with the detailed construction restrictions and requirements of Chapter 16.65 Floodplain alterations and Chapter 16.75 Significant Natural Area modifications, the applicant shall pay for the time necessary for a City employee or qualified consultant to monitor the construction in those sensitive areas.

24. Prior to excavation flag the SNRA and provide the City with a copy of the SNRA mitigation plan in accordance with Chapter 16.75.

25. The applicant shall include on the plat, and as a separate document from the plat for recordation, a statement that a portion of Lots 17 through 24 are in a 100 year flood plain and that all work within the flood plain, including but not limited to the construction of fencing, the movement of dirt, the construction of planters or patios, and the construction of accessory structures shall comply with the City of North Plains Flood Plain Ordinance.

Park

26. The City and the applicant shall enter into an agreement regarding park land dedication and any associated fees.

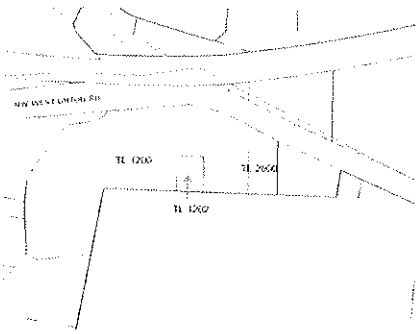
27. Applicant shall submit a park improvement plan to the City for approval that is consistent with the parks master plan and trails master plan.

WASHINGTON COUNTY, OREGON
Department of Land Use and Transportation, Operations & Maintenance Division
1400 SW Walnut Street, MS 51, Hillsboro, Oregon 97123-5625
(503) 846-7623 · FAX: (503) 846-7620

May 1, 2013

Angie Lenhert, Assistant Planner
City of North Plains
31360 NW Commercial Street
North Plains, OR 97133
Fax No.: 503-647-2031
No. of pages: 7 (including attachment)

RE: **McKay Fields Subdivision**
City File Number: **McKay Fields-006-MOD/FPP/SNR**
County File Number: **CP-18*
Tax Map and Lot Number: **1N20600 1200, 1202, & 2000**
Location: NW West Union Road



Washington County Department of Land Use and Transportation has reviewed this development application and submits the following comments and required conditions for access to NW West Union Road, a County-maintained Arterial (2-3 lane).

BACKGROUND/COMMENTS

The applicant is requesting approval to subdivide three (3) parcels into 33 lots for single family detached dwellings. Access to the subdivision is proposed via a new public street on NW West Union Road.

1. The minimum access spacing standard for NW West Union Road is 600 feet, measured between access points on each side of the road as required by Resolution and Order 86-95 (R&O 86-95) and Section 501-8.5.B of the Community Development Code. CDC 501-8.5.B (4) states that direct access to arterial roads shall be from collector or other

arterial streets except when collector access is found to be unavailable and impracticable by the director.

The Design Exception request for the proposed street connection to NW West Union Road was previously reviewed as part of City Casefile 07-0006. The County's approval dated July 26, 2007 is still valid provided the access location has not changed.

2. Resolution and Order 86-95 requires a minimum sight distance (measured in feet) equal to ten times the vehicular speed of the road(s) at proposed access location(s). This requirement applies to sight distance in both directions at each access. **The applicant's Traffic Impact Study dated April 16, 2013 indicates that sight distance can be obtained with the removal of vegetation to the east. The applicant will be required to provide certification from a registered professional engineer that adequate sight distance exists in both directions (or can be obtained pursuant to specific improvements). Final sight distance certification will be required prior to acceptance of the public improvements on NW West Union Road.**

3. Consistent with statewide pedestrian circulation/linkage goals of the Transportation Planning Rule and the County's R&O 86-95 (road safety requirements), the County normally requires sidewalk installation as a minimum road safety improvement along site frontage of all County-maintained roads. Sidewalks further establish future street profiles, demarcate County or City right-of-way, and address drainage issues. Sidewalk requirements are not generally waived, even when sidewalk is not currently present on neighboring properties. Rather, even non-contiguous sidewalk is considered to provide some measure of pedestrian refuge and ideally, makes possible eventual connection of sidewalks (as surrounding development takes place and is likewise conditioned to provide sidewalk).

   The applicant is required to construct a half-street improvement (to include pavement, curb/gutter, storm drainage, concrete sidewalk, planter strip with street trees and continuous roadway illumination at ultimate alignment and grade) to an A-8 County standard along the subject site's frontage of NW West Union Road. A fee in-lieu will be required for any portion that cannot be constructed due to grade issues (lot 24), as determined by County engineering.

   Note: For half street improvements, an applicant shall provide street lighting consistent with County engineering standards and procedures and the requirements of the electrical utility company providing service to the area. The applicant shall ensure the construction, maintenance and power costs of street light facilities through the annexation and petition for service to an existing County service district for lighting or other funding method approved by the County Engineer.

4. The statewide Transportation Planning Rule requires provision for adequate transportation facilities in order for development to occur. Accordingly, the County has classified roads and road segments within the County system based upon their function. The current Transportation Plan (regularly updated) contains adequate right-of-way, road width and lane provision standards based upon each roadway's classification. Subject right of way is considered deficient if half-width of the existing right of way does not meet that determined necessary within the County's current transportation plan.

The applicant is required to dedicate additional right-of-way to provide 45 feet from centerline of NW West Union Road, including adequate corner radius.

5. ILLUMINATION- Resolution and Order No. 86-95 requires access points on collectors and arterials to be adequately illuminated. **This requirement will be satisfied with the installation of continuous illumination as part of the half-street improvement.**

REQUIRED CONDITIONS OF APPROVAL

IMPORTANT:

Road improvements required along site frontage shall apply to frontage of all land within the subject site that abuts the County roadway. ***The subject site shall be considered to include:*** *any lot or parcel to be partitioned or otherwise subdivided (regardless of whether it contains existing structures or not);* ***and*** *any contiguous lots or parcels that constitute phases of the currently proposed development.*

If the applicant proposes to develop the project in phases, all County-required frontage improvements must be constructed with the first phase. In addition, off-site improvements ***warranted by*** *the first phase must also be completed with the first phase.*

I. PRIOR TO FINAL APPROVAL OF THE SUBDIVISION PLAT BY THE CITY OF NORTH PLAINS:

A. Submit to **Washington County** Land Development Services (Public Assurance Staff, 503-846-3842):

1. Completed "Design Option" form.

2. $10,000.00 Administration Deposit.

   NOTE: The Administration Deposit is a cost-recovery account used to pay for County services provided to the developer, including plan review and approval, field inspections, as-built approval, and project administration. The Administration Deposit amount noted above is an estimate of what it will cost to provide these services. If, during the course of the project, the Administration Deposit account is running low, additional funds will be requested to cover the estimated time left on the project (at then-current rates per the adopted Washington County Fee Schedule). If there are any unspent funds at project close out, they will be refunded to the applicant. Any point of contact with County staff can be a chargeable cost. If project plans are not complete or do not comply with County standards and codes, costs will be higher. There is a charge to cover the cost of every field inspection. Costs for enforcement actions will also be charged to the applicant.

3. A copy of the City's Land Use Approval with Conditions, signed and dated.

4. Preliminary certification of adequate sight distance for the access point to NW West Union Road, in accordance with County Code, prepared and stamped by a registered professional engineer, as well as:

   a. A detailed list of improvements necessary to produce adequate intersection sight distance.

5. Three (3) sets of complete engineering plans for construction of the following public improvements:

   a. Half-street improvement to an A-8 County standard along all NW West Union Road frontage.

   b. Access to NW West Union Road to County standards.

   c. Improvements within the right-of-way as necessary to provide adequate intersection sight distance at NW West Union Road access point.

   d. Closure of all existing driveways to NW West Union Road, other than at the access point approved by Washington County under the current land use application.

   e. All work proposed within NW West Union Road right-of-way, including emergency vehicle access, to County standards.

B. Obtain a Washington County **Facility Permit** upon completion of the following:

1. Obtain Engineering Division approval and provide a financial assurance for the construction of the public improvements listed in conditions **I.A.5.**

NOTE: The Public Assurance staff (503-846-3842) will send the required forms to the applicant's representative **after** submittal and approval of items listed under **I.A.**

The Facility Permit *allows construction work within County rights-of-way and permits site access only after the developer first submits plans and obtains Washington County Engineering approval, obtains required grading and erosion control permits, and satisfies various other requirements of Washington County's Assurances Section including but not limited to execution of financial and contractual agreements. This process ensures that the developer accepts responsibility for construction of public improvements, and that improvements are closely monitored, inspected, and built to standard in a timely manner.* ***Access will only be permitted under the required Washington County Facility Permit, and only following submittal and County acceptance of all materials required under the facility permit process.***

C. The following shall be represented on the plat and recorded with Washington County:

1. Dedication of additional right-of-way to provide **45 feet** from centerline of NW West Union Road.

2. Dedication of additional right-of-way to provide adequate corner radius.

3. Provision of a non-access reservation along NW West Union Road frontage, except at the proposed access point approved in conjunction with this land use application.

II. PRIOR TO OCCUPANCY:

A. The road improvements required in condition **I.A.5.** above shall be completed and accepted by Washington County.

B. Upon completion of necessary improvements, provide **final** certification of adequate sight distance in accordance with County Code, prepared and stamped by a registered professional engineer.

Requirements identified within this letter are considered by the County to be minimum warranted improvements (and/or analyses) that are necessitated by the proposed development, therefore it is requested that they be conveyed to the applicant within the City's Approval document. Before the City issues its Final Notice of Decision, please allow the County to review and acknowledge a draft of the City's conditions regarding access to NW West Union Road. Additionally, please send a copy of the subsequent Final City Notice of Decision and any appeal information to the County.

Thank you for the opportunity to comment. If you have any questions, please contact me at 503-846-7639.

Naomi Vogel
Associate Planner

Attachment: Design Exception Approval dated July 26, 2007 (2 pages)

Cc: Road Engineering Services
Paul Seitz, Assurances
Transportation File

Plel

WASHINGTON COUNTY
OREGON

July 26, 2007

RECEIVED
JUL 27 2007
Land Development Services
Land Use & Transportation

Geoffrey Judd, P.E.
Lancaster Engineering
321 SW 4th Avenue, Suite 400
Portland, OR 97204

RE: **MODIFICATION TO W.C.U.R.I.D.S.**
MCKAY FIELDS
CITY OF NORTH PLAINS

The following is in response to your February 2, 2007 Request for Modification of the W.C.U.R.I.D.S. Section 130.2, Page 11, for the reduced access spacing of the proposed access, located approximately a quarter mile east of NW Glencoe Road on the south side of NW West Union Road, for the subject development in the city of North Plains.

XX Your request is approved with conditions as noted below:

1. Provide adequate illumination at the proposed site access on NW West Union Road. Adequate illumination shall consist of at least one 200 watt high pressure sodium cobra head luminaire mounted at a minimum height of 20 feet on **existing utility poles if available**. The fixture shall have a medium semi-cutoff type III distribution. The pole shall be within the area defined by the radius returns of the intersection. The fixture shall be oriented at 90 degrees to centerline of the collector or arterial. For intersections of collectors with arterials, or arterials with arterials, the luminaire fixture shall be installed at 90 degrees to the higher classified roadway. If the intersecting roadways are of the same functional classification, the fixture may be oriented at 90 degrees to either roadway. **If no existing utility poles are available within the intersection area defined by the radius returns, the developer shall meet the requirements of the Department of Land Use and Transportation 1991 Roadway Illumination Standards, latest revision**. Washington County may require illumination in addition to the above-stated minimums. Direct technical questions concerning this condition or the 1991 Roadway Illumination Standards to Vaughn Lewis, Engineering Associate at (503) 846-7959.

2. Close the two existing driveways upon opening of the proposed site access.

Geoffrey Judd, P.E.
July 26, 2007

Please be advised that all modifications granted to the W.C.U.R.I.D.S. are considered unique and are not uniformly applicable.

NOTE: See Section 250.2.3 for appeal procedures should you wish to appeal.

Sincerely,

FOR

Gregory S. Miller, P.E.
County Engineer

Reviewed By: Jinde Zhu

Approved By: Tom Tushner

JZ:jw-b

c: Tom Tushner
Jinde Zhu
Vaughn Lewis
Phil Healy
Tracy Stone
Plan Review File
c/File

Murray, Smith & Associates, Inc.
Engineers/Planners
121 S.W. Salmon, Suite 900 ■ Portland, Oregon 97204-2919 ■ PHONE 503.225.9010 ■ FAX 503.225.9022

MEMORANDUM

DATE: April 29, 2013

PROJECT: 04-0682.426

TO: Blake Boyles, City Manager
City of North Plains

FROM: Fulgence Bugingo, P.E.
Murray, Smith & Associates, Inc.

RE: McKay Fields - Preliminary Subdivision Application,
City Engineer Review & Comments

Purpose

This Technical Memorandum presents City Engineer review comments for the proposed McKay Fields Subdivision (Subdivision) proposed within the City of North Plains (City). The proposed development is located at 30240 and 30140 NW West Union Road, Tax Lots 1200, 1202, and 2000. The applicant is requesting approval of a proposed 33-lot subdivision within an R-2.5 zone. This 33-lot subdivision is a modification to the original 27 lot preliminary plat, SD-VAR-07-0006.

General

All required public facility improvements are to be designed and constructed in accordance with the current City-adopted Zoning and Development Ordinance and the current City of North Plains Public Works Design Standards, as approved by the City of North Plains. In addition, the American Public Works Association (APWA) Standard Specifications for Public Works Construction apply. Improvements must be designed and constructed in accordance with all City requirements and conditions, and the final designs must be stamped by a Professional Engineer (P.E.), currently licensed in the State of Oregon.

An engineer's construction cost estimate for public improvements is to be submitted with final designs for review and acceptance prior to construction. A nonrefundable deposit in the amount of five percent of the total accepted estimated value of public improvements must be provided to the City with the plans submittal. The estimate is to be presented in a "schedule of unit prices" format, reflecting estimates for the various anticipated construction bid items. A public improvements bond, required prior to construction, will be set at 125% of the accepted engineer's estimate. In addition, a maintenance bond in the amount of 40% is required prior to construction. The maintenance bond shall remain in effect for a period of one year after all public improvements are accepted by the City.

City/Agency Coordination

The Applicant is to coordinate with the City and all appropriate utilities and agencies throughout the application, review, and construction process. Agency/utility coordination includes, but is not limited to, Clean Water Services (CWS) regarding sanitary sewer, water quality, and storm sewer system improvements, Washington County Fire District No. 2 regarding emergency access, Washington County for work relating to NW West Union Road, Federal Emergency Management Agency (FEMA) regarding fill within designated floodplain and compliance with the Endangered Species Act (ESA), and the City of North Plains regarding planning, water system improvements, surface water drainage improvements, and site development interests. The Applicant is to provide copies of all agency/utility approvals and permits to the City for its permanent files. The City is to be notified of any potential design conflicts, and/or any potential conflicts identified after the various utility and agencies complete review or provide comments. It is the responsibility of the Applicant to resolve all conflicts to the satisfaction of the City.

Street Improvements

NW West Union Road is a Washington County arterial road. Consequently, any modifications to the roadway, driveway, curbs, sidewalks, and other improvements within this right-of-way, are to be coordinated with the County. It is anticipated that the County will require right-of-way dedication and street improvements along that portion of the roadways adjacent to the development site.

The Applicant has requested approval of a 33-lot residential subdivision with both attached and detached single family residents. Access limitations to a County arterial road will allow only one intersection with NW West Union Road. The access standard for a cul-de-sac is to allow a maximum length of 600 feet with no more than 20 residential lots. Because of this and the proximity of McKay Creek west of the site, the Applicant is proposing a local dead end street without provisions for future street extensions. The lots are proposed to be accessed from new local dead end streets with provisions for a turnaround, using a standard cul-de-sac configuration. The proposed street is shown partly as a standard 34-foot right-of-way tapering to a 28-foot wide right-of-way with sidewalk on one side. This configuration

would improve pedestrian circulation and allow a pedestrian/bicycle connection to West Union Road near the west end of the subdivision.

It is also recommended that the City consider extending the 34-foot right-of-way to allow parking on both sides of the street. City Standards require 10-foot wide travel lanes and 7 to 8-foot wide parking.

The Applicant has also proposed a public water quality facility directly west of Lot 19. This facility will be permitted and maintained by CWS. It is anticipated that CWS will require maintenance access from the cul-de-sac.

A 15-foot wide emergency access to West Union Road near the west end of the subdivision is proposed at the cul-de-sac between Lot 24 and Lot 25. Applicant will coordinate with Fire District No. 2 for final approval of this access and any additional requirements set by the Fire Marshal.

Storm Drainage Improvements

The Applicant is to coordinate with CWS to design and construct needed storm drainage improvements. All drainage improvements and storm water quality and quantity requirements are to be in compliance with the applicable CWS Design and Construction Standards and as approved by CWS. It is anticipated that certain storm water quality provisions are required in addition to storm water conveyance provisions. Private facilities are to be designed and constructed in accordance with all applicable CWS requirements and City Codes and Standards.

Sanitary Sewer Improvements

The Applicant is to coordinate with CWS to design needed sanitary sewer improvements. Sanitary sewer improvements are to be designed and constructed in accordance with CWS Design and Construction Standards and other requirements as approved by CWS. Private facilities are to be designed and constructed in accordance with all applicable City Codes and Standards.

Water System Improvements

The Applicant has proposed an 8-inch diameter public water main from NW West Union Road at the intersection with the new local access street. This water main is proposed with a loop connection back to NW West Union Road between lots 24 and 25 near the west end of the subdivision. Applicant has also proposed a blow off assembly at the end of the new 8-inch diameter line on the new local access street. It is recommended that the City consider installation of a fire hydrant instead of a blow off assembly at that location. All water system improvements for this subdivision shall be constructed in accordance with the current City Design and Construction Standards.

Clean Water Services

MEMORANDUM

Date: April 29, 2013

To: Carole Connell, Land Use Planner, City of North Plains

From: Jackie Sue Humphreys, Clean Water Services (the District)

Subject: McKay Fields Revised Subdivision, 1N2060001200, 02000

Please include the following comments when writing your conditions of approval:

PRIOR TO ANY WORK ON THE SITE AND PLAT RECORDING

A Clean Water Services (the District) Storm Water Connection Permit Authorization must be obtained prior to plat approval and recordation. Application for the District's Permit Authorization must be in accordance with the requirements of the Design and Construction Standards, Resolution and Order No. 07-20, (or current R&O in effect at time of Engineering plan submittal), and is to include:

a. Detailed plans prepared in accordance with Chapter 2, Section 2.04.2.b-l.

b. Detailed grading and erosion control plan. An Erosion Control Permit will be required. Area of Disturbance must be clearly identified on submitted construction plans. If site area and any offsite improvements required for this development exceed one-acre of disturbance, project will require a 1200-CN Erosion Control Permit. If site area and any offsite improvements required for this development exceed five-acres of disturbance, project will require a 1200-C Erosion Control Permit.

c. Detailed plans showing each lot within the development having direct access by gravity to public storm and sanitary sewer.

d. Provisions for water quality in accordance with the requirements of the above named design standards. Water Quality is required for all new development and redevelopment areas per R&O 07-20, Section 4.05.5, Table 4-1. Access shall be provided for maintenance of facility per R&O 07-20, Section 4.02.4.

e. If use of an existing offsite or regional Water Quality Facility is proposed, it must be clearly identified on plans, showing its location, condition, capacity to treat this site and, any additional improvements and/or upgrades that may be needed to utilize that facility.

f. If private lot LIDA systems proposed, must comply with the current CWS Design and Construction Standards. A private maintenance agreement, for the proposed private lot LIDA systems, needs to be provided to the City for review and acceptance.

g. Show all existing and proposed easements on plans. Any required storm sewer, sanitary sewer, and water quality related easements must be granted to the City.

h. Site contains a "Sensitive Area." A revised Service Provider Letter will be required prior to Land Use Approval. Upon completion, Applicant shall comply with all conditions as set forth in the revised Service Provider Letter.

i. Developer may be required to preserve a corridor separating the sensitive area from the impact of development. The corridor must be set aside in a separate tract, not part of any buildable lot and, shall be subject to a "Storm Sewer, Surface Water, Drainage and Detention Easement over its entirety", or its equivalent.

j. Clean Water Services shall require an easement over the Vegetated Corridor conveying storm and surface water management to Clean Water Services that would prevent the owner of the Vegetated Corridor from activities and uses inconsistent with the purpose of the corridor and any easements therein.

k. Detailed plans showing the sensitive area and corridor delineated, along with restoration and enhancement of the corridor.

l. Provide DSL and Corps of Engineers permits for any work in the wetlands or creek prior to any on site work, including grading and erosion control. Include permit number on cover sheet of plans or provide concurrence with the delineation.

m. Any proposed offsite construction activities will require an update or amendment to the current Service Provider Letter for this project.

CONCLUSION

This Land Use Review does not constitute the District's approval of storm or sanitary sewer compliance to the NPDES permit held by the District. The District, prior to issuance of any connection permits, must approve final construction plans and drainage calculations.

McKay Fields Preliminary Plat

3-18-13 (Revised 4-17-13)

Applicant: DR Horton

Property Owners: Tax Lots 1200 and 2000, West Union Road LLC,
Ron Guillory, Manager
Tax Lot 1202, Kenny Fields

Site Area: 6.37 acres

Zoning: R-2.5 Multi-Family Residential

Proposal: 33 lot subdivision, modification of the original approved 27 lot preliminary plat, SD-VAR-07-0006, elimination of Lots 26 and 27 from the previous approved preliminary plat, revised Flood Plain Alteration, grading and vegetation removal in the Significant Natural Resource area and Variance to allow 8 foot street side yards for Lots 24, 25 and 33 along West Union Road.

LIST OF EXHIBITS

EXHIBIT "A" - Preliminary Plat Plans

EXHIBIT "B" - Previous approved McKay Fields final plat and approval extension

EXHIBIT "C" - Application form

EXHIBIT "D" - Public hearing notification map and property owners list

EXHIBIT "E" - North Plains Zoning Map and City Trails Map

EXHIBIT "F" - Tax Map

EXHIBIT "G" - Site plans for street side yard variances and Vision Clearance diagram

EXHIBIT "H" - Approved Lot line adjustment for Tax lot 2100

EXHIBIT "I" - Final Findings and Order, McKay Fields Pre-Plat, SD-VAR-07-0006

EXHIBIT "J" - Endangered Species Act (ESA) report by Ellis Ecological Services

EXHIBIT "K" - CWS SPL (Service Provider Letter)

EXHIBIT "L" - CWS Buffer Planting plan

EXHIBIT "M" - SWCA Environmental Consultants as-built summary for landscape installation in the CWS buffer

EXHIBIT "N" - Traffic Study

REVIEW CRITERIA - NORTH PLAINS DEVELOPMENT CODE

Chapter 16.00 - Zoning and Development Purpose and Scope
Chapter 16.30 - R-2.5 Zoning District
Chapter 16.65 - Floodplain Overlay district (FP)
Chapter 16.75 - Significant Natural resources Overlay district (SNR)
Chapter 16.80 - Signs in residential zones
Chapter 16.115 - Lot, Building and Yard Exceptions
Chapter 16.125 - Lot Development Standards
Chapter 16.135 - Subdivisions
Chapter 16.145 - Public Facility and Service Requirements
Chapter 16.150 - Street Standards
Chapter 16.155 - Automotive Parking Requirements
Chapter 16.165 - Street Vacations and Dedications
Chapter 16.170 - Application requirements and Review Procedures
Chapter 16.185 - Variances

16.00.005 - Zoning and Development Purpose and Scope

This Ordinance is enacted to:

A. Encourage the most appropriate use of land.

B. Conserve and stabilize the value of property.

C. Facilitate fire and police protection.

D. Provide for adequate living conditions, including sufficient open space, light, and air.

E. Minimize congestion on streets.

F. Promote orderly growth of the city.

G. Prevent undue concentrations of population.

H. Facilitate adequate provision of community facilities.

I. Promote in other ways the public health, safety, convenience, and general welfare, generally consistent with the Comprehensive Plan.

COMMENT: This subdivision complies with the North Plains Development Code and is in keeping with the spirit of the above Purpose and Scope. This Chapter will be addressed in the street side yard setback Variance section of this report.

16.30 - R-2.5 Zoning District

COMMENT: Single family detached houses are permitted on 2500 sf lots. The setback requirements and lot standards are identified on Sheet 4 of the Pre-Plat plans. The previous Variance identified in the previous McKay Fields subdivision application is no longer necessary since the large Kenny Fields lot has been incorporated into the subdivision with lots less than 6000 square feet in area. Also, no flag lots are proposed with the new subdivision palm. All lots have a minimum of 20 feet of street frontage.

16.65.000 - Purpose of the Floodplain District

The purpose of the Flood Plain Overlay District (FP) is to promote the public health, safety and general welfare, and to minimize public and private losses due to flood conditions in specific areas by provisions designed:

A. To protect human life and health;

B. To minimize expenditure of public money and costly flood control projects;

C. To minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;

D. To minimize prolonged business interruptions;

E. To minimize damage to public facilities and utilities such as water and gas mains, electric, telephone and sewer lines, streets and bridges located in areas of special flood hazard;

F. To help maintain a stable tax base by providing for the sound use and development of areas of special flood hazard so as to minimize future flood blight areas;

G. To ensure that potential buyers are notified that property is in an area of special flood hazard; and

H. To ensure that those who occupy the areas of special flood hazards assume responsibility for their actions.

COMMENT: The flood plain will be altered by filling 17 to 24 from zero to 5.5 feet as shown by Sheet 6 of the preliminary plat plans. All of the buildable property will be above the 100 year flood plain to minimize the need for future rescue efforts. Fill above the 170.1 foot elevation is not considered flood plain fill. Because of current mortgage requirements, all the lots need to be above the 100 year flood plain elevation of 170.1 feet. The lots will be at 172 to 173 feet in elevation which allows a finished floor elevation of about 173.5 to 174.5 feet. The code requires the finished floor elevation to

be one foot above the flood plain elevation. This extra height will provide protection for the new homeowners in the event of a flood larger than a 100 year flood. The spill way over the West Union Road along McKay Creek is slightly less than 171 feet which provides extra protection.

The excavation to accommodate this flood plain fill is more than the estimated fill of 2800 cubic yards. This flood plain alteration provides a paved access road into the flood plain for maintenance vehicles, pedestrians and bicycles. This access road was requested by the city of North Plain staff. Additional fill is also occurs for the water quality facility west of Lots 19. We attempted to build this water facility in the lower flood plain area, but CWS standards require water quality facilities to be above the 2 year flood plain. No fill is proposed in the existing floodway. Sheet 6 shows the current floodway and the proposed floodway about 40 feet further west which will be adopted with the new FIRM maps in the year 2014.

16.65.015.C

The duties of the Planning Commission shall include, but not be limited to:

1. Permit Review

a. Review all development permits to determine that the permit requirements of this ordinance have been satisfied.

b. Review all development permits to determine that all necessary permits have been obtained from those federal, state, or local governmental agencies from which prior approval is required.

c. Review all development permits to determine if the proposed development is located in the flood way. If located in the flood way, assure that the encroachment provisions of Chapter 16.65.025 (D) are met.

COMMENTS: This flood plain alteration will be reviewed by the Planning Commission to assure compliance with Chapter 16.65.

16.65.020.D - Subdivision Proposals

1. All subdivision proposals shall be consistent with the need to minimize flood damage;

2. All subdivision proposals shall have public utilities and facilities such as sewer, gas, electrical and water systems located and constructed to minimize or eliminate flood damage;

3. All subdivision proposals shall have adequate drainage provided to reduce exposure to flood damage; and

4. Base flood elevation data shall be provided for subdivision proposals and other proposed development which contain at least 50 lots or 5 acres, whichever is less.

COMMENT: All the lots and the utilities will be above the flood plan to eliminate flood damage. Adequate storm drainage facilities are provided to drain storm water from the subdivision into the flood plain.

16.65.025 - Specific Standards

A. All Development

All development within the boundaries of the 100-year Flood Plain shall conform to the following cut and fill standards:

1. No net fill in the flood plain is allowed. All fill placed in a flood plain shall be balanced within at least an equal amount of soil material removal;

2. Excavation areas shall not exceed fill areas by more than 50 percent of the area;

3. Any excavation below the bank full stage of No Name Creek or McKay Creek shall not compensate for fill;

4. Excavation to balance a fill shall be located on the same parcel as the fill unless it is not reasonable or practicable to do so. In such cases, the excavation shall be located in the same drainage basin and as close as possible to the fill site, so long as the proposed excavation and fill in the Flood plain Overlay District and to minimize erosive velocities. Stream crossings shall be as close to perpendicular to stream flow as practicable. Bridges shall be used instead of culverts wherever practicable.

COMMENT: The civil engineer has prepared a cut a fill balance, as shown by Sheet 6 of the plans, so the flood plain elevation will not increase. The excavation is less than 50% of the flood plain. The excavation does not extend into the bank fill stage of McKay Creek. This flood plain alteration was reviewed by Seth Jelen, an engineer with AMEC Environmental. Seth prepared the current McKay Creek flood plain studies for CWS. These studies were used to prepare the new FIRM maps that will be adopted in 2014. Seth also supplied our civil engineer with the boundary lines for the old and new floodways. Seth indicated this flood plain excavation will actually improve the flow of storm water because the excavation will slope in the direction of the flood waters. The excavation will be used as a secondary bypass when flood water overflows the McKay Creek channel. Seth also indicated the proposed fill will have almost no impact to the flood plain because it is directly south the large West Union Road fill and does not extend into the McKay Creek channel. The fill area is generally in a back water area.

B. Residential Construction

New construction and substantial improvement of any residential structure shall have the lowest floor, including basement, elevated to one foot above base flood elevations. Below grade crawl spaces shall not be permitted. Fully enclosed areas below the lowest floor that are subject to flooding are prohibited. Parking, crawl spaces and storage is allowed below the lowest floor provided the area is designed to permit the entry and exit of flood waters. Openings may be equipped with screens, louvers, or other coverings or devices provided that they permit the automatic entry and exit of floodwaters.

COMMENT: As indicated above, the finished floor of the houses will be 173.5 to 174.5 feet in elevation which is 2.5 to 3.5 feet above the 100 year flood plain. Entry and exit of flood waters into the house crawl space is not necessary because all of the lots will be above the flood plain.

E. Flood Ways

Located within areas of special flood hazard established in Chapter 16.65.010(A) are areas designated as flood ways. Since the flood way is an extremely hazardous area due to the velocity of flood waters which carry debris, potential projectiles and erosion potential, the following provisions apply, these provisions apply to all floodways:

1. Prohibit encroachments, including fill, new construction, substantial improvements, and other development within Zones A1 and A2 (as defined by the Federal Emergency Management Agency) unless certification by registered professional engineer or architect is provided demonstrating that encroachments shall not result in any increase in flood levels during the occurrence of the base flood discharge.

2. If Chapter 16.65.025(D)(1) is satisfied, all new construction and substantial improvements shall comply with all applicable flood hazard reduction provisions of Chapter 16.65.025.

COMMENT: No fill is proposed in the floodway except for the last 20 feet of the access road into the flood plain. This fill ranges from 0 to 2 feet. This fill in the floodway can be eliminated by increasing the slope of the access road from 7% to 9%. Secondly, this fill will be outside the floodway with the new FIRM map to be adopted in 2014. Since mobile homes are not proposed, compliance with Chapter 16.65.020(D)(1) above is not necessary.

16.75.000 - Purpose Significant Natural Resources Overlay District (SNR)

The Significant Natural Resources Overlay District provides protection for identified significant natural resources within the City of North Plains as designated under

Statewide Planning Goal 5. For the purpose of this overlay zone, significant natural resources are designated as Significant Wetlands and Riparian Corridors. These resources have been inventoried within the City of North Plains according to procedures, standards and definitions established under Goal 5 and are identified on the Significant Natural Resources Map as adopted in the Comprehensive Plan. The Significant Natural Resources Overlay Zone District is intended to:

A. Protect valuable natural resources within the City of North Plains Urban Growth Boundary, while ensuring reasonable economic use of property;

B. Augment existing regulations of water quality sensitive areas, vegetated corridors wetlands and water resources, including Clean Water Services Design and Construction Standards, the Division of State Lands Removal Fill Law (ORS 196.800-196.990), and by the US Army Corps of Engineers' administration of Section 404 of the Clean Water Act;

C. Encourage public knowledge, understanding and appreciation of the City's natural resources;

D. Provide protection of wetlands and riparian corridors to maintain salmonid habitat, water quality, thermal regulation, sediment trapping, hydrologic control of flood waters; stream bank stabilization and other important functions and conditions;

E. Encourage restoration of wetlands and riparian corridors; and

F. Carry out the provisions of Statewide Planning Goal 5.

COMMENT: According to Definition "Q" below, the Riparian Corridor along McKay Creek is 75 feet from the top of bank or the edge of the delineated wetland, whichever is further landward. The only wetlands on the site are the located in the McKay Creek channel and at the north end of the property in the West Union road right-of-way (see the wetland map in the SPL dated July1 8, 2006 - Exhibit "K"). This 75 foot Riparian Corridor is shown on Sheets 2, 3, 5 and 6 of the pre-plat plans. The flood plain excavation does not extend into the 75 foot corridor. The CWS sensitive lands buffer is 50 feet.

The resources of the property will be protected and proper economic use of the property will occur. The file and excavation is in an area that does not contain vegetation. The only except is the storm water outfall at the south end of the property. According to CWS standards, excavated buffer must be removed from the buffer inventory and replaced at another location. The area between the existing 50 foot CWS buffer and the flood plain excavation will be designated as additional buffer mitigation. A Tier II Buffer Alteration application must be approved by CWS before this excavation can occur. At a pre-application meeting, CWS indicated they would approve this Tier II application.

Exhibit "J" is and Endangered Species Act (ESA) report which indicates "No Effect' on fish, birds, vegetation or other species. The report was prepared for review by the US

Department of Fish and Wildlife and the National Marine Fisheries. We contacted both of these departments and they verbally indicted no issues with this flood plain fill and excavation. This report and a final drainage study will be submitted to FEMA along with a CLOMR-F (Conditional Letter of Map Revision) application to authorize the proposed flood plain fill and floodway excavation.

16.75.005 - Definitions

Q. Riparian Corridor: A Goal 5 resource that includes the water areas, fish habitat, riparian areas, and wetlands within the riparian corridor boundary. In the City of North Plains, Riparian Corridor boundaries are measured as follows:

a. The unnamed tributary of McKay Creek: 50 feet from the top of bank or from the edge of a delineated significant wetland, whichever is further landward, and;

b. McKay Creek: 75 feet from the top of bank or from the edge of a delineated significant wetland, whichever is further landward.

COMMENT: The above definition for the Riparian Corridor requires a 75 foot buffer which is shown on Sheets 2, 3, 5 and 6 of the pre-plat plans.

16.75.015 - General Development Standards

A. The permanent alteration of the Significant Natural Resource by grading, by excavation or fill, by the placement of structures or impervious surfaces, or by the removal of native vegetation is prohibited, except for the following uses provided they are designed to minimize intrusion into the significant natural resource, and no other options or locations are feasible:

1. Public or private streets, driveways, or paths may be placed within a Significant Natural Resource to access development activities if it is shown to the satisfaction of the reviewing authority that no other practicable method of access exists. If allowed, the applicant shall comply with the following requirements:

a. Demonstrate to the reviewing authority that no other practicable access to the build able area exists or access from an off-site location through the use of easements is not possible;

b. Design roads, driveways, and paths to be the minimum width necessary and for the minimum intrusion into the Significant Natural Resource while also allowing for safe passage of vehicles and/or pedestrians;

c. Use bridges, arched culverts, or box culverts with a natural bottom for crossing of a Significant Natural Resource if the crossing is found unavoidable. The lower lip of any culvert must meet the channel bed at or below grade. The number of channel crossings shall be minimized through use of shared access for abutting lots and access through easements for adjacent lots;

d. Consider the need for future extensions of shared access, access easements, or private streets to access potential new building sites at the time of this application in order to avoid subsequent encroachments into the Significant Natural Resource;
e. Prior to construction, the Significant Natural Resource area shall be flagged, fenced or otherwise marked and shall remain undisturbed except as allowed by the provisions of this ordinance. Such markings shall be maintained until construction is complete;

f. During construction, no stockpiling of fill materials, parking, or storage of equipment shall be allowed within the Significant Natural Resource;

g. Erosion control measures, such as silt fences and bio-filter bags, shall be used to reduce the likelihood of sediment and untreated storm water entering the Significant Natural Resource.

h. Permanent alteration of the Significant Natural Resource by the placement of public or private streets, driveways, or paths is subject to the mitigation requirements of Section VII.

COMMENT: Plan Sheet 6 shows an access road into the 75 foot Riparian Corridor. No other alternative is available because of the slope of the driveway and the required turning radius for a maintenance truck. This area will probably be dedicated to the City of North Plains as a city park Most of the year, this ground is dry and free from flood waters. During the fill and excavation, compliance with all of the above requirements will occur.

2. Public and private utilities or drainage facilities may be placed within a significant natural resource when it is shown to the satisfaction of the review body that no other practicable alternative location exists. If a utility or drainage facility is allowed within a Significant Natural Resource the following standards shall apply:

a. Demonstrate to the reviewing authority that no other practicable access exists or access from an off-site location through the use of easements is not possible;

b. The corridor necessary to construct utilities shall be the minimum width practical so as to minimize intrusion into the Significant Natural Resource. Removal of trees and native vegetation shall be avoided unless absolutely necessary. The existing grade of the land shall be restored after construction. Native vegetation shall be used to restore the vegetative character of the construction corridor.

c. Prior to construction, the Significant Natural Resource area shall be flagged, fenced or otherwise marked and shall remain undisturbed except as allowed by the provisions of this ordinance. Such markings shall be maintained until construction is complete;

d. During construction, no stockpiling of fill materials, parking, or storage of equipment shall be allowed within the Significant Natural Resource.

e. Erosion control measures, such as silt fences and bio-filter bags, shall be used to reduce the likelihood of sediment and untreated storm water entering the Significant Natural Resource.

COMMENT: No utilities will be placed in the SNR area except the outfall for the water quality swale. Removal of vegetation will be avoided except at the south end of the property where the storm water outfall will be excavated. During the flood plain cut and fill, compliance with the above requirements will occur.

3. Replacement of existing structures with structures in the same location that do not disturb additional surface area;

4. Structures or other non-conforming alterations existing fully or partially within the Significant Natural Resource may be expanded provided the expansion occurs outside of the Significant Natural Resource. Substantial improvement of a non-conforming structure in the Significant Natural Resource shall require compliance with the standards of this ordinance.

5. Existing lawn within the Significant Natural Resource may be maintained, but not expanded within the limits of the Significant Natural Resource. Development activities shall not justify replacement of native vegetation, especially native riparian vegetation, with lawn.

6. Existing bank stabilization and flood control structures may be maintained. Any expansion of existing structures or development of new structures shall be evaluated by the Planning Department and appropriate state or federal natural resource agency. Such alteration of Significant Natural Resources shall be approved only if less-invasive or non-structural methods, such as bioengineering, will not adequately meet stabilization or flood control needs.

7. The types, sizes, and intensities of lights must be placed so that they do not shine directly into the Significant Natural Resource.

COMMENT: This proposed flood plain fill and excavation complies with all of the above requirements. The new lots will be located on farm land that has been used for many years. The land only contains grass that is mowed every year. The excavation area also contains grass. The integrity of the SNR area will be maintained and improved. The Planning Commission has the authority to approve this flood plain fill and excavation for these subdivision lots and future development of the houses in accordance with Sub-

Section 6 above. The city intends to build a pathway along McKay Creek in accordance with the City Trails Map (See Exhibit "E"). Trails are allowed in accordance with Sub-Section A.1 above. Sub-Section 5 above allows lawns to be continued. The area between the excavation the water quality swale, West Union Road, the south property line and the flood plain excavation is intended to be used as a lawn maintained Public Park. About 16,000 square feet of usable park area will be available. The developer intends to irrigate the land and create a play field. When the floodway is moved to the west in 2014, above ground structures can be installed along the east side of the park.

B. Removal of vegetation from the Significant Natural Resource is prohibited, except for:

1. Removal of non-native vegetation and replacement with native plant species. The replacement vegetation shall cover, at a minimum, the area from which vegetation was removed, shall maintain or exceed the density of the removed vegetation, and shall maintain or improve the shade provided by the vegetation.

2. Removal of vegetation necessary for the continued maintenance of dikes, drainage ditches, or other storm water or flood control facilities. Vegetation removal shall be kept to the minimum necessary.

3. Trees in danger of falling and thereby posing a hazard to life or property may be removed, following consultation from a certified arborist and approval from the Planning Department. If no hazard will be created, the department may require these trees, if felled, to be left in place in the Significant Natural Resource.

4. The control or removal of nuisance plants should primarily be by mechanical means (e.g. hand-pulling). If mechanical means fail to adequately control nuisance plant populations, a glyphosate-based herbicide is the only type of herbicide that can be used in a significant natural resource area. No pre-emergent herbicides or auxin herbicides that pose a risk of contaminating water should be used. A herbicide application is preferred to be made early in the morning or during windless periods at least 4 hours before probable rainfall.

COMMENT: All of the natural vegetation will be retained except at the south end of the property where the storm outfall will be excavated. Significant opportunities for mitigation are available on this site. Mitigation plans will be submitted with the final engineering plans.

16.75.020 - NATURAL RESOURCE ENHANCEMENT AND RESTORATION

The City strongly encourages the enhancement or restoration of natural resources, such as riparian corridors along the unnamed tributary of McKay Creek and McKay Creek, in-channel habitat improvements, non-native plant control, and similar projects which propose to improve the quality of a Significant Natural Resource. However, no

enhancement activity requiring the excavation or filling of material in a wetland shall be allowed unless all applicable State and Federal wetland permits have been granted.

COMMENT: Mitigation and enhancement plans for the SNR area will be submitted with the final engineering plans.

16.75.30 - Mitigation Standards

When approved impacts to any identified Significant Natural Resource occurs, mitigation will be required. For impacts to Significant Wetlands, the standards and criteria of Section 16.75.030 (A) shall apply. For impacts to Riparian Corridors, the standards and criteria of Section 16.75.030 (B) shall apply.

A. When mitigation for impacts to a Significant Wetland is proposed, the mitigation plan shall comply with all Oregon Division of State Lands and U.S. Army Corps of Engineers wetland regulations. The City may approve a development but shall not issue a building permit until all applicable State and Federal wetland permit approvals have been granted and copies of those approvals have been submitted to the City.

B. When mitigation for impacts to a non-wetland riparian area is proposed, a mitigation plan prepared by a qualified professional shall be submitted to the review authority. The mitigation plan shall meet the following criteria:

1. Mitigation for negative impacts to a Riparian Corridor shall follow all of the requirements of Clean Water Services - Design and Construction Standards - Resolution and Order 00-7;

2. Mitigation shall occur on-site and as close to the impact area as possible. If this is not feasible, mitigation shall occur within the same drainage basin as the impact;

3. All vegetation planted within the mitigation area shall be native to the region. Species to be planted in the mitigation area shall replace those impacted by the development activity.

COMMENT: Since no wetlands will be impacted or altered with this application, no permits are required by DSL or the COE. However, CWS buffer and the city riparian corridor will be impacted at the south end of the property. This impact will be mitigated in accordance with the above requirements. Mitigation plans will be submitted with the final engineering plans. The CWS buffer planting has already occurred as evidenced by Exhibits "L" and "M". This planting is clearly shown on the Sheet 3 aerial photo of the pre-plat plans.

16.80.010 - Signs in Residential Zones

A. Permitted signs

1. Signs which meet the following regulation are allowed in the R-2.5 Zone: One (1) sign, not over 9 square feet in area, at each entrance to and apartment, townhouse or condominium development.

COMMENT: No signs are proposed with this application. However, a monument sign may be requested in the future. The above code does not mention a single family detached housing development. An interpretation from the city will be required before a sign is installed.

16.115.000 - Projections from Buildings

Cornices, eaves, canopies, sunshades, gutters, chimneys, flues and other similar architectural features may project not more than two (2) feet into a required yard or into required open space as established by coverage standards.

COMMENT: The interior side yard setback for the house is 3 feet and the roof overhang will be one foot with a 2 foot property line setback in accordance the Oregon building code. The roof overhangs will be fire proofed.

16.125.010 - Standards for Lots

A. Minimum lot area:
Minimum lot area shall conform to the requirements of the zoning district in which the lot is located.

B. Access:
All lots created after the effective date of this Ordinance shall provide a minimum of 20 feet of frontage on an existing or proposed public street.

D. Through Lots: Through lots shall be avoided except where essential to provide separation of residential development from major traffic arteries, adjacent nonresidential activities, or to overcome specific disadvantages of topography and orientation. Screening or buffering may be required by the Planning Commission during the review of the land division request.

E. Lot Side Lines: The side lines of lots, as far as practicable, shall run at right angles to the street upon which the lots face.

F. Lot Grading: Lot grading shall conform to the requirements of Chapter 70 of the Uniform Building Code, hereby adopted by reference, and to the following standards unless physical conditions demonstrate the propriety of other standards:

a. Cut slopes shall not exceed one and one-half feet horizontally to one foot vertically.

b. Fill slopes shall not exceed two feet horizontally to one foot vertically.

c. The character of soil for fill and the characteristics of lots and parcels made usable by fill shall be suitable for the purpose intended.

COMMENT: All lots will be 2,500 square feet or larger and less than 6000 square feet with over 20 feet of street frontage. Five of the lots are through lots and back up to West Union Road. The parkway along West Union Road will be landscaped and fences provided to separate the lots from the West Union Road right-of-way. All of the lots are close to right angles with the streets. The site is very flat with only 4 feet of fall for the east property line to the west property line of the lots. The fill slopes along the flood plain are 3 to 1 which exceeds the above 1 to 2 requirement.

16.125.015 - Standards for Blocks

A. General: The length, width, and shape of blocks shall take into account the need for adequate building site size and street width and shall recognize the limitations of the topography.

B. Sizes: Residential Districts shall have a maximum 600 foot block length, a minimum 160 foot street adjacent lot depth, and a 1,600 foot perimeter.

COMMENT: The block length between "B" Street and the entrance of "A" Street on West Union Road is about 350 feet which is significantly less than 600 feet. A pedestrian and a vehicle emergency access is provided at the end of "B" Street.

16.135.011 - Preliminary Plat Approval Criteria

The City may approve, approve with conditions or deny a preliminary plat based on the following approval criteria:

A. The proposed preliminary plat complies with the applicable Development Code chapters and all other applicable ordinances and regulations. At a minimum, the provisions of this section and the applicable sections of this chapter including Zoning Districts, Development Standards, and Streets and Facilities shall apply. Where a variance is necessary to receive preliminary plat approval, the application shall also comply with the Variance section of this chapter;

B. The proposed plat name is not already recorded for another subdivision, and satisfies the provisions of ORS Chapter 92;

C. The proposed streets, roads, sidewalks, bicycle lanes, pathways, utilities, and surface water management facilities are laid out so as to conform or transition to the plats of subdivision and maps of major partitions already approved for adjoining property as to width, general direction and in all other respects. All proposed public improvements and dedications are identified on the preliminary plat;

D. All proposed private common areas and improvements (e.g. homeowners association property) are identified on the preliminary plat;

E. Evidence that any required State and federal permits have been obtained, or shall be obtained before approval of the final plat;

F. Evidence the improvements or conditions required by the City, road authority, Washington County, Clean Water Services, special districts, utilities, and/or other service providers, as applicable to the project, have been or can be met;

G. A Traffic Impact Study (TIS) has been provided, if applicable, in accordance with the provisions of Chapter 16.170; and

H. If any part of the site is located within a Specific Area Plan District, Overlay District, or previously approved Master Planned Development, it shall conform to the applicable regulations and/or conditions.

COMMENT: This subdivision application complies with all or the above requirements. Street access to adjoining property inside the UGB is not necessary. Both Tracts "A" and "B" and Streets "A" and "B" will be dedicated to the City of North Plains. Therefore, formation of a HOA will not be required. Compliance with conditions of other public agencies will occur. A traffic study will be prepared before the preliminary plat is reviewed by the North Plains Planning Commission. As demonstrated in the report, this application complies with both the SNR and FP overlay district standards.

16.135.012 - Lot Access Provisions

In addition to the provisions of this chapter, all lots and parcels shall conform to the specific requirements below, as applicable:

A. In conformance with the Uniform Fire Code (UFC), a 20-foot wide fire apparatus drive shall be provided to serve all portions of a building that are located more than 150 feet from a public right-of-way or approved access drive.

B. When a common drive is to be provided to serve more than one lot, a reciprocal easement which will ensure access and maintenance rights shall be recorded with the approved subdivision or partition plat. The minimum drive width shall be 10 to 15 feet, except as required by the UFC, and improved with an all- weather surface approved by the City.

C. Access reserve strips may be required to be granted to the City for the purpose of controlling access to adjoining undeveloped properties.

D. Street and building placement and alignment shall be designed so that all future street connections can be made as surrounding properties develop.

COMMENT: All lots are less than 150 feet from a public right-of-way. The Street "A" cul-de-sac is 125 feet in length and the Street "B" cul-de-sac is 148 feet in length. However, Street "B" has an emergency access to West Union Road which effectively reduces the length by 74 feet. The emergency access is 20 feet in width.

16.145.000 - Purpose of Public Facility and Service Requirments

The purpose of this section is to identify those public facilities and services that are necessary at a minimum level to accommodate development.

COMMENT: All the required public facilities and services are provided for this development.

16.150.000 - Street Standards Purpose

A. To provide for safe efficient, and convenient vehicular movement in the City of North Plains.

B. To provide adequate access to all proposed developments in the City of North Plains.

C. To provide adequate area in all public rights-of-way for sidewalks, sanitary sewers, storm sewers, waterlines, natural gas lines, power lines and other utilities commonly and appropriately placed in such rights-of-way.

COMMENT: Adequate and safe street access is provided. Sidewalks are provided on one side of Streets "A" and "B". All required public utilities are services are provided.

16.150.005 - Scope

The provisions of this Subsection shall be applicable to:

A. The construction, dedication or creation of all new public or private streets in all subdivisions, partitions or other developments in the City of North Plains.

B. The extension or widening of existing public or private street rights-of-way, easements, or street improvements, including those which may be proposed by an individual or the City, or which may be required by the City in association with other development approvals.

C. The construction or modification of any utilities or sidewalks in public rights-of-way or private street easements.

COMMENT: The public streets in this development are required to comply with this section of the code.

16.150.010 - General Provisions

The following general provisions shall apply to the dedication, construction, improvement or other development of all public streets in the City of North Plains:

A. The location, width, and grade of streets shall be considered in their relation to existing and planned streets, to topographical conditions, to public convenience and safety, and to the proposed use of the land to be served by the streets.

COMMENT: This planning has occurred.

B. Development proposals shall provide for the continuation of existing principal streets where necessary to promote appropriate traffic circulation in the vicinity of the development.

COMMENT: Not street extensions to adjacent property are required.

C. Reserve strips: Reserve strips or street plugs controlling the access to streets will not be approved unless necessary for the protection of the public welfare or of substantial property rights, and in these cases they may be required. The control and disposal of the land composing such strips shall be placed within the jurisdiction of the City under conditions approved by the Planning Commission.

COMMENT: No reserve strips are proposed.

D. Alignment: All streets other than minor streets or cul-de-sacs, as far as practical, shall be in alignment with existing streets by continuation of the center lines thereof. The staggering of street alignments resulting in "T" intersections shall, wherever practical, leave a minimum distance of 200 feet between the center lines of streets having approximately the same direction and otherwise shall not be less than 100 feet.

COMMENT: No adjacent streets exist in the area and the proposed streets are as close to 90 degrees as possible.

E. Future extension of streets: Where necessary to give access to or permit a satisfactory future development of adjoining land, streets shall be extended to the boundary of a tract being developed and the resulting dead-end streets may be approved without turnarounds. Reserve strips and street plugs may be required to preserve the objectives of street extensions.

COMMENT: No necessary.

F. Intersection angles: Streets shall be laid out to intersect at angles as near to right angles as practical, except where topography requires lesser angle, but in no case shall the acute angle be less than 80 degrees unless there is a special intersection design. An arterial or collector street intersecting with another street shall have at least 100 feet of centerline tangent adjacent to the intersection unless topography requires a lesser distance. Other streets, except alleys, shall have at least 50 feet of tangent adjacent to the intersection unless topography requires a lesser distance. Intersections which contain an acute angle of less than 80 degrees or which include an arterial or collector street shall have a minimum corner radius sufficient to allow for a roadway radius of 20 feet and maintain a uniform width between the roadway and the right-of-way line. All other intersections shall have a minimum corner radius sufficient to allow for a roadway radius of 10 feet and maintain a uniform width between the roadway and the right-of-way line. Ordinarily, the intersection of more than two streets at any one point will not be approved.

COMMNET: A 50 foot center line tangent for "A" Street at the West Union Road entrance is not possible because of the narrow width of the property. Instead of a sharp angle with an eyebrow street corner and 50 feet of tangent, a 90 foot centerline street was chosen to allow a higher speed entrance into the subdivision to be compatible with the 45 mile per hour speed limit along West Union Road. A 20 foot curb radius is provided at the West Union Road entrance and a 25 foot radius is proposed at the intersection of "A" and "B" Streets, but they may be reduced to 15 feet.

G. Existing streets: Whenever existing public streets adjacent to or within a tract are of inadequate width, additional right-of-way shall be provided at the time of subdivision or development.

COMMENT: 15 feet of additional street dedication is provided along West Union Road.

H. Cul-de-sacs: Cul-de-sacs shall be as short as possible, and shall have maximum lengths of 600 feet and shall not serve more than 20 dwelling units. All cul-de-sacs shall terminate with circular turnarounds. Commercial and industrial cul-de-sacs shall have a minimum 55' bulb radius. Additional cul-de-sac specifications, including specifications for residential cul-de-sacs, are contained within the most recently adopted public works/street standards of the City of North Plains and/or Washington County development standards.

COMMENT: The 2 cul-de-sacs are as short as possible. They are both less than 150 feet in length. Therefore, large radius cul-de-sac bulbs are not necessary. The bulb radius is 25 feet for "B" Street and 22 feet for "A" street. These bulbs are for garbage trucks, passenger vehicles and large pickups. The two cul-de-sacs provide a hammerhead turn around form fire trucks and larger vehicles. The original approved plat did not have cul-de-sacs.

I. Street names: No street names shall be used which will duplicate or be confused with the names of existing streets, except for extensions of existing streets. Street names and number shall conform to the established pattern in the City and shall be subject to the approval of the Planning Commission.

COMMENT: Street names will be submitted to the city for approval with the final engineering plans.

J. Grades and curves: Grades shall not exceed 6 percent on arterials, 10 percent on collector streets or 12 percent on any other street. Center line radii of curves shall not be less than 300 feet on arterials, 200 feet on collectors or 100 feet on other streets, and shall be to an even 10 feet. Where existing conditions, particularly topography, make it otherwise impractical to provide buildable sites, the Planning Commission may accept steeper grades and sharper curves. In flat areas, allowance shall be made for finished street grades having a minimum slope of 0.5 percent.

COMMENT: The street grade is 0.9%. The centerline radius for the entrance road is 90 feet because 100 feet is not possible. A larger centerline radius will reduce the depth of lots 3 to 6. The smallest house available to DR Horton is 43 feet from the garage to the back of the house. This leaves a 15 foot rear yard and a 20 foot garage setback for Lots

4 and 5. A 100 foot centerline radius would make these 2 lots unbuildable. Street "A" needs to be located as shown on the plans to provide proper sight distance to the west. The Planning commission has the authority to accept the street design presented with this application.

K. Marginal access streets: If a development abuts or contains an existing or proposed arterial street, the Planning Commission may require marginal access streets, reverse frontage lots with suitable depth, screen planting contained in a non-access reservation along the rear or side property line, or such other treatment as may be necessary for adequate protection of residential properties and to afford separation of through and local traffic.

COMMENT: Reserve frontage lots are provided. The setbacks are adequate to provide protection from West Union Road.

M. Sidewalks shall be a minimum of five feet in width. Curbs and sidewalks shall be required along both sides of all public streets. All new development upon lots, tracts or parcels of land adjacent to a public street will be required to construct curbs and sidewalks.

COMMENT: Because this subdivision has limited depth, sidewalks are only provided on one side of the street. This was approved with the original McKay Fields subdivision.

N. Street trees, where provided, shall not be of a species which has a shallow spreading root system which is likely to disturb sidewalk or street improvements.

COMMENT: Street tree specifications and tree types will be provided with the final engineering plans.

O. Access Spacing Standards shall, to the greatest extent possible, comply with Washington County's standards and the most recently adopted public works/street standards of the City of North Plains. Washington County's access spacing standards by street functional classification are as follows:

Major Arterial: 1,000 feet
Minor Arterial: 600 feet
Major Collector: 150 feet
Minor Collector: 50 feet
Local Street: 10 feet

COMMENT: Washington County and the city of North plains have alrady determined that the proposed access meets the city and county spacing reuirements for a Minor Arterial street.

16.150.115 - General Right-of-Way and Improvement Widths

Construction specifications for all street and right-of-way improvement widths shall comply with the criteria of the most recently adopted public works/street standards of the City of North Plains, the North Plains Transportation System Plan, and/or Washington County standards. These standards shall be the minimum requirements for all streets, except where modifications are permitted under this chapter or the Street Standard adopted by the City Council of North Plains, whichever is less restrictive. Refer to Figures 5-2A-5-2P in the Transportation System Plan for detailed diagrams depicting street right-of-way, improved, and roadway width requirements.

COMMENT: The original subdivision was approved with a 34 foot right-of-way and 28 feet of improvement along "A" Street; a 21 foot right-of-way for the "A" Street cul-de-sac with 20 feet of improvement; and 29 feet of right-of-way with 28 feet of improvement along "B" Street (See the original final plat at the end of Exhibit "A"). This new subdivision application has 32 feet of pavement for both "A" and "B" Streets, except 28 feet of improvement for the "A" Street cul-de-sac with parking on one side of the street. The other streets have parking on both sides of the street.

16.150.020 - Modification of Right-of-Way and Improvement Width

The Planning Commission may allow modification to the public street standards of this chapter when both of the following criteria are satisfied.

A. The modification is necessary to provide design flexibility in instances where:

1. Unusual topographic conditions require a reduced width or grade separation of improved surfaces; or

2. Parcel shape or configuration precludes accessing a proposed development with a street which meets the full standards of the City of North Plains or

3. A modification is necessary to preserve trees or other natural features determined by the Planning Commission to be significant to the aesthetic character of the area; or

4. A Planned Unit Development is proposed and the modification of street standards is necessary to provide greater privacy or aesthetic quality to the development.

B. Modification of the Street Standards of his chapter shall only be approved if the Planning Commission finds that the specific design proposed provides adequate vehicular access based on anticipated traffic volumes. If there is insufficient area of on-street parking, the Planning Commission may require additional off-street parking and require that the street be posted to prohibit parking along one or both sides of the street.

COMMENT: This application includes a request to modify the street standards to provide curb tight sidewalk on one side of all streets and reduced right-of-way which was approved with the original subdivision application. These modifications are necessary to provide adequate room on the lots for houses and reasonable back yards. Since this is a dead end subdivision, the traffic volume will be very low. The shape of the property requires these modifications.

16.155.015 - Automotive Parking Requirements

COMMENT: Detached single family houses are required to have 2 parking spaces per dwelling unit. Two car garages are proposed with 24 foot wide houses. Two parking spaces are provided in front of the garage for a total of 4 parking spaces per dwelling unit.

16.160.000 - Requirement for Vision Areas

A clear vision area shall be maintained on the corners of all property adjacent to the intersection of two streets, a street and a railroad, or a driveway providing vehicular access to a public street, including alleys.

A. Lots or parcels on street corners (public and/or private) shall maintain a sight triangle with no sight obstruction between three (3) feet and ten (10) feet in height as measured from street grade. Sight obstructions include, but are not limited to, fences, vegetation, berms, signs and structures. The sight triangle shall be measured from the street corner (apex), to a distance of twenty (20) feet along each street side (See the diagram at the end of Exhibit "G"). For the purpose of this Section, a street corner is defined as that point where the extended edges of the road surface of two intersecting streets meet. The City may require additional vision clearance based on a hazard identified by the City. However, tree trunks and sign poles not exceeding 12 inches in diameter may be located within the vision clearance area, provided the diameter does not exceed 24 inches.

B. A private access shall be treated as a public street for the purpose of this section. The vision clearance area shall be determined in the manner set forth in Chapter 16.160.000.010(A). The edge of the paved surface area of the private access, be it roadway, curb or sidewalk, shall be treated as the right-of-way line in determining the vision clearance area.

COMMENT: The front of the houses and garages will be located 20 feet from the property line or sidewalk, whichever is a greater distance. This automatically complies with the above vision clearance requirements.

16.165.000 - Street Dedications

COMMENT: The proper street dedications will occur with this subdivision. This issue was thoroughly discussed with the previous McKay Fields application (Exhibit "I"). No additional street dedications will be required.

16.170.003 - Traffic Impact Study

The purpose of this section of the code is to assist in determining which road authorities participate in a land use decision, and to implement Section 660-012-0045 (2) of the State Transportation Planning Rule that requires the City to apply conditions to development proposals in order to minimize impacts and protect transportation facilities. This Chapter establishes the standards for when a proposal must be reviewed for potential traffic impacts; when a Traffic Impact Study must be submitted with a development application in order to determine whether conditions are needed to minimize impacts to and protect transportation facilities; what must be in a Traffic Impact Study; and who is qualified to prepare the Study.

A. When a Traffic Impact Study is required.

The City or other road authority with jurisdiction may require a Traffic Impact Study (TIS) as part of an application for development, a change in use, or a change in access. A TIS shall be required when a land use application involves one or more of the following actions:

1. A change in zoning or a plan amendment designation;

2. Any proposed development of land use action that a road authority states may have operational or safety concerns along its facility;

3. An increase in site traffic volume generation by 300 Average Daily Trips (ADT) or more; or

4. An increase in site traffic volume of a particular movement to and from the State Highway by 20 percent or more; or

5. An increase in use of adjacent streets by vehicles exceeding the 20,000 pound gross vehicle weights by 10 vehicles or more per day; or

6. The location of the access driveway does not meet minimum sight distance requirements, or is located where vehicles entering or leaving the property are restricted, or such vehicles queue or hesitate on the State Highway, creating a safety hazard; or

7. A change in internal traffic patterns that may cause safety problems, such as back up onto a street or greater potential for traffic accidents.

COMMENT: A traffic study was prepared for this application (Exhibit "N") by Mike Ard, PE, with Lancaster Engineering. Only 7 additional lots are proposed compared to the original 27 lot subdivision already approved with the previous McKay Fields application. The existing house on Lot 27 of the previous subdivision and the vacant lot 26 have been combined into one lot with a lot line adjustment and removed from this new subdivision. As a result, the new subdivision has 33 vacant lots. The conclusions of the traffic study are as follows:

1) Sight distance at the West Union Road intersection meets county requirements.

2) The West Union Road left turns do not meet warrants to require a left turn lane.

3) Vehicle crash date was examined and no contributing design issues were identified and not safety mitigations are recommended.

4) Under year 2015 traffic conditions with full occupancy of the proposed subdivision, the site access intersection on NW West Union Road is projected to operate at **Level of Service "A"** during the morning and evening peak hours. No operational mitigation is recommended.

16.185.000 - Variance Purpose and Scope

The purpose of a variance is to provide administrative relief when a strict application of the zoning requirements of lot width, lot depth, building height, setback, access, or other dimensional or site requirements would impose practical difficulties. These difficulties may result from geographic, topographic or other physical conditions on the site or in the immediate vicinity. No variance shall be granted which allows the establishment or expansion of use otherwise prohibited or subject to conditional use procedures.

16.185.005 Application and Fee

A pre-application conference pursuant to the Application Review section of this chapter is recommended. An application for a variance shall be filed with the City Recorder and accompanied by the appropriate fee. The application shall be accompanied by a site plan, drawn to scale, showing the dimensions and arrangements of the proposed development. It shall be the applicant's responsibility to submit a complete application which addresses the review criteria of this section. Except for Administrative Variances per 16.185.015, Variance requests shall be subject to the quasi-judicial public notice and public hearing requirements of the Application Review section of this chapter.

16.185.010 Review Criteria

A variance may be authorized upon adequate demonstration by the applicant that the proposed variance satisfies the following criteria:

A. That special conditions and circumstances exist which are peculiar to the land, building or structure involved;

B. That granting the proposed variance would be in the public interest and would be in harmony with the purpose of the underlying zoning district and the intent and purpose of this Ordinance;

C. That the variance would result in minimal detriment to the immediate vicinity;

D. That the variance requested is the minimum variance which would make possible the reasonable use of the applicant's land, building or structure; and

E. That the special conditions and circumstances on which the application is based do not result from the negligent or knowing violation of this Ordinance by the applicant.

COMMENT: The code requires 10 foot street side yards for Lots 24, 25 and 33. Because of the narrow width of the property and the angle of West Union Road, an 8 foot setback is requested. The average set back of the houses on these 3 lots is well over 10 feet as shown By Exhibit "G". Granting these variances would be in the public interest because it will provide more developable lot area of the other lots in the subdivision. A solid fence will be provided along West Union Road. Visualizing the 8 foot street side yard setback compared to a 10 foot setback will be very difficult for the average person. These reduced setbacks will not be adjacent to any other property. 10 foot setbacks are necessary for sight clearance and to keep houses from being too close to a street right-of-way. A solid fence along West Union Road eliminates this vision clearance need.

These variances are the minimum necessary for create the proposed lots. The minimum house width is 24 feet. A 22 foot wide house would be required to comply with the 10 setback requirement. The special circumstances and conditions which require this variance did not result from DR Horton negligent or knowing violation of the North Plains Development Code. These circumstances are a result of past street dedications and realignment of West Union Road to allow construction of the current bridge over McKay Creek and the additional 15 feet of West Union Road street dedication required by Washington Count and not the result of past actions of the property owner. These reduced house setbacks also result from the location of Street "A" as close as possible to the east property line to create maximum sight distance.

16.185.020 Conditions of Approval

In approving an application for a variance, the Planning Commission may impose such conditions as it deems appropriate to ensure that the intent of this Section is carried out. Such conditions shall be reasonably related to the variance criteria set forth in this chapter.

16.185.025 Compliance with Conditions

Compliance with conditions imposed in approval of a variance and adherence to an approved plot plan shall be required. Any departure from these conditions of approval and approved plans constitutes a violation of this Ordinance. The Planning Commission may revoke approval of any variance for failure to comply with any condition imposed in approval of the variance or for any other violation of this Ordinance.

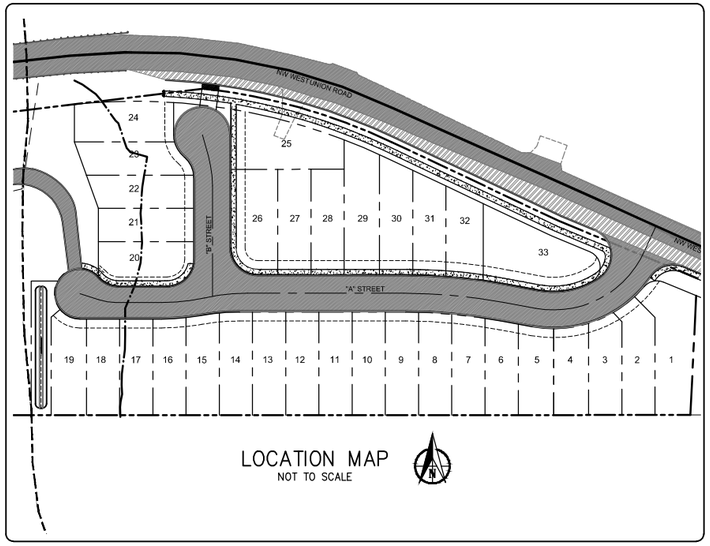
COMMENT: No future changes to the plans shown by Exhibit "G" are anticipated.

McKAY FIELDS

CITY OF NORTH PLAINS, OREGON

LOCATED IN SECTION 6,
TOWNSHIP 1 NORTH, RANGE 2 WEST, WILLAMETTE MERIDIAN

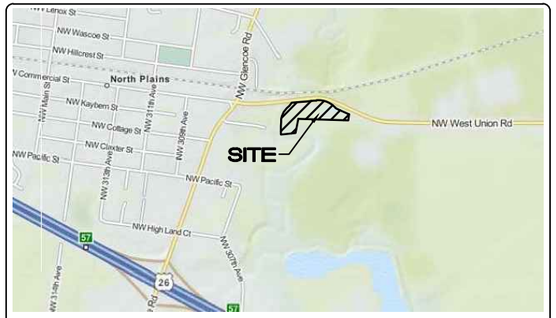
DESIGN DEVELOPMENT DRAWINGS



LOCATION MAP
NOT TO SCALE

SHEET INDEX

DD1. COVER SHEET/ VICINITY MAP/ SHEET INDEX
DD2. EXISTING CONDITIONS
DD3. AERIAL PHOTO WITH SITE BOUNDARY OVERLAY
DD4. PRELIMINARY PLAT WITH STREET SECTIONS
DD5. OVER-ALL SITE PLAN (INCLUDES WETLAND AREA)
DD6. PRELIMINARY GRADING PLAN
DD7. PRELIMINARY UTILITY PLAN



VICINITY MAP
NOT TO SCALE

VERTICAL DATUM:

BENCHMARK: WACO BM 215
DATUM: WASHINGTON COUNTY
DESCRIPTION: 4" BRASS DISK SET IN NW QUADRANT OF SHADYBROOK AND GLENCOE ROAD.
ELEVATION: 176.49'

APPLICANT

DR HORTON
RYAN O'BRIEN
4380 SW MACADAM, SUITE 100
PORTLAND, OREGON 97239
PH. 503-222-4151 EXT.1115

CIVIL ENGINEER

KITTREDGE ENGINEERS
CHRIS KITTREDGE, PE
6565 SW 207TH AVENUE
ALOHA, OR 97007
PH. 503-708-3942

GEOTECHNICAL ENGINEER

CARLSON GEOTECHNICAL
7185 SW SANDBURG ST., SUITE 110
TIGARD, OR 97281
PH. 503-601-8250

SURVEYOR

CMT SURVEYING AND CONSULTING INC.
SHAUN FIDLER, PLS
PO BOX 3251
CLACKAMAS, OREGON 97015
PORTLAND, OREGON 97223
(503) 850-4672

PROJECT PLANNER

RYAN O'BRIEN – DR HORTON
4380 SW MACADAM, SUITE 100
PORTLAND, OREGON 97239
503-222-4151 EXT. 1115

SEWER UTILITIES

CLEANWATER SERVICES
2550 SW HILLSBORO HWY
HILLSBORO, OR 97123
(503) 681-5114
ATTN: MARVIN SPEARING

STORM UTILITIES

CLEAN WATER SERVICES
2550 SOUTHWEST HILLSBORO HWY.
HILLSBORO, OR 97123
503-681-3600
ATTN. MARVIN SPEARING

WATER UTILITIES

CITY OF NORTH PLAINS
BLAKE BOYLES – PUBLIC WORKS DIRECTOR
31360 NW COMMERCIAL STREET
NORTH PLAINS, OREGON 97133
503-647-5555

NORTH PLAINS CITY PLANNER

ANGIE LEHNERT
ASSISTANT PLANNER
31360 NW COMMERCIAL STREET
NORTH PLAINS, OREGON 97133
(503) 389-1395

LEGAL DESCRIPTION/ADDRESS

TAX MAP T1N R2W; SECTION 6, TAX LOT 1200, 1202, 2000,
30240 AND 30140 NW WEST UNION ROAD
NORTH PLAINS, OR 97113

PROPOSED USE

33-LOT SUBDIVISION
SINGLE FAMILY – RESIDENTIAL

SITE ZONING

R-2.5 MULTI FAMILY RESIDENTIAL

SITE AREA

6.37 ACRES = 277,477 S.F.

WASHINGTON CO. FIRE DISTRICT #2

STATION 17
31370 NW COMMERCIAL STREET
NORTH PLAINS, OREGON 97133
503-647-5524

OWNER-Tax Lots 1200, 2000

WEST UNION ROAD LLC
RON GUILLORY
P.O. BOX 12
HILLSBORO, OREGON 97123
PH. 503-640-5788

OWNER-Tax Lot 1202

KENNY FIELDS
30240 NW WEST UNION ROAD
NORTH PLAINS, OREGON 97133
PH. 503-680-0369

NORTH PLAINS CITY ENGINEERS

KYLE McTEAGUE & FULGENCE BUGINGO
MURRAY SMITH & ASSOCIATES
121 SW SALMON, SUITE 900
PORTLAND, OREGON 97204
(503) 225-9010

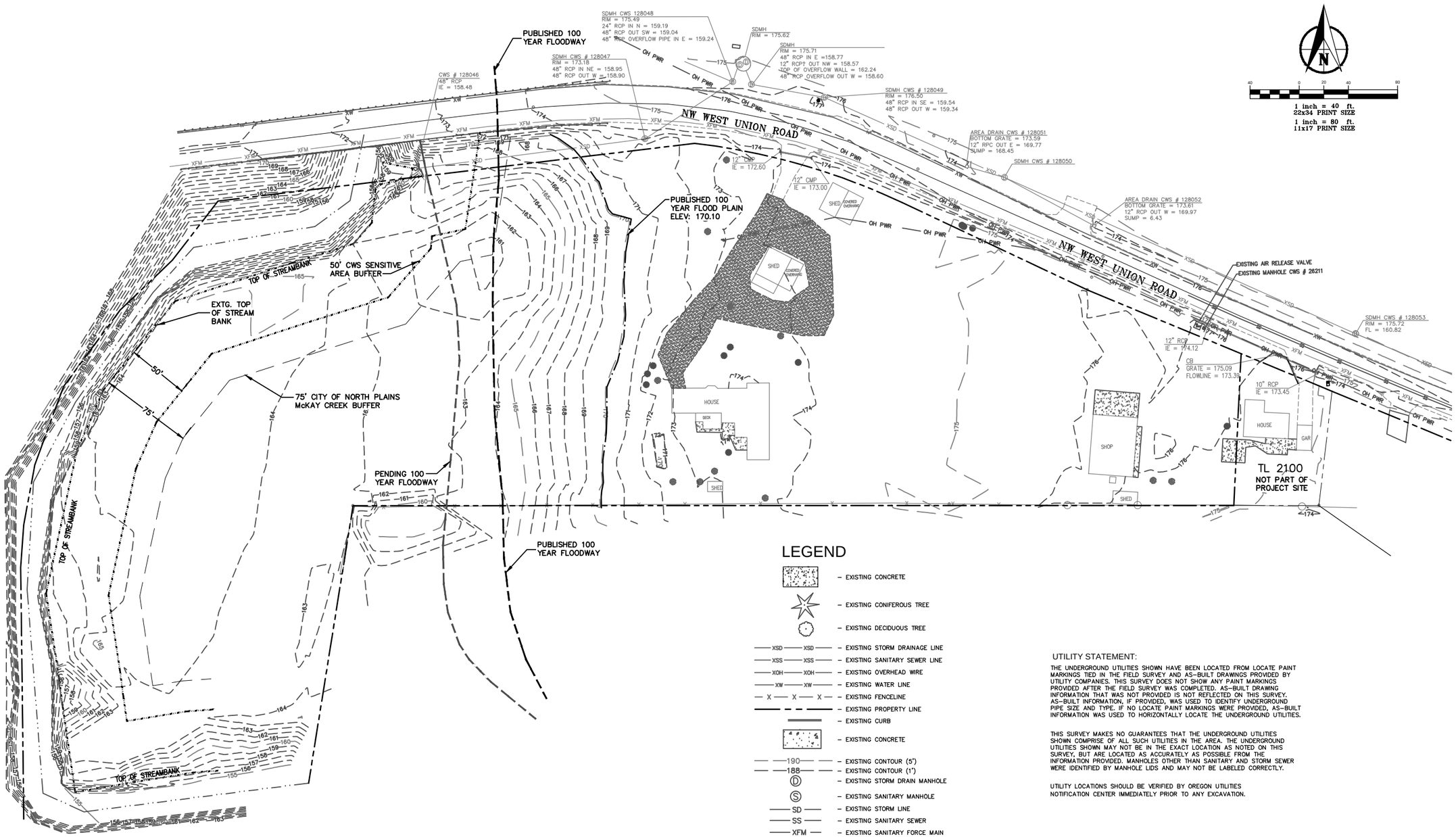
KITTREDGE ENGINEERS, LLC
6565 SW 207TH AVENUE
ALOHA, OR 97007
TEL: (503) 708-3942

COVER SHEET
McKAY FIELDS SUBDIVISION
DR HORTON
4380 SW MACADAM, SUITE 100 503-222-4151 EXT. 1115 – RYAN O'BRIEN

REGISTERED PROFESSIONAL ENGINEER
PRELIMINARY NOT FOR CONSTRUCTION
OREGON
JAN. 13, 1970
CHRIS P. KITTREDGE
RENEWAL 06/30/13

DATE: 3/19/2013
DRAWN BY: CPK
PROJ. MGR: CPK
CHECKED BY: CPK
PROJECT NUMBER
DRH.001
CASE FILE NUMBER
N/A

SHEET NUMBER
DD1
OF 7



LEGEND

- EXISTING CONCRETE
- EXISTING CONIFEROUS TREE
- EXISTING DECIDUOUS TREE
- XSD — EXISTING STORM DRAINAGE LINE
- XSS — EXISTING SANITARY SEWER LINE
- XOH — EXISTING OVERHEAD WIRE
- XW — EXISTING WATER LINE
- X — EXISTING FENCELINE
- EXISTING PROPERTY LINE
- EXISTING CURB
- EXISTING CONCRETE
- 190 — EXISTING CONTOUR (5')
- 188 — EXISTING CONTOUR (1')
- D — EXISTING STORM DRAIN MANHOLE
- S — EXISTING SANITARY MANHOLE
- SD — EXISTING STORM LINE
- SS — EXISTING SANITARY SEWER
- XFM — EXISTING SANITARY FORCE MAIN

UTILITY STATEMENT:

THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM LOCATE PAINT MARKINGS TIED IN THE FIELD SURVEY AND AS-BUILT DRAWINGS PROVIDED BY UTILITY COMPANIES. THIS SURVEY DOES NOT SHOW ANY PAINT MARKINGS PROVIDED AFTER THE FIELD SURVEY WAS COMPLETED. AS-BUILT DRAWING INFORMATION THAT WAS NOT PROVIDED IS NOT REFLECTED ON THIS SURVEY. AS-BUILT INFORMATION, IF PROVIDED, WAS USED TO IDENTIFY UNDERGROUND PIPE SIZE AND TYPE. IF NO LOCATE PAINT MARKINGS WERE PROVIDED, AS-BUILT INFORMATION WAS USED TO HORIZONTALLY LOCATE THE UNDERGROUND UTILITIES.

THIS SURVEY MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE OF ALL SUCH UTILITIES IN THE AREA. THE UNDERGROUND UTILITIES SHOWN MAY NOT BE IN THE EXACT LOCATION AS NOTED ON THIS SURVEY, BUT ARE LOCATED AS ACCURATELY AS POSSIBLE FROM THE INFORMATION PROVIDED. MANHOLES OTHER THAN SANITARY AND STORM SEWER WERE IDENTIFIED BY MANHOLE LIDS AND MAY NOT BE LABELED CORRECTLY.

UTILITY LOCATIONS SHOULD BE VERIFIED BY OREGON UTILITIES NOTIFICATION CENTER IMMEDIATELY PRIOR TO ANY EXCAVATION.

KITTREDGE ENGINEERS, LLC
6565 SW 207TH AVENUE
ALOHA, OR 97007
TEL: (503) 708-3942

EXISTING CONDITIONS

McKAY FIELDS SUBDIVISION

DR HORTON

503-222-4151 EXT, 1115 - RYAN O'BRIEN

4380 SW MACADAM, SUITE 100

REGISTERED PROFESSIONAL ENGINEER
PRELIMINARY NOT FOR CONSTRUCTION
OREGON
C. P. KITTREDGE
RENEWAL 06/30/13

DATE:	3/19/2013
DRAWN BY:	CPK
PROJ. MGR:	CPK
CHECKED BY:	CPK
PROJECT NUMBER	DRH.001
CASE FILE NUMBER	N/A
SHEET NUMBER	DD2
OF	7

KITTREDGE ENGINEERS, LLC
6565 SW 207TH AVENUE
ALOHA, OR 97007
TEL: (503) 708-3942

AERIAL PHOTO WITH
SITE BOUNDARY OVERLAY
McKAY FIELDS SUBDIVISION
DR HORTON
4380 SW MACADAM, SUITE 100 503-222-4151 EXT. 1115 – RYAN O'BRIEN

REGISTERED PROFESSIONAL ENGINEER
PRELIMINARY NOT FOR CONSTRUCTION
CHRIS P. KITTREDGE
RENEWAL 06/30/13

DATE:	3/19/2013
DRAWN BY:	CPK
PROJ. MGR:	CPK
CHECKED BY:	CPK
PROJECT NUMBER	DRH.001
CASE FILE NUMBER	N/A
SHEET NUMBER	DD3
OF	7

BUILDING SETBACK INFORMATION

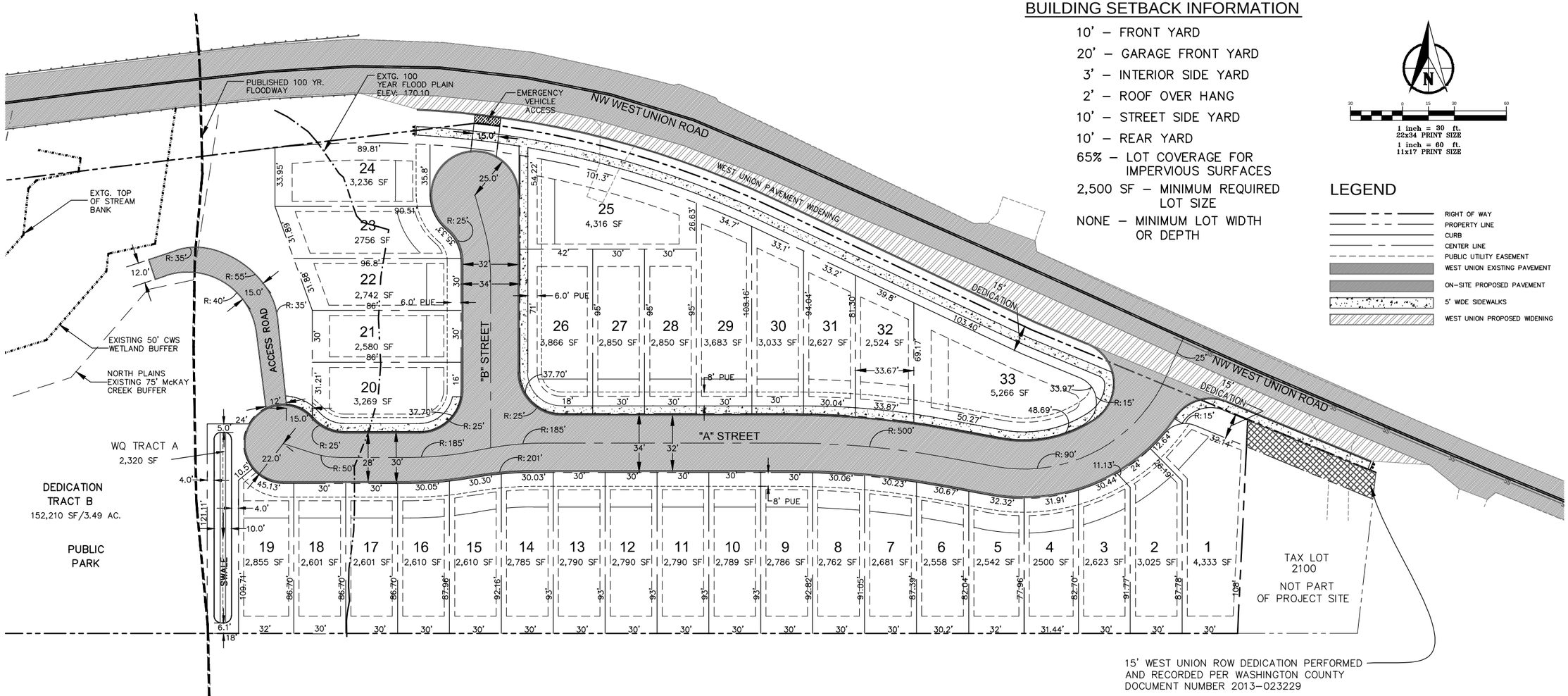
10' – FRONT YARD
20' – GARAGE FRONT YARD
3' – INTERIOR SIDE YARD
2' – ROOF OVER HANG
10' – STREET SIDE YARD
10' – REAR YARD
65% – LOT COVERAGE FOR IMPERVIOUS SURFACES
2,500 SF – MINIMUM REQUIRED LOT SIZE
NONE – MINIMUM LOT WIDTH OR DEPTH

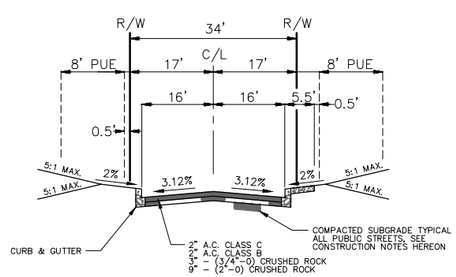
N

1 inch = 30 ft.
22x34 PRINT SIZE
1 inch = 60 ft.
11x17 PRINT SIZE

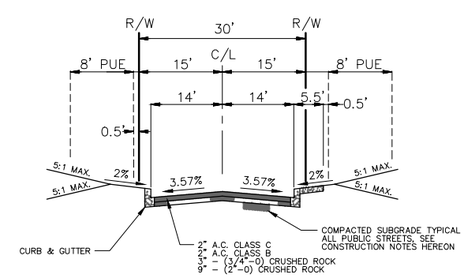
LEGEND

- RIGHT OF WAY
- PROPERTY LINE
- CURB
- CENTER LINE
- PUBLIC UTILITY EASEMENT
- WEST UNION EXISTING PAVEMENT
- ON-SITE PROPOSED PAVEMENT
- 5' WIDE SIDEWALKS
- WEST UNION PROPOSED WIDENING

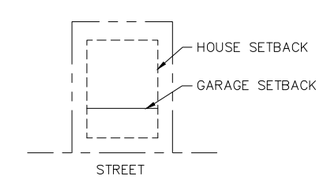




34' R/W LOCAL STREET
("B" STREET AND "A" STREET – EAST OF "B" STREET)
NTS



30' R/W LOCAL STREET
("A" STREET – WEST OF "B" STREET)
NTS



TYPICAL LOT BUILDING ENVELOPES
NTS

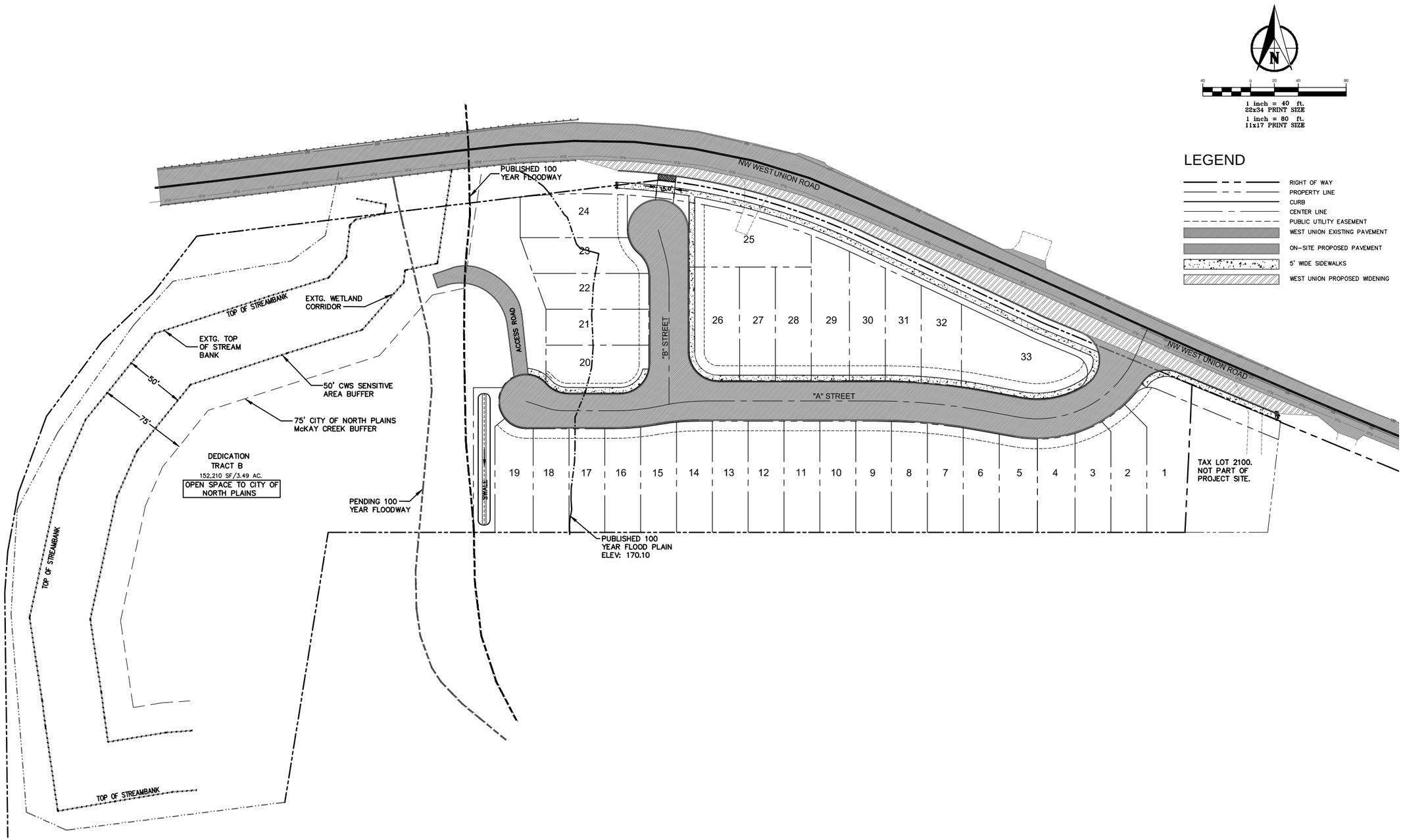
KITTREDGE ENGINEERS, LLC
6565 SW 207TH AVENUE
ALOHA, OR 97007
TEL: (503) 708-3942

PRELIMINARY PLAT
WITH STREET SECTIONS
McKAY FIELDS SUBDIVISION
DR HORTON
4380 SW MACADAM, SUITE 100 503-222-4151 EXT. 1115 – RYAN O'BRIEN

REGISTERED PROFESSIONAL ENGINEER
PRELIMINARY NOT FOR CONSTRUCTION
OREGON
C. P. KITTREDGE
RENEWAL 06/30/13

DATE: 3/19/2013
DRAWN BY: CPK
PROJ. MGR: CPK
CHECKED BY: CPK
PROJECT NUMBER DRH.001
CASE FILE NUMBER N/A
SHEET NUMBER DD4
OF 7

KittredgeC, Plotted: Mar 19, 2013 – 7:47am, P:\McKay Fields – Ron Guillory\dwg\Planning\Sets\GUL.001 P-PLAT 04.dwg



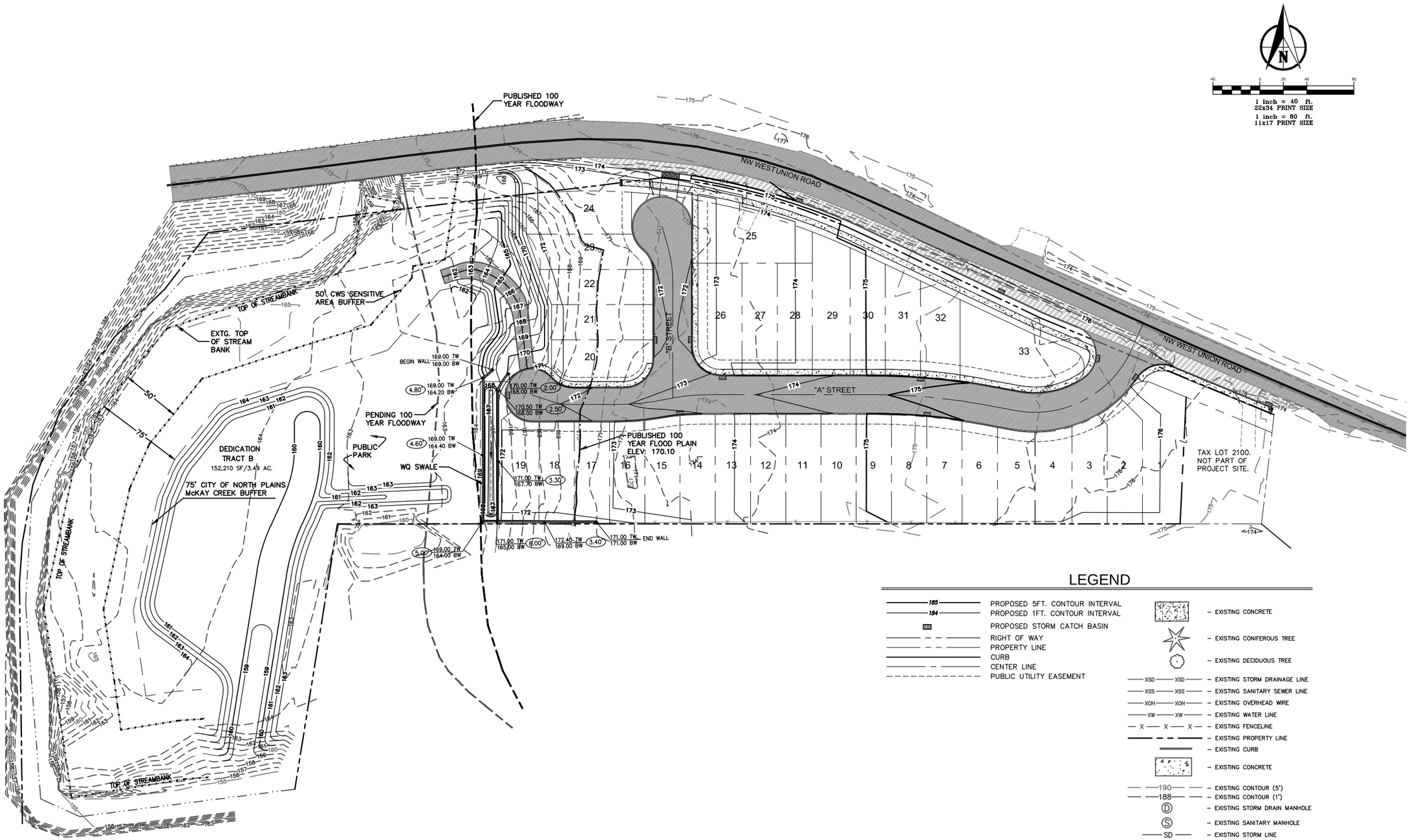
KITTREDGE ENGINEERS, LLC
6565 SW 207TH AVENUE
ALOHA, OR 97007
TEL: (503) 708-3942

OVER ALL
SITE PLAN
McKAY FIELDS SUBDIVISION
DR HORTON
4380 SW MACADAM, SUITE 100 503-222-4151 EXT. 1115 – RYAN O'BRIEN

REGISTERED PROFESSIONAL ENGINEER
PRELIMINARY
NOT FOR CONSTRUCTION
OREGON
JUL 31, 1987
CHRIS P. KITTREDGE
RENEWAL 06/30/13

DATE: 3/19/2013
DRAWN BY: CPK
PROJ. MGR: CPK
CHECKED BY: CPK
PROJECT NUMBER
DRH.001
CASE FILE NUMBER
N/A

SHEET NUMBER
DD5
OF 7



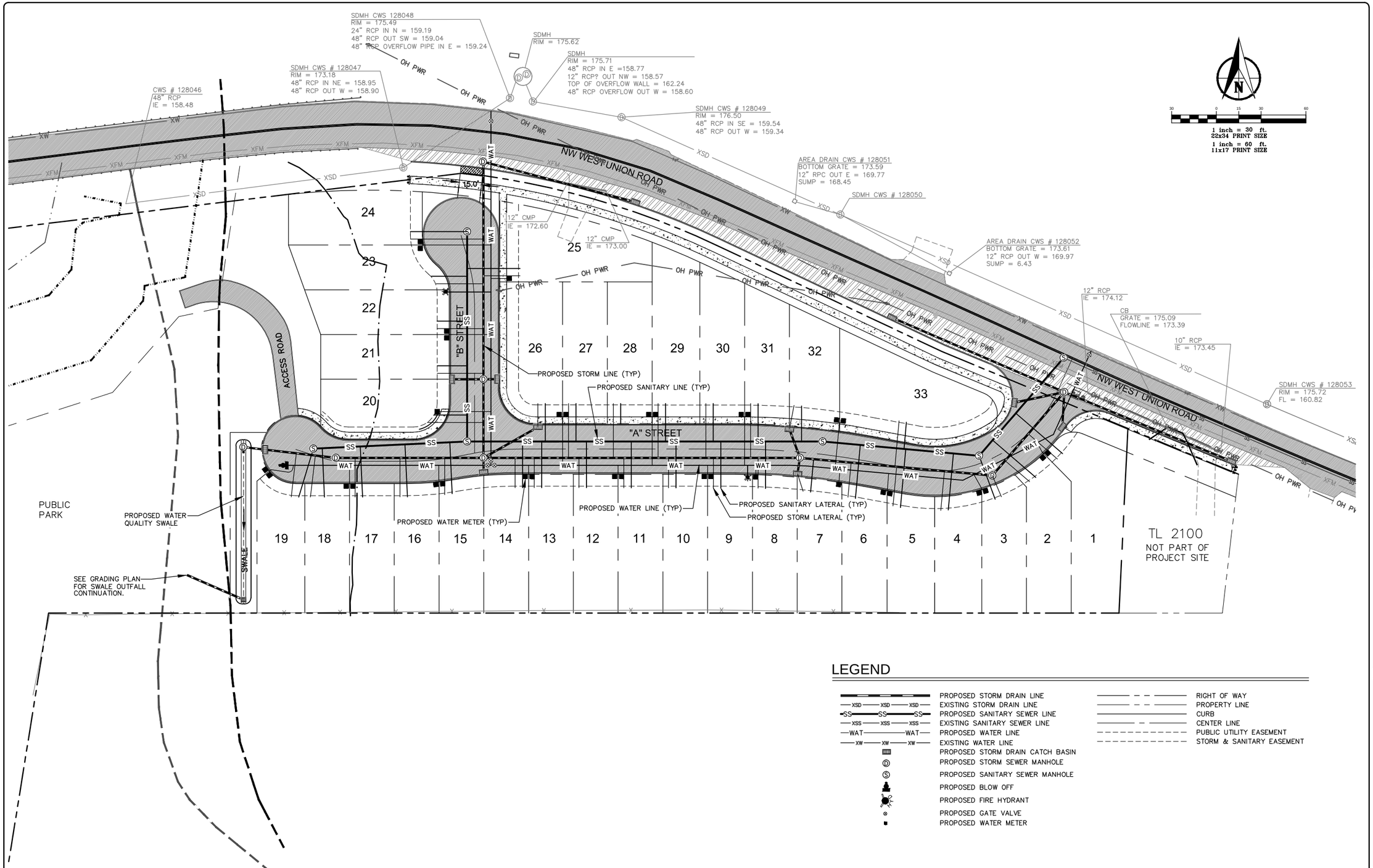
KITTREDGE ENGINEERS, LLC
6565 SW 207TH AVENUE
ALOHA, OR 97007
TEL: (503) 708-3942

PRELIMINARY
GRADING PLAN
McKAY FIELDS SUBDIVISION
DR HORTON
503-222-4151 EXT. 1115 – RYAN O'BRIEN
4380 SW MACADAM, SUITE 100

REGISTERED PROFESSIONAL ENGINEER
PRELIMINARY NOT FOR CONSTRUCTION
OREGON
S. P. KITTREDGE
RENEWAL 06/30/13

DATE: 3/19/2013
DRAWN BY: CPK
PROJ. MGR: CPK
CHECKED BY: CPK
PROJECT NUMBER
DRH.001
CASE FILE NUMBER
N/A

SHEET NUMBER
DD6
OF 7



LEGEND

	PROPOSED STORM DRAIN LINE
	EXISTING STORM DRAIN LINE
	PROPOSED SANITARY SEWER LINE
	EXISTING SANITARY SEWER LINE
	PROPOSED WATER LINE
	EXISTING WATER LINE
	PROPOSED STORM DRAIN CATCH BASIN
	PROPOSED STORM SEWER MANHOLE
	PROPOSED SANITARY SEWER MANHOLE
	PROPOSED BLOW OFF
	PROPOSED FIRE HYDRANT
	PROPOSED GATE VALVE
	PROPOSED WATER METER
	RIGHT OF WAY
	PROPERTY LINE
	CURB
	CENTER LINE
	PUBLIC UTILITY EASEMENT
	STORM & SANITARY EASEMENT

KITTREDGE ENGINEERS, LLC
6565 SW 207TH AVENUE
ALOHA, OR 97007
TEL: (503) 708-3942

PRELIMINARY
UTILITY PLAN
McKAY FIELDS SUBDIVISION
DR HORTON
4380 SW MACADAM, SUITE 100 503-222-4151 EXT. 1115 – RYAN O'BRIEN

REGISTERED PROFESSIONAL ENGINEER
PRELIMINARY NOT FOR CONSTRUCTION
OREGON
P. KITTREDGE
RENEWAL 06/30/13

DATE: 3/19/2013
DRAWN BY: CPK
PROJ. MGR: CPK
CHECKED BY: CPK
PROJECT NUMBER
DRH.001
CASE FILE NUMBER
N/A

SHEET NUMBER
DD7
OF 7

LAND TECH, INC.
8835 SW CANYON LN. #402
PORTLAND, OR 97225
(503) 291-9359
JN 1457, 1407P.dwg

BASIS OF BEARINGS AND BOUNDARY DETERMINATION
BASIS OF BEARINGS AND BOUNDARY DETERMINATION PER SN _____
WASHINGTON COUNTY SURVEY RECORDS

RECORDED AS DOCUMENT NO. _____

MCKAY FIELDS

A PORTION OF ANDERSON SMITH DONATION
LAND CLAIM NO. 64, LOCATED IN SECTION 6, TOWNSHIP 1 NORTH,
RANGE 2 WEST, WILLAMETTE MERIDIAN, CITY OF NORTH PLAINS.
WASHINGTON COUNTY, OREGON
OCTOBER 3, 2007

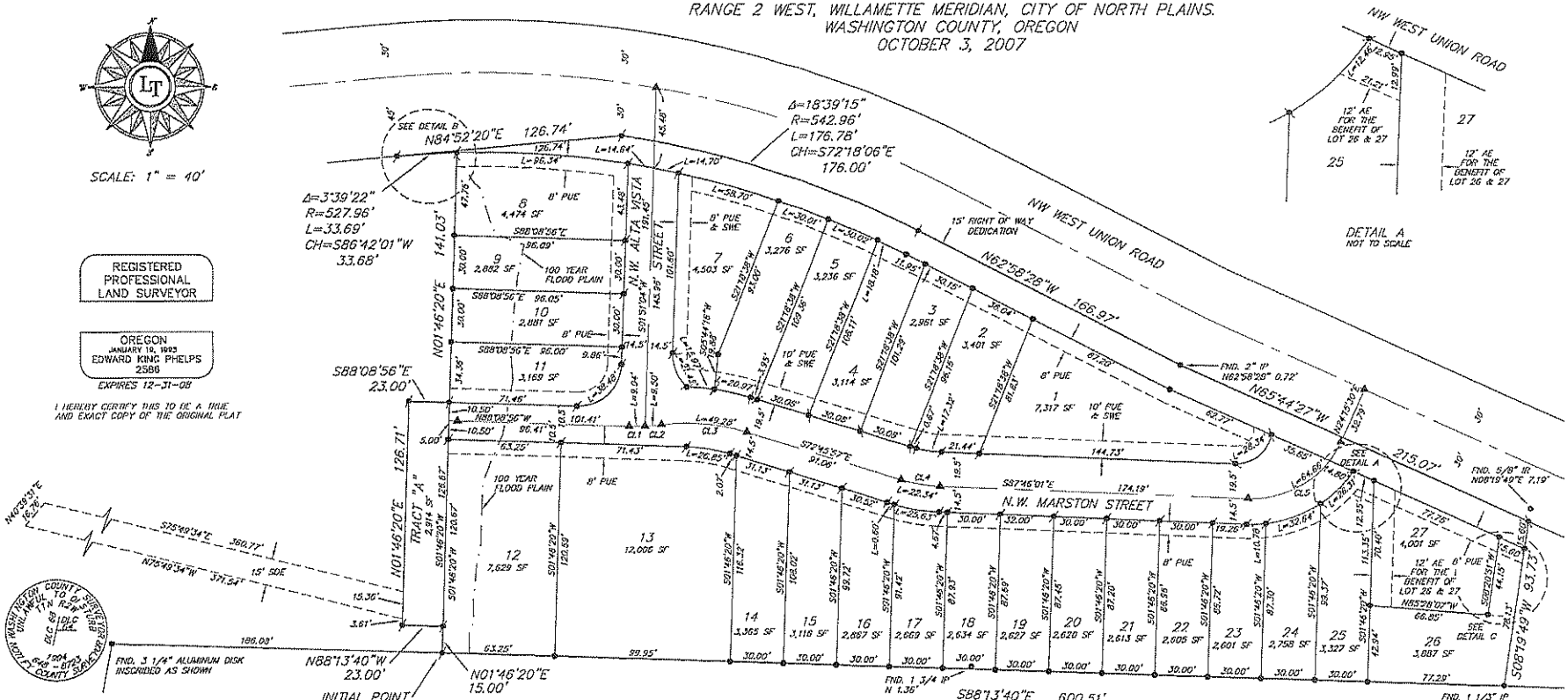
SCALE: 1" = 40'

REGISTERED PROFESSIONAL LAND SURVEYOR

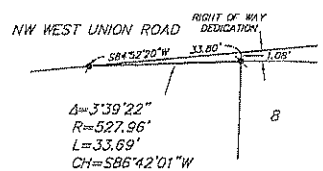
OREGON
JANUARY 19, 1993
EDWARD KING PHELPS
2588

EXPIRES 12-31-08

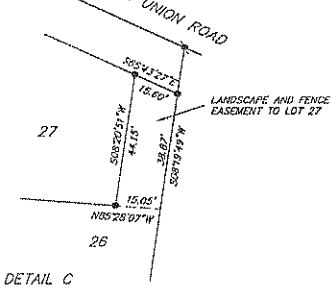
I HEREBY CERTIFY THIS TO BE A TRUE AND EXACT COPY OF THE ORIGINAL PLAT



DETAIL A
NOT TO SCALE



DETAIL B
NOT TO SCALE



DETAIL C
NOT TO SCALE

LEGEND

- FOUND 5/8" IR OR AS NOTED OTHERWISE
- FOUND 5/8" IRON ROD W/YPC INSCRIBED "LAND TECH"
- SET 5/8" X 30" IRON ROD W/YPC INSCRIBED "LAND TECH"
- SET 5/8" X 30" IRON ROD W/YPC INSCRIBED "LAND TECH" IN MONUMENT BOX
- SET 1" BRASS CAP IN CONCRETE INSCRIBED "LAND TECH"

W/YPC	WITH YELLOW PLASTIC CAP
FND	FOUND
MON.	MONUMENT
IR	IRON ROD
PUE	PUBLIC UTILITY EASEMENT
SSE	SANITARY SEWER EASEMENT TO CLEAN WATER SERVICES
SDE	STORM DRAINAGE EASEMENT TO CLEAN WATER SERVICES
SWE	PUBLIC SIDEWALK EASEMENT
AC	ALUMINUM CAP
AE	12' ACCESS EASEMENT FOR THE BENEFIT OF LOTS 26 & 27
SF	SQUARE FEET
SN	SURVEY NUMBER

THIS PLAT WAS PREPARED USING HEWLETT-PACKARD PRODUCT NO. 51645A ON OCE NO. 868342 FILM.

CURVE TABLE

LOT	DELTA	RADIUS	LENGTH	CHORD	BEARING
1	82°52'12"	18.50'	26.20'	23.81'	N50°47'53"E
2	15°02'21"	66.00'	17.32'	17.27'	S80°17'07"E
4	1°57'04"	527.96'	17.98'	17.98'	N63°36'42"W
5	3°15'30"	527.96'	30.02'	30.02'	N66°32'59"W
6	3°15'24"	527.96'	30.01'	30.01'	N69°48'22"W
6	8°26'05"	124.00'	20.97'	20.95'	N77°14'28"W
7	6°22'01"	527.96'	58.67'	58.64'	N74°37'09"W
7	50°02'22"	24.50'	21.42'	20.74'	S73°11'36"E
7	6°49'37"	124.00'	15.87'	15.86'	N83°00'50"W
8	10°27'16"	527.96'	96.34'	96.21'	N86°12'53"W
11	90°00'00"	24.50'	38.48'	34.65'	N46°51'04"E
13	15°22'58"	100.00'	26.85'	26.77'	N80°27'26"W
14	1°46'37"	100.00'	3.10'	3.10'	N23°38'19"W
16	0°20'47"	100.00'	0.60'	0.60'	S72°56'20"E
17	14°41'08"	100.00'	25.63'	25.56'	S80°27'10"E
18	0°11'14"	100.00'	0.33'	0.33'	S87°42'16"E
23	8°57'08"	68.00'	10.28'	10.27'	N87°53'08"E
24	27°06'12"	68.00'	32.04'	32.34'	N69°31'08"E
25	21°44'58"	68.00'	26.18'	26.04'	N45°25'53"E
CL1	4°31'22"	114.50'	9.04'	9.04'	N08°35'24"E
CL2	4°45'21"	114.50'	9.50'	9.50'	N04°57'02"E
CL3	24°39'41"	114.50'	49.28'	48.90'	N85°05'47"W
CL4	14°28'04"	85.50'	22.34'	22.27'	S80°14'59"E
CL5	67°58'20"	54.50'	64.66'	60.93'	N58°14'45"E

SHEET 1 OF 2

LAND TECH, INC.
8835 SW CANYON LN. #402
PORTLAND, OR 97225
(503) 291-9398
JN 1457, 1457P.dwg

MCKAY FIELDS

A PORTION OF ANDERSON SMITH DONATION
LAND CLAIM NO. 64, LOCATED IN SECTION 6, TOWNSHIP 1 NORTH,
RANGE 2 WEST, WILLAMETTE MERIDIAN, CITY OF NORTH PLAINS.
WASHINGTON COUNTY, OREGON
OCTOBER 3, 2007

RECORDED AS DOCUMENT NO. _____

DECLARATION

KNOW ALL MEN BY THESE PRESENTS THAT WEST UNION ROAD, LLC, AN UTAH LIMITED LIABILITY COMPANY, AND KENNETH W. FIELDS AND PATSY A. FIELDS, OWNERS, DO HEREBY MAKE, ESTABLISH, AND DECLARE THE ANNEXED MAP OF "MCKAY FIELDS" AS DESCRIBED IN THE ACCOMPANYING SURVEYOR'S CERTIFICATE, TO BE A TRUE AND ACCURATE MAP AND PLAT THEREOF, ALL LOTS AND TRACTS BEING THE DIMENSIONS SHOWN AND HEREBY GRANT ALL EASEMENTS, AS SHOWN OR NOTED ON SAID MAP. AND DO HEREBY DEDICATE THE RIGHTS OF WAY TO THE PUBLIC.

WEST UNION ROAD, LLC

BY: _____
RON GUILLORY, MEMBER WEST UNION ROAD, LLC

BY: _____
PATSY A. FIELDS, OWNER

BY: _____
KENNETH W. FIELDS, OWNER

ACKNOWLEDGMENT

STATE OF OREGON)
) SS
COUNTY OF WASHINGTON)

THIS INSTRUMENT WAS ACKNOWLEDGED BEFORE ME ON _____, 20____
BY RON GUILLORY AS MEMBER OF WEST UNION ROAD, LLC

_____
NOTARY SIGNATURE

_____
NOTARY PUBLIC - OREGON

COMMISSION NO. _____

MY COMMISSION EXPIRES _____, 20____

CONSENT AFFIDAVIT

A SUBDIVISION CONSENT AFFIDAVIT FROM MATTHEW B. TRAVIS AND LYNETTE S. TRAVIS, TRUST DEED BENEFICIARY, HAS

BEEN RECORDED IN DOCUMENT NO. _____ WASHINGTON COUNTY DEED RECORDS.

SURVEYOR'S CERTIFICATE

I, EDWARD KING PHELPS, CERTIFY THAT I HAVE CORRECTLY SURVEYED AND MARKED WITH PROPER MONUMENTS, THE LANDS REPRESENTED ON THE ANNEXED MAP OF "MCKAY FIELDS", SITUATED IN THE NORTHWEST QUARTER OF SECTION 6, TOWNSHIP 1 NORTH, RANGE 2 WEST, WILLAMETTE MERIDIAN, CITY OF NORTH PLAINS, WASHINGTON COUNTY, OREGON, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT THE INITIAL POINT WHERE I FOUND A 5/8" IRON ROD WITH YELLOW PLASTIC CAP MARKED "LAND TECH", WHICH BEARS SOUTH 88°13'40" EAST A DISTANCE OF 186.08 FEET FROM THE SOUTHWEST CORNER OF THE ANDERSON SMITH DONATION LAND CLAIM NO. 64; THENCE ALONG THE SOUTH LINE OF SAID DONATION LAND CLAIM NO. 64, SOUTH 88°13'40" EAST A DISTANCE OF 600.49 FEET TO THE SOUTHWEST CORNER OF THAT TRACT OF LAND CONVEYED TO DAVID J. VAN DOMELEN BY DEED RECORDED AS DEED DOCUMENT NO. 2002-009316, WASHINGTON COUNTY DEED RECORDS; THENCE ALONG THE WEST LINE OF SAID VAN DOMELEN TRACT, NORTH 08°20'51" WEST, A DISTANCE OF 83.63 FEET TO THE SOUTHERLY RIGHT OF WAY LINE OF N.W. WEST UNION ROAD; THENCE ALONG SAID SOUTHERLY RIGHT OF WAY LINE NORTH 65°44'30" WEST, A DISTANCE OF 215.06 FEET; THENCE NORTH 62°58'10" WEST, A DISTANCE OF 167.20 FEET; THENCE AN ARC DISTANCE OF 176.82 FEET ALONG A CURVE CONCAVE TO THE SOUTH HAVING A RADIUS OF 542.96 FEET THROUGH A CENTRAL ANGLE OF 18°39'33" (CHORD BEARS NORTH 72°17'57" WEST, A DISTANCE OF 176.04 FEET); THENCE SOUTH 84°52'20" WEST, A DISTANCE OF 126.74 FEET; THENCE AN ARC DISTANCE OF 33.96 FEET ALONG A CURVE CONCAVE TO THE SOUTH HAVING A RADIUS OF 527.96 FEET THROUGH A CENTRAL ANGLE OF 03°41'07" (CHORD BEARS SOUTH 86°42'54" EAST, A DISTANCE OF 33.95' FEET); THENCE SOUTH 88°08'56" WEST, A DISTANCE OF 141.02 FEET; THENCE NORTH 88°08'56" WEST, A DISTANCE OF 23.00 FEET; THENCE SOUTH 01°46'20" WEST, A DISTANCE OF 126.71 FEET; THENCE SOUTH 88°13'40" EAST, A DISTANCE OF 23.00 FEET; THENCE SOUTH 01°46'20" WEST, A DISTANCE OF 15.00 FEET TO THE INITIAL POINT.

CONTAINING 3.08 ACRES

REGISTERED
PROFESSIONAL
LAND SURVEYOR

OREGON
JANUARY 19, 1983
EDWARD KING PHELPS
2586

EXPIRES 12-31-08

I HEREBY CERTIFY THIS TO BE A TRUE AND EXACT COPY OF THE ORIGINAL PLAT

NOTES

1. THIS SUBDIVISION IS SUBJECT TO THE CONDITIONS OF APPROVAL PER SUBDIVISION CASE FILE NO. SD-VAR-07-0006, CITY OF NORTH PLAINS PLANNING DEPARTMENT.
2. THIS SUBDIVISION IS SUBJECT TO COVENANTS, CONDITIONS & RESTRICTIONS, RECORDED AS DOCUMENT NO. _____, WASHINGTON COUNTY DEED RECORDS.
3. TRACT "A" IS SUBJECT TO A STORM SEWER, SURFACE WATER, DRAINAGE AND DETENTION EASEMENT TO CLEAN WATER SERVICES OVER ITS ENTIRETY.
4. THERE SHALL BE NO DIRECT MOTOR VEHICLE ACCESS TO OR FROM LOTS 1 THROUGH 8, 25, 26, 27 AND N.W. ALTA VISTA STREET ONTO NW WEST UNION ROAD UNLESS AUTHORIZED BY THE GOVERNING BODY HAVING JURISDICTION OF SAID ROAD.
5. THIS SUBDIVISION IS SUBJECT TO A WAIVER OF REMONSTRANCE AS DOCUMENT NO. _____, WASHINGTON COUNTY DEED RECORDS.
6. TRACT "A" SHALL BE OWNED AND MAINTAINED BY THE DECLARNT, SUCCESSORS OR ASSIGNS.
7. LOTS 8 THROUGH 27 ARE SUBJECT TO AN 8.00 FOOT WIDE PUBLIC UTILITY EASEMENT ALONG ALL STREET FRONTAGES AS SHOWN.
8. LOTS 1 THROUGH 7 ARE SUBJECT TO A 10.00 FOOT WIDE PUBLIC UTILITY AND PUBLIC SIDEWALK EASEMENT ALONG THE FRONTAGE OF N.W. MARSTON STREET AND AN 8.00 FOOT PUBLIC UTILITY EASEMENT ALONG THE FRONTAGES OF N.W. ALTA VISTA STREET AND N.W. WEST UNION ROAD AS SHOWN.
9. PORTIONS OF LOTS 8 THROUGH 12 ARE WITHIN THE 100 YEAR FLOOD PLAIN. ALL WORK WITHIN THE FLOOD PLAIN, INCLUDING BUT NOT LIMITED TO THE CONSTRUCTION OF FENCING, THE MOVEMENT OF DIRT, THE CONSTRUCTION OF PLANTERS OR PATIOS AND THE CONSTRUCTION OF ACCESSORY STRUCTURES SHALL COMPLY WITH CHAPTER 16.14 FLOOD PLAIN ORDINANCE OF THE NORTH PLAINS ZONING AND DEVELOPMENT CODE.
10. THE 100 YEAR FLOOD PLAIN ELEVATION OF 170.00 FEET AS SHOWN PER FEMA COMMUNITY-PANEL NUMBER 410238 0326 B, DATED SEPTEMBER 30, 1982.
11. LOT 26 IS SUBJECT TO A FENCE AND LANDSCAPING EASEMENT TO LOT 27.

THIS PLAT WAS PREPARED USING HEWLETT-PACKARD PRODUCT NO. 51645A ON OCE NO. 868342 FILM.

CITY OF NORTH PLAINS APPROVALS

APPROVED THIS _____ DAY OF _____, 20____

_____
CITY MANAGER, CITY OF NORTH PLAINS

APPROVED THIS _____ DAY OF _____, 20____

_____
PLANNING COMMISSION CHAIRMAN, CITY OF NORTH PLAINS

WASHINGTON COUNTY APPROVALS

APPROVED THIS _____ DAY OF _____, 20____
WASHINGTON COUNTY SURVEYOR

BY _____

APPROVED THIS _____ DAY OF _____, 20____
WASHINGTON COUNTY BOARD OF COMMISSIONERS

BY _____

APPROVED THIS _____ DAY OF _____, 20____
DIRECTOR OF ASSESSMENT AND TAXATION
(WASHINGTON COUNTY ASSESSOR)

BY _____

ATTEST THIS _____ DAY OF _____, 20____
DIRECTOR OF ASSESSMENT AND TAXATION
EX-OFFICIO COUNTY CLERK.

BY _____
DEPUTY

STATE OF OREGON)
) SS
COUNTY OF WASHINGTON)

I DO HEREBY CERTIFY THAT THIS SUBDIVISION PLAT WAS RECEIVED FOR RECORD ON THIS _____ DAY OF _____, 20____, AT _____ O'CLOCK ____ M., AND RECORDED IN THE COUNTY CLERK RECORDS.

_____
DEPUTY COUNTY CLERK

STATE OF OREGON)
) SS
COUNTY OF WASHINGTON)

I DO HEREBY CERTIFY THAT THIS TRACING IS A COPY CERTIFIED TO ME, BY THE SURVEYOR OF THIS SUBDIVISION PLAT, TO BE A TRUE AND EXACT COPY OF THE ORIGINAL, AND THAT IT WAS RECORDED ON THE _____ DAY OF _____, 20____, AT _____ O'CLOCK ____ M, IN THE COUNTY CLERK RECORDS.

_____
DEPUTY COUNTY CLERK

SHEET 2 OF 2

CITY OF NORTH PLAINS

31360 NW Commercial Street, North Plains, Oregon 97133

SENT VIA EMAIL

July 13, 2012

Ron Guillory
PO Box 12
Hillsboro, OR 97123

RE: Extension approval for Files #SD/VAR-06-024 & #SD/FPP/VAR/LLA-07-006

Mr. Guillory:

At the July 11, 2012, Planning Commission meeting your request for an extension of files #SD/VAR-06-024 and #SD/FPP/VAR/LLA-07-006 were approved. File #SD/VAR-06-024 now expires on May 11, 2014 and file #SD/VAR-06-024 now expires on March 15, 2014. Please notify the city of any future extension requests; the city does not make extensions automatically.

If you have any questions, please contact City Hall at (503) 647-5555 or email angie@northplains.org.

Sincerely,

Angie Lehnert
Assistant Planner
City of North Plains

NORTH PLAINS
City to the Sunset

City of North Plains

31360 NW Commercial St. North Plains, OR 97133
Ph. 503-647-5555 Fax 503-647-2031
Email: info@northplains.org

LAND USE APPLICATION

Applicant General Information

Applicant Name: DR. HORTON (RYAN O'BRIEN)

Mailing Address: 4380 SW MACADAM AVE. SUITE 100
Street — Apartment/Unit #

PORTLAND, OR 97239 CELL 503-503-7546
City — State — ZIP Code

Email Address: RMOBRIEN@DRHORTON.COM Phone: (503. 222-4151 (OFF)

Property Owner: WEST UNION ROAD LLC (RON GUILDRY) 503-705-7188 #1115

Mailing Address: P.O. BOX 12, HILLSBORO, OR 97123
Street — Apartment/Unit #

T.L. 1202 KENNY FIELDS 30240 NW WEST UNION RD.
City — State — ZIP Code

Email Address: NORTH PLAINS, OR 97133 Phone: (503. 680-0369

Property Description

Address: 30240 NW WEST UNION ROAD
Street — Apartment/Unit #

NORTH PLAINS, OR 97133
City — State — ZIP Code

Tax Lot ID (TLID): MAP 1N2-6 TL 1200 - 1202 - 2000 Existing Zoning: R-2.5

Property Area: 6.37 AC. Existing Land Use: ONE - SFR HOUSE

General Development Description: 33 LOT SUBDIVISION WITH FLOOD PLAIN FILL & SNR ALTERATION & VARIANCE TO REDUCE STREET AND EXCAVATION SIDE YARD FROM 10' TO 8'

Fees

Land Use Process	Fee	Land Use Process	Fee
☐ Annexation	$10,000 deposit*	☐ Non-Conforming Use	$200
☐ Appeal	$226	☒ Subdivision	$1,895
☐ Comp Plan Amendment, Text	$8,000	☐ Manu Home Park	$2,910
☐ Comp Plan Amendment, Map	$5,000	☐ Modification – Minor	$134
☐ Conditional Use, Residential	$391	☐ Modification – Major	$1,423
☐ Conditional Use, Ind. & Comm.	$525	☒ SNR Permit	$1,047
☐ Design Review Type II	$137	☐ Similar Use	$403**
☐ Design Review Type III	$726	☐ Street Vacation	$1,169
☒ Floodplain Permit	$1,047	☐ UGB Expansion	$28,000
☐ Partition, with street dedication	$669	☐ Variance, Administrative	$98
☐ Partition, no street dedication	$331	☒ Variance, PC Hearing	$450
☐ Lot Line Adjustment	$312	☐ Zoning Code Amendment	$1,474
☐ Other:			

* plus $9,000 election deposit ** waived until 2013

Information to Include with Your Application

- Narrative describing the Development Proposal and addressing the Decision Criteria. *All applications will be reviewed based on the Criteria of North Plains Zoning Ordinance.* Ask Staff for the applicable chapters to address in your narrative.
- Application and Filing Fee
- Plans drawn to scale showing:
  - All property boundaries in which development is occurring
  - All adjacent roads (with names and dimensions)
  - Location and dimensions of all existing and proposed accessways/driveways
  - Location, size (area), and setbacks of existing and proposed buildings
  - Location, size, and layout of existing and proposed landscaping
  - Location, number and size of existing and proposed parking areas, including handicapped spaces
  - Location, number and size of existing and proposed loading areas
  - Location, number, size, and types of existing and proposed lighting
  - Location, number, size, and types of existing and proposed fencing and or/screening
  - Pedestrian circulation
  - Outdoor seating areas
  - Flood plains
  - Water courses
  - Significant vegetation,
  - Easements

After initial review, the City may require additional information.

Additional Information

In order to expedite and complete the processing of this application, the City of North Plains requires that all pertinent material required for review of this application be submitted at the time application is made. If the application is found to be incomplete, review and processing of the application will not begin until the application is made complete.

I certify that the statements made in this application are complete and true to the best of my knowledge. I understand that any false statements may result in denial of this application.

I understand that there may be additional costs of processing this application including, but not limited to, planning, engineering, city attorney and administration. The City will notify the applicant if there will be additional costs.

Date: 3-18-13 Signature of Applicant: Ryan O'Brien FOR DR. HORTON

Date: 3-18-13 Signature of Property Owner: x Ken Fields West Union Rd. LLC by: Managing Mgr.

FOR OFFICE USE

Received by: _____ Date: _____

Fee paid: _____ Receipt No. _____ Application No. _____

250' Radi
3/18/1
1200 1
Mo
WEST UNION
OLD WEST UNION
YORKSHIRE
TOWER
BROOKING
300TH
LENOX
HIGHVIEW
COMMERCIAL
HAYDEN
HIGHLAND
CLARK
CONCALE
KASCOE
EXHIBIT "D"
NOTIFICATION PROPERTY

1N20600 01100
Betty & Ralph Martin
Po Box 158
North Plains OR 97133-0158

1N301DA 06400
City of North Plains
31360 NW Commercial St
North Plains OR 97133-6215

1N20600 02200
David Vandomelen
30020 NW West Union Rd
North Plains OR 97133-8383

1N20600 03200 & 03300
F M Vandomelen Living Trust
30020 NW West Union Rd
North Plains OR 97133-8383

1N20600 01201 & 02600
Kenneth & Patsy Fields
30240 NW West Union Rd
North Plains OR 97133-7313

1N301DD 00102 & 00103
Mark & Stacey Hamburg
Po Box 746
North Plains OR 97133-0746

1N301DD 00105 & 00106
Mark & Stacey Hamburg
Po Box 746
North Plains OR 97133-0746

1N20600 03100
Mary Anne & Floyd Vandomelen
30175 NW West Union Rd
North Plains OR 97133-8383

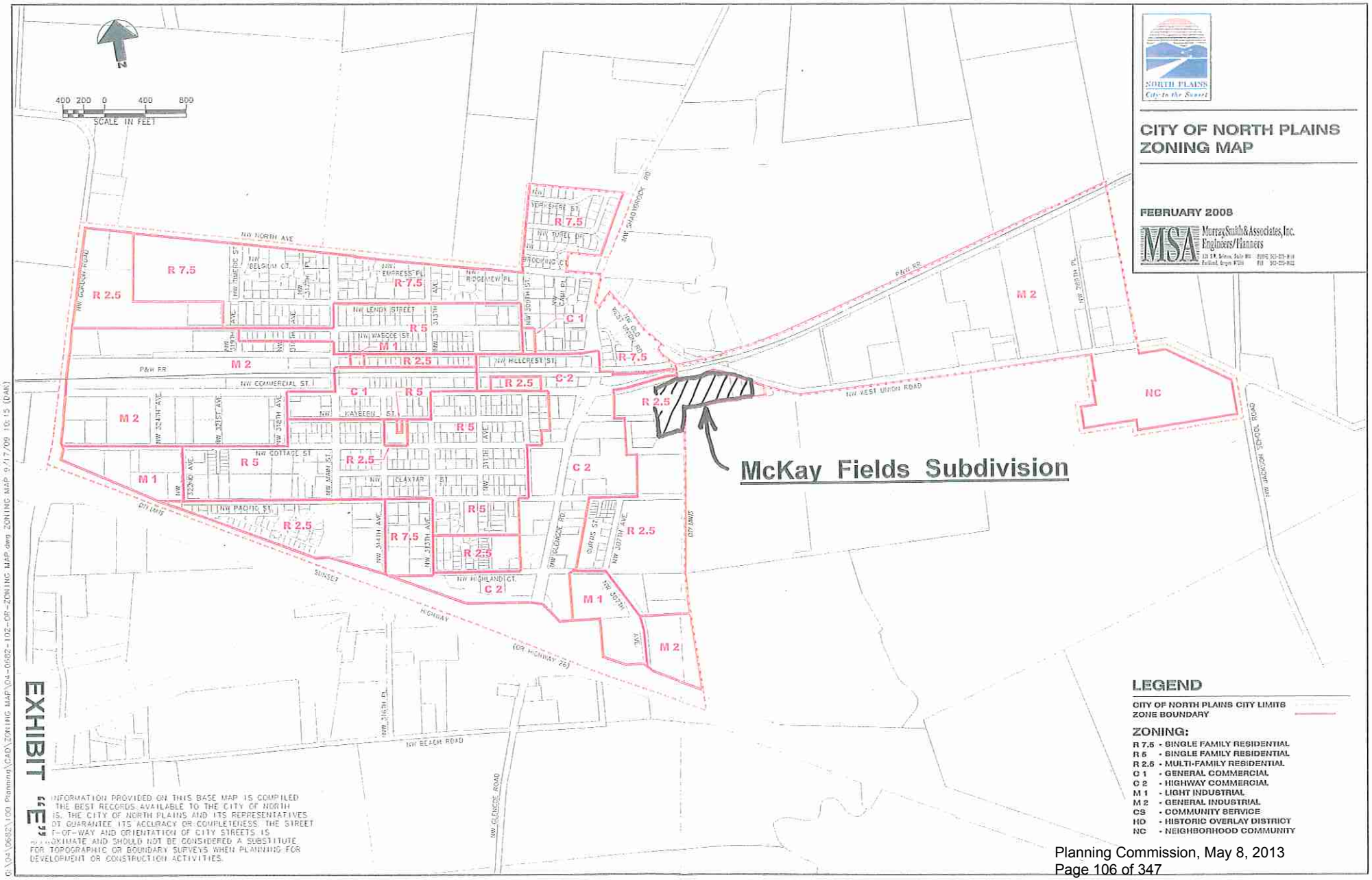
1N301DA 04900
Michael Eric Long Living Trust
Gary S Long
15731 SW Oberst Ln
Sherwood OR 97140-5000

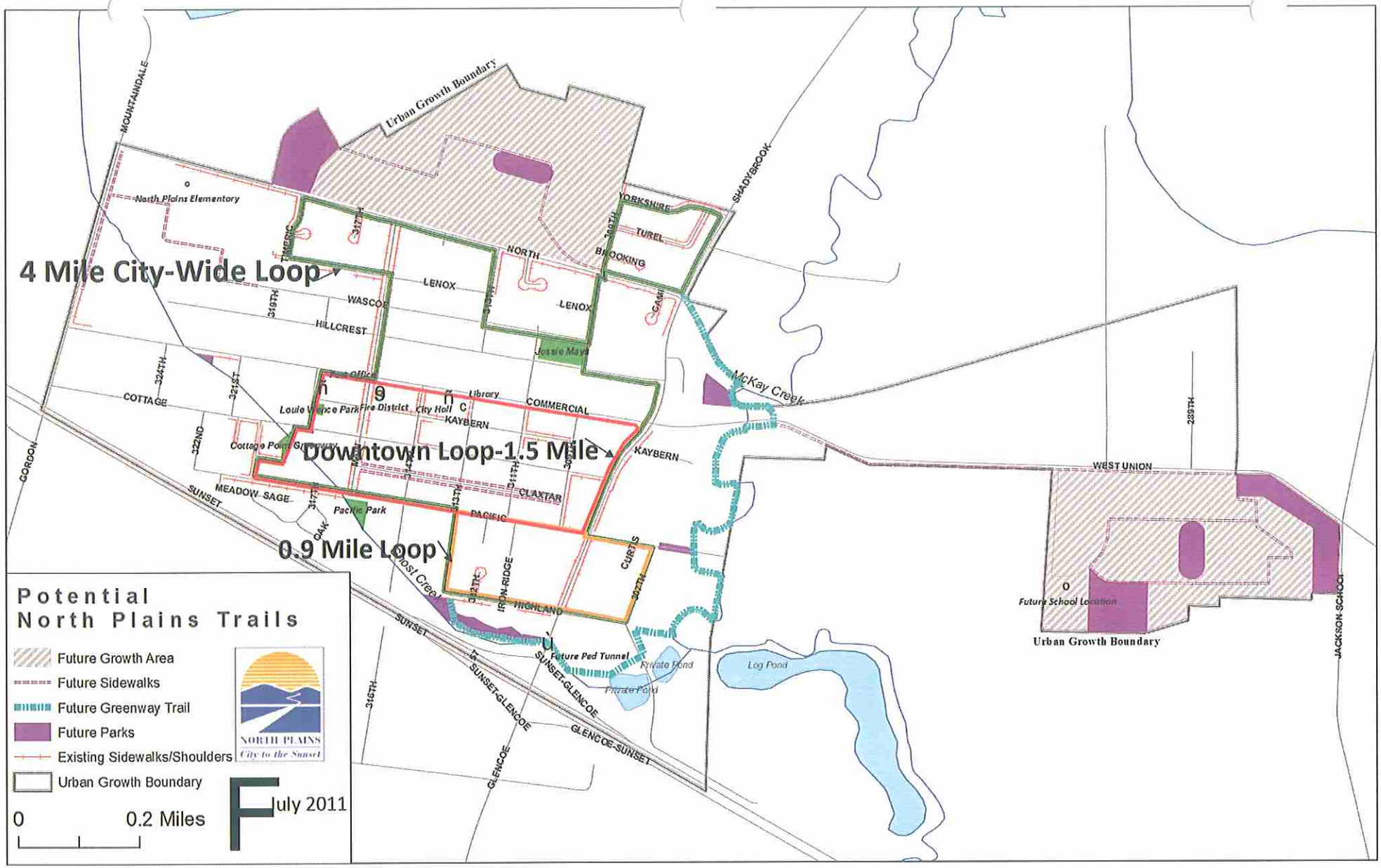
1N20600 00900 & 02700
Peter Dinsdale
Po Box 357
Independence OR 97351-0357

1N301DA 04800
Richard Troutman
Po Box 441
North Plains OR 97133-0441

1N20100 03700
Oregon State-Dept of Transportation
4040 Fairview Industrial Dr SE
Salem OR 97302-1142

1N301DA 04500
Venita Volpp & Hazel Volpp
30550 NW Old West Union Rd
North Plains OR 97133-8367


CITY OF NORTH PLAINS
ZONING MAP
FEBRUARY 2008
Murray,Smith&Associates,Inc.
Engineers/Planners
NORTH PLAINS
City in the Sunset
400 200 0 400 800
SCALE IN FEET
N
McKay Fields Subdivision
NW NORTH AVE
NW GARDNER ROAD
NW BELGIUM CT.
NW EMPRESS PL.
NW RIDGEVIEW PL.
NW LENOX STREET
NW WASCOE ST.
NW HILLCREST ST.
NW COMMERCIAL ST.
NW KAYBEEN ST.
NW COTTAGE ST.
NW CLAXTAR ST.
NW PACIFIC ST.
NW HIGHLAND CT.
NW GLENCOE ROAD
NW CHADWICK RD.
NW WEST UNION ROAD
NW SCHOOL HOUSE ROAD
NW BEACH ROAD
P&W RR
SUNSET HIGHWAY
(OR HIGHWAY 26)
CITY LIMITS
R 7.5
R 2.5
R 5
M 1
M 2
C 1
C 2
NC
LEGEND
CITY OF NORTH PLAINS CITY LIMITS
ZONE BOUNDARY
ZONING:
R 7.5 - SINGLE FAMILY RESIDENTIAL
R 5 - SINGLE FAMILY RESIDENTIAL
R 2.5 - MULTI-FAMILY RESIDENTIAL
C 1 - GENERAL COMMERCIAL
C 2 - HIGHWAY COMMERCIAL
M 1 - LIGHT INDUSTRIAL
M 2 - GENERAL INDUSTRIAL
CS - COMMUNITY SERVICE
HO - HISTORIC OVERLAY DISTRICT
NC - NEIGHBORHOOD COMMUNITY
INFORMATION PROVIDED ON THIS BASE MAP IS COMPILED FROM THE BEST RECORDS AVAILABLE TO THE CITY OF NORTH PLAINS. THE CITY OF NORTH PLAINS AND ITS REPRESENTATIVES DO NOT GUARANTEE ITS ACCURACY OR COMPLETENESS. THE STREET RIGHT-OF-WAY AND ORIENTATION OF CITY STREETS IS APPROXIMATE AND SHOULD NOT BE CONSIDERED A SUBSTITUTE FOR TOPOGRAPHIC OR BOUNDARY SURVEYS WHEN PLANNING FOR DEVELOPMENT OR CONSTRUCTION ACTIVITIES.
EXHIBIT "E"
G:\04\0682\100 Planning\CAD\ZONING MAP\04-0682-102-OR-ZONING MAP.dwg ZONING MAP 9/17/08 10:15 (DAK)


4 Mile City-Wide Loop
Downtown Loop-1.5 Mile
0.9 Mile Loop
Urban Growth Boundary
North Plains Elementary
MOUNTAINDALE
SHADYBROOK
YORKSHIRE
TUREL
BROOKING
NORTH
LENOX
WASCO
HILLCREST
Jessie Mae's
COTTAGE
Post Office
Library
City Hall
Fire District
Louie Vance Park
COMMERCIAL
KAYBERN
McKay Creek
Cottage Pond Greenway
MEADOW SAGE
Pacific Park
CLAXTAR
PACIFIC
GORDON
SUNSET
OAK
Rock Creek
IRON-RIDGE
HIGHLAND
CURTIS
Future Ped Tunnel
Private Pond
Log Pond
SUNSET-GLENCOE
GLENCOE-SUNSET
GLENCOE
WEST UNION
Future School Location
JACKSON-SCHOOL
Potential
North Plains Trails
Future Growth Area
Future Sidewalks
Future Greenway Trail
Future Parks
Existing Sidewalks/Shoulders
Urban Growth Boundary
0
0.2 Miles
NORTH PLAINS
City to the Sunset
July 2011

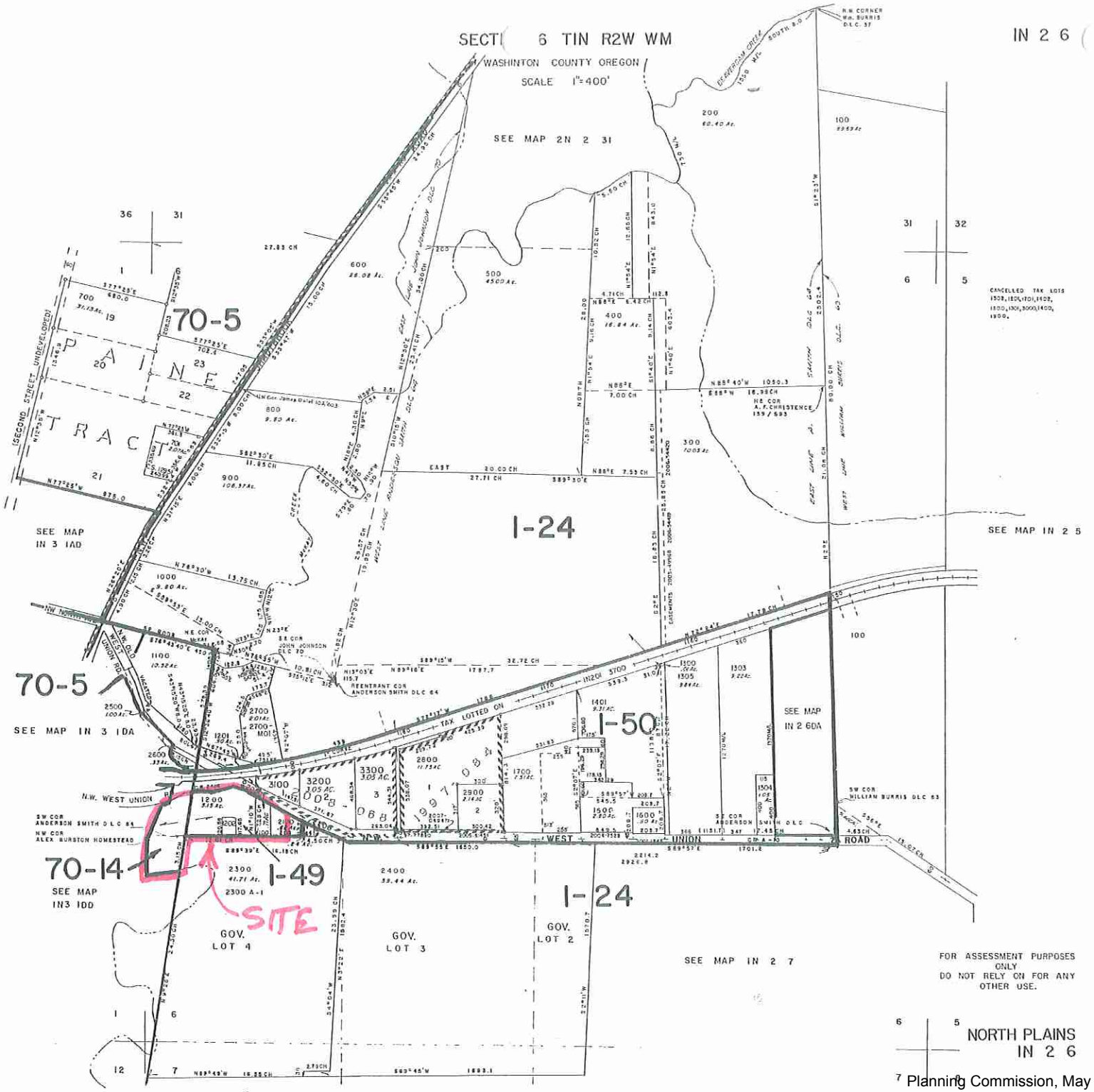
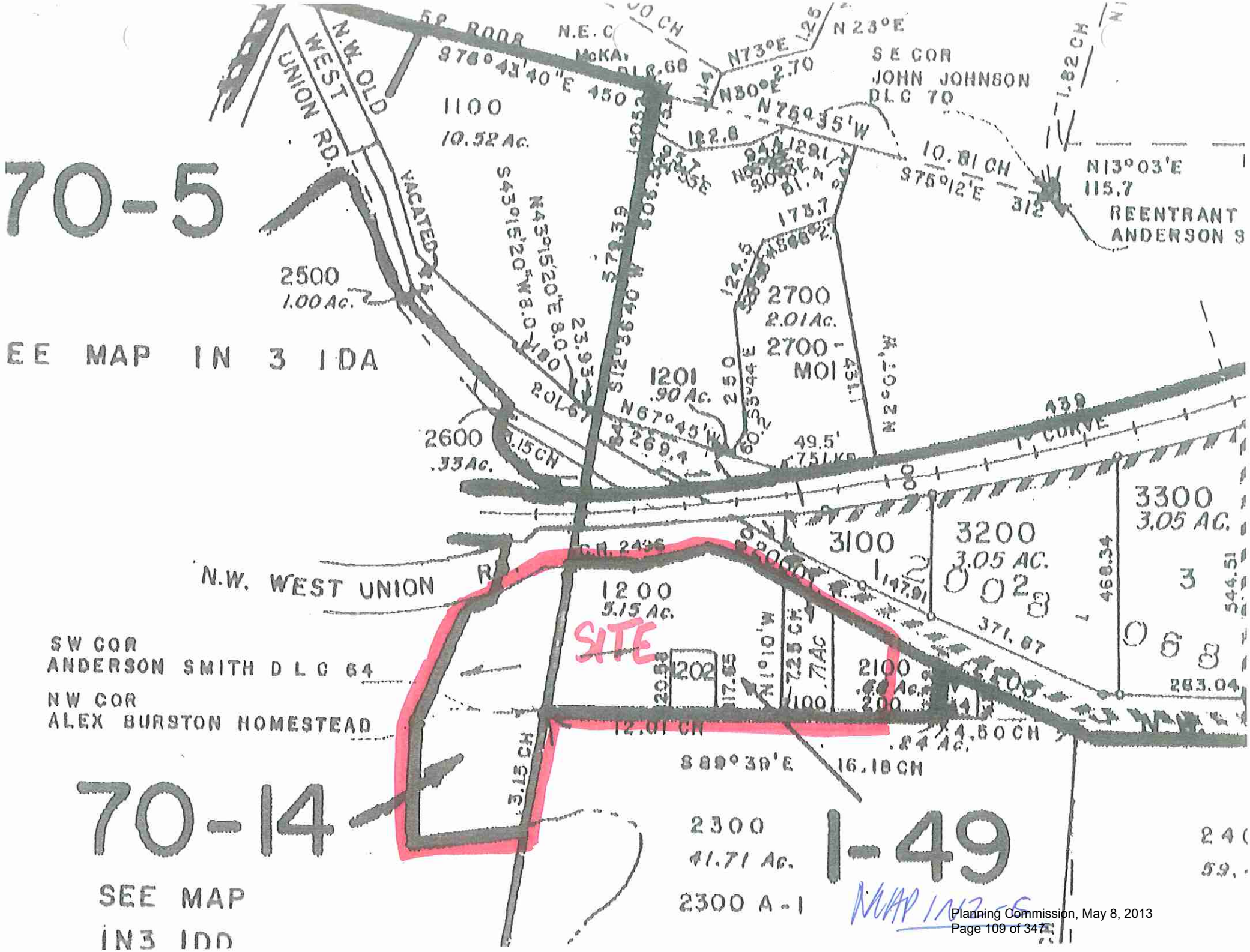
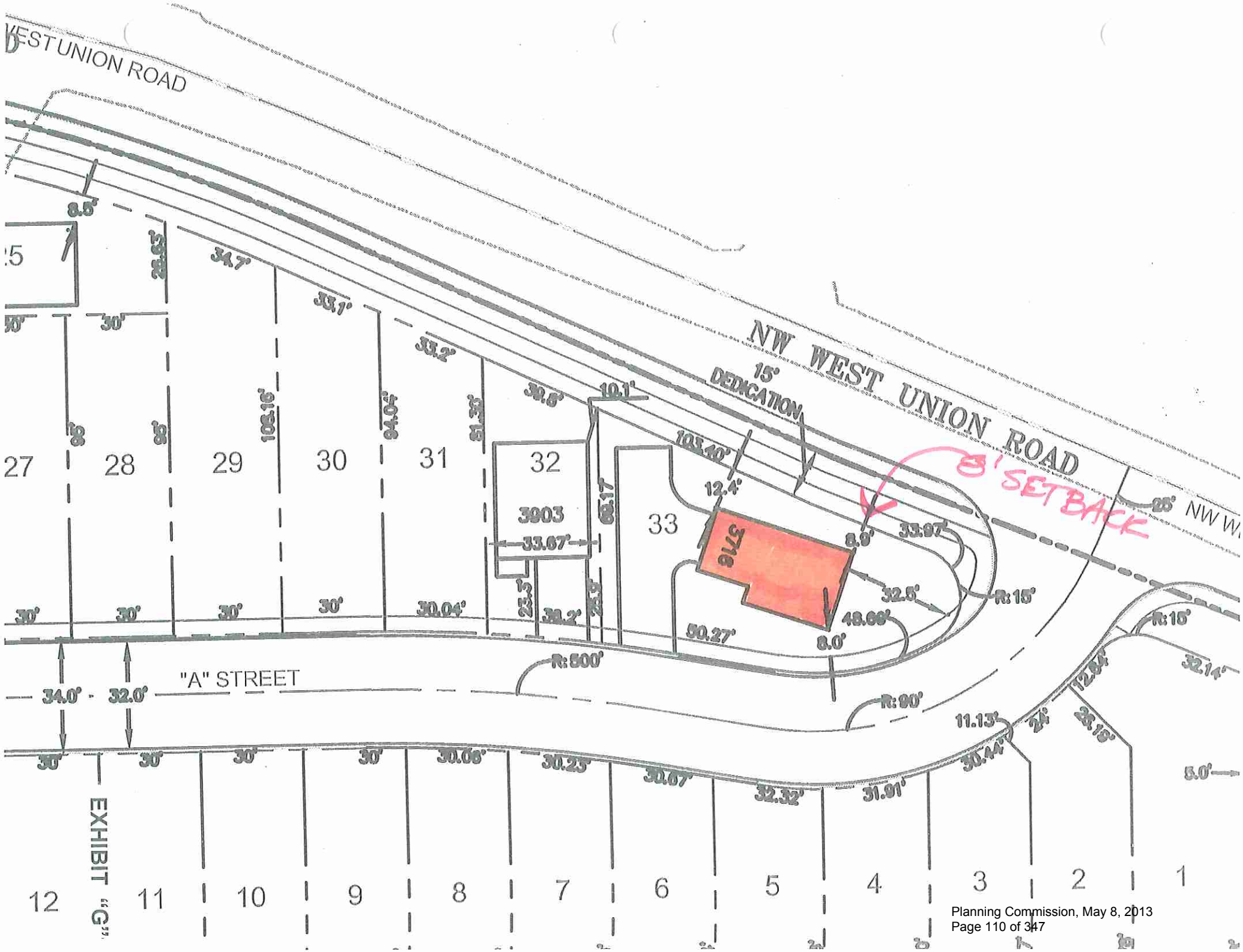
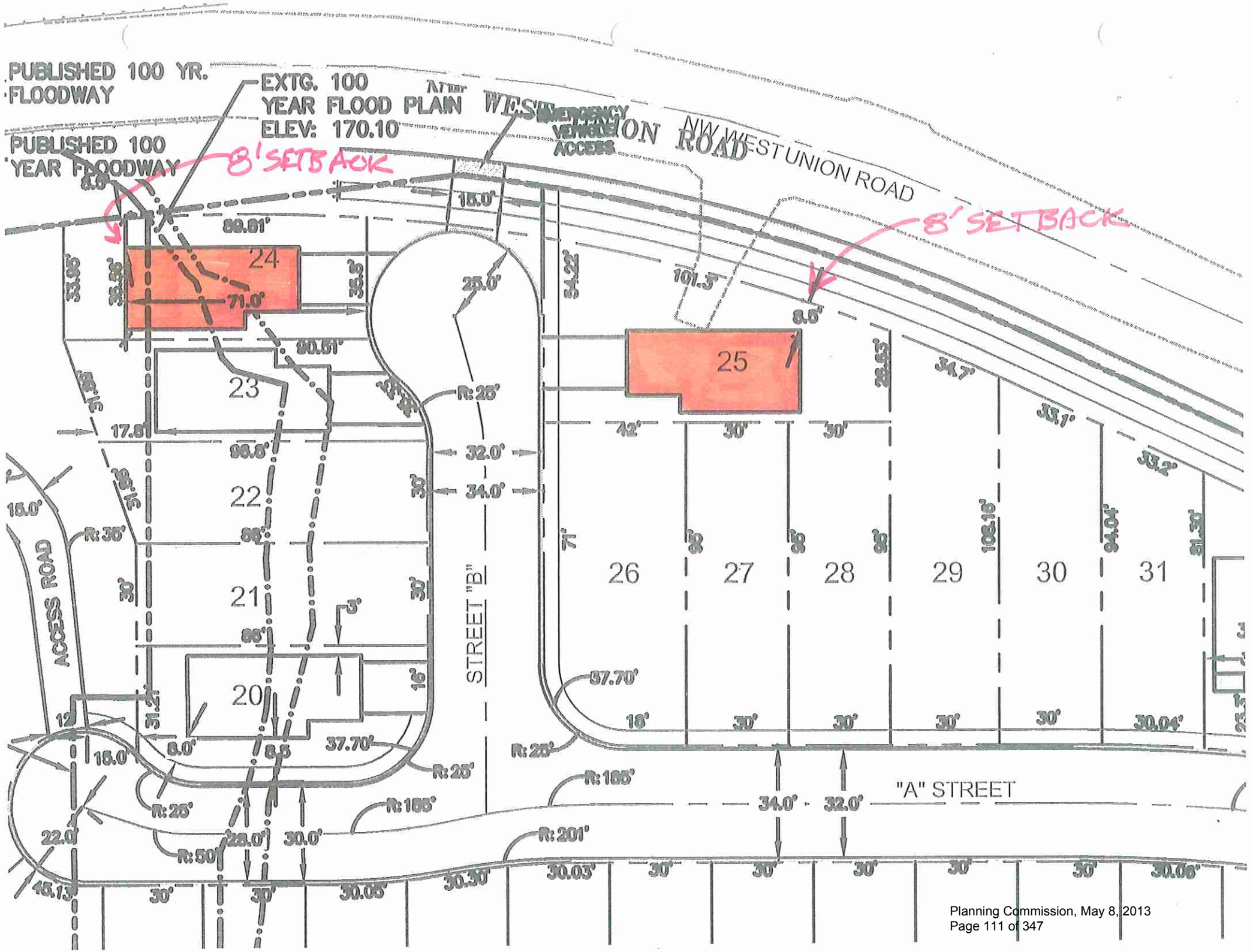

SECTI 6 TIN R2W WM
WASHINTON COUNTY OREGON
SCALE 1"=400'
IN 2 6
SEE MAP 2N 2 31
70-5
PAINE TRACT
SEE MAP IN 3 1AD
70-5
SEE MAP IN 3 1DA
1-24
1-50
SEE MAP IN 2 6DA
SEE MAP IN 2 5
70-14
SEE MAP IN3 1DD
1-49
SITE
1-24
GOV. LOT 4
GOV. LOT 3
GOV. LOT 2
SEE MAP IN 2 7
N.W. WEST UNION
WEST UNION ROAD
FOR ASSESSMENT PURPOSES ONLY
DO NOT RELY ON FOR ANY OTHER USE.
NORTH PLAINS
IN 2 6

EXHIBIT "F"


70-5
SEE MAP IN 3 IDA
N.W. OLD WEST UNION RD.
VACATED
1100
10.52 Ac.
2500
1.00 Ac.
2600
.33 Ac.
1201
.90 Ac.
2700
2.01 Ac.
2700-M01
S E COR
JOHN JOHNSON
DLC 70
N13°03'E
115.7
REENTRANT
ANDERSON 9
N.W. WEST UNION R
1200
5.15 Ac.
SITE
3100
3200
3.05 AC.
3300
3.05 AC.
SW COR
ANDERSON SMITH D L C 64
NW COR
ALEX BURSTON HOMESTEAD
2100
2300
41.71 Ac.
2300 A-1
70-14
SEE MAP
IN3 IDD
I-49
MAP 1117-5


WEST UNION ROAD
NW WEST UNION ROAD
15' DEDICATION
8' SETBACK
"A" STREET
EXHIBIT "G"
3903
3716
27
28
29
30
31
32
33
12
11
10
9
8
7
6
5
4
3
2
1
R: 500'
R: 90'
R: 15'
34.0'
32.0'


PUBLISHED 100 YR. FLOODWAY
EXTG. 100 YEAR FLOOD PLAIN ELEV: 170.10
PUBLISHED 100 YEAR FLOODWAY
8' SETBACK
WEST UNION ROAD
NW WEST UNION ROAD
8' SETBACK
24
25
23
22
21
20
26
27
28
29
30
31
STREET "B"
ACCESS ROAD
"A" STREET

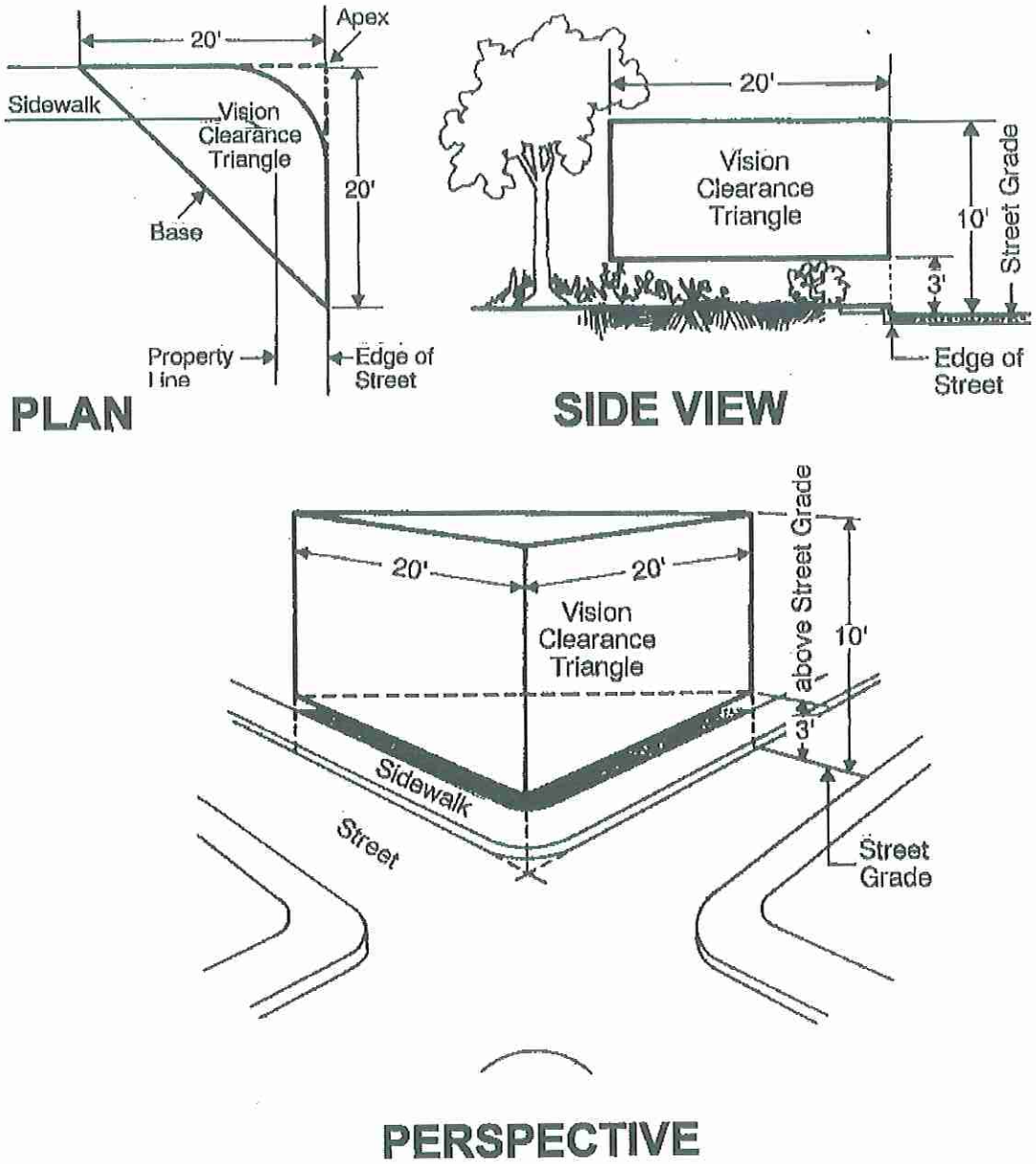


Figure 1: Clear Vision Area Illustration

CITY OF NORTH PLAINS
ADMINISTRATIVE (TYPE I) DECISION: LOT LINE ADJUSTMENT

MARCH 6, 2013
File # 13-014-01-LLA

I. OVERVIEW

APPLICATION:
Applicant requests a lot line adjustment affecting the east side of TLID 1N2060002000 and the western portion of TLID 1N2060002100. The applicant wishes to expand TLID 1N2060002000 in preparation for filing the final plat of the McKay Fields subdivision. The adjustment results in the following lot configurations:

- TLID 1N2060002000- Eastern lot line will move approximately 100 feet to the east, resulting in a lot that will gain approximately 20,940 square feet totaling approximately 41,661 square feet
- TLID 1N2060002100 – Western lot line will move approximately 100 feet east, resulting in a lot totaling approximately 8,680 square feet.

APPLICANT:
Ron Guillory
Manager, West Union Road LLC
PO Box 12
Hillsboro, OR, 97123

Location: The subject Lot Line Adjustment involves two existing parcels located at 29495 NW West Union. Both of the subject parcels have street frontages on NW West Union; however this Lot Line Adjustment does not affect portions of the parcels that front NW West Union.

OWNER:
Tax Lot 1N2060002000 (western lot of this LLA):
West Union Road LLC
PO Box 12
Hillsboro, OR, 97123

Tax Lot 1N2060002100 (30140 NW West Union Road, eastern lot of this LLA):
West Union Road LLC
PO Box 12
Hillsboro, OR, 97123

ZONING: R-2.5

EXISTING CONDITIONS: TLID 1N2060002000 is vacant land/farm use and TLID contains a single family home.

EXHIBIT "H"

II. ZONING CODE REVIEW & FINDINGS

APPLICABLE CRITERIA

A. Chapter 16.012 of the *North Plains Zoning and Development Ordinance* (ZDO), General Industrial (M-2)
B. Chapter 16.58 of the ZDO, Lot Line Adjustment
C. Chapter 16.86 of the ZDO, Administrative Process

Below are staff findings in response to and applicable citations/applicable review criteria from the *North Plains Zoning Ordinance*:

CHAPTER 16.12: M-2 ZONE

16.30.015 Dimensional Standards

A. **Lot/Parcel Size**
- Lots created by subdivision: 6,000 square feet maximum lot size per dwelling unit
- Single-family dwelling: 2,500 square feet minimum
- Two-family dwelling (duplexes),Triplexes & attached single family dwellings: 2,500 square feet per unit minimum lot size
- Multi-family dwelling developments (greater than 3 units):10,000 4,000 square feet minimum foot lot;
- All other uses 4,000 square feet minimum

B. **Lot/Parcel Depth and Width**
- No minimum lot width or depth.

C. **Setback Requirements**
Principle structures, accessory dwellings and accessory structures with a floor area greater than 200 square feet shall maintain the following minimum yard setbacks except that development on flag lots shall be subject to the setback standards for Flag Lots.

D. **Front Yard:**
- For all structures: 10 feet
- Garage: 20 feet

Garages, carports, accessory dwellings and accessory structures shall be flush with, or recessed behind, the front building elevation of the principle structure.

E. **Rear Yard:**
- street-access lots 10 feet
- alley-access lots 6 feet
- Accessory Structures and Accessory Dwellings 5 feet

F. Side Yard:

- Side yards should be established to create separation between structures and meet fire codes and provide space for pervious surface area
- Single family dwellings created by subdivision must have at least one side yard
- Adjacent to street - 10 feet plus additional necessary to comply with the standards of Clear Vision Areas section of this chapter.
- Accessory Structures and Accessory Dwellings - 5 foot Adjacent to street setback, except as provided for in the Accessory Use, Structures and Dwellings section of this chapter.

Findings: The proposed lot line adjustment is in conformance with the above standards of the R-2.5 Zone.

CHAPTER 16.58: LOT LINE ADJUSTMENTS

Chapter 16.58 of the ZDO describes the following review criteria for the approval of lot line adjustments:

Approval Criterion A: ***"No new lots or parcels are created as a result of the lot line adjustment."***

Findings: No new lots or parcels will be created as a result of the lot line adjustment.

Approval Criterion B. ***"The adjusted lot lines result in lots which comply with all standards of the underlying zone and provisions of this Ordinance."***

Findings: As reviewed above, the adjustment will result in parcels that both comply with the standards of the R-2.5 Zone.

III. DECISION

Based upon the findings contained within this Administrative Decision and the submitted application, including the Lot Line Adjustment survey prepared by Emerio Design (dated March 5, 2013), this application for a Lot Line Adjustment is approved with the condition that the applicant record the deed and county-approved survey of the Lot Line Adjustment with the Washington County, Oregon Recording Office within one year of this approval; if no recording occurs, the decision will be automatically vacated and new application will be required.

Appeal: This approval may be appealed by the applicant or other interested party by filing of a written notice of appeal with the City Manager within fifteen (15) days of the date of this written notice of approval.

APPROVED:

Angie Lehnert 3/6/13
City of North Plains
Assistant Planner

Washington County, Oregon
03/14/2013 01:09:50 PM **2013-023229**
D-DD Cnt=1 Stn=29 RECORDS1
$15.00 $5.00 $11.00 $15.00 - Total =$46.00

01811844201300232290030036

I, Richard Hobernicht, Director of Assessment and Taxation and Ex-Officio County Clerk for Washington County, Oregon, do hereby certify that the within instrument of writing was received and recorded in the book of records of said county.

Richard Hobernicht, Director of Assessment and Taxation, Ex-Officio County Clerk

After recording, please return to:
Washington County Surveyor's Office
1400 SW Walnut Street, MS-17
Hillsboro, Oregon 97123

RIGHT-OF-WAY DEDICATION DEED

KNOW ALL PERSONS BY THESE PRESENTS, that **West Union Road, LLC, an Oregon limited liability company,** grantor, does hereby grant to Washington County, a political subdivision of the State of Oregon, Grantee, for the use of the public as a public way forever, an easement for right-of-way purposes over that certain real property situated in the County of Washington and State of Oregon, shown on the attached Exhibit "B" and being more particularly described as follows:

DEDICATION OF RIGHT-OF-WAY
Described in Exhibit "A", and shown on Exhibit "B",
Attached hereto and by this reference made a part hereof.

The true consideration for this conveyance is $ NONE .

Grantor, hereby covenants to and with Grantee, that it is the owner of said property which is free from all encumbrances, except for easements, conditions and restrictions of record, and will warrant and defend the easement rights herein granted from all lawful claims whatsoever, except as stated herein.

To Have and To Hold, the above described and granted premises unto Washington County for the public forever for the uses and purposes hereinabove mentioned.

IN WITNESS WHEREOF, the Grantor above named, has caused this instrument to be duly signed hereto.

Dated this 14 day of MARCH, 2013.

West Union Road, LLC,
an Oregon limited liability company

RM Guillory, Manager

STATE OF OREGON)
) ss.
County of Washington)

This instrument was acknowledged before me on this 14 day of MARCH, 2013, by RM Guillory, Manager, on behalf of West Union Road, LLC, an Oregon limited liability company.

Notary Public for Oregon
My Commission Expires: 11-19-16

OFFICIAL SEAL
DARRELL LINN MILLARD
NOTARY PUBLIC - OREGON
COMMISSION NO. 473573
MY COMMISSION EXPIRES NOVEMBER 19, 2016

Accepted on behalf of Washington County, Oregon.

Dated this 14th day of March, 2013

By:
James H. Blam, County Surveyor

Approved as to form:

Loretta S. Skurdahl,
Senior Assistant County Counsel
Date:

EMERIO
Design

Civil Engineering
Land Survey
Land Use Planning

EXHIBIT A
Right of Way Dedication

A tract of land situated in the Southwest ¼ of Section 6, Township 1 North, Range 2 West, W.M., City of North Plains, Washington County, Oregon, being more particularly described as follows:

Commencing at the Southwest corner of the Anderson Smith D.L.C. No. 64; thence along the south line thereof, S88°13'40"E, 717.27 feet; thence leaving said line N04°31'53"E, 108.00 feet to a point 45.00 feet from (when measured at right angles) the centerline of N.W. Union Road and the Point of Beginning; thence N04°31'53"E, 15.93 feet to a point on the southerly right of way line of N.W. Union Road; thence along said right of way line S65°43'27"E, 80.15 feet to the northwest corner of that tract of land described in Document Number 2002-009316, Washington County Deed Records; thence along the westerly line thereof, S08°19'49"W, 15.60 feet to a point 45.00 feet from (when measured at right angles) the centerline of N.W. Union Road; thence 45.00 feet from and parallel with said centerline, N65°43'27"W, 79.05 to the Point of Beginning.

Containing 1,194 square feet.

REGISTERED
PROFESSIONAL
LAND SURVEYOR
OREGON
JANUARY 19, 1993
EDWARD KING PHELPS
2568
EXPIRES 12-31-14

6107 SW Murray Blvd, Suite 147 • Beaverton, Oregon 97008 • 503-515-5528 | TEL • 503-639-9592 | FAX
www.emeriodesign.com

EMERIO DESIGN
8285 SW NIMBUS AVE.
SUITE 180
BEAVERTON, OR 97008
503-746-8812

EXHIBIT B

BASIS OF BEARINGS AND BOUNDARY DETERMINATION PER SURVEY NO. 30,731

PROPERTY LINE ADJUSTMENT
LOCATED IN THE S.W. 1/4 OF SECTION 6,
T.1N., R.2W., W.M., CITY OF NORTH PLAINS,
WASHINGTON COUNTY, OREGON
MARCH 5, 2013

SCALE: 1" = 50'

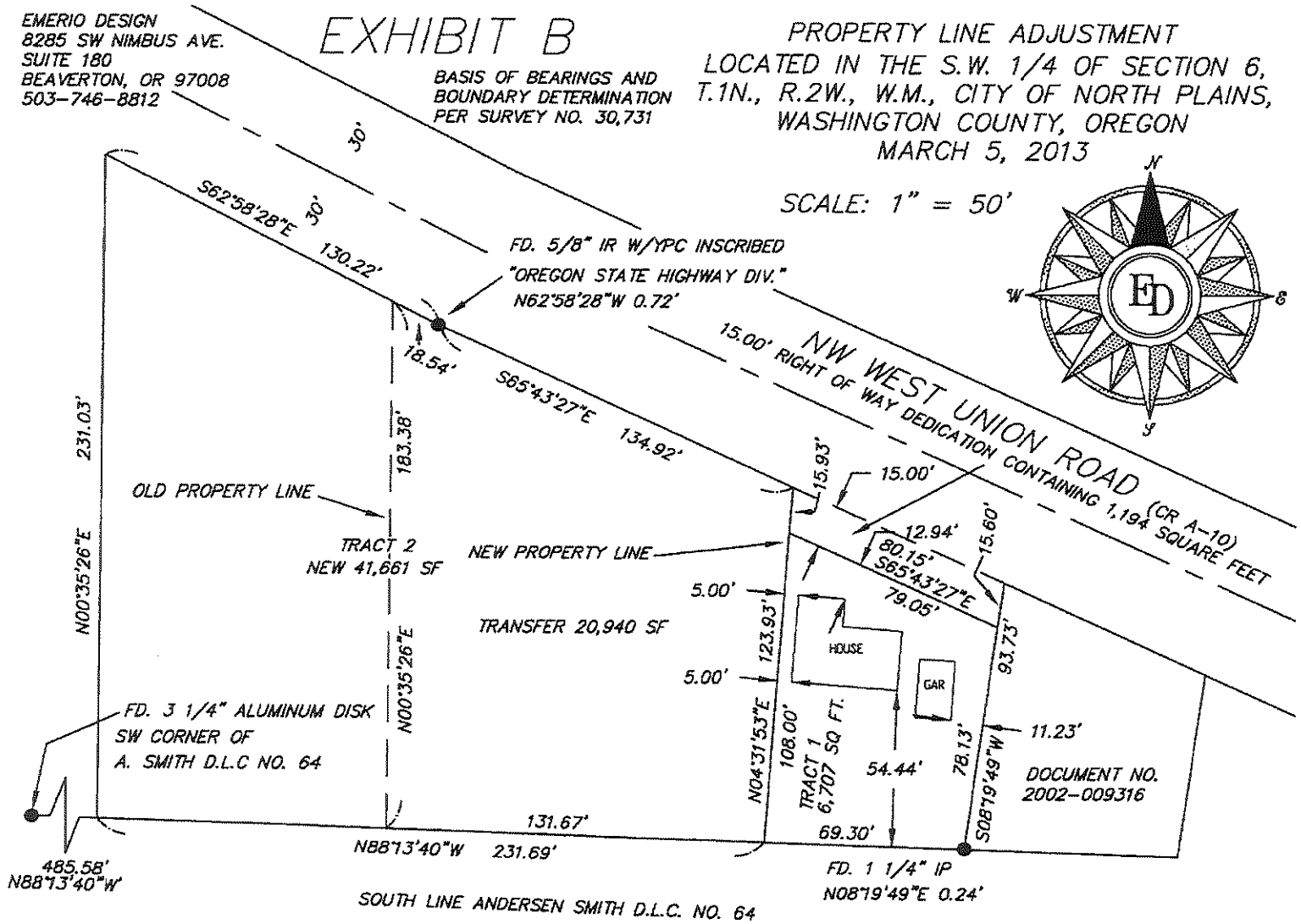


EXHIBIT A

A tract of land situated in the Southwest ¼ of Section 6, Township 1 North, Range 2 West, W.M., City of North Plains, Washington County, Oregon, being more particulary described as follows:

Beginning at a point on the South line of the Anderson Smith D.L.C. No. 64 which bears S88°13'40"E, 485.58' from the Southwest corner of said D.L.C.; thence leaving said line, N00°35'26"E, 231.03 feet to the southerly right of way line of N.W. Union Road; thence along said right of way line, S62°58'28"E, 130.22 feet to an angle point; thence continuing along said right of way line, S65°43'27"E, 134.92 feet; thence leaving said right of way line, S04°31'53"W, 123.93 feet to the said South line of the Anderson Smith D.L.C. No. 64; thence along said line N88°13'40"W, 231.69 feet to the Point of Beginning.

Containing 41,661 square feet

REGISTERED
PROFESSIONAL
LAND SURVEYOR

OREGON
JANUARY 18, 1983
EDWARD KING PHELPS
2588

EXPIRES 12-31-2014

EXHIBIT B

A tract of land situated in the Southwest ¼ of Section 6, Township 1 North, Range 2 West, W.M., City of North Plains, Washington County, Oregon, being more particularly described as follows:

Beginning at a point on the South line of the Anderson Smith D.L.C. No. 64 which bears S88°13'40"E, 717.27' from the Southwest corner of said D.L.C.; thence leaving said line, N04°31'53"E, 108.00 feet to a point 45.00 feet from (when measured at right angles) the centerline of N.W. Union Road; thence 45.00 feet from and parallel with said centerline, S65°43'27"E, 79.05 feet to the westerly line of that tract of land described in Document Number 2002-009316, Washington County Deed Records; thence along said line S08°19'49"W, 78.13 feet to the South line of the Anderson Smith D.L.C. No. 64; thence along said , N88°13'40"W, 69.30 feet to the Point of Beginning.

Containing 6,707 square feet.

REGISTERED
PROFESSIONAL
LAND SURVEYOR

OREGON
JANUARY 18, 1973
EDWARD KING PHELPS
2588

EXPIRES 12-31-2014

EXHIBIT C
Transfer Tract

A tract of land situated in the Southwest ¼ of Section 6, Township 1 North, Range 2 West, W.M., City of North Plains, Washington County, Oregon, being more particularly described as follows:

Beginning at a point on the South line of the Anderson Smith D.L.C. No. 64 which bears S88°13'40"E, 585.60' from the Southwest corner of said D.L.C.; thence leaving said line, N00°35'26"E, 183.38 feet to the southerly right of way line of N.W. Union Road; thence along said right of way line, S62°58'28"E. 18.54 feet to an angle point; thence continuing along said right of way line, S65°43'27"E, 134.92 feet; thence leaving said line, S04°31'53"W, 123.93 feet to the South line of the Anderson Smith D.L.C. No. 64; thence along said line N88°13'40"W, 131.67 feet to the Point of Beginning.

Containing 20,940 square feet.

REGISTERED
PROFESSIONAL
LAND SURVEYOR

OREGON
JANUARY 19, 1993
EDWARD KING PHELPS
2366

EXPIRES 12-31-2014

EXHIBIT D
Right of Way Dedication

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Containing 1,194 square feet.

REGISTERED
PROFESSIONAL
LAND SURVEYOR

OREGON
JANUARY 10, 1989
EDWARD KING PHELPS
2588

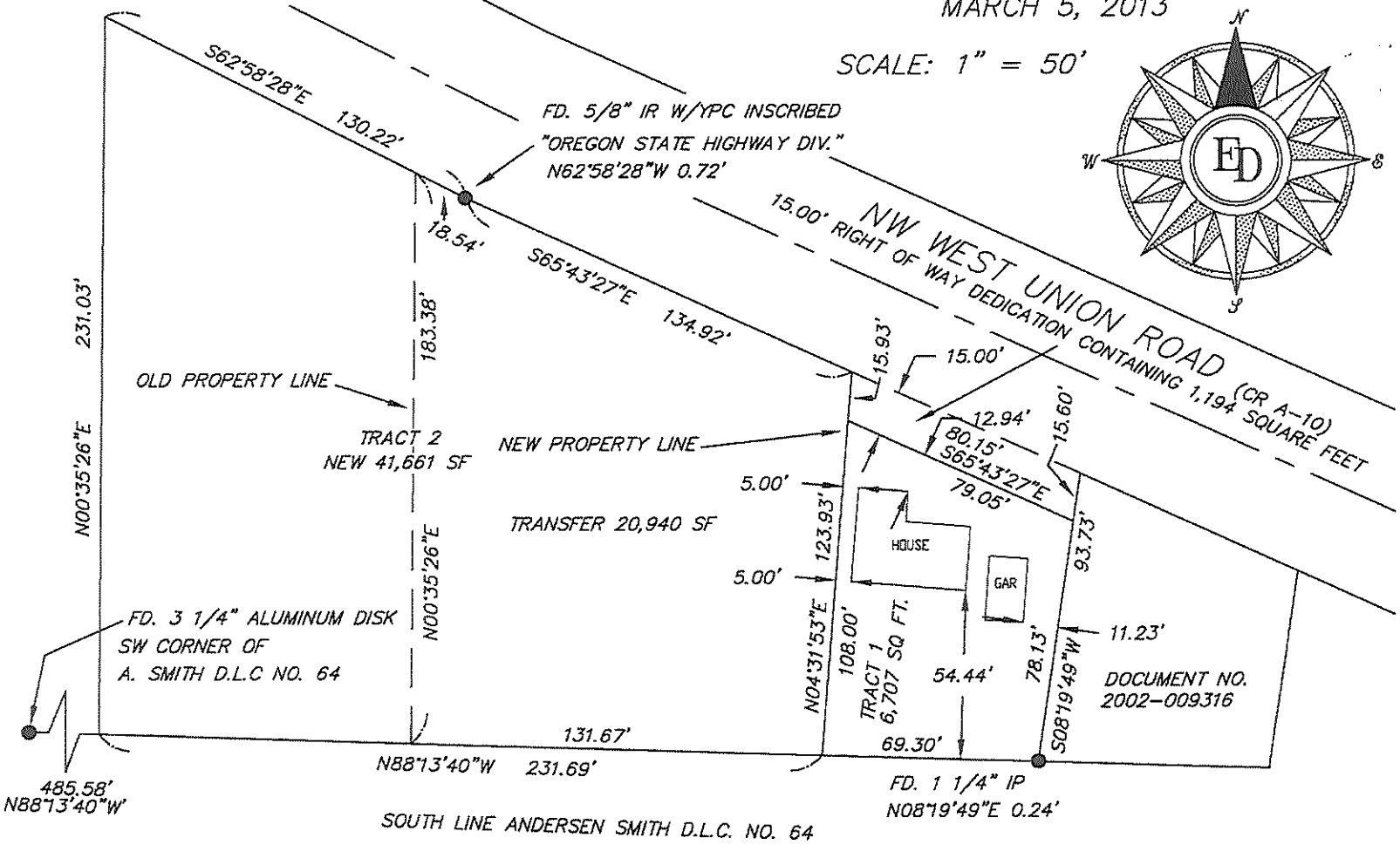
EXPIRES 12-31-2014

EMERIO DESIGN
8285 SW NIMBUS AVE.
SUITE 180
BEAVERTON, OR 97008
503-746-8812

EXHIBIT E

PROPERTY LINE ADJUSTMENT
LOCATED IN THE S.W. 1/4 OF SECTION 6,
T.1N., R.2W., W.M., CITY OF NORTH PLAINS,
WASHINGTON COUNTY, OREGON
MARCH 5, 2013

SCALE: 1" = 50'



Washington County, Oregon
03/14/2013 01:09:50 PM **2013-023229**
D-DD Cnt=1 Stn=29 RECORDS1
$15.00 $5.00 $11.00 $15.00 - Total =$46.00

01811844201300232290030036

I, Richard Hobernicht, Director of Assessment and Taxation and Ex-Officio County Clerk for Washington County, Oregon, do hereby certify that the within instrument of writing was received and recorded in the book of records of said county.

Richard Hobernicht, Director of Assessment and Taxation, Ex-Officio County Clerk

After recording, please return to:
Washington County Surveyor's Office
1400 SW Walnut Street, MS-17
Hillsboro, Oregon 97123

RIGHT-OF-WAY
DEDICATION DEED

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The true consideration for this conveyance is $ NONE .

Grantor, hereby covenants to and with Grantee, that it is the owner of said property which is free from all encumbrances, except for easements, conditions and restrictions of record, and will warrant and defend the easement rights herein granted from all lawful claims whatsoever, except as stated herein.

To Have and To Hold, the above described and granted premises unto Washington County for the public forever for the uses and purposes hereinabove mentioned.

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Dated this 14 day of MARCH, 2013.

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an Oregon limited liability company

RM Guillory, Manager

STATE OF OREGON)
) ss.
County of Washington)

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Notary Public for Oregon
My Commission Expires: 11-19-16

OFFICIAL SEAL
DARRELL LINN MILLARD
NOTARY PUBLIC - OREGON
COMMISSION NO. 473573
MY COMMISSION EXPIRES NOVEMBER 19, 2016

Accepted on behalf of Washington County, Oregon.

Dated this 14th day of March, 2013

By:
James H. Blam, County Surveyor

Approved as to form:

Loretta S. Skurdahl,
Senior Assistant County Counsel
Date:

EMERIO
Design

Civil Engineering
Land Survey
Land Use Planning

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Right of Way Dedication

A tract of land situated in the Southwest ¼ of Section 6, Township 1 North, Range 2 West, W.M., City of North Plains, Washington County, Oregon, being more particularly described as follows:

Commencing at the Southwest corner of the Anderson Smith D.L.C. No. 64; thence along the south line thereof, S88°13'40"E, 717.27 feet; thence leaving said line N04°31'53"E, 108.00 feet to a point 45.00 feet from (when measured at right angles) the centerline of N.W. Union Road and the Point of Beginning; thence N04°31'53"E, 15.93 feet to a point on the southerly right of way line of N.W. Union Road; thence along said right of way line S65°43'27"E, 80.15 feet to the northwest corner of that tract of land described in Document Number 2002-009316, Washington County Deed Records; thence along the westerly line thereof, S08°19'49"W, 15.60 feet to a point 45.00 feet from (when measured at right angles) the centerline of N.W. Union Road; thence 45.00 feet from and parallel with said centerline, N65°43'27"W, 79.05 to the Point of Beginning.

Containing 1,194 square feet.

REGISTERED
PROFESSIONAL
LAND SURVEYOR
OREGON
JANUARY 18, 1983
EDWARD KING PHELPS
2569
EXPIRES 12-31-14

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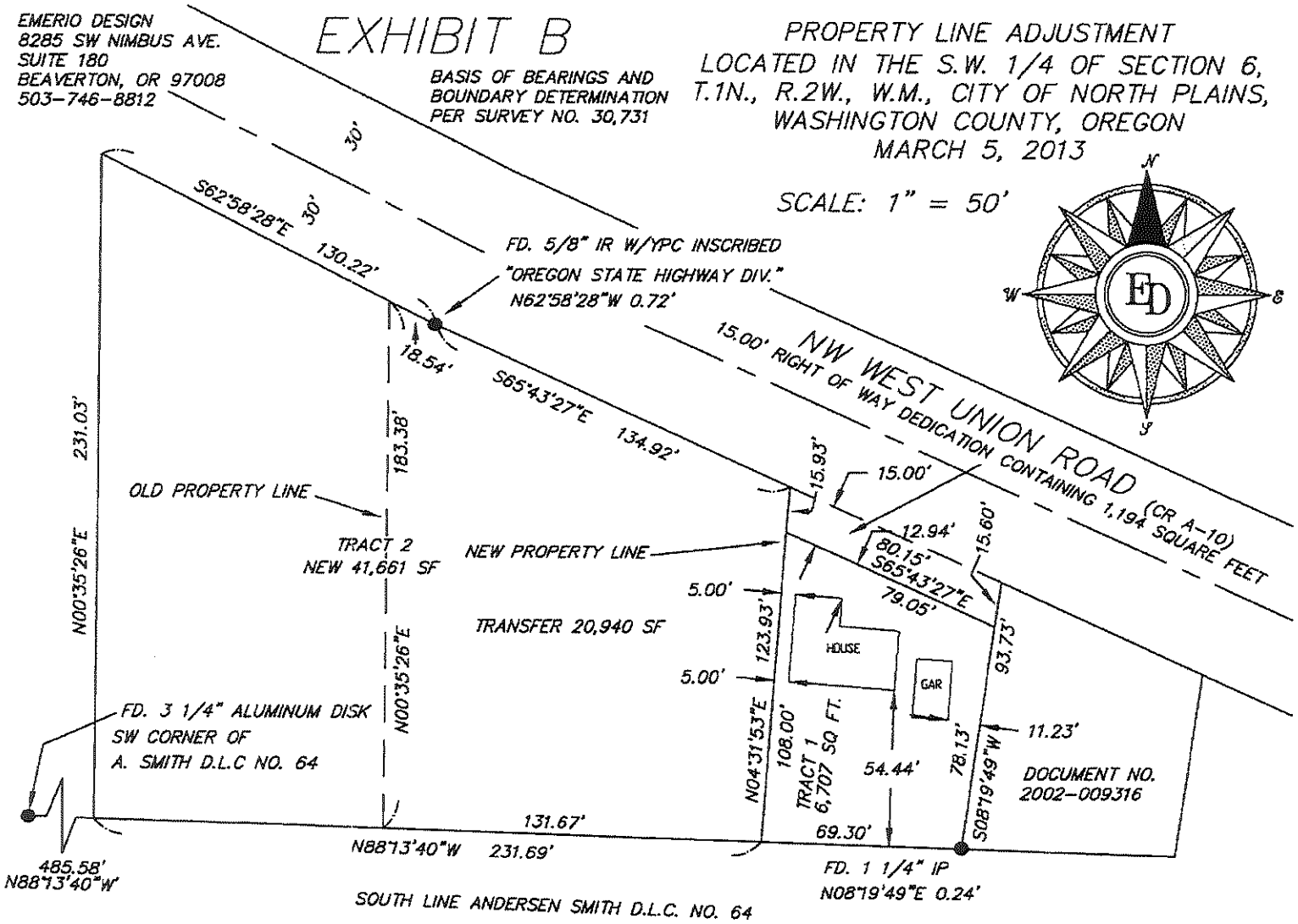
EXHIBIT B

BASIS OF BEARINGS AND BOUNDARY DETERMINATION PER SURVEY NO. 30,731

PROPERTY LINE ADJUSTMENT
LOCATED IN THE S.W. 1/4 OF SECTION 6,
T.1N., R.2W., W.M., CITY OF NORTH PLAINS,
WASHINGTON COUNTY, OREGON
MARCH 5, 2013

SCALE: 1" = 50'



BEFORE THE PLANNING COMMISSION
OF THE CITY OF NORTH PLAINS

IN THE MATTER OF	)	**FINAL FINDINGS**
SUBDIVISION, FLOOD PLAIN,	)	**AND ORDER**
DESIGN REVIEW, VARIANCE	)	
HOMESTEAD DEVELOPMENT	)	
SD-VAR-07-0006	)	

I. APPLICABLE CRITERIA:

A. Chapter 16.08 of the Zoning and Development Code, Multi-Family Residential Zoning District, R-2.5.

B. Chapter 16.14 of the Zoning and Development Code, Flood Plain Overlay District, (FP).

C. Chapter 16.16 of the Zoning and Development Code, Significant Natural Resources Overlay District, (SNR).

D. Chapter 16.28 of the Zoning and Development Code, Duplex, Triplex and Attached Single Family Dwelling.

E. Chapter 16.30 of the Zoning and Development Code, Public Facility and Service Requirements.

F. Chapter 16.31 of the ZDO, General Development Standards, Street Standards.

G. Chapter 16.32 of the ZDO, General Development Standards, Development Standards for Land Divisions.

H. Chapter 16.33 of the ZDO, Off Street Parking and Loading.

I. Chapter 16.38 of the ZDO, Clear Vision Areas.

J. Chapter 16.52 of the ZDO, Variance.

K. Chapter 16.57 of the ZDO, Subdivisions.

L. Chapter 16.58 of the ZDO, Lot Line Adjustments.

M. Chapter 16.80 of the ZDO, Public Notice Requirements.

N. Chapter 16.82 of the ZDO, Public Hearing Before the Planning Commission.

II. FINDINGS OF FACT:

A. Location: Property identified as Tax Lots 1200, 2000 and 2100, Map No. 1N2 06. The subject property is located on the south side of NW West Union Road east of McKay Creek and contains approximately 7.69 acres, 4.0 acres would be developed and 3.69 would be retained in its natural state. The subject property was annexed into the city limits in September 2005. It is currently developed with two single family residences and several accessory structures.

The address of the property is 30140-30240 NW West Union Road. Please see attached map for more information.

B. Comprehensive Plan Designation: The land use designation of the subject property is High Density Residential (R-2.5) on the City's Comprehensive Plan. Adjacent property to the west is the same designation. Property to the south and east is outside the city limits and urban growth boundary. Property to the north is designated Industrial (IND). The property is located within the 100 - year flood plain and is shown as containing Significant Wetlands, Significant Natural Resources, and Wildlife Habitat in the city's Significant Natural Resources Report.

C. Zoning: The site is zoned Multi/Family Residential (R-2.5). Adjacent property to the west has the same zoning designation. Property to the north is zoned General Industrial (M-2). Property to the south and east is outside the city limits.

D. Existing Improvements: The subject property is currently developed with two single family residential structures and accessory structures. Public facility improvements constructed in front of the property include an open storm water system, sanitary sewer line, water line.

E. Availability of Public Services: The property currently has access to City water and sewer. The water and sewer lines are located in the right-of-way of NW West Union Road. The subject property has direct access to NW West Union Road. The subject property is served by City police and Washington County Fire District No.2 fire protection.

F. Proposed Application: An application for a twenty-eight lot subdivision (revised to 27 Lots) with each lot ranging in size from 2599 square feet to 10,818 square feet, dedication of land for the construction of a new street improvement to serve the newly created lots, and a fire department turn-around.

On April 6, 2006 Notices of Public Hearing were mailed to all property owners within 250 feet of the subject property and on March 29, 2006 Land Use Action Referrals were mailed to all affected public agencies. On May 10, 2006 the Planning Commission will conduct a public hearing to discuss and make a decision regarding this application. The City must take final action including all appeals on this application no later than July 18, 2006.

G. Adjacent Land Uses: Adjacent land to the north and west are developed with a residence on large lots, land to the east and south is developed with a dairy farm with related accessory structures.

III. AGENCY RECOMMENDATIONS AND WRITTEN TESTIMONY:

Agency referrals were mailed to all affected agencies and organizations. The Fire Department had the following comments:

1. "No Parking - Fire Lane" shall be posted on one side of public road with 28' road width. Curbs shall also be painted red with "No Parking Fire Lane" in 6" letters at intervals not to exceed 50'.
2. "No Parking - Fire Lane" shall be posted on both sides of the 22' hammerheads. Curbs shall also be painted red with "No Parking Fire Lane" in 6" letters at intervals not to exceed 50'.
3. Locate a fire hydrant at the entrance of the subdivision and a secondary hydrant inside the subdivision with a maximum spacing between hydrants of 500' and no greater than 250' from the farthest house.
4. Site 27 shall have access with a minimum clear width of 20' with 12' road surface. The interior turn radius to access the site shall be a minimum 28' radius.
5. Access to Site 28 shall maintain a 20' clear width with no encroachments (i.e. fence, trees, etc.) and 12' road surface access to within 150' of all portions of the exterior first floor walls.

Clean Water Services responded that it appeared that the subdivision could not be served with sanitary sewers. A revised sewer plan was submitted by the applicant and sent to Clean Water Services. However, at the time of this staff report no additional comments had been received.

The City Engineer had the following comments and conditions of approval in a memorandum dated April 4, 2006.

Purpose

This memorandum presents City Engineer review comments to the submitted City of North Plains Land Use Action Referral 06-00002, proposed McKay Fields Subdivision. This subdivision is proposed for Tax Lots 1200, 2000, and 2100 with addresses of 30140 and 30240 NW West Union Road, to develop a 28-lot subdivision within an R-2.5 zone.

General

All required public facility improvements are to be designed and constructed in accordance with the current City-adopted Zoning and Development Ordinance and the current City of North Plains Public Works Design Standards, as approved by the City of North Plains. In addition, the American Public Works Association (APWA) Standard Specifications for Public Works Construction apply. Improvements must be designed and constructed in accordance with all City requirements and conditions, and the final designs must be stamped by a Professional Engineer (P.E.), currently licensed in the State of Oregon.

An engineer's construction cost estimate for public improvements is to be submitted with final designs for review and acceptance prior to construction. A nonrefundable deposit in the amount of five percent of the total accepted estimated value of public improvements must be provided to the City with the plans submittal. The estimate is to be presented in a "schedule of unit prices" format, reflecting estimates for the various anticipated construction bid items. A public improvements bond, required prior to construction, will be set at 125% of the accepted engineer's estimate. In addition, a maintenance bond in the amount of 40% is required prior to construction. The maintenance bond shall remain in effect for a period of one year after all public improvements are accepted by the City.

City/Agency Coordination

The Applicant is to coordinate with the City and all appropriate utilities and agencies throughout the application, review, and construction process. Agency/utility coordination includes, but is not limited to, Clean Water Services (CWS) regarding sanitary sewer, water quality, and storm sewer system improvements, Washington County Fire District No. 2 regarding emergency access, Washington County for work relating to NW West Union Road, and the City of North Plains regarding planning, water system improvements, surface water drainage improvements, and site development interests. The Applicant is to provide copies of all agency/utility approvals and permits to the City for its permanent files. The City is to be notified of any potential design conflicts, and/or any potential conflicts identified after the various utility and agencies complete review or provide comments. It is the responsibility of the Applicant to resolve all conflicts to the satisfaction of the City.

Street Improvements

NW West Union Road is a Washington County arterial road. Consequently, any modifications to the roadway, driveway, curbs, sidewalks, and other improvements within this right-of-way, are to be coordinated with the County. It is anticipated that the County will require right-of-way dedication and street improvements along that portion of the roadways adjacent to the development site.

The Applicant has requested approval of a 28-lot residential subdivision with both attached and detached single family residences. Access limitations to a County arterial road will allow only one intersection with NW West Union Road. The access standard for a cul-de-sac is to allow a maximum length of 600 feet with no more than 20 residential lots. Because of this and the proximity of McKay Creek west of the site, the Applicant is proposing a local dead end street without provisions for future street extensions. Lots 6 through 28 are proposed to be accessed from a new local dead end street with provisions for a turnaround. The proposed street is shown partly as a standard 34-foot right-of-way tapering to a non-standard 22-foot wide right-of-way without sidewalks. Lot 27 is a flag lot and is proposed to share access through a non-standard driveway and easement over Lot 28. The Applicant has also proposed a public water quality facility directly west of Lot 1 and the 22 foot roadway. This facility will be permitted and maintained by CWS. It is anticipated that CWS will require maintenance access from the 22-foot extension of the new public street.

It is recommended that the City consider a standard cul-de-sac configuration for access to all lots with standard shared private driveways where necessary for flag lots. An alternative to a standard cul-de-sac would be to extend the standard 34-foot right-of-way with curb and sidewalk on one side past the frontage of all lots, with the possible exception of Lot 1. This configuration would allow off street pedestrian circulation and a pedestrian/bicycle connection to West Union Road and would increase the 22-foot wide street width along the frontage of lots 2 through 5 to the standard 34-foot width. It would also improve pedestrian circulation and allow a pedestrian/bicycle connection to West Union Road near the west end of the subdivision.

An emergency access to West Union Road near the west end of the proposed subdivision and greater pavement widths may be necessary to meet emergency access requirements set by the Fire Marshal.

Lot 27 is shown with frontage on West Union Road and access through a non-standard driveway easement. Driveway access from NW West Union Road to this lot will require a Washington County permit. Issuance of such a permit shall be required prior to approval of this subdivision.

Storm Drainage Improvements

The Applicant is to coordinate with CWS to design and construct needed storm drainage improvements. All drainage improvements and storm water quality and quantity requirements are to be in compliance with the applicable CWS Design and Construction Standards and as approved by CWS. It is anticipated that certain storm water quality provisions are required in addition to storm water conveyance provisions. Private facilities are to be designed and constructed in accordance with all applicable CWS requirements and City Codes and Standards.

Sanitary Sewer Improvements

The Applicant is to coordinate with CWS to design needed sanitary sewer improvements. Sanitary sewer improvements are to be designed and constructed in accordance with CWS Design and Construction Standards and other requirements as approved by CWS. Private facilities are to be designed and constructed in accordance with all applicable City Codes and Standards.

Water System Improvements

The Applicant has proposed an 8-inch diameter public water main from NW West Union Road at the

intersection with the new local access street. This water main will be required to be constructed with a loop connection back to NW West Union Road between lots 5 and 6 near the west end of the subdivision. Dedicated public easements are required for all facilities located outside of public right-of-way. The minimum easement width required is 15 feet. Multiple parallel utility lines will require additional width, as approved. All water system improvements for this subdivision shall be constructed in accordance with the current City Design and Construction Standards.

Bike/Pedestrian Access

The public water main alignment between lots 5 and 6 will provide an excellent alignment for a bicycle/pedestrian path between NW West Union Road and the proposed local access street/cul-de-sac.
Washington County Land Use and Transportation had the following comments:

The applicant is proposing a 28-lot subdivision, with 22 attached units and 6 detached units. Access to the subdivision is proposed from a new public street on NW West Union Road, a County-maintained Arterial (2-3 lane).

Washington County Department of Land Use and Transportation submits the following comments and required conditions for access to NW West Union Road.

NOTE: A pre-existing driveway which is part of a redeveloping site is subject to County review and conditions for access approval.

COMMENTS

1. The minimum access spacing standard for NW West Union Road is 600 feet, measured between access points on each side of the road as required by Resolution and Order 86-95 (R&O 86-95) and Section 501-8.5.B of the Community Development Code. CDC 501-8.5.B (4) states that direct access to arterial roads shall be from collector or other arterial streets except when collector access is found to be unavailable and impracticable by the director.

The applicant must submit a modification request for the proposed access to NW West Union Road because the proposed street connection is not a collector or arterial. The applicant will be required to submit a request and obtain approval from the Washington County Engineering Division for modification to the access spacing standards of the Washington County Uniform Road Design Standards. Note: A Modification Request does not guarantee County approval of that access. Analysis of a Modification Request may result in requirements including but not limited to: elimination of the driveway, consolidation of accesses, and/or restriction of movements in/out of the driveway. Access approval may also include requirements to improve frontage or offsite roads.

2. Resolution and Order 86-95 requires a minimum sight distance
(measured in feet) equal to ten times the vehicular speed of the road(s) at proposed access location(s). This requirement applies to sight distance in both directions at each access.

Before the County will permit access to NW West Union Road, the applicant will be required to provide certification from a registered professional engineer that adequate sight distance exists in both directions (or can be obtained pursuant to specific improvements).

3. Consistent with statewide pedestrian circulation/linkage goals of the Transportation Planning Rule and the County's R&O 86-95 (road safety requirements), the County normally requires sidewalk installation as a minimum road safety improvement along site frontage of all County-maintained roads. Sidewalks further establish future street profiles, demarcate County or City right-of-way, and address drainage issues. Sidewalk requirements are not generally waived, even when sidewalk is not currently present on neighboring properties. Rather, even non-contiguous sidewalk is considered to provide some measure of pedestrian refuge and ideally, makes possible eventual connection of sidewalks (as surrounding development takes place and is likewise conditioned to provide sidewalk).

4. Section 501-8.1.C. (of "Critical Services") of the Washington County Community Development Code requires provision of adequate drainage.

5. The statewide Transportation Planning Rule requires provision for adequate transportation facilities in order for development to occur. Accordingly, the County has classified roads and road segments within the County system based upon their function. The current Transportation Plan (regularly updated) contains adequate right-of-way, road width and lane provision standards based upon each roadway's classification. Subject right of way is considered deficient if half-width of the existing right of way does not meet that determined necessary within the County's current transportation plan.

Sections 418-2.2 and 501-8.4 of the Washington County Community Development Code require dedication of additional right-of-way along site frontage of a County road when existing right-of-way is deficient.

6. Washington County requires a traffic safety review when estimated daily trip generation of a project and existing traffic levels (see Tables 1 and 2, below) on the adjacent County road exceed given limits as determined by R&O 86-95.

* TABLE 1

Access Report and Review by County Traffic Engineer Required if:

Vehicles per Day (VPD) on Adjacent Frontage Road	Calculated Average Daily Trips (ADT) of Proposed Use [Based on Institute of Transportation (ITE) Calcs)
0 - 3,000 VPD and	2,000 ADT or More
3001 - 6,000 VPD and	1,000 ADT or More
6,001 VPD or More and	500 ADT or More

* TABLE 2

Basic Traffic Safety Review (Conducted by County Traffic Engineer but no Access Report Submittal required of Applicant) if:

Vehicles per Day (VPD) on Adjacent Frontage Road	Calculated Average Daily Trips (ADT) of Proposed Use [Based on Institute of Transportation (ITE) Calcs)
VPD >1 and	200 ADT or More

This development proposal is consistent with specifications of TABLE 2, above, therefore the application has been forwarded for a basic Traffic Safety Review by the County Traffic Engineer. (The applicant's engineer need not submit an Access Report, since Traffic generation along the subject frontage road(s) as compared to projected site traffic generation are not consistent with TABLE 1). Please note that additional requirements may be identified as a result of the Traffic Engineer's basic Traffic Safety Review.

Review of Modification Requests is dependent upon complete submittal information by the Applicant's engineer. Incomplete submittals will delay processing time. If the Traffic Engineer's review and resultant traffic/safety mitigation requirements have not been completed prior to issuance of the City's Decision, please require the following within the City's Approval document: "Compliance with conditions deemed necessary by the County Traffic Engineer via the review of the required Modification Request."

7. The County reserves the right to require additional conditions for access to NW West Union Road following the County Traffic Engineer's review of the Modification Request and Traffic Safety Review.

8. ILLUMINATION- Resolution and Order No. 86-95 requires access points on collectors and arterials to be adequately illuminated. To meet this requirement, a public street light will have to be installed at the proposed site access to NW West Union Road.

REQUIRED CONDITIONS OF APPROVAL

IMPORTANT:

Road improvements required along site frontage shall apply to frontage of all land within the subject site that abuts the County roadway. The subject site shall be considered to include: any lot or parcel to be partitioned or otherwise subdivided (regardless of whether it contains existing structures or not); and any contiguous lots or parcels that constitute phases of the currently proposed development.

If the applicant proposes to develop the project in phases, all County-required frontage improvements must be constructed with the first phase. In addition, off-site improvements warranted by the first phase must also be completed with the first phase.

I. PRIOR TO FINAL APPROVAL OF THE SUBDIVISION PLAT BY THE CITY OF NORTH PLAINS:

A. Obtain approval for a Modification to the Access Spacing Standards of the W.C.U.R.I.D.S. from the Washington County Engineering Division for the existing/proposed accesses point on NW West Union Road. (Modification Request must be prepared and stamped by a registered traffic engineer and submitted by the applicant).

B. Submit to Washington County Land Development Services (Public Assurance Staff, Tracy Stone/ Joy Chang, 846-3843):

1. Completed "Design Option" form.

2. $3,000.00 Administration Deposit.

NOTE: Any portion of the Administration Deposit not used by Washington County for plan approval, field inspections, and contract administration will be returned to the applicant. If at

any time during the project, the County's costs are higher than the amount deposited, Washington County will bill the applicant the amount needed to cover its costs.

3. A copy of the City's Land Use Approval with Conditions, signed and dated.

4. Preliminary certification of adequate sight distance for each access point to NW West Union Road, in accordance with County Code, prepared and stamped by a registered professional engineer, as well as:

a. A detailed list of improvements necessary to produce adequate intersection sight distance.

5. Three (3) sets of complete engineering plans for construction of the following public improvements:

a. Half-street improvement to an A-8 County standard along all NW West Union Road frontage.

b. Access to NW West Union Road to County standards.

c. Improvements within the right-of-way as necessary to provide adequate intersection sight distance at NW West Union Road access point.

d. Closure of all existing driveways to NW West Union Road, other than at the access point approved by Washington County under the current land use application.

e. Adequate illumination at the site's access to NW West Union Road. Adequate illumination shall consist of at least one 200 watt high pressure sodium cobra head luminaire mounted at a minimum mounting height of 20 feet on existing utility poles if available. The fixture shall have a medium semi-cutoff type III distribution. The pole shall be within the area defined by the radius returns of the intersection. The fixture shall be oriented within 90 degrees to centerline of the collector or arterial. For intersections of collectors with arterials, the luminaries' fixture shall be installed at 90 degrees to the higher classification roadway. If the intersecting roadways are of the same classification, the fixture may be oriented at 90 degrees to either roadway. If no existing utility poles are available within the intersection area defined by the radius returns, the developer shall meet the lighting requirements of the Department of Land Use and Transportation 1991 Roadway Illumination standards, latest revision. The Traffic Engineer may require illumination in addition to the above-stated minimums. Direct technical questions concerning this condition or the 1991 Roadway Illumination Standards to Vaughn Lewis at (503) 846-7959.

f. Any additional off-site safety improvements found to be required for compliance with R&O 86-95 following submittal by the applicant of a complete Modification Request and completion of the County Traffic Engineer's review of such.

C. Obtain a Washington County Facility Permit upon completion of the following:

1. Obtain Engineering Division approval and provide a financial assurance for the construction of the public improvements listed in conditions

NOTE: The Public Assurance staff (Kimberly Hoyt/Tracy Stone/Joy Chang 846-3843) of Land Development Services will send the required forms to the applicant's representative after submittal and approval of items listed under I.B., above.

Please note that Washington County's "Facility Permit" differs from an "Access Permit". An Access Permit is far less comprehensive in nature than the Facility Permit and its associated submittal, review, and monitoring processes. Access Permits apply to non-complex land use cases in which the County requires limited or no improvements of the developer. (Access permits are commonly issued in cases requiring improvements as minimal as a single driveway cut to an existing house). This project is not currently eligible for an Access Permit.

The Facility Permit allows construction work within County rights-of-way and permits site access only after the developer first submits plans and obtains Washington County Engineering approval, obtains required grading and erosion control permits, and satisfies various other requirements of Washington County's Assurances Department including but not limited to execution of financial and contractual agreements. This process ensures that the developer accepts responsibility for construction of public improvements, and that improvements are closely monitored, inspected, and built to standard in a timely manner. Access will only be permitted under the required Washington County Facility Permit, and only following submittal and County acceptance of all materials required under the facility permit process.

D. The following shall be represented on the plat and recorded with Washington County:

1. Dedication of additional right-of-way to provide 45 feet from centerline of NW West Union Road.

2. Dedication of additional right-of-way to provide adequate corner radius at the intersection of NW West Union Road.

3. Provision of a non-access reservation along NW West Union Road frontage, except at the proposed access point approved in conjunction with this land use application.

II. PRIOR TO OCCUPANCY:

A. The road improvements required in condition above shall be completed and accepted by Washington County.

B. Upon completion of necessary improvements, provide final certification of adequate sight distance in accordance with County Code, prepared and stamped by a registered professional engineer.

Requirements identified within this letter are considered by the County to be minimum warranted improvements (and/or analyses) that are necessitated by the proposed development, therefore it is requested that they be conveyed to the applicant within the City's Approval document. Before the City issues its Final Notice of Decision, please allow the County to review and acknowledge a draft of the City's conditions regarding access to NW West Union Road. Additionally, please send a copy of the subsequent Final City Notice of Decision and any appeal information to the County.

All other notified agencies and organizations and adjacent property owners did not comment before the drafting of this staff report.

IV. REVIEW CRITERIA AND EVALUATION

The following answers to the review criteria was submitted by the applicant. Staff comments are in italics within each section if the staff disagrees with the applicants answers.

16.08.005 Multi-Family Residential District (R2.5)

16.08.020 Permitted Uses, subject to the requirements of Chapter 16.40-16.43 Design Review, if applicable.

A. Single family dwelling, detached, including manufactured homes subject to the provisions of Chapter 16.24 Manufactured Homes.

B. Two family dwelling (duplex), triplexes, and attached single family dwellings with a maximum of four consecutively attached units, subject to the provisions of Chapter 16.28 Duplex, Triplex and Attached Single Family Dwelling.

Response: The applicant is proposing both single-family residential detached and attached (duplex) dwellings, permitted uses in the R-2.5 district.

16.08.040 Dimensional Standards

The following dimensional standards shall be the minimum requirements for all development in the R 2.5 District except for modifications permitted under Chapter 16.37 General Exceptions or Chapter 16.21 Planned Unit Development. In addition, a minor adjustment of up to 10% of the required lot size, lot depth or lot width may be granted by the City Planner pursuant to Chapter 16.86 provided that there are findings made that the variance complies with Section 16.52.030 Variance Review Criteria.

A. Lot Size

1. Single-family detached dwelling 4,000 square feet minimum 6,000 sq. ft. maximum
for lots created by subdivision

Response: The single-family detached lots, except lots 1 and 26, have a minimum lot size of 4,000 square feet and a maximum lot size of 6,000 square feet. Lots 1, 12 and 26 exceed the maximum lot size; therefore, the applicant is requesting a variance.

2. Two-family dwelling (duplexes)
Triplexes & attached
Single-family dwelling 2,500 square feet per unit minimum

Response: All of the two-family (duplex) dwellings have a minimum lot size of 2,500 square feet.

B. Lot Depth and Width

1. The minimum average lot width shall be 40 feet, except that lots for attached single family dwellings may have a minimum average lot width of 25 feet.

2. The minimum lot depth shall be 80 feet.

Response: All of the detached lots have a minimum lot width greater than 40 feet and all of the attached lots have a minimum lot width of 30 feet, except lot 7 for which the applicant is requesting a variance. All of the lots have a lot depth greater than 80 feet, complying with this section.

C. Setback Requirements

1. Principle structures, accessory dwellings, attached accessory structures and detached accessory structures with a floor area greater than 120 square feet shall maintain the following minimum yard setbacks except that development on flag lots shall be subject to the setback standards of 16.32.030(C):

a. Front Yard (garage or carport) — 20 feet

Response: All of the lots have a minimum of a 20-foot front yard setback to the garage.

b. Front Yard (all other structures) — 15 feet

Garages, carports, accessory dwellings and accessory structures shall be flush with, or recessed behind, the front building elevation of the principle structure.

Response: All of the lots have a minimum of a 15-foot front yard setback measured from the front building wall.

c. Rear Yard — 10 feet for street-access lots; 6 feet for alley-access lots

Response: All of the lots have street access and have a minimum of a 10-foot rear yard setback.

d. Side Yard (interior)

Detached	**5 feet**
Attached (common wall)	**0 feet**

Response: The applicant is proposing the attached units have a zero (0)-foot side yard setback along the common wall. The remaining interior setbacks for the units are proposed to be five (5) feet.

e. Side Yard (adjacent to street) — 10 feet plus additional necessary to comply with the standards of 16.38 Clear Vision Areas.

Response: The applicant is proposing a ten (10) foot street side yard where applicable.

f. Flag lots approved pursuant to 16.32.030 (C) — 10 feet for all yards, except that the yard facing the garage shall be a minimum of 20 feet.

Response: Lot 26, a flag lot, is proposed to have ten (10)-foot yard setbacks in all cases.

D. Height of Buildings

Buildings shall not exceed a height of 35 feet or two and a half stories, whichever is less.

Response: All of the new buildings will comply with the 35-foot height requirement.

E. Lot Coverage

In the R2.5 District, the maximum lot coverage shall not exceed the following percentage of the total area of any lot.

1.	Single family detached dwellings	50%
2.	Duplexes, triplexes and single family attached dwellings	65%

Response: **All of the lots comply with the lot coverage requirement.**

16.08.050 Signs

Signs permitted in the R2.5 District shall be located at least 10 feet from the street line or flat against the building. The type and character of the sign shall be compatible with development in the area.

Response: The applicant is not proposing any signs at this time.

16.08.060 Parking Requirements

At least two (2) off-street parking spaces shall be provided for each single family detached dwelling unit. Parking requirements for all other uses are specified in Chapter 16.33 Off Street Parking and Loading of this ordinance.

Response: All of the detached dwelling units have a minimum of two (2) off-street parking spaces available in the garage and driveway. Chapter 16.33 is addressed later in this narrative.

16.08.070 Development Standards

1. **The following standards will be applied to all single family dwellings (site built, modular and manufactured homes) to be constructed or located in the City of North Plains:**

   All single family units shall utilize at least two of the following design features to provide visual relief along the front of the home:

   a. **dormers;**
   b. **gables;**
   c. **recessed entries;**
   d. **covered porch entries;**
   e. **cupolas;**
   f. **pillars or posts;**
   g. **bay or bow windows;**
   h. **eaves (minimum 6" projection);**
   i. **offsets on building face or roof (minimums 16");**

Response: The applicant or his assign will utilize at least two (2) of the above design features when constructing the new single-family homes.

Staff comments: Staff agrees that the application complies with the development standards of the R-2.5 zone.

16.14.005 Flood Plain Overlay District (FP)

16.14.030 General Provisions

A. Area of Application

All property, regardless of the underlying zoning designation, which falls within the boundaries of the 100-year Flood Plain, also known as the area of special flood hazard, shall be subject to the provisions of Chapter 16.14 Zoning District (FP) of this Ordinance.

Response: The western portion of the subject site is located within the boundaries of the 100-year flood plain. The applicant is proposing the side of lot 1 and the rear of lots 2-5 will be located within the flood plain boundary.

B. Basis for Establishing the Areas of Special Flood Hazard

The areas of special flood hazard identified by the Federal Insurance Administration in a scientific and engineering report entitled "The Flood Insurance Study of the City of North Plains, Oregon, Washington County, Oregon," dated October 1, 1981, with the accompanying Flood Insurance Maps are hereby adopted by reference and declared to be a part of this Ordinance. The Flood Insurance Study is on file at the City of North Plains, City Hall, North Plains, Oregon. The City shall utilize all authoritative information available in determining the location of special flood hazard areas.

Response: The applicant has obtained information from Washington County identifying the boundary of the 100-year flood plain on the site to be at an elevation of 169.9 feet.

C. Compliance

No structure or land shall hereafter be constructed, located, extended, converted, or altered without full compliance with the terms of this Ordinance and other applicable regulations.

Response: The applicant will comply fully with this standard.

16.14.040 Administration

A. Development Permit Required

A development permit shall be obtained before construction or development begins within any area of special flood hazard established in Chapter 16.14.030 (A). The permit

shall be required for all structures including manufactured homes, as set forth in the Definitions, and for all other development including fill and other activities, also as set forth in the Definitions.

Response: The applicant is proposing to retain a majority of the area within the 100-year flood plain as open space. Only a small portion of the flood plain will be within the development area, including lots 1-5.

B. Application for Development Permit

Application for a development permit shall be made on forms furnished by the City Recorder and may include, but not be limited to, plans in duplicate drawn to scale showing the nature, location, dimensions, and elevations of the area in question, existing or proposed structures, fill, storage of materials and drainage facilities. Specifically, the following information is required:

1. **Elevation in relation to mean sea level of the lowest floor (including basement) of all structures;**
2. **Elevation in relation to mean sea level to which the structure has been flood proofed;**
3. **Certification by a registered professional engineer or architect that the flood proofing methods for any nonresidential structure meet the flood proofing criteria in Chapter 16.14.060 (B).**
4. **Description of the extent to which any watercourse will be altered or relocated as a result of proposed development.**

Response: The required application is completed and included in the exhibits of this narrative. Additional information has also been made available, including the area of the flood plain, the proposed structures, fill, and drainage facilities. See the attached Preliminary Plan set and Flood Plain Report.

16.14.050 Provisions for Flood Hazard Protection

In all areas of special flood hazards the following standards are required:

A. Anchoring

1. **All new construction and substantial improvements shall be anchored to prevent flotation, collapse or lateral movement of the structure.**

Response: The applicant is proposing the five (5) new homes located within the 100-year flood plain be constructed to prevent flotation, collapse or lateral movement in the event of a flood.

B. Construction Materials and Methods

1. **All new construction and substantial improvements shall be constructed with materials and utility equipment resistant to flood damage.**
2. **All new construction and substantial improvements shall be constructed using methods and practices that minimize flood damage.**

3. **Electrical, heating, ventilation, plumbing, and air-conditioning equipment and other service facilities shall be designed and/or otherwise elevated or located so as to prevent water from entering or accumulating within components during conditions of flooding.**

Response: The applicant will use materials, equipment, and practices that will minimize and resist flood damage.

C. Utilities

1. **All new and replacement water supply systems shall be designed to minimize or eliminate infiltration of flood waters into the system;**
2. **New and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of flood waters into the systems and discharge from the systems into flood waters; and**
3. **On-site disposal systems shall be located to avoid impairment to them or contamination from them during flooding.**

Response: All new utilities supplying the development will be constructed to comply with this standard.

D. Subdivision Proposals

1. **All subdivision proposals shall be consistent with the need to minimize flood damage;**
2. **All subdivision proposals shall have public utilities and facilities such as sewer, gas, electrical and water systems located and constructed to minimize flood damage;**
3. **All subdivision proposals shall have adequate drainage provided to reduce exposure to flood damage; and**
4. **Base flood elevation data shall be provided for subdivision proposals and other proposed development which contain at least 50 lots or 5 acres, whichever is less.**

Response: The applicant has minimized the amount of the development in the floodplain as much as possible and proposed to minimize flood damage. Only a small portion of the site is within the floodplain. The applicant has obtained a Flood Plain Report from SWCA that includes the base flood elevation and how the subdivision will provide and maintain adequate drainage.

16.14.060 Specific Standards

In all areas of special flood hazards where base flood elevations data has been provided as set forth in Chapter 16.14.030 (B) or 16.14.040 (C)(2), the following provisions are required:

A. Residential Construction

New construction and substantial improvement of any residential structure shall have the lowest floor, including basement, elevated to one foot above base flood elevations. Fully enclosed areas below the lowest floor that are subject to flooding are prohibited.

Parking, crawl spaces and storage is allowed below the lowest floor provided the area is designed to permit the entry and exit of flood waters.

Response: The applicant is proposing the homes on lots 1-5 be elevated so the lowest floor is one (1)-foot above base flood elevation.

Staff Comments: City staff has the following comments.

While the applicant has obtained a flood plain certification from Washington County, there is a question whether the fill that was placed in the flood plain, up-stream from the subject property, without proper approvals may modify the flood plain elevation on the subject property. The applicant should work with the appropriate county agency to determine whether the flood plain certification is accurate based upon information obtained from code enforcement case UV-048.

The applicant is proposing that the side yard of Lot 1 and the rear yard of Lots 2-5 incorporate the flood plain as certified by the County. The structures on those lots will comply with the flood plain elevation requirements. However, staff is concerned that modifications in the yards on those properties may take place in violation of the flood plain development standards. In other words, an owner could make some cut or fill modifications in the yard, unaware that it is in the flood plain, in violation of the flood plain ordinance. If Lots 1-5 are to contain a portion of the flood plain, a statement should be recorded to run with the land that these lots contain a portion of the flood plain, and that any development of the area shall comply with the flood plain ordinance, including cut or fill of the landscaping and construction of fences or accessory structures.

16.28.020 <u>Standards and Requirements</u>

The following standards and requirements shall govern the development of duplexes, triplexes and attached single family dwellings:

A. <u>Minimum Lot Size</u>: The minimum lot size of each dwelling unit shall be as specified by the base zone.

Response: All of the attached (duplex) units comply with the minimum lot size of the underlying district. See Chapter 16.08.

B. <u>Minimum Building Setbacks</u>:

All setbacks shall comply with the setbacks required in the underlying zone, except that for interior side yards with a common wall, the side setback shall be zero feet.

The location of all buildings shall comply with the vision clearance requirements of Chapter 16.38 Clear Vision Areas of the ZDO.

Response: All of the attached units comply with the setback requirements of the underlying zone and with the vision clearance requirements, see Chapters 16.08 and 16.38 in this narrative.

C. Design Standards

These standards are intended to control development scale; avoid or minimize impacts associated with traffic, parking, and design compatibility; and ensure management and maintenance of common areas.

1. **Building Mass Supplemental Standard. The maximum number and width of consecutively attached townhouses (i.e., with attached walls at property line) shall not exceed 2 units in the C-1 Zoning District and 4 units in the R-2.5 and R-5 Zoning Districts.**

Response: The applicant is proposing a maximum of two (2) consecutively attached duplex units.

4. **Common Areas. "Common areas" (e.g., landscaping in private tracts, shared driveways, private alleys, and similar uses) shall be maintained by a homeowners association or other legal entity. A homeowners association may also be responsible for exterior building maintenance. A copy of any applicable covenants, restrictions and conditions shall be recorded and provided to the city prior to building permit approval.**

Response: The applicant is not proposing any "common area" associated with the attached dwellings; therefore, this section is not applicable.

D. **Standards For Approval: Such uses shall be permitted as a use upon the following findings:**

1. **The project shall comply with all other applicable provisions of the ZDO.**
2. **The project will accommodate the traffic generated by providing adequate off-street parking, access points and additional street right-of-way and improvements and other traffic facilities as required.**
3. **All public and private improvements shall be developed to applicable City Public Works standards.**
4. **Pedestrian walkways shall be provided for adequate pedestrian and bicycle traffic.**
5. **The overall housing density of the project shall comply with that permitted in the underlying R zone.**
6. **If proposed, private streets shall be owned and maintained by the owners of the lots which access the private street. A maintenance agreement shall be recorded which provides for the maintenance of the private street.**

Response: The proposed subdivision complies with all of the above listed standards for approval.

16.28.030 Procedure

The development of attached single family dwellings pursuant to this section shall require the approval of either a land partition or subdivision in order to create the legal lots of record. The proposed development shall comply with all applicable procedures and standards of either Chapter 16.56 Land Partitioning or Chapter 16.57 Subdivisions.

A Development Agreement specifying that subsequent development on the lots be limited to attached single family dwellings shall also be required.

Response: The applicant is proposing the creation of the attached single-family dwellings through a 26-lot subdivision application. The requirements of Chapter 16.57 are addressed later in this narrative.

Staff agrees with the applicants answers to Chapter 16.28 and has no additional comments.

16.30.020 <u>Application of Public Facility Standards</u>

The provisions of Chapter 16.30 Public Facility and Service Requirements shall apply to development within the City of North Plains as listed in the following table. No development permit shall be approved unless the following required improvements are provided to City standards prior to occupancy or operation unless an exception is approved by the City Council per Chapter 16.30.040 or future provision of the improvement is assured per Chapter 16.30.050.

Response: Per the requirements of the following table, the applicant is required to install the following improvements: fire hydrants, street improvements per C-2, water and sewer lines (per C-4), storm drainage, and street trees and lights. Please see the Preliminary Plan set for an illustration of how these requirements will be full-filled.

<u>Public Facilities Improvement Requirements Table</u>

	Fire Hydrants	Street Improvement	Water Line	Sewer Line	Storm Drainage	Street Lights & Trees
Single Family Homes	N	C-2	Y	C-4	Y	N
Two Family & Multifamily Dwellings	Y	Y	Y	Y	Y	Y

N = Not required Y = Yes, required C=Conditional, required in some cases (See Notes)

C-2. <u>Street Improvements for Single Family Homes</u>

New single family homes located on existing improved streets must pay the City's Systems Use Fee prior to issuance of a building permit. New single family homes which

require a street extension of a City street must be improved to the City's paved street standard. Extension of County roads must be improved to County road standards.

Response: The applicant will comply with this requirement prior to the issuance of a building permit for the new detached single-family homes.

C-4. Sewer Line Extensions for Single Family Homes

The Unified Sewerage Agency has jurisdiction over sewer line extensions. USA generally requires extension of the sewer lines to serve new hook-ups.

Response: The applicant is proposing to extend a new public sewer line down the proposed public street in order to serve the subdivision.

16.30.030 Public Facility Standards

The following public facility standards shall be applicable to all development as specified in Chapter 16.80.020 Public Hearings on Quasi-Judicial Actions.

A. Streets

Street improvements required by Chapter 16.30.020 Application of Public Facility Standards shall be provided in compliance with Chapter 16.31 Street Standards of this ordinance.

Response: The applicant will comply with the standards of Chapter 16.31 for the construction of the new public street providing the development access onto NW West Union Road.

B. Storm Drainage

No development permit shall be approved for any property until the City Engineer has reviewed and approved provisions for storm water drainage in accordance with the following criteria:

1. **For storm drainage across or over the property on which the development is located, there are storm drainage facilities available which are capable of handling a one-hundred year flood without damage to any improvement on the property, or inundation of the lowest habitable floor of any residential structure thereon.**

2. **For storm drainage along or from streets adjacent to the property on which the development is located, there are storm drainage facilities available in accordance with the City of North Plains adopted street standard.**

Response: The applicant will receive approval for the proposed storm drainage system for the development and it will comply with the above listed requirements. All of the lots will be connected to the storm drainage system.

C. Sewage Disposal

No development permit shall be approved until the City Engineer and the Unified Sewerage Agency have reviewed and approved provisions for connection to the public sewer system.

Response: The applicant will receive approval for connection to the existing public sewer system (see plan set sheet D5). Each of the lots will have individual sanitary sewer service.

D. Water Supply

No development permit shall be approved for any property unless all affected water mains are either:

1. **Fully improved to a standard providing both adequate potable water and fire flows, as established by the applicable State Plumbing Code and approved by the City Engineer; or**

2. **Improved to a standard providing adequate potable water flows pursuant to the City Water Master Plan and approved by the City Engineer and the Fire Chief for Washington County Fire District No. 2.**

Response: The applicant will receive approval for the water supply to the development. Each lot is proposed to have individual water service. The fire hydrants will have an adequate flow.

Staff generally agrees with the applicants comments. If there are any areas where there is a disagreement, the conditions of approval will cover those areas.

16.31.030 <u>General Provisions</u>

The following general provisions shall apply to the dedication, construction, improvement or other development of all public streets in the City of North Plains:

A. <u>The location, width, and grade of streets</u> shall be considered in their relation to existing and planned streets, to topographical conditions, to public convenience and safety, and to the proposed use of the land to be served by the streets.

Response: The location, width and grade of the proposed public street providing the development access onto NW West Union Road was considered in relation to existing streets, topographical conditions, public convenience and safety, and to the proposed use of the land created from the subdivision.

B. <u>Development proposals</u> shall provide for the continuation of existing principal streets where necessary to promote appropriate traffic circulation in the vicinity of the development.

Response: The new public street is proposed to be closed due to the EFU zoning to the south and the flood plain located along the west portion of the site.

C. <u>Reserve strips</u>: Reserve strips or street plugs controlling the access to streets will not be approved unless necessary for the protection of the public welfare or of substantial

property rights, and in these cases they may be required. The control and disposal of the land composing such strips shall be placed within the jurisdiction of the City under conditions approved by the Planning Commission.

Response: The applicant is not proposing any reserve strips with this application.

D. **Alignment: All streets other than minor streets or cul-de-sacs, as far as practical, shall be in alignment with existing streets by continuation of the center lines thereof. The staggering of street alignments resulting in "T" intersections shall, wherever practical, leave a minimum distance of 200 feet between the center lines of streets having approximately the same direction and otherwise shall not be less than 100 feet.**

Response: The new public street is not in alignment with another street; therefore, this section is not applicable.

E. **Future extension of streets: Where necessary to give access to or permit a satisfactory future development of adjoining land, streets shall be extended to the boundary of a tract being developed and the resulting dead-end streets may be approved without turnarounds. Reserve strips and street plugs may be required to preserve the objectives of street extensions.**

Response: The new public street is proposed to stub to the west, but it will not be able to be extended west due to the flood plain located in the western portion of the site.

F. **Intersection angles: Streets shall be laid out to intersect at angles as near to right angles as practical, except where topography requires lesser angle, but in no case shall the acute angle be less than 80 degrees unless there is a special intersection design. An arterial or collector street intersecting with another street shall have at least 100 feet of centerline tangent adjacent to the intersection unless topography requires a lesser distance. Other streets, except alleys, shall have at least 50 feet of tangent adjacent to the intersection unless topography requires a lesser distance. Intersections which contain an acute angle of less than 80 degrees or which include an arterial or collector street shall have a minimum corner radius sufficient to allow for a roadway radius of 20 feet and maintain a uniform width between the roadway and the right-of-way line.**

Response: The new public street has been laid out to provide a 90 degree angle intersection with NW West Union Road.

G. **Existing streets: Whenever existing public streets adjacent to or within a tract are of inadequate width, additional right-of-way shall be provided at the time of subdivision or development.**

Response: The applicant is proposing to dedicate 15 feet of additional right-of-way width to NW West Union Road.

H. **Cul-de-sacs: Cul-de-sacs shall be as short as possible, and shall have maximum lengths of 600 feet and shall not serve more than 20 dwelling units. All cul-de-sacs shall terminate with circular turnarounds.**

Response: The applicant is not proposing a cul-de-sac with this development.

I. **Street names: No street names shall be used which will duplicate or be confused with the names of existing streets, except for extensions of existing streets. Street names and number shall conform to the established pattern in the City and shall be subject to the approval of the Planning Commission.**

Response: The applicant will choose a street name for the new public street which does not duplicate an existing street name.

J. **Grades and curves: Grades shall not exceed 6 percent on arterials, 10 percent on collector streets or 12 percent on any other street. Center line radii of curves shall not be less than 300 feet on arterials, 200 feet on collectors or 100 feet on other streets, and shall be to an even 10 feet. Where existing conditions, particularly topography, make it otherwise impractical to provide buildable sites, the Planning Commission may accept steeper grades and sharper curves. In flat areas, allowance shall be made for finished street grades having a minimum slope of 0.5 percent.**

Response: The grade and curves of the new public street do not exceed the above requirements.

K. **Marginal access streets: If a development abuts or contains an existing or proposed arterial street, the Planning Commission may require marginal access streets, reverse frontage lots with suitable depth, screen planting contained in a non-access reservation along the rear or side property line, or such other treatment as may be necessary for adequate protection of residential properties and to afford separation of through and local traffic.**

Response: The property abuts an arterial street, NW West Union Road; therefore, the applicant will comply with any requirements the Planning Commission deems necessary.

L. **Alleys: Alleys shall be provided in commercial and industrial districts unless other permanent provisions for access to off-street parking and loading facilities are made as approved by the Planning Commission. While alley intersections and sharp changes in alignment shall be avoided, the corners of necessary alley intersections shall have radii of not less than 10 feet.**

Response: The applicant is not proposing any alleys with this development.

M. **Sidewalks shall be a minimum of five feet in width. Curbs and sidewalks shall be required along both sides of all public streets. All new development upon lots, tracts or parcels of land adjacent to a public street will be required to construct curbs and sidewalks.**

Response: The applicant is proposing sidewalk along the south side of NW West Union road and along the north side of the new public street within the development. The applicant is only proposing the sidewalk and planter strip along one (1) side per the pre-application meeting for the project.

N. **Street trees, where provided, shall not be of a species which has a shallow spreading root system which is likely to disturb sidewalk or street improvements.**

Response: Street trees will be planted within the proposed planter strips within the development and along NW West Union Road, per the requirements of this section.

16.31.040 **General Right-of-Way and Improvement Widths**

The following standards are the general criteria for public streets in the City of North Plains. These standards shall be the minimum requirements for all streets, except where modifications are permitted under Chapter 16.31.050 or where the Street Standard adopted by the City Council of North Plains is less restrictive.

Response: The applicant is proposing the new public street be designed to Local Street standards. Therefore, the street is proposed to have a minimum right-of-way width of 34 feet with a minimum improved width of 29 feet and a roadway width of 28 feet. NW West Union Road is an Arterial Street, and the street improvements are per ODOT Standards.

Street Classification	Minimum Right-of-Way	Minimum Improved Width	Minimum Roadway Width
Arterial	ODOT Standards	ODOT Standards	ODOT Standards
Local Street	34 feet	28 feet	24 feet

16.32.030 **Standards for Lots**

A. Minimum lot area: Minimum lot area shall conform to the requirements of the zoning district in which the lot is located.

Response: All of the lots comply with the minimum lot area requirements of the R-2.5 district.

B. Access: All lots created after the effective date of this Ordinance shall provide a minimum of 20 feet of frontage on an existing or proposed public street, with the following exceptions:

Response: All of the lots have a minimum of 20 feet of frontage along the new public street.

1. Flag lots, accessed by a private driveway, may be permitted by the Planning Commission when any of the following conditions are met:

a. The subject property is surrounded by developed properties and the terrain, shape of the parcel, or the location of existing structures precludes accessing the property with a public street.

d. The Planning Commission finds that the use of flag lots is necessary due to conditions of terrain or other physical features of the property.

e. The Planning Commission finds that the use of flag lots accessing from a collector or local street is preferable to direct access from an arterial street.

Response: Lot 26, a flag lot, has access by way of an access easement onto the new public street, which is designed to Local Street standards, so that it is not required to have access onto NW West Union Road, which is classified as an Arterial Street.

C. Flag Lots: **When authorized by the Planning Commission pursuant to the access requirements of Subsection Chapter 16.32.030(B)(1), flag lots shall be subject to the following development standards:**

1. **The access strip shall be a minimum of 15 feet in width, except as required by the Uniform Fire Code. The improved surface shall be a minimum of 12 feet in width, except as required by the Uniform Fire Code. A three-foot wide landscaped planter strip shall be provided between the access strip and the side lot line of the neighboring lot.**

Response: The access strip for the flag lot, Lot 26, is proposed to be 15 feet wide.

2. **The access strip shall not be included in the calculation of lot area for purposes of determining compliance with any minimum lot size provision of this Ordinance.**

Response: The access strip is not included in the calculation of lot area.

3. **The access strip shall be in fee ownership of the property provided access and shall not be as an easement. In the case of multiple lots having the same access strip, all lots served shall have ownership of an equal amount of the access strip. There shall be provided an easement over the remainder of the access strip for each property served.**

Response: The access strip will be owned and maintained by the property owner of Lot 26.

4. **The length of the access strip is subject to the requirements of the Uniform Fire Code, but shall not exceed 200 feet.**

Response: The length of the access strip will be well under 200 feet.

5. **Where more than one flag lots abut, access shall be via a shared drive wherever possible. The shared drive access strip shall be a minimum of 20 feet in width for two lots, and increased by 5 foot increments for each additional lot, with a maximum of four lots having access off of one access strip, except as required by the Uniform Fire Code. The improved surface shall be a minimum of 16 feet in width for two lots and increased by four feet for each additional lot, except as required by the Uniform Fire Code. A two foot wide vegetated planter strip shall be provided between the access strip and the abutting side lot lines.**

Response: The applicant is only proposing one (1) flag lot.

6. **Setbacks in Residential Zoning Districts. Subsequent development on flag lots in the R-7.5, R-5 and R-2.5 zoning districts shall provide minimum front, rear and side yard setbacks of 10 feet, except that the yard facing the garage door or carport entrance shall be a minimum of 20 feet.**

Response: The front, rear, and side yard setbacks will all be ten (10) feet.

D. Through Lots: **Through lots shall be avoided except where essential to provide separation of residential development from major traffic arteries, adjacent**

nonresidential activities, or to overcome specific disadvantages of topography and orientation. Screening or buffering may be required by the Planning Commission during the review of the land division request.

Response: The applicant is not proposing any through lots with the development.

E. **<u>Lot Side Lines</u>: The side lines of lots, as far as practicable, shall run at right angles to the street upon which the lots face.**

Response: A majority of the lots, lots 1-5 and 14-26, have side lot lines that run at right angles with the frontage street. Lots 6-13, 27 and 28 are as close as practicable to running at a right angle, due to the orientation of the subject site.

F. **<u>Lot Grading</u>: Lot grading shall conform to the requirements of Chapter 70 of the Uniform Building Code, hereby adopted by reference, and to the following standards unless physical conditions demonstrate the propriety of other standards:**

1. **Cut slopes shall not exceed one and one-half feet horizontally to one foot vertically.**
2. **Fill slopes shall not exceed two feet horizontally to one foot vertically.**
3. **The character of soil for fill and the characteristics of lots and parcels made usable by fill shall be suitable for the purpose intended.**

Response: The lot grading required for the development will comply with the requirements of this section as much as practicable.

G. **<u>Large Lots</u>: In dividing tracts into large lots which at some future time are likely to be re-divided, the applicant's tentative plan shall also demonstrate that any redevelopment or re-subdivision may readily take place at the planned residential density without violating the requirements of this ordinance.**

The Planning Commission may require that the blocks be of such size and shape, be so divided into building sites and contain such site restrictions as will provide for extension and opening of streets at intervals which will permit a subsequent division of any tract into lots of smaller size.

Response: None of the lots created from the subdivision are likely to be re-divided at a later time into smaller lots.

H. **<u>Land for Public Purposes</u>: Where a proposed park, school or other public use indicated on the Comprehensive Plan is located in whole or in part within a subdivision, the subdivider shall dedicate and reserve said area for such purpose. Where the City or other public authority has declared its intention to acquire said area, it shall proceed to perfect the title or a contract right to the same within three (3) years from the date of platting, and failing such, this reservation shall automatically expire. The public body shall expeditiously proceed, within its financial ability, to consummate such acquisitions.**

Response: The subject site does not contain any public use; therefore, this section is not applicable.

16.32.040 Standards for Blocks

Response: No street blocks are created with this development; therefore, this section is not applicable.

16.32.050 Easements

A. **Utility Lines: Minimum 5 foot wide easements for sewers, water mains, electric lines, or other public utilities shall be dedicated along the front, side, and rear lot or parcel lines of each lot. Easements shall be centered on lot lines.**

Response: All public utility lines are proposed to run down the public street.

B. **Water Courses: If a tract is traversed by a water course such as a drainage way, channel or stream, a storm water easement or drainage right-of-way shall be provided which substantially parallels the lines of the water course.**

Response: The site does not contain any water courses; however, the 100-year flood plain is located within the western portion of the site. This area has been left in a tract, undeveloped.

C. **Pedestrian and Bicycle Ways: When desirable for public convenience and access, a pedestrian or bicycle way easement may be required to connect to a cul-de-sac or to pass through an unusually long or oddly spaced block, or to otherwise provide appropriate circulation.**

Response: The applicant is not proposing, nor is he required to have, any pedestrian or bicycle ways with the development.

16.32.060 Improvement Requirements

B. **Subdivisions: The following improvements shall be required for all subdivisions in the City of North Plains.**

1. **Frontage improvements: Street improvements to full City Standards shall be required for all public streets on which a proposed subdivision fronts. Such improvements shall be blended to match with existing improved surfaces across the centerline and for a reasonable distance beyond the frontage of the property. Additional frontage improvements shall include: sidewalks, curbing, storm sewer, sanitary sewer, waterlines, other public utilities as necessary, and such other improvements as the City shall determine to be reasonably necessary to serve the development or the immediate neighborhood.**

Response: The applicant is proposing dedication of 15 feet of additional right-of-way width along the sites frontage of NW West Union Road.

2. **<u>Proposed Streets</u>: All public streets within the subdivision shall be constructed as required by the provisions of Subsection Chapter 16.31.040 Street Standards-General Rt-of-Way and Improvement Widths.**

Response: The applicant is proposing the new public street be constructed to the standards listed in Chapter 16.31 for Local Streets.

3. **<u>Monuments</u>: Upon completion of street improvements, monuments shall be reestablished and protected in monument boxes at every street intersection and all points of curvature and points of tangency of street center lines. Elevation bench marks shall be established at each street intersection monument with elevations to U.S. Geological Survey datum.**

Response: Any monuments will be reestablished as necessary.

4. **<u>Sanitary Sewers</u>: Sanitary sewers shall be installed to serve the subdivision and to connect the subdivision to existing mains both on and off the property being subdivided.**

   If the required sewer facilities will, without further sewer construction, directly serve property outside the subdivision, the Planning Commission may recommend to the City Council construction as an assessment project with such arrangement with the sub-divider as is desirable to assure financing his share of the construction.

   The City may require that the sub-divider construct sewage lines of a size in excess of that necessary to adequately serve the development in question, where such facilities are or will be necessary to serve the entire area within which the development is located when the area is ultimately developed. The City may also require that the construction take place as an assessment project with such arrangement with the sub-divider as is desirable to assure his share of the construction.

Response: The applicant is proposing to connect a new public line from the existing public line within the right-of-way of NW West Union Road that will run down the new public road and provide service to all of the new lots within the subdivision.

5. **<u>Water System</u>: Water lines with valves and fire hydrants serving the subdivision and connecting the subdivision to the city mains shall be installed. The design shall take into account provisions for extension beyond the subdivision to adequately grid the City system and to serve the area within which the development is located when the area is ultimately developed.**

Response: The applicant is proposing a new public water line connect to the existing public line within NW West Union Road, run down the new public street and provide individual service to all of the new lots and to any required fire hydrants in the subdivision.

6. **<u>Street Lights and Street Trees</u>: The installation of street lights and street trees is required at locations and of a type established by City standards.**

Response: The street lights and street tress installed will comply with the City standards.

1.Street Signs: The installation of street name signs and traffic control signs is required at locations determined to be appropriate by the City and shall be of a type established by City standards.

Response: Any street signs and traffic control signs will be installed per the requirements of the City.

All improvements required under this subsection shall be completed to City standards, or assured through an irrevocable letter of credit, assignment of bank account, performance bond or other instrument acceptable to the City Attorney, prior to the approval of the Final Plat of the subdivision.

Staff Comments: Staff agrees with the answers provided by the applicant.

V. DECISION.

Based upon the findings contained in the staff report, the finding that the Significant Natural Resources Report and Flood Plain Report, the revised application packet submitted by the applicant and testimony before the Planning Commission, approval is hereby granted for Subdivision, Flood Plain Development, construction adjacent to a significant natural resource, variance to maximum lot size submitted by Homestead Development subject to the following conditions of approval:

1. Comply with conditions of approval required by Washington County Fire District No. 2.
2. Comply with all conditions of approval and code requirements of Clean Water Services, and the recommendation of the city engineer as modified by the planning commission.
3 Applicant shall construct improvements to West Union Road as described in the July 10, 2007 Washington County decision approving modifications to the County road standards, including the revised cross sections, date stamped July 10, 2007 and additionally the improvements shall include all of the other conditions proposed by the County in the April 17, 2007 memorandum, and the conditions of approval contained in the staff report.
4. There shall be full street improvements constructed for the new street as shown on the applicants submittal. All street improvements shall be to City of North Plains standards.
5. Applicant shall limit on the plat vehicular access from Lots 1-8, 26 and 27 to West Union Road.

6. The street right of way between Lots 8-11 and Lot 7 shall be widened to a width of 28 feet.

7. Applicant shall comply with the development standards of Zoning and Development Code Chapter 16.08.

8. Applicant shall comply with Chapter 16.57 of the Zoning and Development Code.

9. Applicant shall dedicate the land necessary for the new public street and a 15 foot dedication for West Union Road as a part of the final subdivision plat.

10. All conditions of approval must be completed within one year of the date of this approval or the approval is void, unless specifically modified by an approved phased construction schedule, or unless the applicant/owners provides assurances otherwise.

11. Prior to obtaining approval to begin construction of any public improvements, the applicant/owner shall provide a performance bond to the City in the amount of 125% of the total cost of such construction. Upon completion of all public improvements, the applicant/owner shall provide a maintenance bond to the City, in the amount of 40% of the total cost of such construction, guaranteeing said improvements for a period of one (1) year following City acceptance of said improvements.

12. Comply with the recommended conditions of the Public Works Director.

13. Comply with the conditions of approval recommended by the City Engineer incorporated into the staff report.

14. Street lights are required and shall be installed as per IES standards.

15. The applicant/owners shall have a licensed land surveyor prepare a final Plat of the proposed partition and submit it to the City for City approval, and then record it with the Washington County Surveyor's Office and County Clerk's Office. The applicant/owners shall then send a copy of the recorded Plat to the City Recorder.

16. The applicant/owners agree to waive their right to remonstrate against the formation of a local improvement district or other mechanism to construct future improvements to the streets, storm water, water and sewer systems that may be assessed against the subject property.

17. Prior to City approval of the final partition plat for the subject property, the applicant/owners shall sign and record a Development Agreement with the City, covering all of the conditions of approval and pay all fees.

18. It shall be the responsibility of the Developer or his representative to coordinate all design requirements with the appropriate agencies and utilities. In addition to the City of North Plains, the Clean Water Services (CWS) and Washington County, must review and approve the proposed sanitary sewer /storm water sewer improvements and NW West Union Road improvements respectively. Also, the Fire District must review and approve the site plan for emergency access vehicles. Approval must be obtained in written form and any coordination work with all agencies shall be the Developers sole responsibility.

Documentation of all written approvals and permits from affected agencies should be provided to the City for their records.

19. Approved plans do not guarantee the adequacy of the design, or guarantee that there will not be any design conflicts during construction. The design engineer should be notified of any design conflicts that are noted during construction and he/she should then immediately notify the City of North Plains. Modifications to the design must be approved by the City of North Plains and the appropriate Agency prior to continuing with any relevant construction activities.

20. After Planning Commission review the Developer must submit separate construction plans that meet all Conditions of Approval, City of North Plains Public Works Design Standards, 1990 APWA Standard Specifications for Public Works Construction with August 1996 revisions, and Clean Water Services to the City for review and approval. Prior to the start of construction the plans must be approved by the City and all City and Agency permits must be obtained.

21. The Developer shall incorporate all Clean Water Services requirements into the construction plans. All storm sewer improvements are to be designed in accordance with the Unified Sewerage Agency Design and Construction Standards for Sanitary Sewer and Surface Water Management July 1996. The developer must obtain design approval and all appropriate permits prior to start of construction.

22. The applicant shall include on the plat, and as a separate document from the plat for recordation, a statement that a portion of Lots 8-12 are in a 100 year flood plain and that all work within the flood plain, including but not limited to the construction of fencing, the movement of dirt, the construction of planters or patios, and the construction of accessory structures shall comply with the City of North Plains Flood Plain Ordinance.

23. The applicant shall mark the location of the flood plain with signs on each lot affected by the 100 year flood plain stating that any development of the area below the flood plain line shall be subject to City of North Plains approval.

24. Washington County shall certify the location of the 100 year flood plain and the location of the flood plain shall be placed on the final plat.

ORDERED this 24th day of July, 2007

Sherry Simmons

Planning Commission Vice-Chairperson

REVISED: 8-8-07

BIOLOGICAL EVALUATION

McKAY FIELDS HOUSING DEVELOPMENT

NW UNION ROAD,
NORTH PLAINS, WASHINGTON COUNTY, OREGON

ADDRESSING POTENTIAL IMPACTS ON FEDERALLY LISTED FISH, WILDLIFE, PLANTS, AND THEIR HABITAT

Lead Action Agency:
Federal Emergence Action Agency

Prepared for the Lead Action Agency by:
Homestead Development Corp.
P.O. Box 12
Hillsboro, OR 97123

and:
Ellis Ecological Services, Inc.
20988 S. Springwater Road
Estacada, Oregon 97023

For submittal to:
National Marine Fisheries Service

March 18, 2013

EXECUTIVE SUMMARY

The proposed McKay Fields Housing development at the NW Union Road Site will result in filling within the designated floodplain of McKay Creek at approximately River Mile (RM 8.2). Such filling requires the submittal of a Conditional Letter of Map Revision based on fill (CLOMAR-F) to the Federal Emergency Management Agency (FEMA). FEMA requires that compliance with the Endangered Species Act (ESA) of 1973 be demonstrated for a CLOMR-F request. Section 9 of the ESA prohibits anyone from taking or harming a threatened or endangered species. If an action might harm a threatened or endangered species, a permit is required from the U.S. Fish & Wildlife Service (USFWS) or National Marine Fisheries Service (NMFS), under Section 10 of the ESA. If the proposed action is found to have "no effect" on listed or proposed threatened or endangered species, then all that is required is a letter of confirmation from NMFS and/or USFWS. This ESA compliance investigation report (Biological Evaluation) was prepared for the Federal Emergency Management Association for submittal to NMFS.

The project site is located south of NW Union Road, west of Jackson School Road, east of Glencoe Road in North Plains, Oregon. A segment of McKay Creek is located along a portion of the sites southern, and all of its western boundaries. The project site currently consists of cultivated fields, a riparian corridor along McKay Creek and some rural residential and outbuildings.

Following development, the project site will include 33 residential lots on the eastern portion of the project site along with streets and utilities. The western portion of the site will contain a 50-foot wide wetland corridor and an open field. An engineered, stormwater swale will be constructed above the 100-year flood elevation and will receive all run-off from the development. This swale will discharge west to the open field, a portion of which will be excavated to obtain fill for the developed portion of the project site. The project site will be cleared and graded for the development of residential lots. All or part of the westernmost seven lots (comprising 0.30 acres) will require filling to raise the grade above the 100-year flood elevation of 170.7 feet mean sea level (MSL). This grading will include the placement of 2,800 cubic yards of fill. This fill will be obtained from excavation of the floodplain on the western 3.49 acres of the project site. The excavation will cut the existing grade (which is 160 to 164 feet MSL) down to a minimum of 159 feet above mean sea level MSL.

In assessing the potential effects of the proposed project on listed fish, wildlife, and plant species, and their habitats, the environmental baseline was documented, the proposed action was evaluated to assess the effect on the environmental baseline, and the results of these evaluations were used to arrive at a determination of effect.

Based on the analysis of effects and consideration of conservation measures that would be implemented to avoid and reduce effects we determined the following:

Fish Species -

One listed fish species, threatened Upper Willamette River (UWR) Steelhead (*Oncorhynchus mykiss*) Distinct Population Segment (DPS), is known to occur in McKay Creek. Streamnet

lists the segment of McKay Creek adjacent to the project site as providing rearing and migration habitat for steelhead. The nearest spawning location is approximately 1.4 river miles upstream of the project site in Jackson Creek (a tributary to McKay Creek), and juveniles would be expected to rear in headwaters where summer water quality, especially temperature, is conducive to rearing. It is possible, that juveniles could move downstream and rear in McKay Creek at the project site. There will be no inwater work associated with the project.. Thus, the only potential impact to McKay Creek (and thus UWR steelhead) would be from increased stormwater runoff. However, a carefully designed stormwater swale will intercept runoff from the development prior to its discharge to McKay Creek. Based on the fact that no inwater work will occur, and that following development, stormwater runoff should have no greater impact to McKay Creek than currently occurs, the following effect determination was made:

- Upper Willamette River Steelhead --- ***"no effect"***

No critical habitat is present at or downstream of the project action area in McKay Creek. The determination of *"no effect"* for UWR Steelhead is based, in part, on the fact that the nearest critical habitat is located greater than 10.8 stream miles downstream in the Tualatin River, and on the discountable and insignificant biological impact of the effects following implementation of conservation measures. No significant cumulative, interrelated, or interdependent effects associated with the proposed project have been identified.

Wildlife and Plant Species –

Two ESA-listed plant species are on the USFWS list for Washington County: Nelson's checker-mallow (Sidalcea nelsoniana) and Kincaid's Lupine (*Lupinus sulphureus (=oreganus) ssp. kincaidii (=var. kincaidii)*). Because no Nelson's Checkermallow or Kincaid's Lupine have historically been reported at or near the site, and because none were identified during surveys, the proposed project would have *"**no effect**"* on listed plant species or their habitats.

Two ESA-listed bird species are on the USFWS list for Washington County: Northern Spotted Owl (*Strix occidentalis*) and Marbled murrelet (*Brachyramphus marmoratus*). Neither of these listed bird species are known to occur within two miles of the project site, and the project site does not contain the old growth/mature forest habitat required by these species. One ESA-listed insect species, Fender's blue butterfly (*Icaricia icarioides fenderi*) is known or suspected to occur in Washington County, there have been no reports of Fender's Blue Butterfly within two miles of the project site, and the project site does not contain the native prairie habitats required by this species. Therefore, the proposed project would have *"**no effect**"* on listed wildlife species or their habitats.

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1.0 INTRODUCTION

1.1 PROJECT BACKGROUND

The project site was recently annexed into the City of North Plains, Washington County, Oregon and is proposed for development as a residential subdivision (McKay Fields). McKay Creek flows along part of the southern and the entire western portion of the site and is known to support ESA-listed Upper Willamette River (UWR) steelhead. A wetland delineation and vegetated corridor condition assessment were conducted to determine the location of the wetlands and creek boundaries at the site, as well as the limits of the 50-foot vegetated corridor along McKay Creek required by Clean Water Services.

The proposed McKay Fields Housing development will result in filling within the designated floodplain of McKay Creek at approximately River Mile (RM) 8.2. Such filling requires the submittal of a Conditional Letter of Map Revision based on fill (CLOMAR-F) to the Federal Emergency Management Agency (FEMA). FEMA requires that compliance with the Endangered Species Act (ESA) of 1973 be demonstrated for a CLOMR-F request. Section 9 of the ESA prohibits anyone from taking or harming a threatened or endangered species. If an action might harm a threatened or endangered species, a permit is required from the U.S. Fish & Wildlife Service (USFWS) or National Marine Fisheries Service (NMFS), under Section 10 of the ESA. If the proposed action is found to have "no effect" on listed or proposed threatened or endangered species, then all that is required is a letter of confirmation from NMFS and/or USFWS. This ESA compliance investigation report (Biological Evaluation) was prepared for the Federal Emergency Management Association for submittal to NMFS. This Biological Assessment (BA) was completed to address the effects of the proposed filling within the floodplain, as well as the overall housing development, on species listed as endangered or threatened under the Endangered Species Act (ESA), or their designated critical habitat.

1.2 FEDERAL ACTION HISTORY

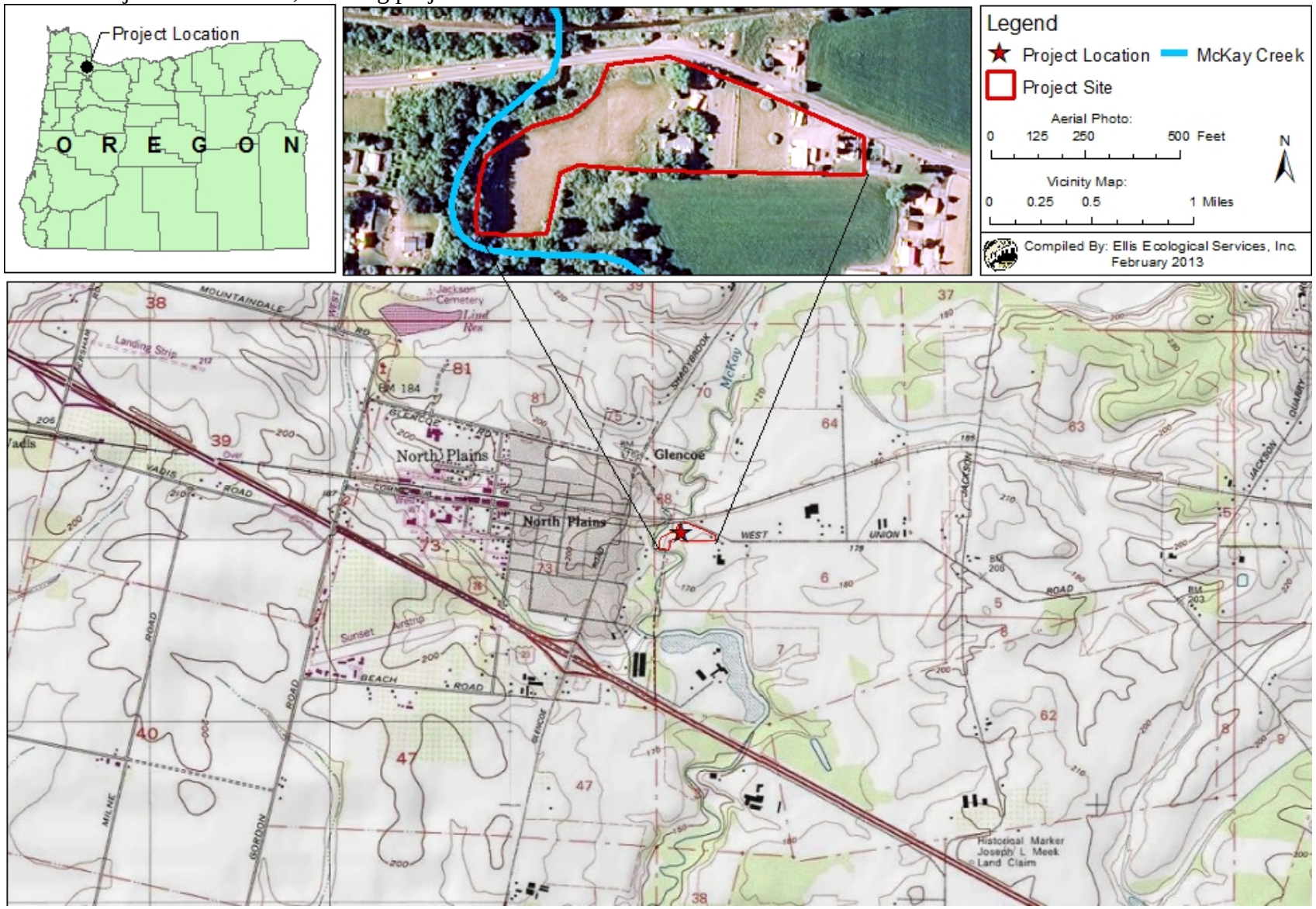
No previous formal or informal consultations have been conducted with NMFS, FEMA or USFWS.

2.0 DESCRIPTION OF THE ACTION AND ACTION AREA

2.1 PROJECT LOCATION AND EXTENT

The project is located in Township 1N, Range 2W, Section 6 on tax lots 2000, 2100 and that portion of tax lot 1200 south of West Union Road (Figure 1). The entire project site is 6.38 acres in size, of which 2.84 acres will be developed with 33 residential housing lots, and 3.49 acres will be left as vegetated buffer along McKay Creek, excavated for fill, or left as open land. As defined, the "action area" for a biological evaluation is the area both on and off the project site, where the action (in this case the construction of a housing development) will affect ESA-listed organisms. Because there will be no off-site effects, the project site and action area for this project are the same.

FIGURE 1. Project area location, showing project site.



2.1.1 Project Site Description

The project site currently consists of a field, a riparian corridor along McKay Creek and some rural residential and outbuildings, including two occupied houses, one vacant house, and three outbuildings. The easternmost house will remain following development, but the remaining buildings will be demolished. McKay Creek borders part of the south and the entire west sides of the property.

2.2 PROJECT DESCRIPTION

2.2.1 Description of Project Activities

Following development, the project site will include 33 residential lots on the eastern portion of the project site along with streets and utilities. The western portion of the site will contain a 50-foot wide wetland corridor and an open field. An engineered, stormwater swale will be constructed at 169 feet mean sea level (MSL) (1.7 feet below the 100-year flood elevation) and will receive all run-off from the development. This swale will discharge west to the open field, a portion of which will be excavated to obtain fill for the developed portion of the project site. The project site will be cleared and graded for the development of residential lots. All or part of the westernmost seven lots (comprising 0.30 acres) will require filling to raise the grade above the 100-year flood elevation of 170.7 MSL. This grading will include the placement of 2,800 cubic yards of fill. This fill will be obtained from excavation of the floodplain on the western 3.49 acres of the project site. The excavation will cut the existing grade, which is 160 to 164 feet MSL, down to a minimum of 159 feet MSL.

A 40 foot by 50 foot (2,000 square foot) portion of the existing wetland buffer along McKay Creek will be cleared, but replanted. This will allow for a connection (at 159 MSL – the elevation of the existing top of bank) between the McKay Creek and the excavated portion of the floodplain. The local water resource management utility, Clean Water Services (CWS), which retains regulatory permitting approval for developments in its service district requires this encroachment into the wetland buffer be mitigated by increasing the amount of buffer, which will be conducted on the south end of the property

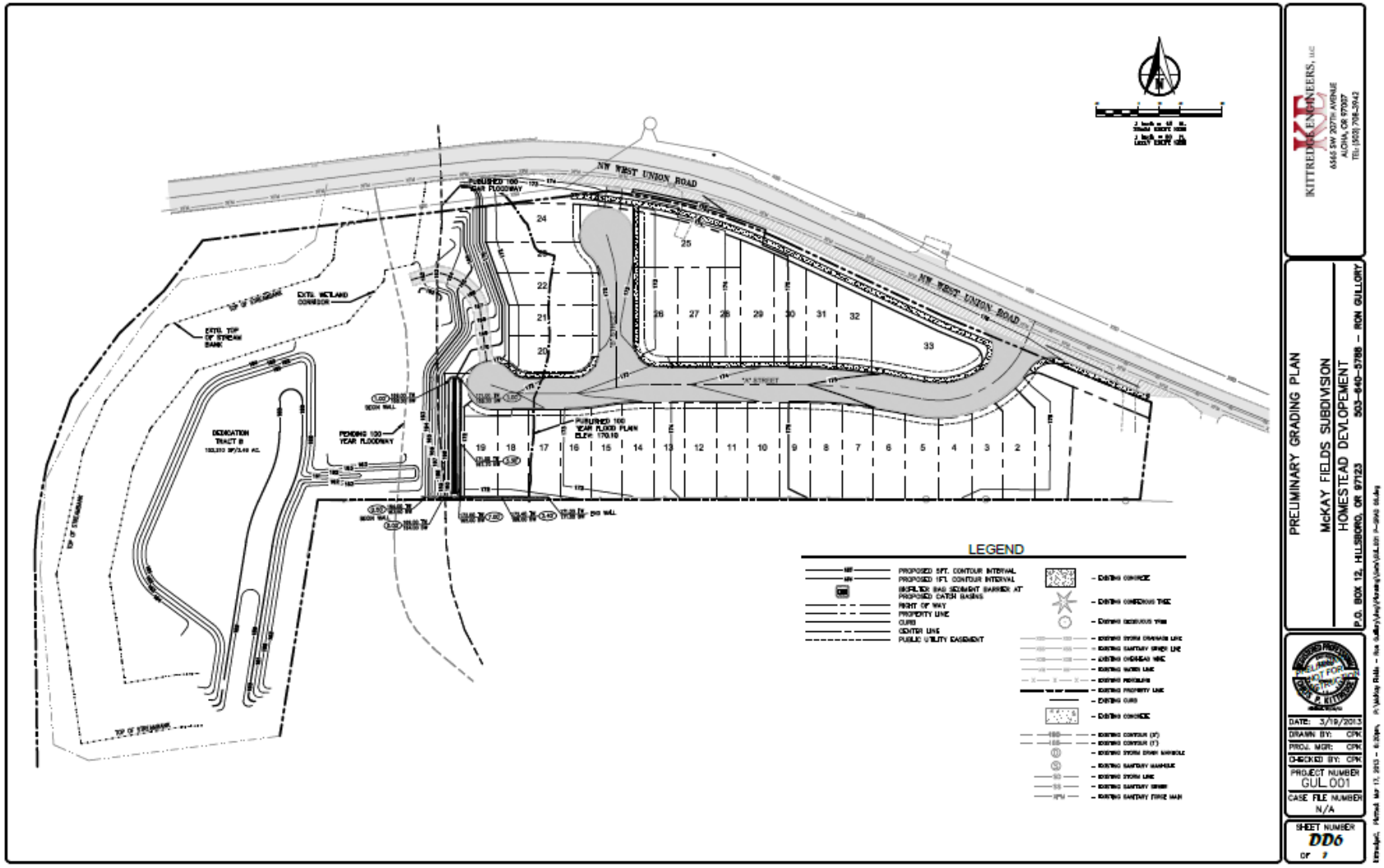
2.2.2 Proposed Conservation Measures

Proposed conservation measures are outlined in the Effects Section (Section 5.0) below, and include wetland corridor (riparian) enhancement, construction best management practices (BMPs), and sizing of the on-site stormwater facilities.

2.2.3 Mitigation

As stated above, mitigation for clearing within the wetland buffer will consist of replanting, and increased wetland buffer elsewhere. In addition, CWS will be given an easement for the 50-foot buffer and stormwater outfall to McKay Creek (at the southern end of the excavation). The 3.49 acre undeveloped portion of the property will be dedicated to the City of North Plains.

Figure 2. Action area development plan.



3.0 STATUS OF SPECIES AND CRITICAL HABITAT

3.1 SENSITIVE SPECIES

Information pertaining to threatened, endangered, proposed and candidate species that may occur within a 2-mile radius of the proposed project site was obtained from the Oregon Natural Biodiversity Information Center (ORBIC). ORBIC database searches are not to be distributed and thus it is not attached. The U.S. Fish and Wildlife Service (USFWS) website http://www.fws.gov/oregonfwo/species/Lists/default.asp#CountyLists was also accessed to determine what endangered species may occur in Washington County (Appendix A), and a database search was conducted using the NMFS web site (www.nwr.noaa.gov). Baseline watershed data were obtained from various studies cited in the appropriate report sections below.

A site reconnaissance was performed on February 5, 2013 by a qualified fisheries and wildlife biologist. During the site visit, photographs were taken of key habitat elements and observations of habitat quality were recorded. A photolog of the project area is provided in Appendix B.

3.1.1 Fish Species

One listed fish species, threatened Upper Willamette River (UWR) Steelhead (*Oncorhynchus mykiss*) Distinct Population Segment (DPS), is known to occur in McKay Creek. Streamnet lists the segment of McKay Creek adjacent to the project site as providing rearing and migration habitat for steelhead. The nearest spawning location is approximately 1.4 RM upstream of the project site in Jackson Creek (a tributary to McKay Creek), and juveniles would be expected to rear in headwaters where summer water quality, especially temperature, is conducive to rearing. It is possible, that juveniles could move downstream and rear in McKay Creek at the project site. McKay Creek is listed as having rearing and migration habitat by Streamnet and on Figure 340A OAR 340-041, but is not listed as having salmon or steelhead spawning use on Figure 340B of OAR 340-041.

Although the range of UWR Chinook salmon includes the Tualatin River subbasin, the current distribution of UWR Chinook salmon does not extend more than 0.54 miles upstream of the mouth of Tualatin River (Streamnet, 2013). McKay Creek enters the Tualatin River well upstream of RM 0.54. Because UWR Chinook salmon do not occur in proximity to the action area, they will not be impacted by the proposed project.

3.1.2 Wildlife Species

Two ESA-listed bird species are on the USFWS list for Washington County: Northern Spotted Owl (*Strix occidentalis*) and Marbled murrelet (*Brachyramphus marmoratus*). Both species require mature/old growth habitats that do not occur at the project site. One ESA-listed insect species, Fender's blue butterfly (*Icaricia icarioides fenderi*) is known or

suspected to occur in Washington County. However, the project site does not contain the native prairie habitats required by this species.

None of the identified threatened or endangered wildlife species potentially present in Washington County, were identified within two miles of the project site by an ORBIC database search (ORBIC, 2013.)

3.1.3 Plant species

Two ESA-listed plant species are on the USFWS list for Washington County: Nelson's checker-mallow (*Sidalcea nelsoniana*) and Kincaid's Lupine (*Lupinus sulphureus (=oreganus) ssp. kincaidii (=var. kincaidii)*). Both Nelson's Checkermallow and Willamette Daisy occur on alluvial soils along streams, but there have been no recent observations in the vicinity of the proposed project (ORBIC 2013), and none were observed during the wetland delineation. Thus, Willamette Daisy and Nelson's Checkermallow are not expected to occur within the project action area.

3.2 SPECIES DESCRIPTIONS

Upper Willamette River Steelhead Trout DPS (Threatened)

3.2.1 Listing Status

In March 1999, NMFS listed the Upper Willamette River (UWR) steelhead trout as threatened under the Federal ESA (64 FR 14308). Threatened status was reaffirmed in January 2006 (71 FR 834). In 2003, a majority (71 percent) of the NMFS Biological Review Team (BRT) concluded that the Upper Willamette River Steelhead Trout DPS is "likely to become endangered" in the near future (Good et al., 2005).

This DPS includes all naturally spawned populations of late-migrating, winter-run steelhead in the Willamette River (and its tributaries) upstream from Willamette Falls to the Calapooia River (inclusive). No artificial propagation programs are part of this DPS.

3.2.2 Life History and Use of Action Area

The biological requirements of salmonids vary based on life history stage. Biological requirements for upstream adult salmonid migration include clean, cool, oxygenated water, low turbidity, sufficient pool habitat to act as thermal refugia, and sufficient flows to allow passage to spawning sites. Spawning areas are selected based on species-specific substrate size, flow and temperature requirements. Substrate conditions such as porosity, sediment size, and permeability are critical to embryo survival and fry emergence, and water temperature (of 13°C or less for most species) is also of primary importance. Juvenile salmonids require rearing habitats with suitable holding, feeding, and resting areas and abundant prey. Steelhead eggs hatch in 35–50 days depending on water temperature. Following hatching, alevins remain in the gravel two to three weeks until the yolk-sac is absorbed (Barnhart 1986). Following emergence, fry usually move into shallow and slow-moving margins of the stream, where they may aggregate in small schools of up to 10 individuals (Barnhart 1986) in waters 3 to14 inches (8 to 36 cm) deep (Bovee 1978). Fry tend to occupy shallow riffle habitats, but will occupy pool type habitats during periods of low

flow (Barnhart 1986). As they grow, they inhabit areas with deeper water, a wider range of velocities, and larger substrate.

Of the three temporal runs of steelhead currently found in the Upper Willamette River, only the late winter steelhead is considered to be native. Adult steelhead that pass Willamette Falls from February 15 through mid-May of each year are considered wild, winter UWR steelhead. UWR steelhead adults enter the Willamette River beginning in January and February, but they do not ascend to their spawning areas until late March or April through mid-May (Myers et al., 2006). The timing of various life stages of UWR steelhead in Tualatin River tributaries is provided in Table 3.1 (ODFW, 2003).

Wild steelhead smolt out-migration starts in mid-February, peaks in May, and is essentially complete by mid-July (Domina, 1997, 1998). The ODFW timing tables show juvenile winter steelhead migration occurring in the Tualatin River from mid-February through mid-July, with a peak in April and May.

TABLE 3.1
Typical and Approximate Timing of ESA-listed Salmonid Presence Within the Tualatin River (below Scoggins Creek)

Species ESU/DPS	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Steelhead Trout												
Upper Willamette River												
Adult Migration												
Adult Spawning												
Adult Holding												
Egg Incubation												
Juvenile Migration												
Juvenile Rearing												

Represents peak level of use.

Represents lesser level of use.

Represents known presence with uniform or unknown level of use.

Note: Information collected from the Oregon Department of Fish and Wildlife.

ESU/DPS = Evolutionarily Significant Unit/Distinct Population Segment.

Streamnet lists the segment of McKay Creek adjacent to the as providing rearing and migration habitat for steelhead. The nearest spawning location is approximately 1.4 RM upstream of the project site in Jackson Creek (a tributary to McKay Creek), and juveniles would be expected to rear in headwaters where summer water quality, especially temperature, is conducive to rearing. It is possible, that juveniles could move downstream and rear in McKay Creek at the project site. Both adult and juvenile UWR steelhead do use McKay Creek at the project site for migration to and from spawning areas upstream on McKay Creek and its tributaries.

3.2.2.1 Factors of Decline

Pacific salmonids face a multitude of challenges, all of which have contributed to their decline. These factors include or have included overharvest, dams, habitat alteration, water diversion, hatchery impacts, non-native species introductions, increases in predation or shifts in predation resulting from anthropogenic causes, climate change, cycles in oceanic productivity, etc. Careful management of harvest, land use restrictions, regulations protective of water quality, habitat restoration initiatives, dam upgrades, and other actions have reduced many of these negative impacts, but significant challenges remain.

Limiting Factors: WRI (2004) identified the following limiting factors for UWR steelhead in the Tualatin River Basin:

- habitat connectivity,
- habitat modification,
- lack of large wood,
- high water temperatures, and
- fish passage barriers.

Minor limiting factors include introduced fish, runoff of toxics, and some unscreened water diversions.

NMFS (2006) found the limiting factors for the UWR steelhead DPS as a whole to be: lost/degraded floodplain connectivity and lowland stream habitat, degraded water quality, high water temperature, reduced streamflow, and reduced access to spawning/rearing habitat

3.2.2.2 Local Empirical Information

Current local population information: The population of UWR steelhead in the Tualatin Basin is recognized in the ODFW native fish status report as a distinct population (ODFW, 2005). The authors had no data on abundance or abundance trends, but assumed the population was similar to that in the Yamhill (ODFW, 2005). The Yamhill population was described as having passed the abundance criteria based on juvenile and adult observations by ODFW biologists, while redd surveys indicated that adult return levels were "at least moderately healthy." McElhaney et al. (2007) did not recognize any populations of UWR steelhead in the west-side (of the Willamette) tributaries because of questions regarding their occurrence in those tributaries historically. Of the west-side tributaries, only Gales Creek (a tributary of the Tualatin) had any significant evidence of historical use by steelhead (McElhaney et al., 2007).

3.2.2.3 Population trend

Good et al. (2005) could not conclusively identify a single population of UWR steelhead that was naturally self-sustaining. All populations were described as relatively small, with the recent mean abundance of the entire ESU at less than 6,000. Over the period of the available time series, most of the populations were in decline. At Willamette Falls between 1971 and 2012, late winter steelhead returns ranged from 1,322 in 1996 to 18,495 in 1971. Figure 2 illustrates adult returns at Willamette Falls during that interval. As can be seen, the population of UWR steelhead is highly variable, and no clear trends are obvious from the

data, although the last three years have shown consistent returns of approximately 4,500 late winter steelhead.

3.3 CRITICAL HABITAT

3.3.1 Geographic extent of Critical Habitat

Critical habitat for UWR steelhead was designated on September 2, 2005 (70 FR 52630). McKacy Creek is not included in the designated critical habitat. Portions of the upper Tualatin River are included in the critical habitat designation, including the Tualatin River at its confluence with Dairy Creek. However, because the nearest critical habitat is over 10 miles downstream of the project site, no critical habitat will be affected.

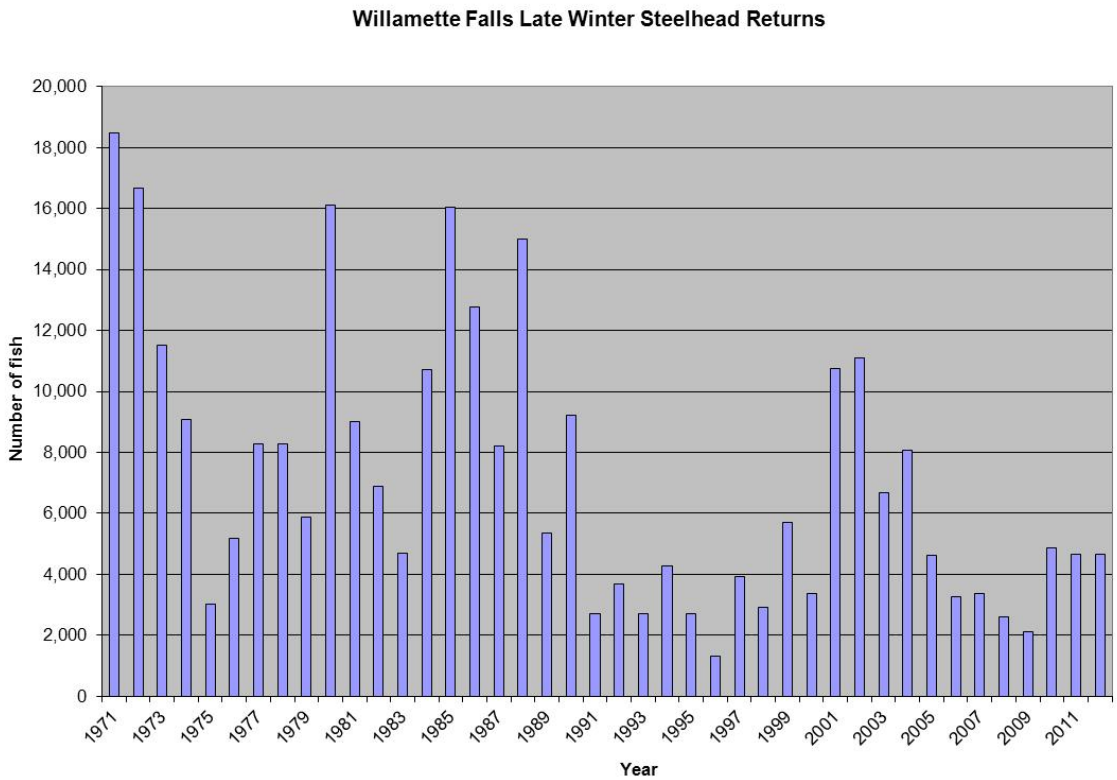


FIGURE 3. Historical UWR Steelhead Abundance

4.0 CURRENT CONDITIONS

4.1 CURRENT CONDITIONS AT THE PROJECT SITE

The project site is located in the Dairy Creek 5th field hydrologic unit code (HUC) 1709001003; and the Upper McKay Creek 6th field HUC 170900100306. Dairy Creek is a tributary of the Tualatin River, and the McKay Creek confluence is at approximately Dairy Creek RM 2.2. McKay Creek is 24.2 miles in length and drains an area of 68.5 square miles. Mean annual discharge of McKay Creek is 70 cfs, with mean monthly discharge of 3 cfs in July and August to 198 cfs in February (Hawksworth, 1999).

McKay Creek bordering the project site (and downstream to its confluence with Dairy Creek, as well as upstream for several stream miles) is a low-gradient, meandering, valley-bottom stream, with generally steeply incised banks, fine sediment substrates, and a degraded riparian zone, often dominated by non-native invasive species, including reed canary grass and Himalayan blackberry. The lower reaches of McKay Creek likely contain multiple limiting factors for use by salmonids, including high summer temperatures, limited overhead, bank, or instream cover, a lack of habitat complexity, and almost entirely uniform fine substrates.

4.1.1.1 Water Quality

McKay Creek has had poor water quality and at the project site has existing Total Maximum Daily Loads (TMDL) for E. coli, ammonia, phosphorus and temperature.

Temperature: Temperature standards vary depending upon species and life cycle stage present. Salmonids are sensitive to high temperatures, and therefore ODEQ temperature standards are set based on salmonid tolerance. From the time of spawning until fry emerge the maximum temperature criterion is 55°F (12.8°C), while the temperature criterion for all other life stages is 64°F (17.8°C). Temperatures of 77°F (25°C) or higher are considered lethal.

Lower McKay Creek has historically had problems with high water temperatures and currently has a temperature TMDL in place. Summer water temperatures were monitored in 1999 prior to issuance of the TMDL. The highest maximum daily temp (recorded on July 20, 1999) at West Union Road (adjacent to the project site) was 67.8 °F and the highest 7-day average temp (on August 3, 1999) was 66.6 °F (ODEQ, 2001). No more recent data on temperature was identified.

Turbidity:
Lowland reaches in the watershed typically have eroding banks, high stream turbidity and silt substrates (Hawksworth, 1999).

Chemical Contamination/Nutrients: McKay Creek has historically had problems with agricultural runoff and has a TMDL approved for phosphorus and ammonia.

4.1.1.2 Habitat Access

Physical Migratory Barriers: There are no barriers downstream of the project site on McKay Creek, Dairy Creek, or the Tualatin River.

4.1.1.3 Habitat Elements

Substrate/Sediments:
As observed during the site visit, McKay Creek at and downstream of the project site has uniform fine sediments that would not be conducive to salmonid spawning.

Large Woody Debris: Large woody debris (LWD) dissipates stream energy, retains gravel, diversifies stream habitat and provides structure leading to the formation of pools. A stretch of stream is considered “properly functioning” in terms of providing adequate amounts of

large woody debris if there are more than 80 pieces per mile (NMFS 1996). The McKay watershed is generally lacking in structurally diverse habitat due to a general lack of LWD in the stream channel (Hawksworth, 1999). However, in the section of McKay Creek bordering the project site, LWD, was sparse but not completely absent. Water was relatively high during the site visit, and much of the large wood inundated may be exposed during summer low flow conditions.

Pool Frequency: The majority of the lowland areas of McKay Creek are glide habitat and pools are generally lacking (Hawksworth, 1999).

Off-channel habitat: Significant habitat modifications have eliminated many of the historic off-channel areas in the basin, and WRI (2005) identified habitat connectivity as a limiting factor in the Tualatin River. Thus, the lower Tualatin River is "not properly functioning" with regard to off-channel habitat.

Refugia Habitat: Hawksworth (2001) reports that in the lower Tualatin watershed, Riparian degradation has contributed to a declining quality of aquatic habitats in the valleys. Loss of large trees has resulted in a reduced supply of large woody debris to streams, thus causing a loss in habitat diversity. Consequently, the stream's ability to form pools has been diminished, resulting in a reduction of the number and size of pools. Based on this data, the lower Tualatin Basin is "not properly functioning" with regard to refugia habitat.

4.1.1.4 Channel Condition and Dynamics

Width/Depth Ratio: No data on the width to depth ratio of the lower Tualatin River was identified. Hawksworth (1999) states that, the high silt-clay content of substrates likely means that even historically the channels had a low width to depth ratio.

Streambank Condition: The average percentage of actively eroding banks in low gradient Tualatin basin streams was 60.9%, one site on lower McKay Creek had 85% eroding banks (Cole et al., 2007).

Floodplain Connectivity: Due to widespread development within the basin, many wetlands and floodplains in the Lower Tualatin Basin have been filled, ditched, drained, or impacted by invasive vegetation. There was evidence of fairly recent bankfull flows during the site visit (in the form of a debris line near the top of the bank), but inundation beyond the top of the bank would require a very significant flood event.

4.1.1.5 Flows/Hydrology:

Change in Peak/Base flows: Flow modeling by the Tualatin River Flow Management Technical Committee indicates that historic natural flows in the Tualatin River were lower than those currently experienced (TRFMTC 1999). Historically, the river lacked the summer flow augmentation that is currently provided by impoundments and releases from wastewater treatment plants. However, a lack of irrigation and other withdrawals would have off-set this effect. Peak flow characteristics would also have been different. Although dams and reservoirs did not provide flood storage, floodplains and wetlands would have retained flood waters, and a lack of impervious surface would likewise have reduced peak flows.

During winter months, water would have been stored and released slowly from floodplain and wetland areas. In addition to benefits for sediment control and wildlife, these detained waters would have seeped slowly back into the creeks, thus moderating flood peaks and increasing the water available during lower flows. Some of this water would also have become available to replenish subsurface supplies. Additionally, greater in-channel vegetation and large woody debris would have reduced flow velocity and dissipated stream energy during high flows.

Although upstream floodplains and wetlands would have helped to moderate flood peaks, flooding would nonetheless have been frequent. The low gradient, meandering nature of the Lower Tualatin and its tributaries in the Willamette Valley would have been a large contributor to this flooding. Based on the significantly altered nature of the hydrograph, the lower Tualatin basin is "not properly functioning" with respect to peak and base flows.

Increase in drainage network: The McKay Creek subbasin is still largely forest and agricultural land. Therefore, the increase in drainage network has been less severe than in more urbanized areas of the Tualatin Basin

4.1.1.6 Watershed Conditions

Road Density and Location: Urban portions of all subwatersheds in the Lower Tulatin watershed had road density exceeding 9 miles road per square mile of land surface area (Hawksworth, 2001). In the McKay Creek subwatershed, the miles of road per square mile are between 3.00 and 3.99 (Hawksworth, 1999).

Disturbance History: Much of the Lower Tualatin River watershed has undergone extensive logging, agriculture and urban development. We conclude that the Lower Tualatin River watershed is "not properly functioning" with respect to disturbance history.

Riparian Reserves: Riparian vegetation is important in providing a source of LWD, organic matter and terrestrial insects. Complex root systems associated with these riparian areas help to stabilize the riverbank. Riparian reserves also provide habitat for wildlife species and improve water quality by filtering stormwater runoff, trapping sediments, reducing temperatures, and absorbing chemical contaminants. Poor riparian conditions in most of the watershed have a negative effect on instream salmonid habitat, and much of lower McKay Creek has a riparian zone only one tree wide. (Hawksworth, 1999).

4.2 BASELINE TERRESTRIAL HABITAT CONDITIONS

Terrestrial conditions within the project site include a degraded riparian zone of primarily Oregon ash, black cottonwood and red alder, and non-woody invasive species primarily reed canary grass and Himalayan blackberry. Outside the riparian zone is a small, flat grassy field. The east edge of this field slopes rather steeply upward to an area developed with rural residences and outbuildings.

4.3 MAPS AND PHOTOGRAPHS

Figure 1 depicts the project site and action areas. Figure 2 depicts the post-development site plan. A photo log is included as Appendix B.

4.4 HABITAT FEATURES POTENTIALLY AFFECTED

The habitat features potentially affected by the project include the riparian zone. The field and currently developed portion of the project site currently provide no habitat for salmonids. Effects of the proposed action on each of these habitat features are presented in Section 5.0 below.

4.5 SUMMARY

Table 4.3 provides a summary of the environmental baseline on each of the pathways and indicators and indicates whether the proposed project would "restore," "maintain," or "degrade" the current conditions. Although the effects of the proposed project have not yet been discussed, the justification for their ranking (restore, maintain, or degrade) is provided in Section 5.0 below.

5.0 EFFECTS

The following sections address direct, indirect, interrelated, interdependent, and cumulative effects of the proposed action on listed species and applicable critical habitats. Potential direct effects are those effects that occur at or very close to the time of the action itself. Indirect effects "are those that are caused by the proposed action and are later in time, but still are reasonably certain to occur" (50 CFR § 402.02). Interrelated actions are those "that are part of a larger action and depend on the larger action for their justification" (ibid.). Interdependent actions are defined as those "with no independent utility apart from the proposed action" (ibid.). Cumulative impacts as defined by rule "are those effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation" (ibid.). The effects of the proposed action are direct, indirect, and interrelated effects. In conducting a jeopardy analysis, USFWS and NMFS determine "whether the action, taken together with cumulative effects, is likely to jeopardize the continued existence of listed species or result in the destruction or adverse modification of critical habitat" (50 CFR § 402.14(g)(3)-(4)).

Evaluation for potential impacts of the proposed action on listed species and critical habitats in McKay Creek were conducted following the general guidelines described in: "Making Endangered Species Act Determinations of Effect for Individual or Grouped Actions at the Watershed Scale" (NMFS 1996) and the "Endangered Species Consultation Handbook" (USFWS and NMFS 1998).

5.1 DIRECT EFFECTS

Because there is no inwater work (work below the ordinary high water line) there are no direct effects to listed species or critical habitat.

The only potential direct effect would be a sediment release to McKay Creek due to a rainfall event during construction. Construction best management practices (BMP) (including silt fences and other sediment barriers) should preclude any negative effects from construction stormwater release.

5.2 INDIRECT EFFECTS

Indirect effects are those that occur later in time than the direct construction effects of the action. Potential indirect effects of the proposed project include:

- Increased stormwater runoff
- Loss of trees from the riparian zone

5.2.1 Increased stormwater runoff

Construction of the housing development will increase impervious surface on the developed portion of the site, and in the absence of conservation measures could result in increased stormwater runoff to McKay Creek. This will be precluded through the use of the engineered stormwater swale. This swale will be located in the southwest corner of the developed portion of the lot, and will discharge to the excavated area of the floodplain.

5.2.2 Loss of Trees from the Riparian Zone

A 40 foot by 50 foot area of the riparian zone will be cleared at the outfall to McKay Creek in the southern end of the excavated area. This disturbance will be mitigated through expansion of the 50-foot buffer to cover an area commensurate with that which is disturbed. The outfall itself will also be landscaped and planted.

5.2.2.1 Conservation measures

The entire 50-foot riparian corridor along McKay Creek has been replanted in accordance with CWS requirements. Species planted include a mix of red alder, Oregon ash, black cottonwood, red osier dogwood, pacific ninebark, nootka rose, snowberry, red flowering current, California brome, blue wildrye, red fescue, and large leaved lupine. The planting was monitored and the final mitigation was approved by CWS.. .

5.3 EFFECTS FROM INTERDEPENDENT AND INTERRELATED ACTIONS

An interdependent activity is an activity that has no independent utility apart from the proposed action. The proposed enhancement of the wetland corridor could be considered an interdependent action (since it would not be conducted but for the proposed housing development) but no interdependent activities were identified. Thus, the only interdependent effects will be the positive effects of the mitigation.

Interrelated actions include “actions that are part of a larger action and depend on the larger action for justification.” We did not identify any interrelated action. No interrelated actions that would affect any designated critical habitat PCEs for listed salmonids are anticipated.

5.4 CUMULATIVE EFFECTS

Cumulative impacts as defined by rule adopted by NOAA Fisheries "are those effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal Action subject to consultation" (50 CFR Part 402.02).

Additional projects within the watershed are anticipated as population growth continues in the region. Associated road and commercial development, as well as maintenance and upgrading of the existing infrastructure, are therefore likely to occur in the foreseeable future. Within the project action area, gradual habitat and water quality improvements may also occur over time as federal, state and private conservation and habitat enhancement efforts are implemented.

A standard of "reasonably certain to occur" is clarified as "those actions that are likely to occur, bearing in mind the economic, administrative, or legal hurdles which remain to be cleared". Further, NMFS provides that "speculative actions that are factored into the cumulative effects analysis add needless complexity into the consultation process…" (51 FR 19933).

5.5 EFFECTS ON THE ENVIRONMENTAL BASELINE

The effects on the environmental baseline are summarized in Table 4.3. Comments on the potential project impacts to the environmental baseline are provided in Table 5.1.

5.6 EFFECTS ON CRITICAL HABITAT

There will be no effects on critical habitat.

5.7 EFFECT OF THE PROPOSED ACTION ON TRIBAL RESOURCES AND INTERESTS

5.8 EFFECTS DETERMINATION

The USFWS and NMFS have published guidelines for making determinations of effect for listed species and critical habitats protected under the federal ESA. A determination of ***"no effect"*** is the appropriate conclusion when "the proposed action will not affect (i.e. harm or harass) listed species or critical habitat." "Harm" is an act that actually injures or kills listed species (50 CFR § 17.3). "Harassment" is defined as an "intentional or negligent act or omission which creates the likelihood of injury to listed species by annoying it to such an extent as to **significantly** disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering" (50 CFR § 17.3).

"No effect" is the appropriate conclusion when a listed species will not be affected, either because the species will not be present or because the project does not have any elements with the potential to affect the species." The only potential effect is increased runoff, which will be precluded by the oversized stormwater swale.

TABLE 5.1. Affect of the project on the Environmental Baseline

Pathways: Indicators	**Comments**
Water Quality	
Water Temperature	In the long term, an enhanced riparian corridor could improve water temperature
Sediment/Turbidity	There should be no short- or long-term effects to sedimentation or turbidity
Contamination/Nutrients	The project is not expected to negatively affect the nutrient/contaminant load in McKay Creek
Habitat access	
Physical Barriers	The project will not limit salmonid access within McCay Creek or the larger Tualatin River watershed and therefore no change is anticipated
Habitat elements	
Substrate	There will be no negative effects to substrate composition, quality or availability.
Large Woody Material	No existing LWD will be removed. Improving the riparian corridor will increase the future LWD recruitment potential.
Pool Frequency/Quality	There will be no inwater work, and thus no effect to pool frequency or quantity.
Off-channel habitat	During high water events, off-channel habitat will increase, as McKay Creek backs up into the excavated area.
Refugia	The project will have no effect on refugia.
Channel conditions	
Width/Depth Ratio	No change anticipated.
Streambank Condition	The streambank condition may be improved long-term due to the riparian corridor rehabilitation.
Floodplain Connectivity	Floodplain connectivity will be unaffected.
Flows/Hydrology	
Change in Peak/Base Flow	Changes to peak and base flows will not occur due to the project.
Increase in Drainage Network	The drainage network will be slightly increased due to the construction of impervious surfaces (roofs and streets)
Watershed conditions	
Road Density and Location	Road density and location will be slightly increased.
Disturbance History	The site will be further disturbed during construction, but this disturbance will be short term.
Riparian Reserves	The riparian reserves in the action area will be improved in the long term through the mitigation efforts.

After evaluating the potential effects and available scientific and commercial data, we conclude that the proposed action will have ***no effect*** on Upper Willamette River Steelhead.

The proposed action will not significantly "hinder the attainment of relevant functioning indicators" as defined in "Making Endangered Species Act Determinations of Effect for Individual or Grouped Actions at the Watershed Scale" (NMFS 1996). The proposed project would not result in the *"destruction or adverse modification"* of designated critical habitat. No significant indirect, cumulative, interrelated or interdependent effects on listed salmonids or their critical habitats were identified with the proposed project action area.

6.0 ESSENTIAL FISH HABITAT

The Magnuson-Stevens Act (MSA) requires proposed projects with a federal nexus to evaluate their impacts on habitat of commercially managed fish populations. EFH has been defined for the purposes of the MSA as "those waters and substrate necessary to fish for

spawning, breeding, feeding, or growth to maturity" (16 U.S.C. 1802(10)). NMFS has further added the following interpretations to clarify this definition:

- "Waters" include aquatic areas and their associated physical, chemical, and biological properties that are used by fish, and may include areas historically used by fish where appropriate;

- "Substrate" includes sediment, hard bottom, structures underlying the waters, and associated biological communities;

- "Necessary" means the habitat required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem; and

- "Spawning, breeding, feeding, or growth to maturity" covers the full life cycle of a species (50 CFR § 600.10).

The analysis of the effects provided below regarding the proposed project is made pursuant to Section 305(b)(2) of the MSA. Under this act, Federal agencies are required to consult with NMFS regarding any of their actions authorized, funded, or undertaken, or proposed to be authorized, funded, or undertaken that may "adversely affect" EFH. "Adverse effect" means any impact that reduces the quality and/or quantity of EFH, which can include direct (e.g., contamination or physical disruption), indirect (e.g., loss of prey, reduction in species' fecundity), site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions (50 CFR § 600.810).

Cumulative impacts are incremental impacts, occurring within a watershed or marine ecosystem context, which may result from individually minor but collectively significant actions. The assessment of cumulative impacts is intended in a generic sense to examine actions occurring within the watershed or marine ecosystem that adversely affects the ecological structure or function of EFH. The assessment should specifically consider the habitat variables that control or limit a managed species' use of a habitat. It should also consider the effects of all impacts that affect either the quantity or quality of EFH (50 CFR § 600.815).

For any Federal action that may adversely affect EFH (except those activities covered by a General Concurrence), federal agencies must provide NMFS with a written assessment of the effects of that action on EFH. EFH consultations can be completed using the ESA Section 7 consultation process provided that the action agency supplies the information required by 50 CFR § 600.920 (NMFS 2001).

An EFH assessment must contain:

1) a description of the proposed action;
2) an analysis of the effects, including cumulative effects, of the proposed action on EFH, the managed species, and associated species, such as major prey species, including affected life history stages;

3) the Federal agency's views regarding the effects of the action on EFH; and
4) proposed mitigation, if applicable (50 CFR § 600.920).

The earlier sections of this document present a detailed description of the proposed project and all potential impacts to species listed as threatened or endangered under the ESA. In broad terms, the effects and conservation measures discussed in earlier sections of this report in relation to steelhead are also applicable to the salmonid species covered under the MSA. The following section presents an identification of EFH within the project action area, an analysis of effects, and a determination of these effects on EFH.

6.1 IDENTIFICATION OF EFH

6.1.1 Coastal Pelagic Fish Species

The CPS fishery includes four finfish species [Pacific sardine (*Sardinops sagax*), Pacific mackerel (*Scomber japonicus*), northern anchovy (*Engraulis mordax*), and jack mackerel (*Trachurus symmetricus*)] and the invertebrate, market squid (*Logigo opalescens*) (NMFS 1998). All of these species are restricted to marine and saline estuarine waters and are not known to occur in McKay Creek.

6.1.2 West Coast Groundfish

The West Coast Groundfish Fisheries Management Plan (FMP) manages 83 species over a large and ecologically diverse area. The EFH for Pacific coast groundfish is defined as the aquatic habitat necessary to allow for groundfish production to support long-term sustainable fisheries for groundfish and for groundfish contributions to a healthy ecosystem. The boundaries for West Coast groundfish EFH are generally defined as all waters from the mean higher high water line, and the upriver extent of saltwater intrusion (>0.5 parts per thousand [ppt] salinity) in river mouths along the coasts of Washington, Oregon and California seaward to the boundary of the U.S. EEZ (64 FR 49092). McKay Creek is located far above the upriver extent of saltwater intrusion and therefore, no westcoast groundfish species occur in McKay Creek.

6.1.3 Pacific Coast Salmon

In September 2000, NMFS approved the Pacific Fishery Management Council's Amendment 14 to the Pacific Coast Salmon Plan. Appendix A to Amendment 14 defines freshwater EFH for chinook salmon and coho salmon as including all streams, lakes, ponds, wetlands, tributaries and other water bodies currently viable and most of the habitat historically accessible to these species in Washington, Oregon and California within specific hydrologic units. A non-native non-ESA listed naturalized population of coho salmon (*Oncohynchus kisutch*) occurs in the Tualatin River. Therefore, the project action area includes habitats that have been designated as EFH for coho salmon. McKay Creek is listed by Streamnet as rearing and migration habitat for coho salmon. Seasonal usage of the Tualatin River tributaries by coho salmon is illustrated on Table 6.1. Coho are expected to use McKay Creek near the project site in the same way UWR steelhead use the creek: primarily as a migration corridor, with some possible rearing in the fall, winter and spring, when water temperatures are low.

6.2 EFH EFFECTS ANALYSIS

6.2.1 Direct Effects

The EFH for coho salmon consists of the water and substrate within the project action area. Direct effects to steelhead are described in Section 5.1 above. As with UWR steelhead, no direct effects are anticipated to coho salmon.

6.2.2 Indirect and Cumulative Effects

Potential indirect and cumulative effects of the proposed project on steelhead were discussed in the BA (Sections 5.2 and 5.4). The findings for steelhead are also applicable to coho salmon.

TABLE 6.1. Typical and Approximate Timing of coho salmon in Tualatin River tributaries (ODFW, 2003).

Species ESU/DPS	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Coho Salmon												
Adult Migration												
Adult Spawning												
Adult Holding												
Egg Incubation												
Juvenile Rearing												
Juvenile Migration												

Represents peak level of use.

Represents lesser level of use.

Represents known presence with uniform or unknown level of use.

Note: Information collected from ODFW.

Cumulative affects associated with the proposed actions are unlikely to affect EFH. Any cumulative or indirect impacts associated with other projects planned in the vicinity of the project area would be required to comply with existing or emerging development standards required to protect habitat for fish species. These standards are intended to protect water quality, hydrologic conditions, stream habitat conditions, riparian buffers, and wetlands.

6.3 EFH EFFECTS DETERMINATION

The potential direct, indirect, and cumulative effects of the proposed project are "***not likely to adversely effect***" identified EFH in the short-term for the project action area evaluated, based on consideration of the EFH requirements of the CPS fishery, West Coast groundfish fishery, and the Pacific Coast salmon fishery. No adverse long-term effects on EFH are anticipated. It is expected that the conservation measures described in the BA are also applicable to EFH and would satisfy the requirements pursuant to Section 305(b)(4)(A) of the MSA.

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WPN. See Watershed Professionals Network.

Appendix A. USFWS List of Endangered Species in Washington County

Group	Name	Population	Status	Lead Office	Recovery Plan Name	Recovery Plan Stage
Birds	Northern spotted owl (Strix	Entire	Threatened	Oregon Fish And Wildlife Office	Revised Recovery Plan for the	Final Revision 1
Birds	Marbled murrelet	CA, OR, WA	Threatened	Washington Fish And Wildlife	Recovery Plan for the	Final
Birds	Streaked Horned lark		Proposed Threatened	Washington Fish And Wildlife		
Flowering Plants	Nelson's checker-mallow		Threatened	Oregon Fish And Wildlife Office	Final Recovery Plan for the	Final
Flowering Plants	Kincaid's Lupine (Lupinus		Threatened	Oregon Fish And Wildlife Office	Final Recovery Plan for the	Final
Insects	Fender's blue butterfly (Icaricia		Endangered	Oregon Fish And Wildlife Office	Final Recovery Plan for the	Final
Mammals	red tree vole (Aborimus	North Oregon Coast DPS	Candidate	Oregon Fish And Wildlife Office		

Appendix B. Photo Log

#1. Future proposed location of the stormwater swale.

#2. McKay Creek under the West Union Road Bridge, at the northern border of the Project site.

#3. View of typical creek segment adjacent to the Project Site.

#4. Typical eroded banks along McKay Creek.

#5. Large woody debris in McKay Creek adjacent to the Project Site.

#6. View looking east toward the currently developed portion of the Project Site.

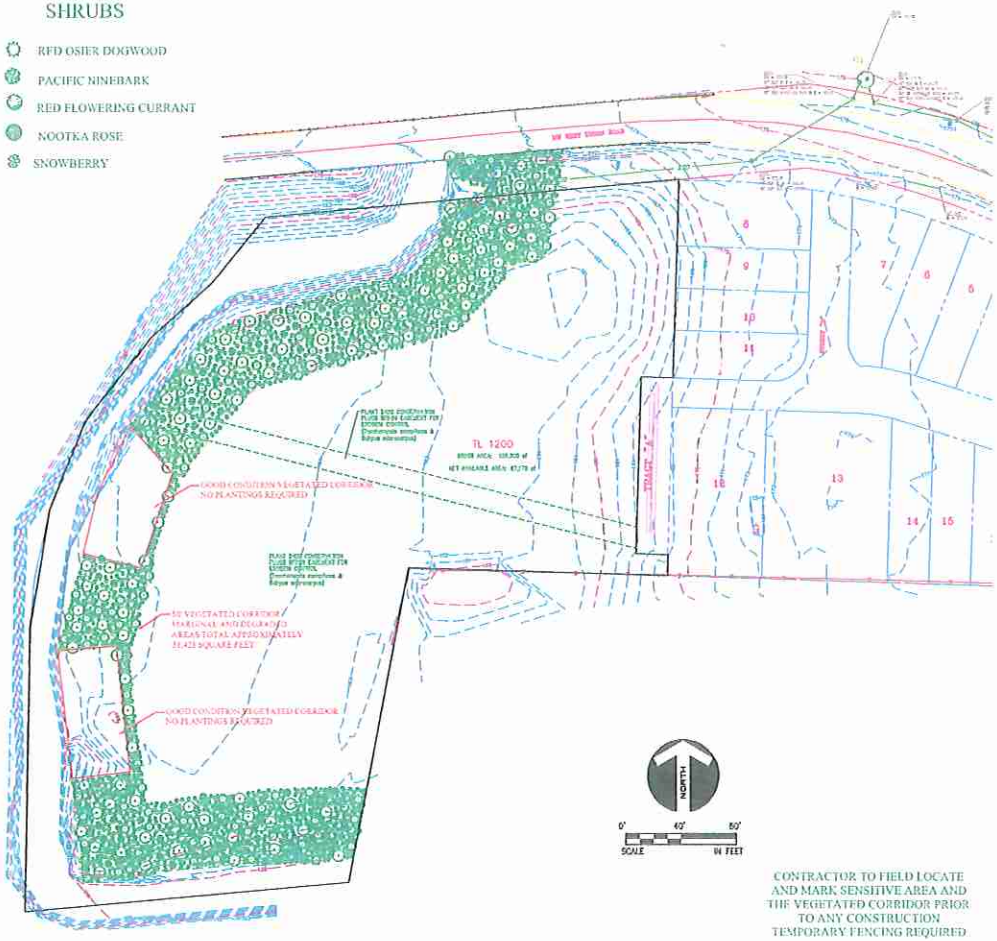
PLANT LEGEND

TREES

- RED ALDER
- OREGON ASH
- BLACK COTTONWOOD

SHRUBS

- RED OSIER DOGWOOD
- PACIFIC NINEBARK
- RED FLOWERING CURRANT
- NOOTKA ROSE
- SNOWBERRY



CONTRACTOR TO FIELD LOCATE AND MARK SENSITIVE AREA AND THE VEGETATED CORRIDOR PRIOR TO ANY CONSTRUCTION TEMPORARY FENCING REQUIRED

WASHINGTON COUNTY CASE FILE # 07-027
NORTH PLAINS CASE FILE # SD-FPP-06-0002

PLANT LIST

Scientific Name	Common Name	Size	Spacing/Seeding Rate	Quantity
Trees				
Alnus rubra	red alder	2 gallon	10 feet on center	105
Fraxinus latifolia	Oregon ash	2 gallon	10 feet on center	105
Populus trichocarpa [balsamifera]	black cottonwoodk	2 gallon	10 feet on center	105
Shrubs				
Cornus stolonifera [[sericea]]	red osier dogwood	1 gallon	4-5 feet on center	315
Physocarpus capitatus	Pacific ninebark	1 gallon	4-5 feet on center	315
Ribes sanguineum	red flowering currant	1 gallon	4-5 feet on center	315
Rosa nutkana	Nootka rose	1 gallon	4-5 feet on center	315
Symphoricarpos albus	snowberry	1 gallon	4-5 feet on center	315
Seed Mix				
Bromus carinatus	native California brome	seed	10 lbs pls/acre	As needed for bare soil areas >25 sq. ft. following invasive species removal
Elymus glaucus	blue wildrye	seed	10 lbs pls/acre	
Festuca rubra var. *rubra*	native red fescue	seed	5 lbs pls/acre	
Lupinus polyphyllus	large-leafed lupine	seed	8 lbs pls/acre	

NOTE:

BARE ROOT PLANTS MAY BE SUBSTITUTED FOR CONTAINER PLANTS BASED ON AVAILABILITY. IF BARE ROOT PLANTS ARE USED, THEY MUST BE PLANTED DURING THE LATE WINTER/EARLY SPRING DORMANCY PERIOD.

PLANTING NOTES

(per CWS Design & Construction Standards, Appendix D Landscape Requirements, March 2004):

1) Himalayan blackberry, English ivy, Canada thistle, teasel, field morning glory, bittersweet nightshade, and other noxious species of nightshade are present in the vegetated corridor along McKay Creek. Due to its proximity to Fanno Creek, mechanical control by hand consistent with Clean Water Services' *Integrated Vegetation and Animal Management Guide* (March 2003) is recommended to control its spread prior to installing plantings.

2) Plantings should preferably be installed between February 1 and May 1 or between October 1 and November 15. Plants may be installed at other times of the year; however, additional measures may be necessary to ensure plant survival. Irrigation or other water practices (i.e. polymer, plus watering) shall be used during the two-year maintenance period. Watering shall be provided at a rate of at least one inch per week between June 15 and October 15.

3) Plantings shall be mulched a minimum of three inches in depth and 18 inches in diameter to retain moisture and discourage weed growth around newly installed plant material.

4) Tree plantings shall be protected from wildlife damage (beaver, nutria) by installing tree-protector tubes or wire mesh cylinders around newly installed plantings.

5) Existing native vegetation shall be preserved.

6) In the areas designated as being in "good" condition in the NW West Union Road Site– North Plains Wetland Delineation & Natural Resource Assessment report, invasive and noxious species will be removed; remaining bare areas will be seeded with the seed mix indicated in the table.

Maintenance Plan:

1) Clean Water Services requires a two-year maintenance period for vegetated corridor mitigation. The mitigation site is to be inspected annually, a minimum of three times during the growing season and one time prior to onset of the growing season. Invasive species control is to be conducted as needed based upon the site inspections.

2) Clean Water Services' success criterion for vegetated corridor landscaping is 80% survival of tree and shrub plantings during the 2 years following planting. The vegetated corridor landscaping should be monitored annually in the spring or fall to assess survival of tree and shrub plantings. If any mortality is noted on the site, the factor likely to have caused mortality of plantings is to be determined and corrected if possible. If survival falls below 80% at any time during the two-year maintenance period, the plantings shall be replaced, and other corrective measures, such as additional mulching or irrigation, may need to be implemented. If replanting is necessary, the maintenance period will be extended for two years from the date of replanting.

MORGAN
LAND USE PLANNING
12122 S.W. 6TH STREET
BEAVERTON, OR 97005
(503) 753-5317

ENHANCEMENT DRAWING

McKAY FIELDS
30140 & 30240 NW WEST UNION ROAD
NORTH PLAINS, OR

PROJECT NO.
McKay Fields
FILE: D1.DWG
DATE: 9.21.05
DESIGNED: JSM
DRAWN: JSM
TOWNSHIP/RANGE/SECTION
1N2W30
COUNTY
WASHINGTON
TAX LOTS
1200
SHEET TITLE
ENHANCEMENT DRAWING
SHEET NUMBER
D1

EXHIBIT "L"

SWCA
ENVIRONMENTAL CONSULTANTS

Portland Office
434 NW Sixth Avenue, Suite 304
Portland, Oregon 97209
Tel: 503.224.0333 Fax 503.224.1851
www.swca.com

TECHNICAL MEMORANDUM

Date: September 11, 2008

To: Ron Guillory, Homestead Development

From: C. Jonas Moiel, Restoration Ecologist

SUBJECT: Homestead Development's- NW West Union Road Site: Year Two Summary
CWS File No.06-001985; SWCA Project 11906-255

BACKGROUND INFORMATION

SWCA Environmental Consultants was contracted by Homestead Development to install and maintain the Vegetated Corridor mitigation required for the proposed development located on NW Union Road. The site is located due south of NW West Union Road and the railroad tracks, west of Jackson School Road, east of Glencoe Road, in North Plains, Oregon. A segment of McKay Creek enters the site from the north and forms the site's western boundary.

The vegetated corridor enhancement project was installed on January 26th, 2007, under the supervision of C. Jonas Moiel, Restoration Ecologist. A total of 1970 bare-root trees and shrubs were installed into the degraded and marginal areas within the vegetated corridor. The planting plan specified planting a total of 1890 trees and shrubs; with trees spaced at 10 feet on center, and shrubs spaced at 4-5 feet on center.

YEAR TWO MONITORING AND MAINTENANCE SUMMARY

Many maintenance site visits have been made in 2008 (early May, mid-June, late July). Weed species have been mechanically removed and spot sprayed with herbicide three times in 2008. The site had a reduced level of weed infestations from 2007, which is likely a result of the integrated pest management approach and a reduction in the use of irrigation. It was determined that irrigation was not necessary for most of 2008, until mid-August when seasonally dry weather patterns caused the plantings to display drought stress. Irrigation is being applied at a rate of approximately 1" of water per week during dry periods. The total areal cover of targeted weed species (classified as noxious by Clean Water Services) was approximately 10% in August of 2008. The most common weeds targeted in 2008 were morning glory, Canada thistle, Himalayan blackberry and reed canarygrass.

The vegetated corridor was planted more densely in 2007 than specified in the planting plan to ensure that the target planting densities are achieved even if some mortality occurs. In August of 2007, there were 1962 plants that were alive, which was a survival rate of 103%. There was greater than 100% survival in 2007 because the original planting plan only specified planting 1890 plants. In August of 2008, there were 1833 plants observed alive which is equivalent to a 97% survival rate. Overall, the mortality rate was very low for this project, with some plant loss likely due to site flooding in the winter of 2007. Organic deposits such as leaf material were observed up to 24 inches on some of the planting browse guards which implies that the planting area was inundated to at least 24 inches.

Exhibit "E"

In conclusion, at the completion of the second and final year of maintenance, the vegetated corridor is exceeding Clean Water Services' success criteria. Clean Water Services deems that a project is successful if there is a survival rate of at least 80% for plantings and the project area has at least 80% areal cover of native species. The NW West Union Road vegetated corridor had a survival rate of 97% for plantings and approximately 90% areal cover composed by native species. There were no areas of bare ground within the project area as of September 2008.

PHOTOGRAPHIC LOG

Pre-planting conditions on January 17, 2007, facing northwest.

Site conditions on May 6, 2008, after the area was weed-whacked; facing northwest.

Site conditions on July 17, 2008, facing northwest.

Site conditions on August 8, 2008, facing northwest.

Large leaf lupine blooming on June 5, 2008, facing west.

MCKAY FIELDS SUBDIVISION
TRAFFIC IMPACT STUDY

NORTH PLAINS, OREGON

DATE:
April 16, 2013

PREPARED FOR:
D.R. Horton, Inc.

PREPARED BY:
Michael Ard, PE

4/16/13

REGISTERED PROFESSIONAL ENGINEER
54983PE
OREGON
JULY 10, 2002
MICHAEL T. ARD
EXPIRES: 12/31/13

LANCASTER
ENGINEERING

321 SW 4th Ave., Suite 400 | Portland, OR 97204 | 503.248.0313 | lancasterengineering.com

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EXECUTIVE SUMMARY

1. A 33-lot residential subdivision is proposed for a property located on the south side of NW West Union Road east of NW Glencoe Road. The site will take access via a single new roadway located near the east side of the subject property. It is anticipated that the site can be fully developed and occupied with two years.

2. The proposed development is projected to result in 25 trips during the morning peak hour, with 6 entering and 19 exiting the site. During the evening peak hour 33 trips are projected, with 21 entering and 12 exiting the site. A weekday total of 314 trips are anticipated, with half entering and half exiting the site.

3. Sight distance was examined at the proposed access location. Sight distance to the east is well in excess of the minimum required for safe and efficient operation of the intersection. Sight distance to the west is currently restricted by existing vegetation including trees and hedges along the south side of NW West Union Road. The proposed development plan includes removal of existing vegetation sufficient to provide a minimum of 450 feet of intersection sight distance to the west, in accordance with Washington County intersection sight distance requirements.

4. Left-turn lane warrants were examined for the proposed site access intersection in order to determine whether a westbound left-turn lane will be needed along NW West Union Road at the proposed site access location. Based on the analysis, installation of a left-turn lane is not needed. No new turn lanes are recommended.

5. The most recent three years of crash data were examined for NW West Union Road within North Plains. There were a total of three reported crashes during the analysis period, including two run-off-road collisions and one turning movement collision. Based on a detailed analysis of the crash data, no contributing design issues were identified. No safety mitigations are recommended.

6. Under year 2015 traffic conditions with full occupancy of the proposed development, the site access intersection on NW West Union Road is projected to operate at level of service A during the morning and evening peak hours. No operational mitigation is recommended.

PROJECT DESCRIPTION

INTRODUCTION

A 33-lot residential subdivision is proposed for a property located on the south side of NW West Union Road east of NW Glencoe Road. The site will take access via a single new roadway located near the east side of the site. It is anticipated that the site can be fully developed and occupied with two years.

The purpose of this study is to assess the traffic impact of the proposed development on the nearby street system and to recommend any required mitigative measures. The analysis will include an estimate of the trip generation and distribution for the proposed development as well as an examination of safety and level of service at the proposed site access intersection.

Detailed information on traffic counts, trip generation calculations, and level of service calculations is included in the appendix to this report.

LOCATION DESCRIPTION

The proposed McKay Fields Subdivision is located on the south side of NW West Union Road in North Plains, Oregon. The site is approximately one quarter mile east of NW Glencoe Road and is near existing residential and agricultural land uses.

The proposed subdivision will take access via a new roadway intersecting NW West Union Road. The site access will form a new T-intersection on West Union Road, operating with stop control on the new northbound approach. The existing eastbound and westbound approaches will be free-flowing.

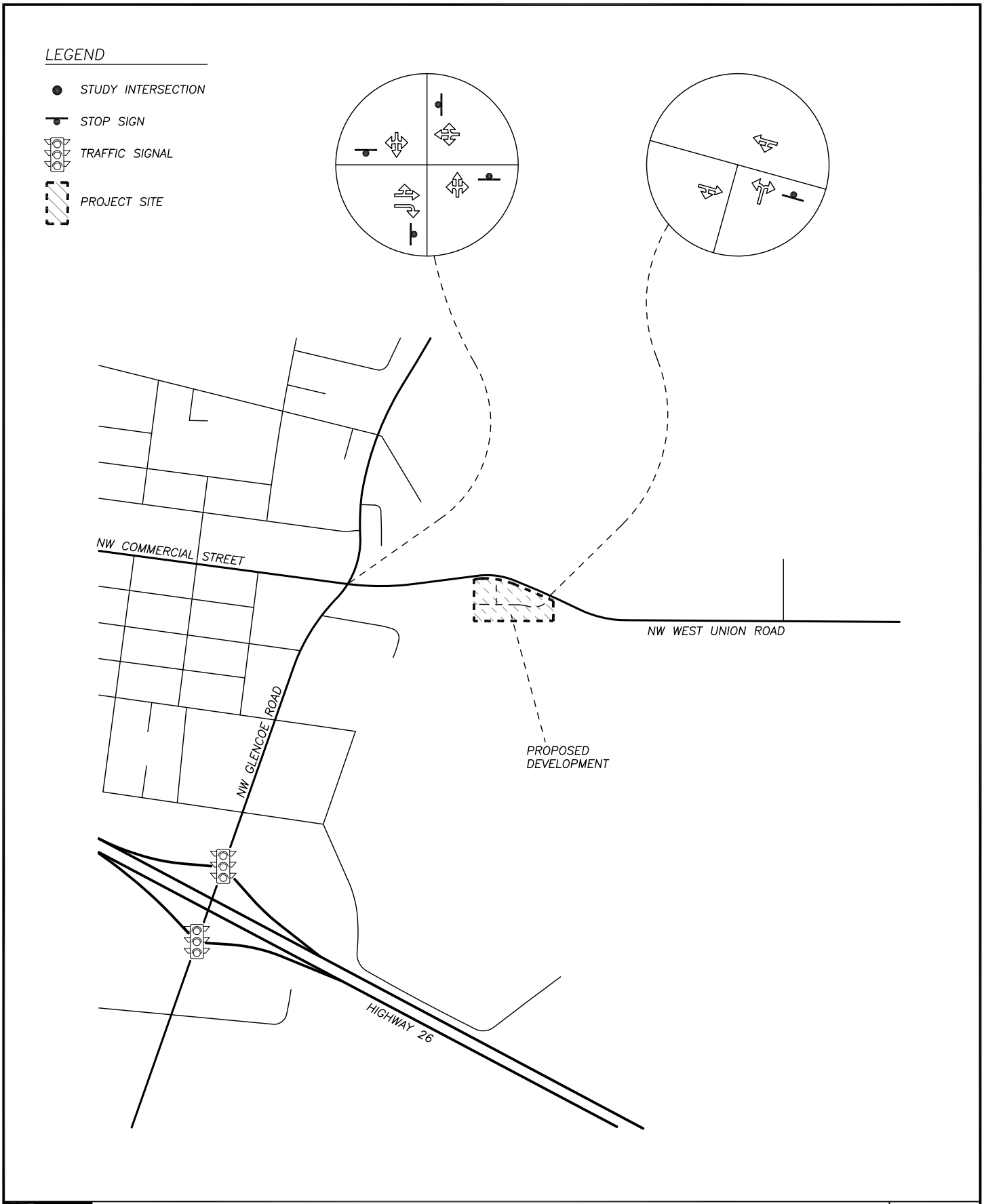
In the vicinity of the proposed development NW West Union Road is a 2-lane roadway striped for no passing. It has a posted speed limit of 45 mph, although a curve near the western boundary of the subject property has a posted 35 mph advisory speed. There are no curbs, sidewalks or bike lanes along either side of the roadway.

West of the subject property, the intersection of NW West Union Road at NW Glencoe Road operates under four-way stop control. The northbound, southbound and westbound intersection approaches each have a single, shared lane for all turning movements. The eastbound approach has a shared left/through lane and a channelized right-turn lane that also operates under stop control.

In order to determine the existing traffic volumes and travel patterns in the site vicinity, manual turning movement counts were conducted at the intersection of NW West Union Road and NW Glencoe Road during April, 2013 from 7:00 to 9:00 AM and from 4:00 to 6:00 PM. The peak hours occurred

from 7:00 to 8:00 AM and from 4:50 to 5:50 PM. Detailed traffic count data is included in the appendix to this report.

Figure 1 on page six shows the project study area and the location of the site. Figure 2 on page seven shows the existing traffic volumes at the study area intersection.

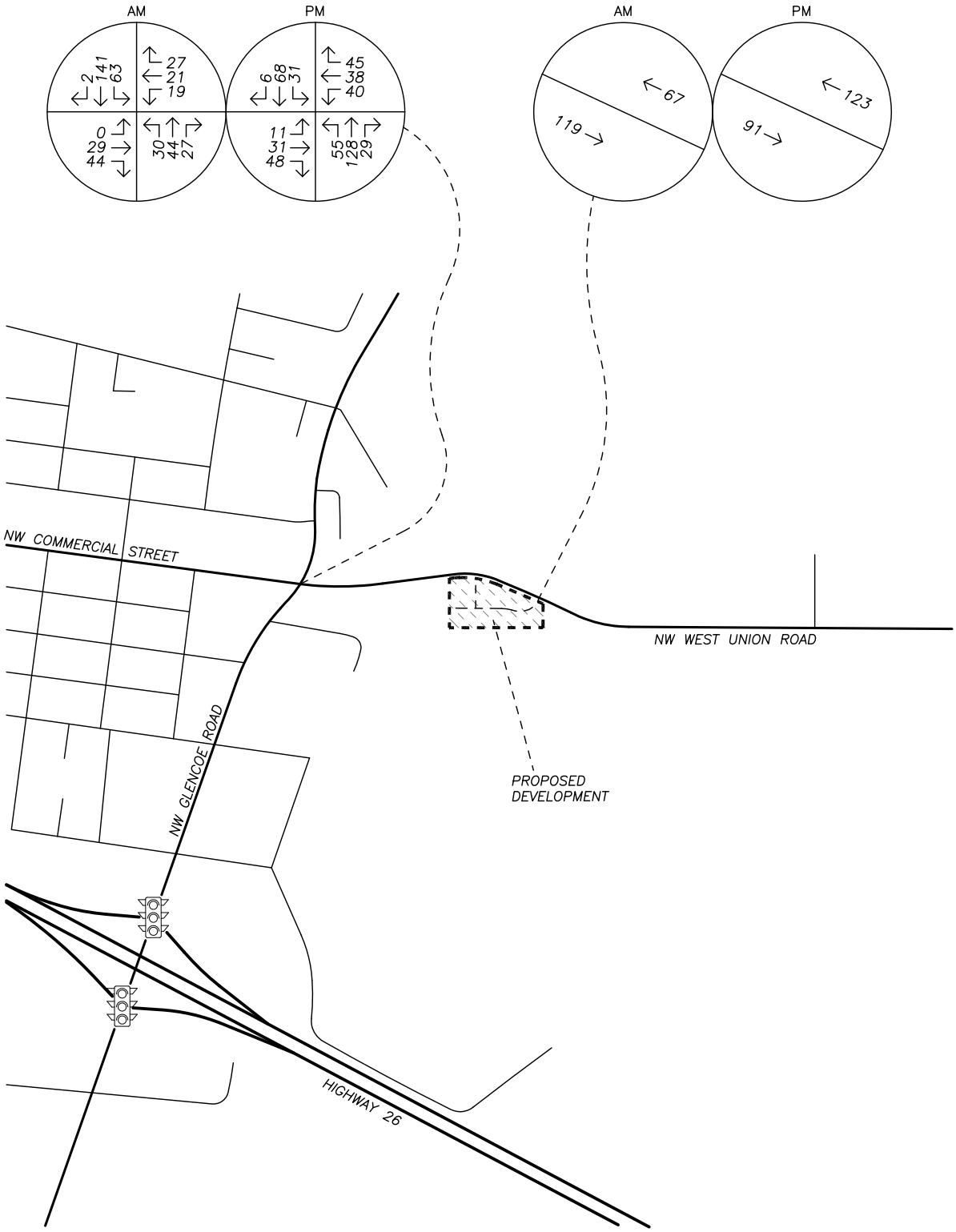


VICINITY MAP

no scale

FIGURE 1

PAGE 6



TRAFFIC VOLUMES
Existing Conditions
AM and PM Peak Hours

no scale

FIGURE 2

PAGE 7

TRIP GENERATION & DISTRIBUTION

TRIP GENERATION

To estimate the number of trips that will be generated by the proposed subdivision, trip rates from the manual TRIP GENERATION, Ninth Edition, published by the Institute of Transportation Engineers were used. The trip rates were those for land use code 210, Single Family Detached Housing, and are based on the number of dwelling units.

The proposed development consists of 33 lots, and is projected to generate 25 trips during the morning peak hour, with 6 entering and 19 exiting the site. During the evening peak hour, 33 trips are projected with 21 entering and 12 exiting the site. A weekday total of 314 trips are anticipated, with half entering and half exiting the site.

The table below shows a summary of the projected site trips.

TRIP GENERATION SUMMARY

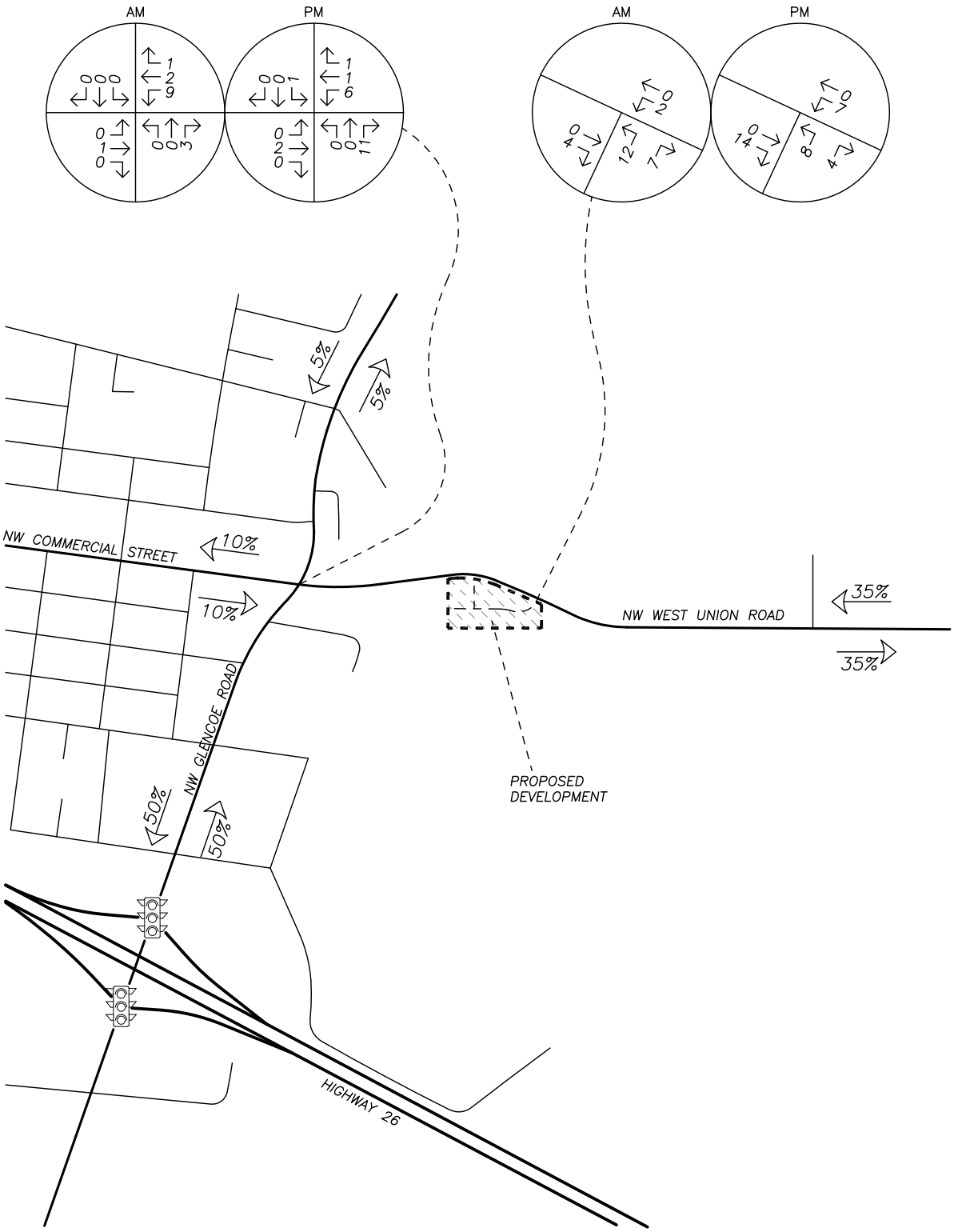
	Entering Trips	Exiting Trips	Total Trips
AM Peak Hour	6	19	25
PM Peak Hour	21	12	33
Daily Trips	157	157	314

For a conservative analysis, no reductions were taken for walking, biking and transit use.

TRIP DISTRIBUTION

The distribution of site trips from the proposed development was estimated based on the existing travel patterns in the site vicinity as well as the locations of surrounding development which may attract site trips and the locations of major transportation facilities.

Figure 3 on page 9 shows the distribution of site trips during the morning and evening peak hours.



SITE TRIP DISTRIBUTION AND ASSIGNMENT
Inbound and Outbound Percentages
AM and PM Peak Hours

no scale

FIGURE 3

PAGE 9

SAFETY ANALYSIS

SIGHT DISTANCE

Sight distance measurements were made at the proposed access location on NW West Union Road. Required intersection sight distance was determined based on the requirements of Washington County, since West Union Road operates under the jurisdiction of Washington County. Intersection sight distance measurements are made using a driver's eye height of 3.5 feet above the roadway and an object height of 4.25 feet. Based upon the posted speed of 45 mph along NW West Union Road, the required intersection sight distance is 450 feet in each direction from the new site access approach.

Looking west on NW West Union Road, intersection sight distance is currently restricted by a row of hedges along the north side of the property. Removal of this vegetation will be necessary in order to attain safe sight distance at the proposed access location. With removal of vegetation it is anticipated that a minimum of 450 feet of intersection sight distance can be provided.

Looking east on NW West Union Road, the existing intersection sight distance was measured to be 1,465 feet.

Based on the intersection sight distance analysis, adequate sight distance is currently available to the east from the proposed site access location. In order to provide adequate sight distance to the west, it will be necessary to clear existing vegetation from the south side of the roadway along the site frontage. The proposed development plan includes sufficient vegetation removal to allow a minimum of 450 feet of intersection sight distance to the west of the proposed access location.

LEFT-TURN LANE WARRANT ANALYSIS

To determine whether a westbound left-turn lane on NW West Union Road is needed at the site access location, a left-turn lane warrant analysis was conducted. A left-turn lane, or left-turn "refuge" is primarily a safety consideration for the major street, removing left-turning vehicles from the through traffic stream.

The left-turn lane warrant used was taken from the Oregon Department of Transportation's Analysis Procedures Manual, and is based on curves developed by the Texas Transportation Institute. This methodology determines the need for a left-turn lane based upon the volume of through traffic travelling along the roadway, the number of lanes, the number of left-turning vehicles and the design speed of the roadway.

The warrant analysis shows that a westbound left-turn lane will not be needed upon completion of the proposed development. Additional left-turn lane warrant information is included in the attached appendix.

CRASH HISTORY

In order to identify any existing safety hazards in the site vicinity, a three-year crash history was obtained from ODOT's Crash Analysis and Reporting Unit. The data covered the most recent three years for which data is available, from January, 2009 through December 2011.

There were a total of three reported crashes on NW West Union Road during the three-year analysis period.

Two of the crashes were run-off road collisions that occurred in the vicinity of Glencoe Road and resulted in property damage only.

The third was a turning movement collision that occurred at a driveway on the north side of NW West Union Road east of the subject property. This crash involved a passenger vehicle turning into the driveway in front of an oncoming motorcycle that was travelling at a high rate of speed. The collision killed the driver and passenger on the motorcycle and resulted in a possible injury/complaint of pain to the driver of the passenger vehicle. Contributing factors included the high rate of speed of the motorcycle and the failure to yield of the passenger vehicle. Based on a detailed review of the crash data, no roadway or intersection design deficiencies were noted which would have contributed to the crash.

OPERATIONAL ANALYSIS

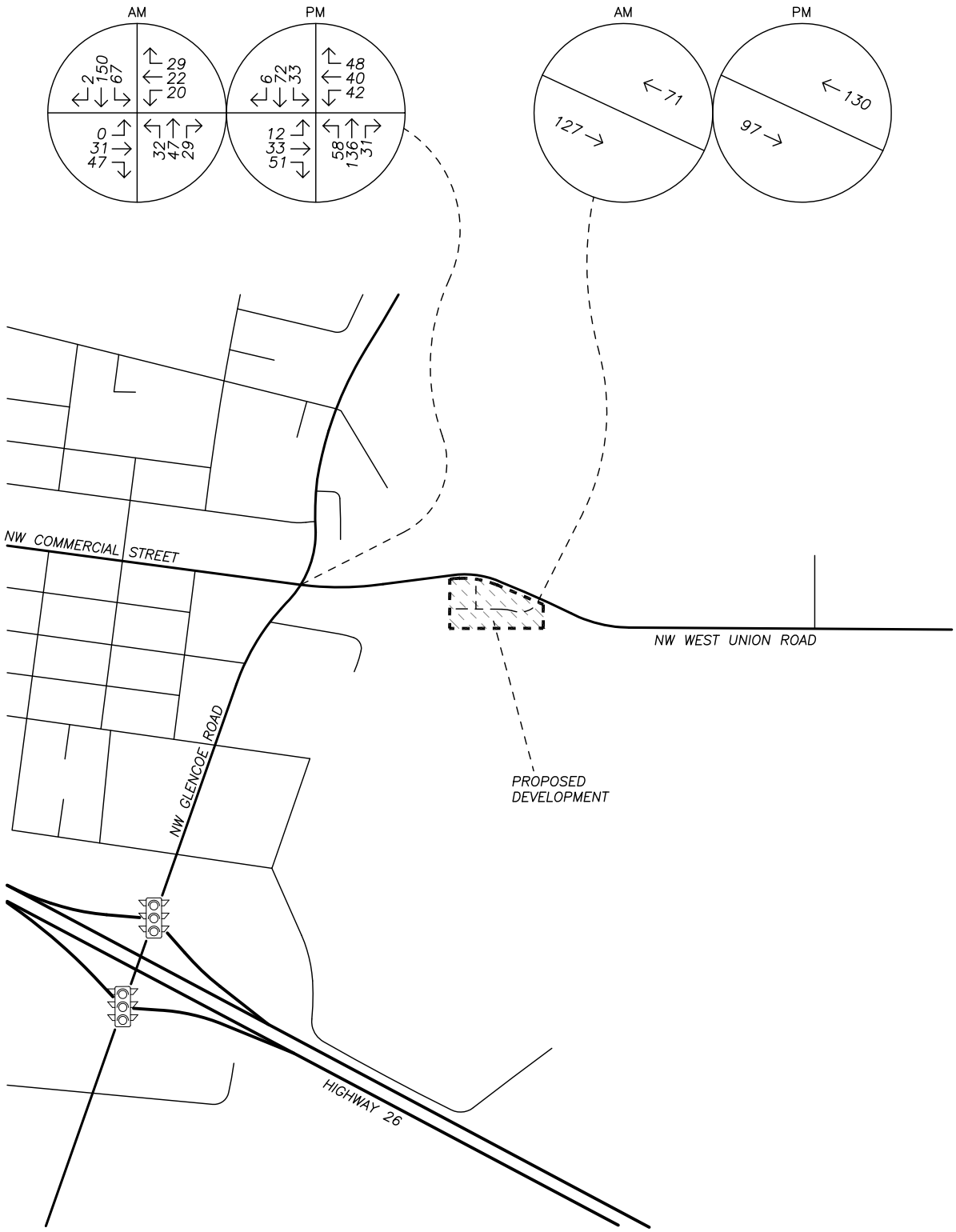
BACKGROUND TRAFFIC

The proposed development can be completed and fully occupied within two years. Accordingly, the analysis was prepared for year 2015 traffic conditions.

In order to determine the likely traffic volumes under year 2015 traffic conditions, a growth rate was applied to the year 2013 traffic count data. An annual growth rate of three percent per year was assumed for the analysis.

No specific developments have been identified near the project site that will add through traffic along NW West Union Road.

Figure 4 on page 13 shows the projected year 2015 background traffic volumes. Figure 5 on page 14 shows the year 2015 traffic volumes with the addition of site trips from the proposed development.

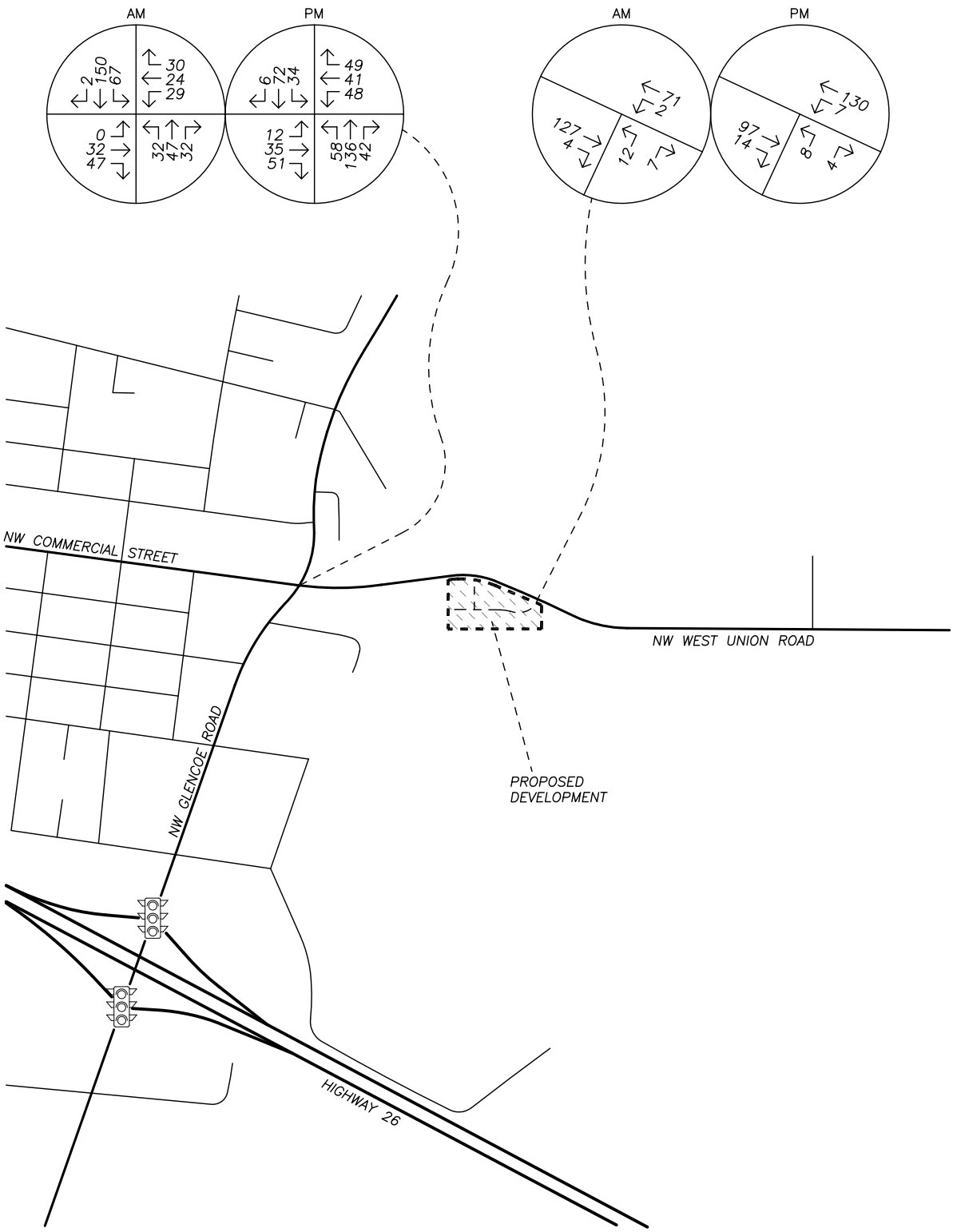


TRAFFIC VOLUMES
Year 2015 Background Conditions
AM and PM Peak Hours

no scale

FIGURE 4

PAGE 13



TRAFFIC VOLUMES
Year 2015 Background Plus Site Trips
AM and PM Peak Hours

no scale

FIGURE 5

PAGE 14

CAPACITY ANALYSIS

To determine the level of service at the site access intersection, a capacity analysis was conducted. The analysis was conducted according to the unsignalized intersection analysis methodologies in the 2000 *HIGHWAY CAPACITY MANUAL* (HCM) published by the Transportation Research Board. Level of service can range from A, which indicates little or no delay, to F, which indicates a significant amount of congestion and delay. Detailed level of service descriptions are included in the appendix to this report.

The intersection of NW West Union Road at the proposed site access location is projected to operate at level of service A during the morning and evening peak hours under year 2015 traffic conditions with full occupancy of the proposed development.

The results of the capacity analysis, along with the Levels of Service (LOS) and delay are shown in the following table. Detailed capacity analysis results are included in the appendix to this report.

LEVEL OF SERVICE SUMMARY

	AM Peak Hour			PM Peak Hour		
	LOS	Delay	V/C	LOS	Delay	V/C
NW West Union Road at Site Access						
2015 Background plus Site	A	10	0.09	A	10	0.08

LOS = Level of Service
Delay = Average Delay per Vehicle in Seconds
V/C = Volume-to-Capacity ratio

As shown in the table above, the proposed site access intersection will operate acceptably upon completion of the proposed development. No mitigations are necessary or recommended.

CONCLUSIONS

Sight distance was examined at the proposed access location. Sight distance to the east is well in excess of the minimum required for safe and efficient operation of the intersection. Sight distance to the west is currently restricted by existing vegetation including trees and hedges along the south side of NW West Union Road. The proposed development plan includes removal of existing vegetation sufficient to provide a minimum of 450 feet of intersection sight distance to the west, in accordance with Washington County intersection sight distance requirements.

Left-turn lane warrants were examined for the proposed site access intersection in order to determine whether a westbound left-turn lane will be needed along NW West Union Road at the proposed site access location. Based on the analysis, installation of a left-turn lane is not needed. No new turn lanes are recommended.

The most recent three years of crash data were examined for NW West Union Road within North Plains. There were a total of three reported crashes during the analysis period, including two run-off-road collisions and one turning movement collision. Based on a detailed analysis of the crash data, no contributing design issues were identified. No safety mitigations are recommended.

Under year 2015 traffic conditions with full occupancy of the proposed development, the site access intersection on NW West Union Road is projected to operate at level of service A during the morning and evening peak hours. No operational mitigation is recommended.

APPENDIX

LEVEL OF SERVICE

Level of service is used to describe the quality of traffic flow. Levels of service A to C are considered good, and rural roads are usually designed for level of service C. Urban streets and signalized intersections are typically designed for level of service D. Level of service E is considered to be the limit of acceptable delay. For unsignalized intersections, level of service E is generally considered acceptable. Here is a more complete description of levels of service:

Level of service A: Very low delay at intersections, with all traffic signal cycles clearing and no vehicles waiting through more than one signal cycle. On highways, low volume and high speeds, with speeds not restricted by other vehicles.

Level of service B: Operating speeds beginning to be affected by other traffic; short traffic delays at intersections. Higher average intersection delay than for level of service A resulting from more vehicles stopping.

Level of service C: Operating speeds and maneuverability closely controlled by other traffic; higher delays at intersections than for level of service B due to a significant number of vehicles stopping. Not all signal cycles clear the waiting vehicles. This is the recommended design standard for rural highways.

Level of service D: Tolerable operating speeds; long traffic delays occur at intersections. The influence of congestion is noticeable. At traffic signals many vehicles stop, and the proportion of vehicles not stopping declines. The number of signal cycle failures, for which vehicles must wait through more than one signal cycle, are noticeable. This is typically the design level for urban signalized intersections.

Level of service E: Restricted speeds, very long traffic delays at traffic signals, and traffic volumes near capacity. Flow is unstable so that any interruption, no matter how minor, will cause queues to form and service to deteriorate to level of service F. Traffic signal cycle failures are frequent occurrences. For unsignalized intersections, level of service E or better is generally considered acceptable.

Level of service F: Extreme delays, resulting in long queues which may interfere with other traffic movements. There may be stoppages of long duration, and speeds may drop to zero. There may be frequent signal cycle failures. Level of service F will typically result when vehicle arrival rates are greater than capacity. It is considered unacceptable by most drivers.

1e

LEVEL OF SERVICE CRITERIA
FOR SIGNALIZED INTERSECTIONS

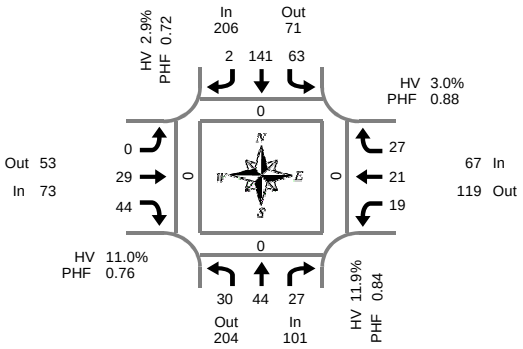
LEVEL OF SERVICE	CONTROL DELAY PER VEHICLE (Seconds)
A	< 10
B	10-20
C	20-35
D	35-55
E	55-80
F	> 80

LEVEL OF SERVICE CRITERIA
FOR UNSIGNALIZED INTERSECTIONS

LEVEL OF SERVICE	CONTROL DELAY PER VEHICLE (Seconds)
A	< 10
B	10-15
C	15-25
D	25-35
E	35-50
F	> 50

Total Vehicle Summary

Clay Carney
(503) 833-2740



Peak Hour Summary
7:00 AM to 8:00 AM

NW Glencoe Rd & NW West Union Rd

Wednesday, April 03, 2013
7:00 AM to 9:00 AM

5-Minute Interval Summary
7:00 AM to 9:00 AM

Interval Start Time	Northbound NW Glencoe Rd				Southbound NW Glencoe Rd				Eastbound NW West Union Rd				Westbound NW West Union Rd				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
7:00 AM	4	4	0	0	3	10	0	0	0	3	2	0	3	2	6	0	37	0	0	0	0
7:05 AM	1	3	2	0	5	4	0	0	0	0	3	1	1	2	2	0	23	0	0	0	0
7:10 AM	4	9	1	0	3	11	1	0	0	2	5	0	0	2	0	0	38	0	0	0	0
7:15 AM	2	4	2	0	3	10	0	0	0	3	4	0	4	2	1	0	35	0	0	0	0
7:20 AM	4	2	2	0	9	15	0	0	0	2	4	0	0	4	2	0	44	0	0	0	0
7:25 AM	2	5	4	0	3	14	0	0	0	2	4	0	0	1	1	0	36	0	0	0	0
7:30 AM	3	3	4	0	9	12	1	0	0	1	4	1	2	0	5	0	44	0	0	0	0
7:35 AM	3	2	2	0	8	16	0	0	0	2	2	0	1	0	6	0	42	0	0	0	0
7:40 AM	1	3	6	0	7	19	0	0	0	3	4	0	1	0	0	0	44	0	0	0	0
7:45 AM	3	2	2	0	5	12	0	0	0	2	7	0	2	5	2	0	42	0	0	0	0
7:50 AM	1	5	2	0	6	6	0	0	0	5	3	0	3	1	1	0	33	0	0	0	0
7:55 AM	2	2	0	0	2	12	0	0	0	4	2	0	2	2	1	0	29	0	0	0	0
8:00 AM	2	4	4	0	1	6	0	1	0	2	4	0	0	0	0	0	23	0	0	0	0
8:05 AM	2	1	2	0	2	10	0	0	0	3	1	0	2	1	1	0	25	0	0	0	0
8:10 AM	2	2	4	0	0	8	1	0	0	1	1	0	2	1	1	0	23	0	0	0	0
8:15 AM	2	3	5	0	3	12	0	0	0	1	6	0	0	0	1	0	33	0	0	0	0
8:20 AM	4	5	3	0	3	9	0	0	0	1	4	0	4	2	1	0	36	0	0	0	0
8:25 AM	6	3	1	0	5	7	0	0	0	1	2	0	2	0	4	0	31	0	0	0	0
8:30 AM	2	1	2	0	2	11	0	0	0	2	3	0	3	3	1	0	30	0	0	0	0
8:35 AM	2	5	3	0	4	8	0	0	0	5	9	0	0	0	0	0	36	0	0	0	0
8:40 AM	3	4	2	0	2	11	1	0	0	5	5	0	2	0	1	0	36	0	0	0	0
8:45 AM	7	2	0	0	3	7	0	0	1	1	3	0	5	1	1	0	31	0	0	0	0
8:50 AM	4	5	2	0	0	9	0	0	0	1	5	0	3	1	4	0	34	0	0	0	0
8:55 AM	3	8	3	0	1	11	0	1	0	0	1	0	2	0	1	1	30	0	0	0	0
Total Survey	69	87	58	0	89	250	4	2	1	52	88	2	44	30	43	1	815	0	0	0	0

15-Minute Interval Summary
7:00 AM to 9:00 AM

Interval Start Time	Northbound NW Glencoe Rd				Southbound NW Glencoe Rd				Eastbound NW West Union Rd				Westbound NW West Union Rd				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
7:00 AM	9	16	3	0	11	25	1	0	0	5	10	1	4	6	8	0	98	0	0	0	0
7:15 AM	8	11	8	0	15	39	0	0	0	7	12	0	4	7	4	0	115	0	0	0	0
7:30 AM	7	8	12	0	24	47	1	0	0	6	10	1	4	0	11	0	130	0	0	0	0
7:45 AM	6	9	4	0	13	30	0	0	0	11	12	0	7	8	4	0	104	0	0	0	0
8:00 AM	6	7	10	0	3	24	1	1	0	6	6	0	4	2	2	0	71	0	0	0	0
8:15 AM	12	11	9	0	11	28	0	0	0	3	12	0	6	2	6	0	100	0	0	0	0
8:30 AM	7	10	7	0	8	30	1	0	0	12	17	0	5	3	2	0	102	0	0	0	0
8:45 AM	14	15	5	0	4	27	0	1	1	2	9	0	10	2	6	1	95	0	0	0	0
Total Survey	69	87	58	0	89	250	4	2	1	52	88	2	44	30	43	1	815	0	0	0	0

Peak Hour Summary
7:00 AM to 8:00 AM

By Approach	Northbound NW Glencoe Rd				Southbound NW Glencoe Rd				Eastbound NW West Union Rd				Westbound NW West Union Rd				Total
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	
Volume	101	204	305	0	206	71	277	0	73	53	126	2	67	119	186	0	447
%HV	11.9%				2.9%				11.0%				3.0%				6.3%
PHF	0.84				0.72				0.76				0.88				0.86

Pedestrians Crosswalk			
North	South	East	West
0	0	0	0

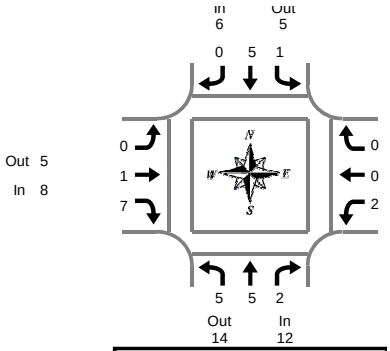
By Movement	Northbound NW Glencoe Rd				Southbound NW Glencoe Rd				Eastbound NW West Union Rd				Westbound NW West Union Rd				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	30	44	27	101	63	141	2	206	0	29	44	73	19	21	27	67	447
%HV	16.7%	11.4%	7.4%	11.9%	1.6%	3.5%	0.0%	2.9%	0.0%	3.4%	15.9%	11.0%	10.5%	0.0%	0.0%	3.0%	6.3%
PHF	0.75	0.69	0.56	0.84	0.66	0.75	0.50	0.72	0.00	0.66	0.79	0.76	0.68	0.66	0.56	0.88	0.86

Rolling Hour Summary
7:00 AM to 9:00 AM

Interval Start Time	Northbound NW Glencoe Rd				Southbound NW Glencoe Rd				Eastbound NW West Union Rd				Westbound NW West Union Rd				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
7:00 AM	30	44	27	0	63	141	2	0	0	29	44	2	19	21	27	0	447	0	0	0	0
7:15 AM	27	35	34	0	55	140	2	1	0	30	40	1	19	17	21	0	420	0	0	0	0
7:30 AM	31	35	35	0	51	129	2	1	0	26	40	1	21	12	23	0	405	0	0	0	0
7:45 AM	31	37	30	0	35	112	2	1	0	32	47	0	22	15	14	0	377	0	0	0	0
8:00 AM	39	43	31	0	26	109	2	2	1	23	44	0	25	9	16	1	368	0	0	0	0

Heavy Vehicle Summary

Clay Carney
(503) 833-2740



Peak Hour Summary
7:00 AM to 8:00 AM

NW Glencoe Rd & NW West Union Rd

Wednesday, April 03, 2013
7:00 AM to 9:00 AM

Heavy Vehicle 5-Minute Interval Summary
7:00 AM to 9:00 AM

Interval Start Time	Northbound NW Glencoe Rd				Southbound NW Glencoe Rd				Eastbound NW West Union Rd				Westbound NW West Union Rd				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
7:00 AM	1	0	0	1	0	0	0	0	0	1	0	1	1	0	0	1	3
7:05 AM	0	1	0	1	0	1	0	1	0	0	0	0	0	0	0	0	2
7:10 AM	1	2	0	3	0	0	0	0	0	0	2	2	0	0	0	0	5
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
7:20 AM	0	0	1	1	0	1	0	1	0	0	1	1	0	0	0	0	3
7:25 AM	1	1	1	3	0	0	0	0	0	0	1	1	0	0	0	0	4
7:30 AM	1	0	0	1	0	0	0	0	0	0	2	2	0	0	0	0	3
7:35 AM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
7:40 AM	0	0	0	0	0	2	0	2	0	0	1	1	0	0	0	0	3
7:45 AM	1	1	0	2	1	0	0	1	0	0	0	0	0	0	0	0	3
7:50 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:55 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
8:05 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:10 AM	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
8:15 AM	1	1	0	2	0	1	0	1	0	0	0	0	0	0	0	0	3
8:20 AM	0	1	0	1	0	1	0	1	0	0	1	1	1	0	1	2	5
8:25 AM	2	0	0	2	1	1	0	2	0	0	0	0	0	0	1	1	5
8:30 AM	0	0	0	0	0	2	0	2	0	0	1	1	0	0	0	0	3
8:35 AM	0	0	0	0	1	0	0	1	0	3	2	5	0	0	0	0	6
8:40 AM	0	0	1	1	0	0	0	0	0	0	1	1	0	0	0	0	2
8:45 AM	0	1	0	1	0	0	0	0	0	0	0	0	2	0	1	3	4
8:50 AM	0	0	0	0	0	1	0	1	0	0	1	1	0	0	0	0	2
8:55 AM	1	2	0	3	0	2	0	2	0	0	1	1	0	0	1	1	7
Total Survey	11	10	3	24	3	13	0	16	0	4	14	18	5	0	4	9	67

Heavy Vehicle 15-Minute Interval Summary
7:00 AM to 9:00 AM

Interval Start Time	Northbound NW Glencoe Rd				Southbound NW Glencoe Rd				Eastbound NW West Union Rd				Westbound NW West Union Rd				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
7:00 AM	2	3	0	5	0	1	0	1	0	1	2	3	1	0	0	1	10
7:15 AM	1	1	2	4	0	1	0	1	0	0	2	2	1	0	0	1	8
7:30 AM	1	0	0	1	0	3	0	3	0	0	3	3	0	0	0	0	7
7:45 AM	1	1	0	2	1	0	0	1	0	0	0	0	0	0	0	0	3
8:00 AM	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
8:15 AM	3	2	0	5	1	3	0	4	0	0	1	1	1	0	2	3	13
8:30 AM	0	0	1	1	1	2	0	3	0	3	4	7	0	0	0	0	11
8:45 AM	1	3	0	4	0	3	0	3	0	0	2	2	2	0	2	4	13
Total Survey	11	10	3	24	3	13	0	16	0	4	14	18	5	0	4	9	67

Heavy Vehicle Peak Hour Summary
7:00 AM to 8:00 AM

By Approach	Northbound NW Glencoe Rd			Southbound NW Glencoe Rd			Eastbound NW West Union Rd			Westbound NW West Union Rd			Total
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Volume	12	14	26	6	5	11	8	5	13	2	4	6	28
PHF	0.60			0.38			0.50			0.50			0.70

By Movement	Northbound NW Glencoe Rd				Southbound NW Glencoe Rd				Eastbound NW West Union Rd				Westbound NW West Union Rd				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	5	5	2	12	1	5	0	6	0	1	7	8	2	0	0	2	28
PHF	0.63	0.42	0.25	0.60	0.25	0.42	0.00	0.38	0.00	0.25	0.44	0.50	0.50	0.00	0.00	0.50	0.70

Heavy Vehicle Rolling Hour Summary
7:00 AM to 9:00 AM

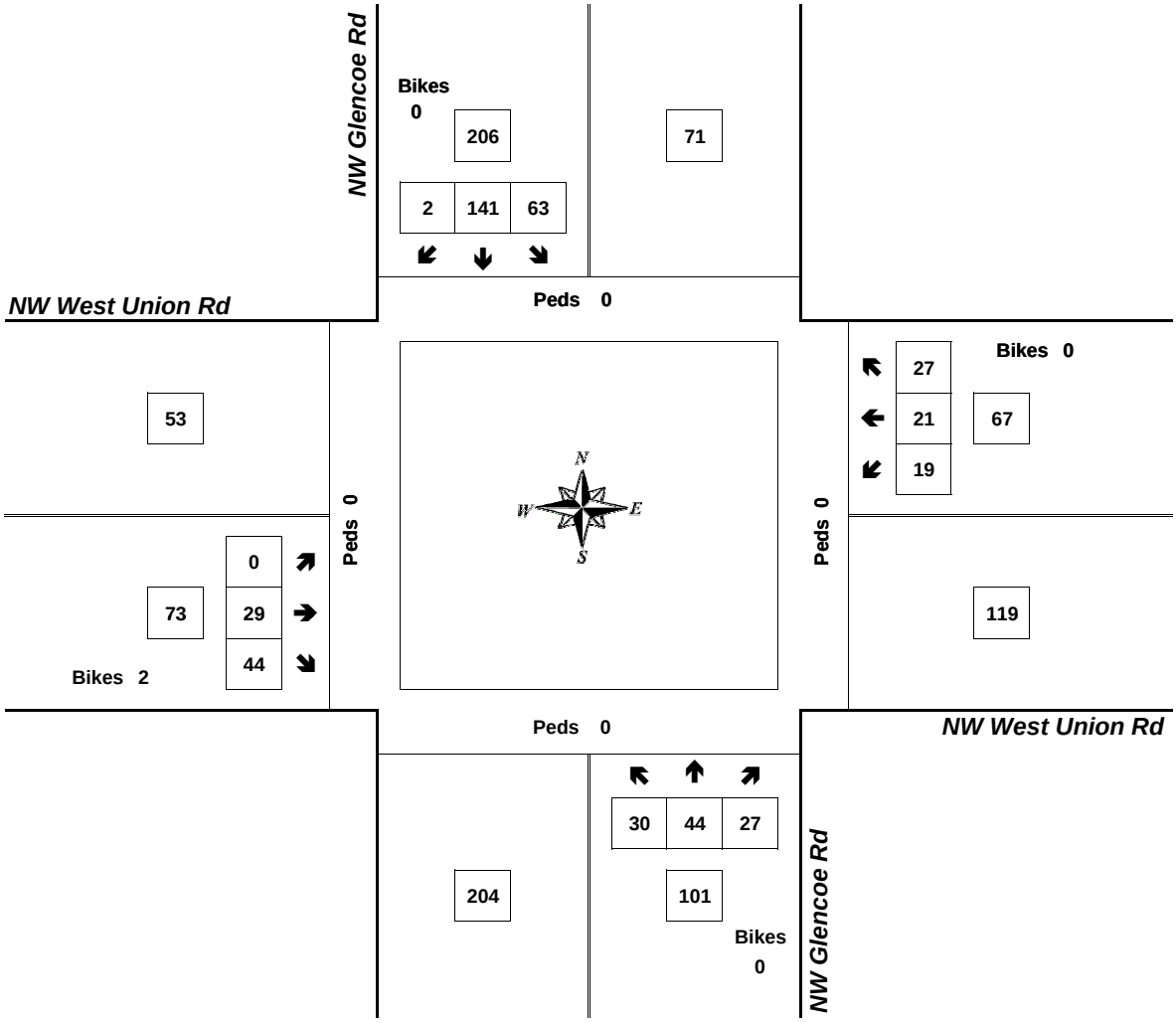
Interval Start Time	Northbound NW Glencoe Rd				Southbound NW Glencoe Rd				Eastbound NW West Union Rd				Westbound NW West Union Rd				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
7:00 AM	5	5	2	12	1	5	0	6	0	1	7	8	2	0	0	2	28
7:15 AM	5	2	2	9	1	4	0	5	0	0	5	5	1	0	0	1	20
7:30 AM	7	3	0	10	2	6	0	8	0	0	4	4	1	0	2	3	25
7:45 AM	6	3	1	10	3	5	0	8	0	3	5	8	1	0	2	3	29
8:00 AM	6	5	1	12	2	8	0	10	0	3	7	10	3	0	4	7	39

Peak Hour Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740

NW Glencoe Rd & NW West Union Rd

7:00 AM to 8:00 AM
Wednesday, April 03, 2013

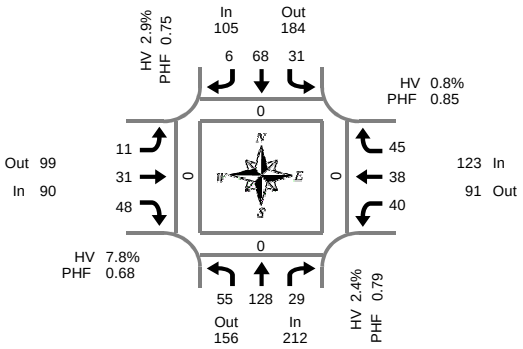


Approach	PHF	HV%	Volume
EB	0.76	11.0%	73
WB	0.88	3.0%	67
NB	0.84	11.9%	101
SB	0.72	2.9%	206
Intersection	0.86	6.3%	447

Count Period: 7:00 AM to 9:00 AM

Total Vehicle Summary

Clay Carney
(503) 833-2740



Peak Hour Summary
4:50 PM to 5:50 PM

NW Glencoe Rd & NW West Union Rd

Tuesday, April 02, 2013
4:00 PM to 6:00 PM

5-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound NW Glencoe Rd				Southbound NW Glencoe Rd				Eastbound NW West Union Rd				Westbound NW West Union Rd				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	6	8	2	0	1	4	0	0	2	1	3	0	0	5	6	0	38	0	0	0	0
4:05 PM	6	13	2	0	6	7	0	0	0	2	2	0	1	4	2	0	45	0	0	0	0
4:10 PM	7	8	3	0	4	3	0	1	0	4	5	0	5	4	3	0	46	0	0	0	0
4:15 PM	4	8	1	0	4	9	0	1	0	3	2	0	9	4	2	0	46	0	0	0	0
4:20 PM	2	10	2	0	3	8	0	0	1	2	3	0	5	3	2	0	41	0	0	0	0
4:25 PM	3	8	2	0	0	5	0	0	0	3	8	0	2	2	3	0	36	0	0	0	0
4:30 PM	6	4	5	0	1	6	0	0	2	0	5	0	0	2	1	0	32	0	0	0	0
4:35 PM	4	10	1	0	2	9	0	0	3	1	2	0	1	2	3	0	38	0	0	0	0
4:40 PM	4	6	2	0	1	8	0	0	2	3	2	0	5	4	2	0	39	0	0	0	0
4:45 PM	4	10	3	0	1	2	1	0	1	5	3	0	5	5	2	1	42	0	0	0	0
4:50 PM	5	10	2	0	1	9	0	0	2	1	6	0	1	10	5	0	52	0	0	0	0
4:55 PM	3	8	2	0	3	0	1	0	0	2	5	0	4	3	3	0	34	0	0	0	0
5:00 PM	6	8	2	0	0	5	1	0	1	3	4	0	7	1	2	0	40	0	0	0	0
5:05 PM	6	5	1	0	2	6	0	0	3	2	4	0	1	2	2	0	34	0	0	0	0
5:10 PM	3	18	5	0	4	5	0	0	0	1	3	0	6	5	2	1	52	0	0	0	0
5:15 PM	6	18	4	0	1	3	2	0	0	5	6	0	2	3	5	0	55	0	0	0	0
5:20 PM	2	8	3	0	4	6	0	0	2	7	8	0	2	7	3	0	52	0	0	0	0
5:25 PM	4	4	2	0	1	6	0	0	0	3	2	0	5	2	4	0	33	0	0	0	0
5:30 PM	3	3	5	0	4	5	1	0	1	2	1	0	2	3	3	0	33	0	0	0	0
5:35 PM	6	20	1	0	2	6	1	0	1	0	4	0	4	0	3	0	48	0	0	0	0
5:40 PM	6	12	1	0	3	9	0	0	0	5	2	0	5	0	7	0	50	0	0	0	0
5:45 PM	5	14	1	0	6	8	0	0	1	0	3	0	1	2	6	0	47	0	0	0	0
5:50 PM	6	11	1	0	4	8	0	0	1	2	2	0	2	1	2	0	40	0	0	0	0
5:55 PM	3	9	0	0	1	7	0	0	0	1	1	0	3	2	4	2	31	0	0	0	0
Total Survey	110	233	53	0	59	144	7	2	23	58	86	0	78	76	77	4	1,004	0	0	0	0

15-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound NW Glencoe Rd				Southbound NW Glencoe Rd				Eastbound NW West Union Rd				Westbound NW West Union Rd				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	19	29	7	0	11	14	0	1	2	7	10	0	6	13	11	0	129	0	0	0	0
4:15 PM	9	26	5	0	7	22	0	1	1	8	13	0	16	9	7	0	123	0	0	0	0
4:30 PM	14	20	8	0	4	23	0	0	7	4	9	0	6	8	6	0	109	0	0	0	0
4:45 PM	12	28	7	0	5	11	2	0	3	8	14	0	10	18	10	1	128	0	0	0	0
5:00 PM	15	31	8	0	6	16	1	0	4	6	11	0	14	8	6	1	126	0	0	0	0
5:15 PM	12	30	9	0	6	15	2	0	2	15	16	0	9	12	12	0	140	0	0	0	0
5:30 PM	15	35	7	0	9	20	2	0	2	7	7	0	11	3	13	0	131	0	0	0	0
5:45 PM	14	34	2	0	11	23	0	0	2	3	6	0	6	5	12	2	118	0	0	0	0
Total Survey	110	233	53	0	59	144	7	2	23	58	86	0	78	76	77	4	1,004	0	0	0	0

Peak Hour Summary
4:50 PM to 5:50 PM

By Approach	Northbound NW Glencoe Rd				Southbound NW Glencoe Rd				Eastbound NW West Union Rd				Westbound NW West Union Rd				Total	Pedestrians Crosswalk			
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West
Volume	212	156	368	0	105	184	289	0	90	99	189	0	123	91	214	1	530	0	0	0	0
%HV	2.4%				2.9%				7.8%				0.8%				3.0%				
PHF	0.79				0.75				0.68				0.85				0.83				

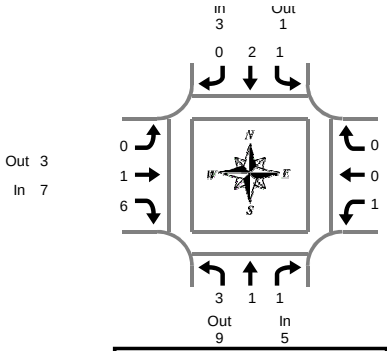
By Movement	Northbound NW Glencoe Rd				Southbound NW Glencoe Rd				Eastbound NW West Union Rd				Westbound NW West Union Rd				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	55	128	29	212	31	68	6	105	11	31	48	90	40	38	45	123	530
%HV	5.5%	0.8%	3.4%	2.4%	3.2%	2.9%	0.0%	2.9%	0.0%	3.2%	12.5%	7.8%	2.5%	0.0%	0.0%	0.8%	3.0%
PHF	0.81	0.70	0.60	0.79	0.70	0.74	0.75	0.75	0.69	0.52	0.71	0.68	0.71	0.63	0.70	0.85	0.83

Rolling Hour Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound NW Glencoe Rd				Southbound NW Glencoe Rd				Eastbound NW West Union Rd				Westbound NW West Union Rd				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	54	103	27	0	27	70	2	2	13	27	46	0	38	48	34	1	489	0	0	0	0
4:15 PM	50	105	28	0	22	72	3	1	15	26	47	0	46	43	29	2	486	0	0	0	0
4:30 PM	53	109	32	0	21	65	5	0	16	33	50	0	39	46	34	2	503	0	0	0	0
4:45 PM	54	124	31	0	26	62	7	0	11	36	48	0	44	41	41	2	525	0	0	0	0
5:00 PM	56	130	26	0	32	74	5	0	10	31	40	0	40	28	43	3	515	0	0	0	0

Heavy Vehicle Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740



NW Glencoe Rd & NW West Union Rd

Tuesday, April 02, 2013
4:00 PM to 6:00 PM

Peak Hour Summary
4:50 PM to 5:50 PM

Heavy Vehicle 5-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound NW Glencoe Rd				Southbound NW Glencoe Rd				Eastbound NW West Union Rd				Westbound NW West Union Rd				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
4:05 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	1	0	1	2
4:10 PM	0	1	0	1	1	1	0	2	0	0	1	1	0	0	0	0	4
4:15 PM	2	0	0	2	2	1	0	3	0	0	0	0	0	0	0	0	5
4:20 PM	0	0	1	1	0	0	0	0	0	0	0	0	1	0	0	1	2
4:25 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	1	1	2
4:30 PM	0	0	3	3	0	0	0	0	0	0	0	0	0	0	0	0	3
4:35 PM	0	0	0	0	0	3	0	3	0	0	0	0	0	0	0	0	3
4:40 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	2	2	0	0	0	0	0	0	0	0	1	0	0	1	3
4:50 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
4:55 PM	1	0	0	1	0	0	0	0	0	0	3	3	0	0	0	0	4
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:05 PM	1	0	0	1	0	1	0	1	0	0	0	0	0	0	0	0	2
5:10 PM	0	1	0	1	1	0	0	1	0	0	0	0	0	0	0	0	2
5:15 PM	1	0	1	2	0	0	0	0	0	0	2	2	0	0	0	0	4
5:20 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
5:25 PM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:35 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:40 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:50 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:55 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1	1	2
Total Survey	5	4	7	16	4	8	0	12	0	2	7	9	3	1	2	6	43

Heavy Vehicle 15-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound NW Glencoe Rd				Southbound NW Glencoe Rd				Eastbound NW West Union Rd				Westbound NW West Union Rd				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	0	2	0	2	1	2	0	3	0	0	1	1	0	1	0	1	7
4:15 PM	2	0	1	3	2	1	0	3	0	1	0	1	1	0	1	2	9
4:30 PM	0	0	3	3	0	3	0	3	0	0	0	0	0	0	0	0	6
4:45 PM	1	0	2	3	0	1	0	1	0	0	3	3	1	0	0	1	8
5:00 PM	1	1	0	2	1	1	0	2	0	0	0	0	0	0	0	0	4
5:15 PM	1	0	1	2	0	0	0	0	0	0	3	3	1	0	0	1	6
5:30 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
5:45 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1	1	2
Total Survey	5	4	7	16	4	8	0	12	0	2	7	9	3	1	2	6	43

Heavy Vehicle Peak Hour Summary
4:50 PM to 5:50 PM

By Approach	Northbound NW Glencoe Rd			Southbound NW Glencoe Rd			Eastbound NW West Union Rd			Westbound NW West Union Rd			Total
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Volume	5	9	14	3	1	4	7	3	10	1	3	4	16
PHF	0.31			0.38			0.58			0.25			0.50

By Movement	Northbound NW Glencoe Rd				Southbound NW Glencoe Rd				Eastbound NW West Union Rd				Westbound NW West Union Rd				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	3	1	1	5	1	2	0	3	0	1	6	7	1	0	0	1	16
PHF	0.38	0.25	0.25	0.31	0.25	0.50	0.00	0.38	0.00	0.25	0.50	0.58	0.25	0.00	0.00	0.25	0.50

Heavy Vehicle Rolling Hour Summary
4:00 PM to 6:00 PM

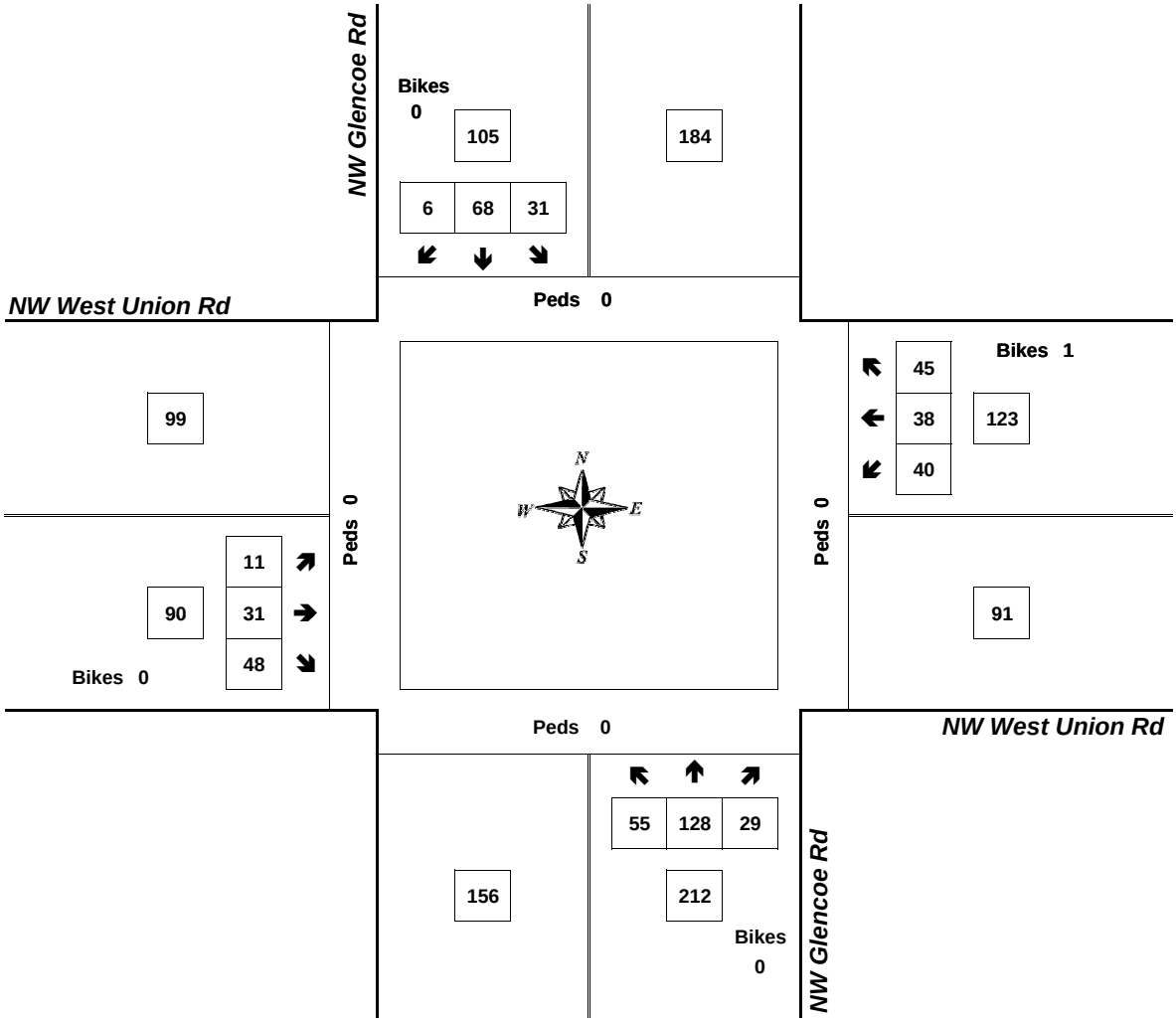
Interval Start Time	Northbound NW Glencoe Rd				Southbound NW Glencoe Rd				Eastbound NW West Union Rd				Westbound NW West Union Rd				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	3	2	6	11	3	7	0	10	0	1	4	5	2	1	1	4	30
4:15 PM	4	1	6	11	3	6	0	9	0	1	3	4	2	0	1	3	27
4:30 PM	3	1	6	10	1	5	0	6	0	0	6	6	2	0	0	2	24
4:45 PM	3	1	3	7	1	2	0	3	0	1	6	7	2	0	0	2	19
5:00 PM	2	2	1	5	1	1	0	2	0	1	3	4	1	0	1	2	13

Peak Hour Summary

All Traffic Data Services Inc.
Clay Carney
(503) 833-2740

NW Glencoe Rd & NW West Union Rd

4:50 PM to 5:50 PM
Tuesday, April 02, 2013



Approach	PHF	HV%	Volume
EB	0.68	7.8%	90
WB	0.85	0.8%	123
NB	0.79	2.4%	212
SB	0.75	2.9%	105
Intersection	0.83	3.0%	530

Count Period: 4:00 PM to 6:00 PM

TRIP GENERATION CALCULATIONS

Land Use: Single-Family Detached Housing
Land Use Code: 210
Variable: Dwelling Units
Variable Value: 33

AM PEAK HOUR

Trip Rate: 0.75

	Enter	Exit	Total
Directional Distribution	25%	75%	
Trip Ends	**6**	**19**	**25**

PM PEAK HOUR

Trip Rate: 1.00

	Enter	Exit	Total
Directional Distribution	63%	37%	
Trip Ends	**21**	**12**	**33**

WEEKDAY

Trip Rate: 9.52

	Enter	Exit	Total
Directional Distribution	50%	50%	
Trip Ends	**157**	**157**	**314**

SATURDAY

Trip Rate: 9.91

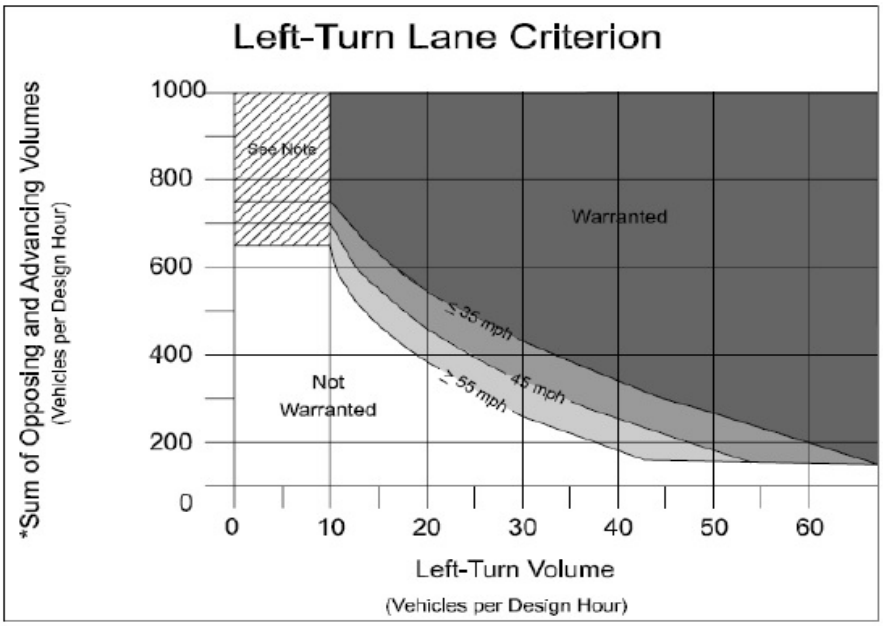
	Enter	Exit	Total
Directional Distribution	50%	50%	
Trip Ends	**164**	**164**	**328**

Source: TRIP GENERATION, Ninth Edition

Project: 13027 - McKay Fields Subdivision
Intersection: NW West Union Road at Site Access
Date: 4/16/2013
Scenario: 2015 Background + Site Trips

Speed? 45 mph

AM Peak Hour		**PM Peak Hour**	
Left-Turn Volume	2	Left-Turn Volume	7
Approaching DHV	73	Approaching DHV	137
# of Advancing Through Lanes	1	# of Advancing Through Lanes	1
Opposing DHV	131	Opposing DHV	111
# of Opposing Through Lanes	1	# of Opposing Through Lanes	1
O+A DHV	**204**	**O+A DHV**	**248**
Lane Needed?	**No**	Lane Needed?	**No**



Source: Oregon DOT Analysis Procedures Manual 2008

*(Advancing Vol/ # of Advancing Through Lanes)+
(Opposing Vol/ # of Opposing Through Lanes)

Note: The criterion is not met from zero to ten left turn vehicles per hour, but careful consideration should be given to installing a left turn lane due to the increased potential for accidents in the through lanes. While the turn volumes are low, the adverse safety and operational impacts may require installation of a left turn. The final determination will be based on a field study.

CRASH SUMMARIES BY YEAR BY COLLISION TYPE

WEST UNION RD and Intersectional Crashes at WEST UNION RD, City of North Plains, Washington County, 01/01/2009 to 12/31/2011

COLLISION TYPE	FATAL CRASHES	NON-FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER-SECTION	INTER-SECTION RELATED	OFF-ROAD
YEAR: 2011														
FIXED / OTHER OBJECT	0	0	1	1	0	0	0	0	1	0	1	0	0	1
YEAR 2011 TOTAL	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**0**	**0**	**1**
YEAR: 2009														
FIXED / OTHER OBJECT	0	0	1	1	0	0	0	1	0	0	1	0	0	1
TURNING MOVEMENTS	1	0	0	1	2	1	0	1	0	1	0	0	0	0
YEAR 2009 TOTAL	**1**	**0**	**1**	**2**	**2**	**1**	**0**	**2**	**0**	**1**	**1**	**0**	**0**	**1**
FINAL TOTAL	**1**	**0**	**2**	**3**	**2**	**1**	**0**	**2**	**1**	**1**	**2**	**0**	**0**	**2**

Disclaimer: The information contained in this report is compiled from individual driver and police crash reports submitted to the Oregon Department of Transportation as required in ORS 811.720. The Crash Analysis and Reporting Unit is committed to providing the highest quality crash data to customers. However, because submittal of crash report forms is the responsibility of the individual driver, the Crash Analysis and Reporting Unit can not guarantee that all qualifying crashes are represented nor can assurances be made that all details pertaining to a single crash are accurate. Note: Legislative changes to DMV's vehicle crash reporting requirements, effective 01/01/2004, may result in fewer property damage only crashes being eligible for inclusion in the Statewide Crash Data File.

OREGON.. DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANAYLYSIS AND REPORTING UNIT
URBAN NON-SYSTEM CRASH LISTING

CITY OF NORTH PLAINS, WASHINGTON COUNTY

WEST UNION RD and Intersectional Crashes at WEST UNION RD, City of North Plains, Washington County, 01/01/2009 to 12/31/2011

Total crash records: 3

SER# / INVEST	S P E D / A L C / R U G S / S C L / W O H K / O R	DATE / DAY / TIME	CLASS / DIST / FROM	CITY STREET / FIRST STREET / SECOND STREET	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC / TYPE	INJ / SVRTY	A G E	S E X	LICNS / RES	PED LOC	ERROR	ACT	EVENT	CAUSE
02474	N N N	05/25/2009	06	NW WEST UNION RD	STRGHT		N	Y	CLR	FIX OBJ	01	NONE 0	STRGHT										079,061,093	27
COUNTY		MO	2200	NW 1ST ST/GLENCOE RD	E	(NONE)	UNKNOWN	N	DRY	FIX		PRVTE	W -E									000	079,061	00
		9P			07			N	DARK	PDO		PSNGR CAR		01	DRVR	NONE	58	M	OR-Y		016,080,081	038	093	27
						(02)													OR<25					
07192	Y N N N N	12/10/2011	06	NW WEST UNION RD	CURVE		N	Y	FOG	FIX OBJ	01	NONE 0	STRGHT										079,070,124	01
STATE		SA	1320	NW 1ST ST/GLENCOE RD	E	(NONE)	WARNING	N	ICE	FIX		PRVTE	W -E									088	079,070,124	00
		6A			07			N	DARK	PDO		PSNGR CAR		01	DRVR	NONE	19	M	OR-Y		047,080,081	017		01
						(02)													OR<25					
03718	Y N N N N	07/23/2009	06	NW WEST UNION RD	ALLEY		N	N	CLR	O-1TURN	01	NONE 0	STRGHT										001	01,02
CITY		TH	1900	289TH PL	W	(NONE)	NONE	N	DRY	TURN		PRVTE	E -W									001		00
		3P			07			N	DAY	FAT		MTRCYCLE		01	DRVR	KILL	28	M	OR-Y		047	000	001	01
						(02)													OR<25					
											01	NONE 0	STRGHT											
												PRVTE	E -W									001		00
												MTRCYCLE		02	PSNG	KILL	17	F			000	000	001	00
											02	NONE 0	TURN-L											
												PRVTE	W -N									019		00
												PSNGR CAR		01	DRVR	INJC	80	M	OR-Y		004,028	000		02
																			OR<25					

Disclaimer: The information contained in this report is compiled from individual driver and police crash reports submitted to the Oregon Department of Transportation as required in ORS 811.720. The Crash Analysis and Reporting Unit is committed to providing the highest quality crash data to customers. However, because submittal of crash report forms is the responsibility of the individual driver, the Crash Analysis and Reporting Unit can not guarantee that all qualifying crashes are represented nor can assurances be made that all details pertaining to a single crash are accurate. Note: Legislative changes to DMV's vehicle crash reporting requirement, effective 01/01/2004, may result in fewer property damage only crashes being eligible for inclusion in the Statewide Crash Data File.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	127	4	2	71	12	7
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	148	5	2	83	14	8
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			152		237	150
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			152		237	150
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		98	99
cM capacity (veh/h)			1422		750	896

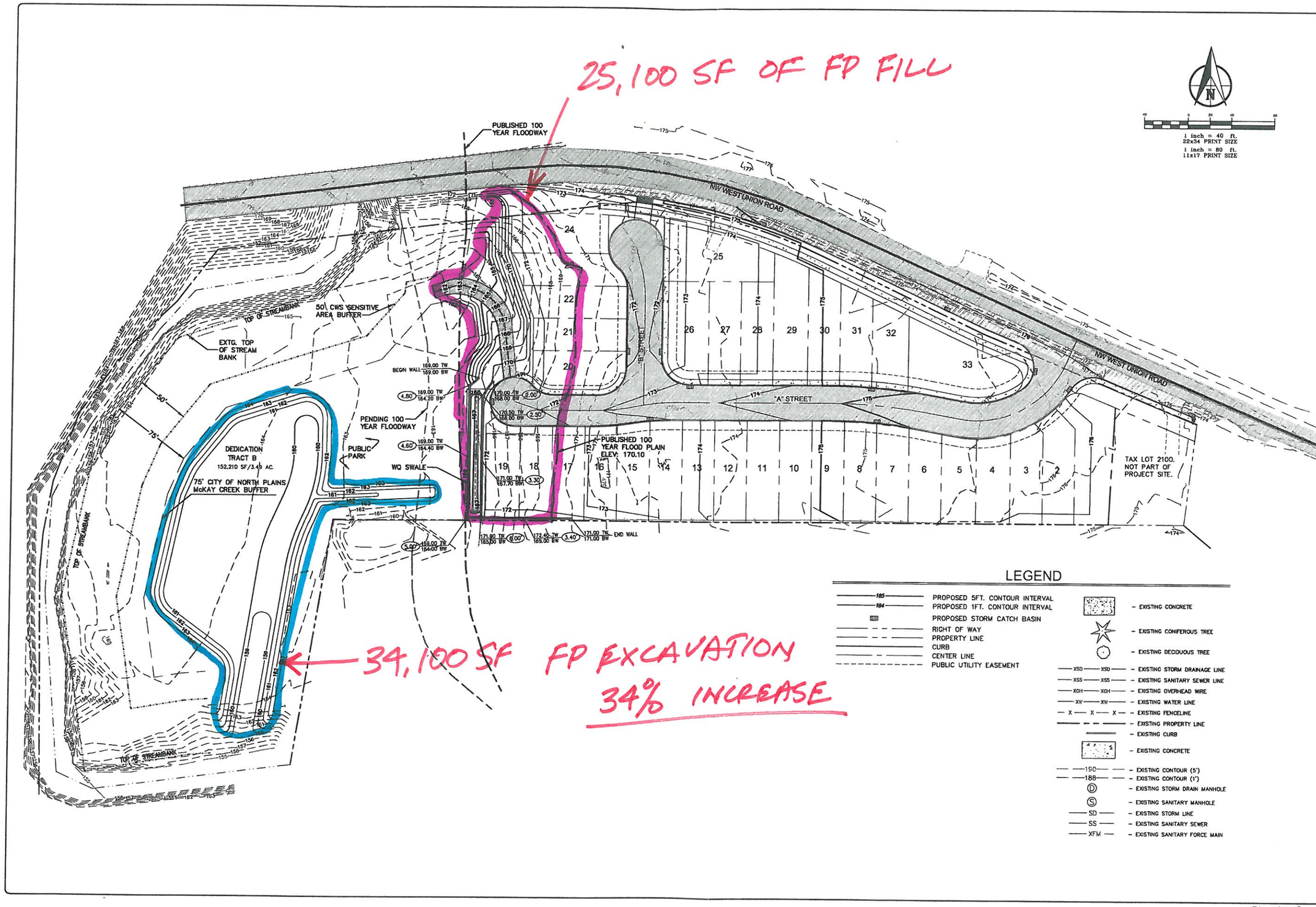
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	152	85	22
Volume Left	0	2	14
Volume Right	5	0	8
cSH	1700	1422	798
Volume to Capacity	0.09	0.00	0.03
Queue Length 95th (ft)	0	0	2
Control Delay (s)	0.0	0.2	9.6
Lane LOS		A	A
Approach Delay (s)	0.0	0.2	9.6
Approach LOS			A

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	16.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	97	14	7	130	8	4
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Hourly flow rate (vph)	117	17	8	157	10	5
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			134		299	125
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			134		299	125
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		99	99
cM capacity (veh/h)			1451		689	925

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	134	165	14
Volume Left	0	8	10
Volume Right	17	0	5
cSH	1700	1451	753
Volume to Capacity	0.08	0.01	0.02
Queue Length 95th (ft)	0	0	1
Control Delay (s)	0.0	0.4	9.9
Lane LOS		A	A
Approach Delay (s)	0.0	0.4	9.9
Approach LOS			A

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	22.6%	ICU Level of Service	A
Analysis Period (min)	15		

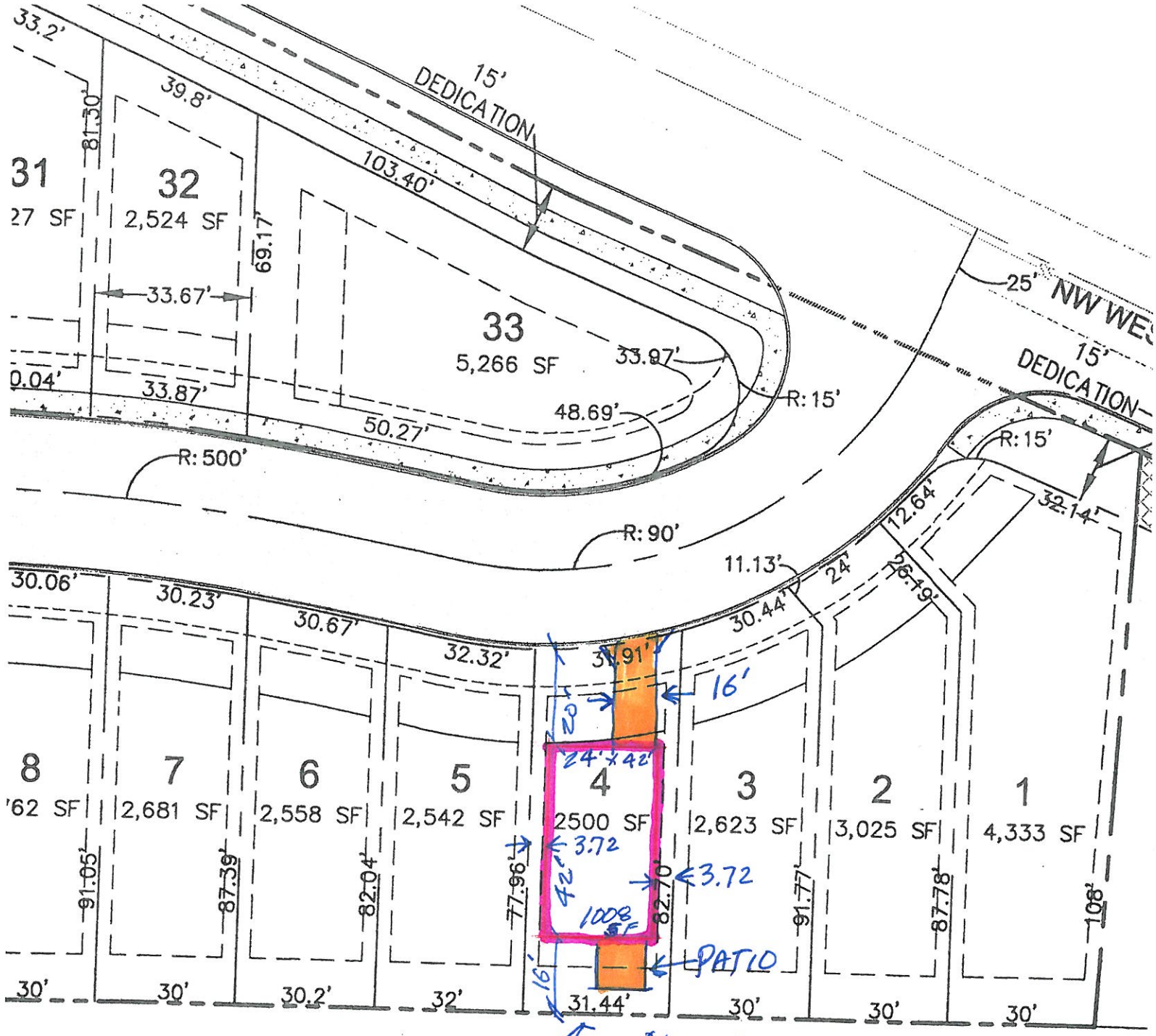


KITTREDGE ENGINEERS, LLC
6565 SW 207TH AVENUE
ALOHA, OR 97007
TEL: (503) 708-3942

PRELIMINARY GRADING PLAN
McKAY FIELDS SUBDIVISION
DR HORTON
4380 SW MACADAM, SUITE 100 503-222-4151 EXT. 1115 - RYAN O'BRIEN

REGISTERED PROFESSIONAL ENGINEER
PRELIMINARY NOT FOR CONSTRUCTION
CHRIS P. KITTREDGE
RENEWAL 06/30/13

DATE: 3/19/2013
DRAWN BY: CPK
PROJ. MGR: CPK
CHECKED BY: CPK
PROJECT NUMBER DRH.001
CASE FILE NUMBER N/A
SHEET NUMBER DD6 OF 7



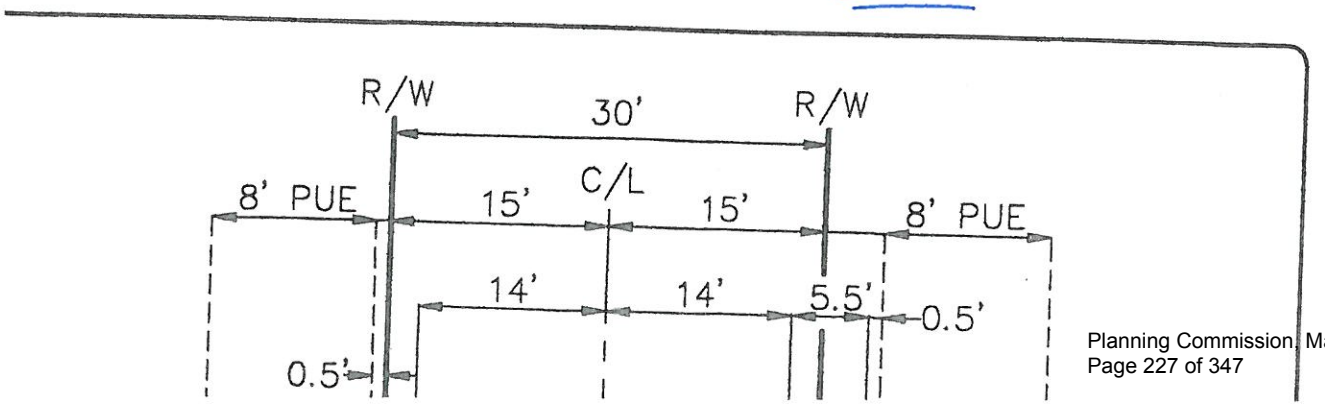
1" = 30'

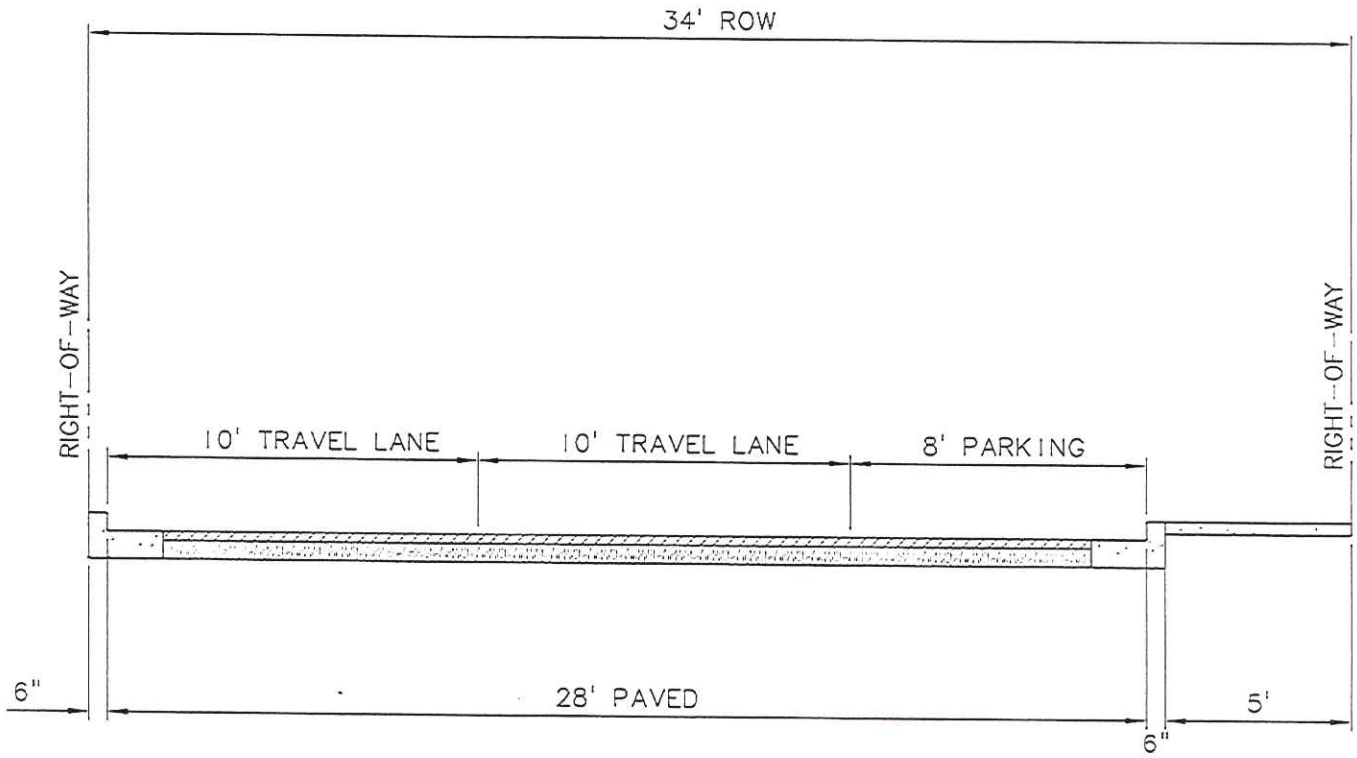
1008 SF HOUSE
393 SF DW
120 SF PATIO

1521 ÷ 2500 = 61%

40% LOT COVERAGE

15' WEST UNION ROW DED
AND RECORDED PER WASH
DOCUMENT NUMBER 2013-





Murray, Smith & Associates, Inc.
Engineers/Planners
Portland, Oregon

NORTH PLAINS
City in the Sunset

CITY OF NORTH PLAINS
LOCAL 34' RIGHT-OF-WAY
ROAD SECTION

SCALE: NTS	FIGURE: 5-2b
DATE: 11/05	PAGE: 25

Ryan M O'brien

From: mip@riskmapcds.com
Sent: Wednesday, April 24, 2013 4:05 AM
To: Ryan M O'brien
Subject: AMENDMENT Project is Created with Project Number=13-10-1010C

We have received your request that the Federal Emergency Management Agency determine if the requested property is located within an identified Special Flood Hazard Area on the applicable National Flood Insurance Program map.

Your Case Number is 13-10-1010C and Project Id is TAX LOT 1200 -- 30240 NW WEST UNION ROAD.

We are reviewing your submitted data for WASHINGTON COUNTY*, Washington County, OR and will contact you if additional information is required to process your request.

If additional information is not required, we will issue a final letter of determination within 30-60 days.

You may obtain project status information from MIP via the Public Reports tool at the following location: https://hazards.fema.gov/femaportal/wps/portal/public_reports.

Inquiries concerning the status of your request should be made by calling the FEMA Map Assistance Center toll free at (877) 336-2627 (877-FEMA-MAP) or by letter addressed to the Federal Emergency Management Agency, LOMC Clearinghouse, 7390 Coca Cola Drive, Ste 204, Hanover, MD 21076.

Please be assured we will do our best to respond to all inquiries in a timely manner.

Federal Emergency Management Agency

Washington, D.C. 20472

April 24, 2013

Case No.: **13-10-1010C**
216-A

We have received your request that the Federal Emergency Management Agency determine if the property identified below is located within an identified Special Flood Hazard Area on the applicable National Flood Insurance Program map.

TAX LOT 1200 -- 30240 NW WEST UNION ROAD

We are reviewing your submitted data and will contact you if additional information is required to process your request. If additional information is not required, we will issue a final letter of determination within 30-60 days. Inquiries concerning the status of your request should be made by calling the FEMA Map Assistance Center toll free at (877)-336-2627 (877-FEMA MAP) or by letter addressed to the Federal Emergency Management Agency, LOMC Clearinghouse, 847 South Pickett Street, Alexandria, VA 22304-4605. Please be assured we will do our best to respond to all inquiries in a timely manner.

Federal Emergency Management Agency
Washington, D.C. 20472

MT-RA-EM (Baker) 0302

Official Business

neopost
04/25/2013
US POSTAGE
$00.46[illegible]
ZIP 22304
041L11228468

Mr. Ryan O'Brien
4380 SW Marcadam Avenue
Suite 100
Portland, OR 97239

97239 6411 0042

DEPARTMENT OF HOMELAND SECURITY - FEDERAL EMERGENCY MANAGEMENT AGENCY

COMMUNITY ACKNOWLEDGMENT FORM

O.M.B. NO. 1660-0015
Expires February 28, 2014

PAPERWORK BURDEN DISCLOSURE NOTICE

Public reporting burden for this data collection is estimated to average 1.38 hours per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing and submitting the form. This collection is required to obtain or retain benefits. You are not required to respond to this collection of information unless a valid OMB control number is displayed on this form. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden to: Information Collections Management, Department of Homeland Security, Federal Emergency Management Agency, 1800 South Bell Street, Arlington, VA 20598-3005, Paperwork Reduction Project (1660-0015). NOTE: Do not send your completed form to this address.

This form must be completed for requests involving the existing or proposed placement of fill (complete Section A) ***OR*** to provide acknowledgment of this request to remove a property from the SFHA which was previously located within the regulatory floodway (complete Section B).
This form must be completed and signed by the official responsible for floodplain management in the community. **The six digit NFIP community number and the subject property address must appear in the spaces provided below. Incomplete submissions will result in processing delays.** Please refer to the MT-1 instructions for additional information about this form.

Community Number: 410270 NORTH PLAINS WASHINGTON COUNTY 410238

Property Name or Address: McKAY FIELDS PRELIMINARY PLAT 30240 NW WEST UNION ROAD, NORTH PLAINS OREGON, 97133

A. REQUESTS INVOLVING THE PLACEMENT OF FILL

As the community official responsible for floodplain management, I hereby acknowledge that we have received and reviewed this Letter of Map Revision Based on Fill (LOMR-F) or Conditional LOMR-F request. Based upon the community's review, we find the completed or proposed project meets or is designed to meet all of the community floodplain management requirements, including the requirement that no fill be placed in the regulatory floodway, and that all necessary Federal, State, and local permits have been, or in the case of a Conditional LOMR-F, will be obtained. For Conditional LOMR-F requests, the applicant has or will document Endangered Species Act (ESA) compliance to FEMA prior to issuance of the Conditional LOMR-F determination. For LOMR-F requests, I acknowledge that compliance with Sections 9 and 10 of the ESA has been achieved independently of FEMA's process. Section 9 of the ESA prohibits anyone from "taking" or harming an endangered species. If an action might harm an endangered species, a permit is required from U.S. Fish and Wildlife Service or National Marine Fisheries Service under Section 10 of the ESA. For actions authorized, funded, or being carried out by Federal or State agencies, documentation from the agency showing its compliance with Section 7(a)(2) of the ESA will be submitted. In addition, we have determined that the land and any existing or proposed structures to be removed from the SFHA are or will be reasonably safe from flooding as defined in 44CFR 65.2(c), and that we have available upon request by DHS-FEMA, all analyses and documentation used to make this determination. For LOMR-F requests, we understand that this request is being forwarded to DHS-FEMA for a possible map revision.

Community Comments:

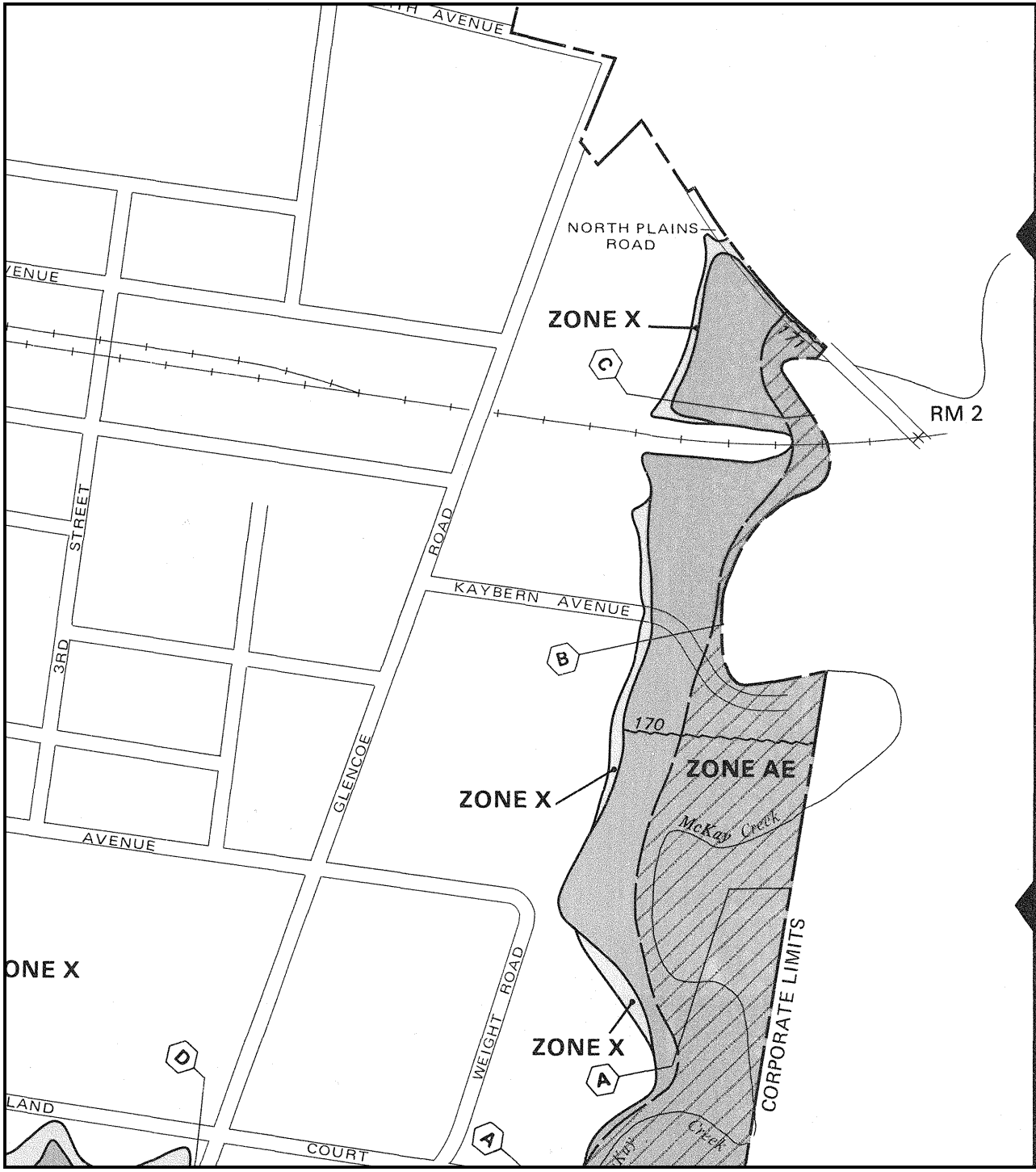
Community Official's Name and Title: (*Please Print or Type*)		Telephone No.:
MARTHA DEBRY, CITY MANAGER OF NORTH PLAINS		503-647-5555
Community Name: NORTH PLAINS	Community Official's Signature: (required)	Date:

B. PROPERTY LOCATED WITHIN THE REGULATORY FLOODWAY

As the community official responsible for floodplain management, I hereby acknowledge that we have received and reviewed this request for a LOMA. We understand that this request is being forwarded to DHS-FEMA to determine if this property has been inadvertently included in the regulatory floodway. We acknowledge that no fill on this property has been or will be placed within the designated regulatory floodway. We find that the completed or proposed project meets or is designed to meet all of the community floodplain management requirements.

Community Comments:

Community Official's Name and Title: (*Please Print or Type*)		Telephone No.:
Community Name:	Community Official's Signature (required):	Date:



APPROXIMATE SCALE IN FEET

400 0 400

NATIONAL FLOOD INSURANCE PROGRAM

FIRM

FLOOD INSURANCE RATE MAP

CITY OF
NORTH PLAINS,
OREGON
WASHINGTON COUNTY

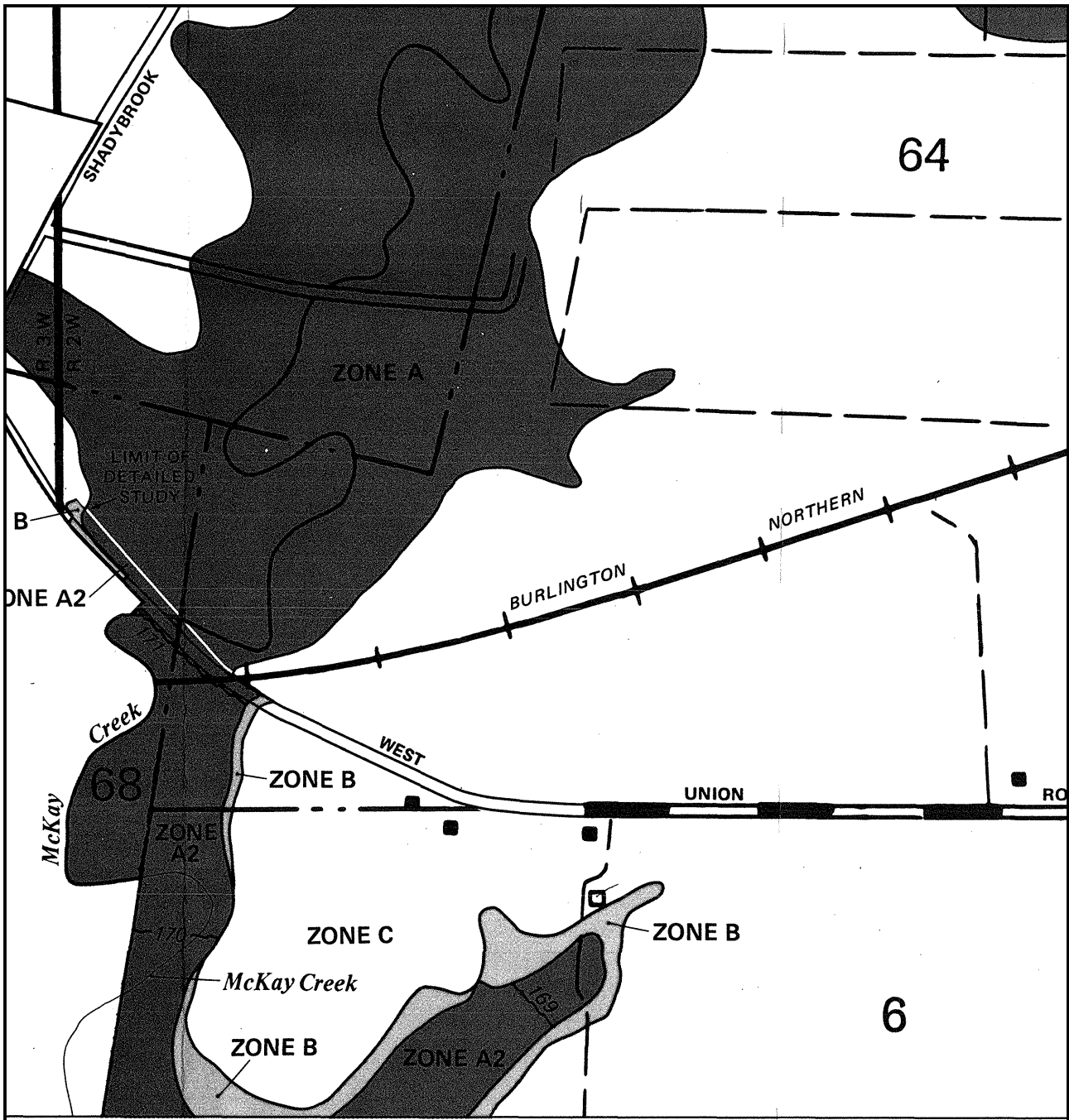
ONLY PANEL PRINTED

COMMUNITY-PANEL NUMBER
410270 0001 B

MAP REVISED:
MARCH 16, 1989

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov



JOINS PANEL 0328

APPROXIMATE SCALE

500 0 500 FEET

NATIONAL FLOOD INSURANCE PROGRAM

FIRM

FLOOD INSURANCE RATE MAP

WASHINGTON COUNTY, OREGON

(UNINCORPORATED AREAS)

PANEL 326 OF 575

(SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY-PANEL NUMBER
410238 0326 B

EFFECTIVE DATE:
SEPTEMBER 30, 1982

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

Storm Drainage Report
(Includes full flood plain HEC RAS analysis for pre and post-developed site conditions)

McKay Fields – 33 Lot Subdivision
North Plains, OR

March 29, 2013

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&
The Federal Emergency Management Agency (FEMA)

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STORM DRAINAGE REPORT

MCKAY FIELDS – 33 LOT SUBDIVISION
TAX MAP T1N R2W; SECTION 6
TAX LOTS 1200, 1202, 2000 – North Plains, OR

Purpose

The purpose of this storm drainage analysis is to:

- Describe existing and proposed site conditions.
- Provide data and analysis for the stormwater impacts due to the proposed McKay Fields 33 Lot Subdivision
- Provide water quality calculations for the proposed site.
- Provide upstream and downstream analysis for the site.
- Provide on-site flood plain analysis and supporting documentation.
- Demonstrate that the proposed McKay Fields 33 Lot Subdivision does not significantly impact adjacent properties.

Introduction/Project Overview

This report describes the stormwater impacts and criteria used to complete the preliminary stormwater design for the McKay Fields – 33 Lot subdivision located in North Plains, Oregon. The total proposed on-site area is approximately 2.88 acres. After new construction, approximately 70% of the site area will consist of impervious hardscape, roofs and sidewalks. An additional 3.49 Acres will be donated to the City of North Plains for a public park and wetland enhancement area. A portion of the proposed subdivision will be constructed in the existing flood plain adjacent to McKay Creek. A flood plain alteration will be performed to account for impacts to the existing flood plain.

Existing Conditions

The proposed subdivision site is bounded to the north by West Union Road, to the west by McKay Creek, to the east by an existing residential home, and lastly to the south by existing farm land. The site currently has an existing residential home on the property along with several small out buildings used primarily for equipment storage. All existing structures on the property will be removed with new site development. Access to the property is from West Union Road. Roughly half of the west side property currently resides in an existing flood plain adjacent to McKay Creek. This area is currently used for farming purposes. The site slopes gradually from east to west on the east half of the property, then slopes gradually from north to south on the west half of the property.

Proposed Conditions

As part of the proposed development, there will be 33 new subdivision lots and accompanying streets. A water quality swale will be constructed at the south west corner of the proposed subdivision. Retaining walls will be constructed along the swale to insure that the existing floodway is not impacted by fill created by new construction. The water quality swale will take all stormwater runoff from the site and route it to the west into the existing flood plain. An access road will be constructed from the west side cul-de-sac and it will extend down to the west side flood plain. This access road will be used by pedestrians and maintenance crews. A new park will also be constructed directly west of the proposed site along the projects southwest border. As part of the subdivision site work, there will be a small amount of grading performed in the existing flood plain at the west side of the site. No fill will be performed in the actual floodway. A FEMA flood plain alternation will be performed as part of the proposed site work. Please refer to the Flood Plain section of this report for further information.

Hydraulic Basin Analysis

Storm flows were calculated for both pre and post developed, on-site basins. On-site basin maps and summary basin calculations are included with this report as Appendix "D".

The Criteria for drainage basin calculations were based on requirements shown in the latest stormwater design manual (June 2007 ed.) from Clean Water Services – see Appendix "D". Clean Water Services design standards have been adopted by many of the local jurisdictions in the Portland Metro area and are specifically called out for use in the City of North Plains development code.

The basin runoff design intensity criteria are as follows;

Design Intensity Criteria:

- Open channel flow
- 2-year, 24-hour event = 2.50 inches
- 10-year, 24-hour event = 3.45 inches
- 25-year, 24-hour event = 3.90 inches
- 100-year, 24-hour event = 4.50 inches
- Conveyance system design storm = 25-year event
- Santa Barbara Urban Hydrograph methodology – SCS Type 1A

Water Quality Treatment Design

An on-site water quality manhole and the proposed vegetated swale will be constructed to meet City of North Plains and CWS storm water quality treatment criteria. The water quality manhole will be located just upstream of the proposed swale. The referenced criteria requirement for water quality facilities is to provide 65% phosphorous removal from 100% of the combined impervious surfaces. The facilities have been designed to meet the removal efficiency for a mean summer-time storm event totaling 0.36 inches of precipitation falling over new impervious area in four (4) hours with an average return period of 96 hours.

The impervious site area was calculated as follows: (includes West Union Road ½ street along site frontage)

Total Impervious = 2.36 Ac./102,810 sf – See Appendix "D" for post-developed basin map.

The Design Calculations for the proposed water quality swale are as follows:

Water Quality Treatment Volume = (0.36")(102.810 sf)(1ft/12") = **3084 cu. ft.**
Design Discharge = (3,084 cu.ft.)/(4 hrs.)(3600 sec/hour) = **0.21 cfs**

Calculations were performed per current CWS water quality design standards - See Appendix "C" . Water quality swale calculations were performed using the "Civil Tools" hydraulic modeling software. See Appendix "D" for calculated results. The information below provides the swale calculation results along with swale geometry for the water quality storm event.

Swale Geometry and Calculated WQ Design Data – WQ Storm Event:

Design Discharge	0.21 cfs	– from calculations above
Length	106	Feet
Bottom Width	4.0	Feet
Side Slopes	4:1	water quality zone
Side Slopes	2.5:1	above water quality zone
Depth of flow	0.29	Feet (from Civil Tools calculations – Exhibit "D")
Swale FL Grade	0.50%	
Flow velocity	0.18	feet/sec. (from Civil Tools calculations – Exhibit "D")

Residence Time = Length of Swale (106')/Velocity(0.18) = 588 seconds

588 sec./60sec./min = 9.81 Minutes total residence time

WQ Swale Design and conveyance

The water quality swale described above shall convey all flows from the site and those contributing to the site from West Union Road. Per CWS conveyance requirements, the swale will be designed to convey the 25 year storm event while maintaining a minimum 1' freeboard. The proposed swale shall have walls on three sides. These walls will not be located in the water quality treatment portion of the facility. The exposed or open side of the swale will be accessed from the access road directly north of the proposed swale. The access slope will be no more than 5:1 and in most places flatter. The open side of the swale is approximately 11' wide and should be easily accessed by maintenance personnel or equipment. The swale walls will be designed by either a licensed geotechnical or structural engineer. The 25 Year swale conveyance data was calculated using Civil Tools software. See Exhibit "D" for calculated data. The results are shown in the table below.

Swale Geometry and Calculated Conveyance Design Data – 25 Year Storm event:

Design Discharge	1.65 cfs – post developed basin – Exhibit "D" **(25 year storm)**	
Length	106	Feet
Bottom Width	4.0	Feet
Side Slopes	4:1	water quality zone
Side Slopes	2.5:1	above water quality zone
Depth of flow	1.08	Feet (from Civil Tools calculations – Exhibit "D")
Swale FL Grade	0.50%	
Flow velocity	0.36	feet/sec. (from Civil Tools calculations – Exhibit "D")

Pipe Conveyance System Design and Analysis

On Conveyance Design

Pipe conveyance for the project will be analyzed and designed to convey the peak 25-Year, 24-Hour storm event as part of the final construction drawing submittal package. The conveyance system analysis will consist of the following;

1.) On-site Basin map detailing areas where site impacting drainage occurs along with plan view of the on-site conveyance system.

2.) SHUH basin calculations for on-site and off-site basins the SBUH SCS – Type 1A hydraulic methodology.

3.) Pipe conveyance calculations for the 25-Year, 24-Hour peak storm event based.

Times of Concentration: Initial times of concentration for all post-developed drainage basins will be assumed to be 5 minutes due to the small basin sizes. Incremental travel times will be extended through the individual conveyance pipe system as part of final conveyance design. Pre-developed times of concentration can be viewed in Exhibit "D".

Upstream Analysis

The only portion of the upstream drainage basin that contributes to the build out of the McKay Fields is from the south side of West Union Road along the project site frontage. Approximately 24,936 sf/0.57 Ac. of West Union Road will be picked up in the McKay Fields storm system. The existing and proposed impervious portions of West Union that that drain to the site north property frontage will be treated for water quality and have been included in the Water Quality Design portion of this report.

Downstream Analysis

Stormwater runoff from the proposed McKay Fields 33 Lot subdivision will outfall from the proposed on-site swale located at the south west corner of the site and flow overland southward to McKay Creek. The intention during the final utility design is to keep the swale outfall above the 2 year storm elevation and possibly the 10 and 25 year storms as well. The swale outfall will contribute runoff directly to the existing McKay Creek flood plain. The proposed site swale will be constructed directly east of the existing McKay Creek Floodway. Retaining walls will be constructed in the proposed swale to ensure the floodway is not impacted by on-site construction or proposed fills.

All building finish floor elevations will be a minimum of 1' above the 100 year flood plain elevation.

In the event any surcharging of the proposed storm sewer were to occur on-site, in the worst case scenario water would run down the streets to the west cul-de-sac which is the site low point. From here water would overtop the cul-de-sac and make its way to the McKay Creek flood plain. The cul-de-sac top of curb elevation will be at least 1' below the lowest building finish floor elevation.

See Appendix "F" for the 100 Year floodway FIRM map and additional flood plain exhibit info.

After analyzing pre and post developed HEC RAS sections, there was no net increase in surface water elevation during the 100 Year storm event due to the proposed site construction. This is based on the Clean Water Services and Washington County flood plain model for future flood plain build-out. See the "Flood Plain – HEC RAS" section of this report for further breakdown of the HEC analysis.

Flood Plain – Cut and Fill Quantities

To accommodate subdivision development, approximately 3,200 yds. of fill will be placed in the existing flood plain directly west of the proposed development. The City of North Plains development code states that no net fill in the flood plain is allowed – see Exhibit "E". To comply with the development code, approximately 3,500 yds. of excavation will also be performed in the flood plain directly west of the proposed development. The result is a net "cut" of approximately 300 yds. in the flood plain. In other words, once subdivision work is completed, the existing flood plain will have slightly more available flood storage volume than before work began.

The existing and proposed site grading conditions can be viewed in the plan set located in Exhibit "F". Cut and Fill quantity calculations were performed using AutoCAD Civil 3D 2012 software. The exact calculated results of the cut and fill calculations in the flood plain are as follows;

Total Cut: 3447.81 cu. yds.
Total Fill: 3170.56 cu. yds.

Total Net Cut: 277.25 cu. yds. (no net fill to be placed in flood plain from site work)

Flood Plain – HEC RAS sections analysis (pre and post development)

Recently the local jurisdiction of Washington County has paid a water resources consultant to provide a large hydraulics study and corresponding HEC RAS model of many of the flood plains in the County, including the one adjacent and west of the McKay Fields subdivision. This flood plain data has been accepted and approved for adoption by both Washington County and Clean Water Services – the storm and sanitary purveyor in Washington County. All of the local smaller jurisdictions served by Washington County and Clean Water Services have also adopted the new flood model. The information mentioned has been provided to FEMA for adoption as well, and the study is currently under FEMA review. Washington County and Clean Water Services both require that the new flood plain model be used when analyzing flood plains in the County. A brief description of the referenced Washington County flood plain model was printed from the Clean Water Services website and included as the first page of Exhibit "G" which includes the pre and post developed HEC RAS flood plain sections adjacent to McKay Fields.

The referenced flood plain model assumes future flood plain build-out conditions. Therefore the purpose of the flood plain study addressed in this narrative was to demonstrate that the McKay Fields flood plain grading would not affect future build-out design conditions or elevations for the 100 year storm event.

For analysis purposes, post developed flood plain sections were taken along McKay Creek using 2012 AutoCAD Civil 3D software.

This information was then exported to HEC RAS to develop a post developed flood plain model. Design flood plain flows were used per the future build out scenario in the newly constructed Washington County and McKay Creek HEC RAS flood plain model. Post developed sections were taken along McKay Creek and compared to the current "future" post developed Washington County HEC RAS flood plain model. This allowed for easy comparison between the existing pre and post developed flood plain sections. Any changes in flood plain elevation between pre and post developed models could be seen immediately. Once pre and post developed HEC RAS models were compared, there was no noticeable change in flood plain elevations between pre and post developed HEC RAS sections.

Please see the spreadsheet information below for a comparison of pre and post developed Flood Plain sections for future flood plain build-out conditions. HEC RAS printouts and creek sections can be viewed in Exhibit "G".

Pre and Post developed Flood Plain Sections Comparison

River	Reach	River Sta*	Profile	Existing Condition Current Flows W.S. Elev (ft)	Future Condition Current Flows W.S. Elev (ft)	Difference (ft)
McKay Creek	McKay	5754233	2 Year	167.02	166.84	-0.18
McKay Creek	McKay	5754233	100Year	170.13	170.05	-0.08
McKay Creek	McKay	5754189	2 Year	166.73	166.80	0.07
McKay Creek	McKay	5754189	100Year	169.92	170.02	0.10
McKay Creek	McKay	5754087	2 Year	166.70	166.78	0.08
McKay Creek	McKay	5754087	100Year	169.96	170.02	0.06
McKay Creek	McKay	5753646	2 Year	166.61	166.63	0.02
McKay Creek	McKay	5753646	100Year	169.87	169.88	0.01
McKay Creek	McKay	5752091	2 Year	166.16	166.16	0
McKay Creek	McKay	5752091	100Year	169.50	169.50	0

*NOTE: river stations shown per Clean Water Services HEC RAS Model – See Exhibit "F" for locations on-site.

For Additional reference Please see;

Exhibit "E" for the City of North Plains flood plain code.

Exhibit "F" for FEMA FIRM map information and pre and post developed design plans.

Exhibit "G" McKay Creek pre and post developed HEC RAS sections and overall Map locations along McKay Creek. This includes HEC RAS Spreadsheet breakdowns of the various sections pre and post developed sections and a print out of final earthwork quantities in the flood plain as performed in AutoCAD Civil 3D 2012.

Conclusions

- The conveyance system for the proposed McKay Fields – 33 Lot Subdivision will be sized to convey the peak 25-Year, 24-Hour storm as per Clean Water Services and City of North Plains stormwater design standards. This will be demonstrated through conveyance calculations to be included in Final Storm Drainage Report.
- Water Quality will be provided on-site per Clean Water Services and City of North Plains design standards.
- The existing flood plain and flood way flow characteristics will not be impacted from proposed construction. 100 year post development flood plain elevations will remain unchanged from those currently shown in the Clean Water Services flood plain model for future build-out conditions.
- The increase in stormwater runoff from the site will not adversely impact adjacent or downstream neighboring properties and has been factored into the post developed HEC RAS flood plain analysis.

Hydrologic Methodology

Appendix B - is the Soils Survey Information for the McKay Fields property, which includes the Hydrologic Soils Classification for the site as found in The USDA Soil Conservation Services "Soil Survey of Washington County". The majority of the soil on-site is classified as Woodburn Silt Loam, Hydrologic Soils Group 'C'.

Appendix B - are the SCS Runoff Curve Numbers as found in the Soil Conservation Services Manual "Urban Hydrology for Small Watersheds" (TR-55 Method). An SCS Curve Number of 74 was assumed for all pre-developed on-site pervious surfaces based on the assumption of pasture in good condition. An SCS Curve Number of 79 was assumed for all post-developed on-site pervious surfaces based on the assumption of lawns in fair condition. Lastly, An SCS Curve Number of 98 was assumed for all impervious surfaces.

Appendix D - The Santa Barbara Urban Hydrograph SCS-Type 1A Method was used to compute the tributary basins peak flows for the 2 - 25 Year, 24-Hour, design storm event. Precipitation for the storm events was taken from Clean Water Services standards.

Appendix D - Details the computer modeled water quality design as based on water quality flow criteria as detailed in the current CWS Design Manual and shown in Appendix "D" of this report.

Appendix E - City of North Plains flood plain code, FEMA FIRM map information, pre and post developed site and grading information.

Appendix G - HEC RAS 100 year pre and post developed cross section information for McKay Creek. Map with section station locations. Post-developed Earthwork Calculations in flood plain and performed in AutoCAD Civil 3D 2012.

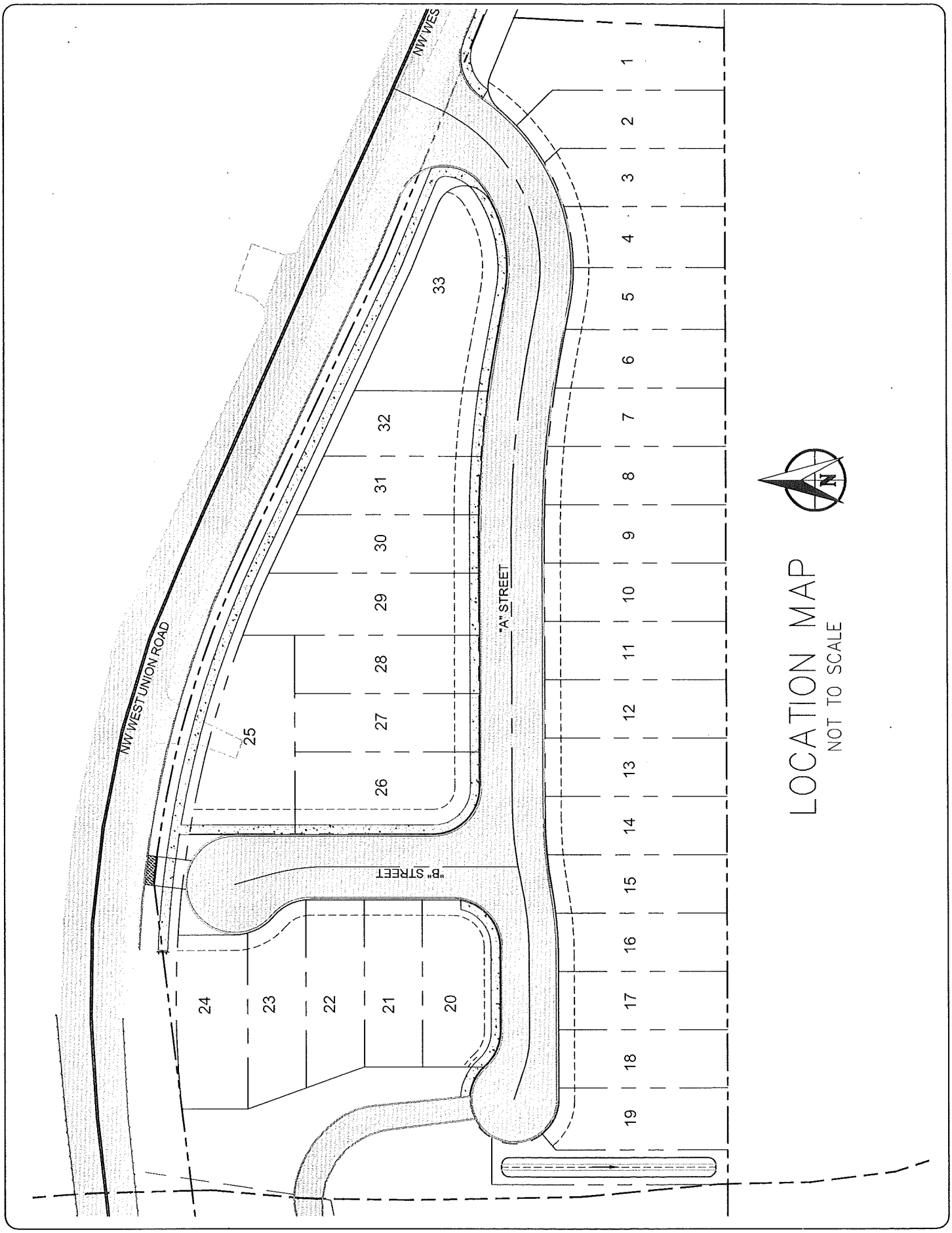
Appendix A:

Vicinity Map
Location Map
Existing Conditions Plan

VICINITY MAP
NOT TO SCALE

VERTICAL DATUM:

BENCHMARK: WACO BM 215
DATUM: WASHINGTON COUNTY
DESCRIPTION: 4" BRASS DISK SET IN NW QUADRANT OF SHADYBROOK AND GLENCOE ROAD.
ELEVATION: 176.49'


NW WES
NW WEST UNION ROAD
"A" STREET
"B" STREET
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
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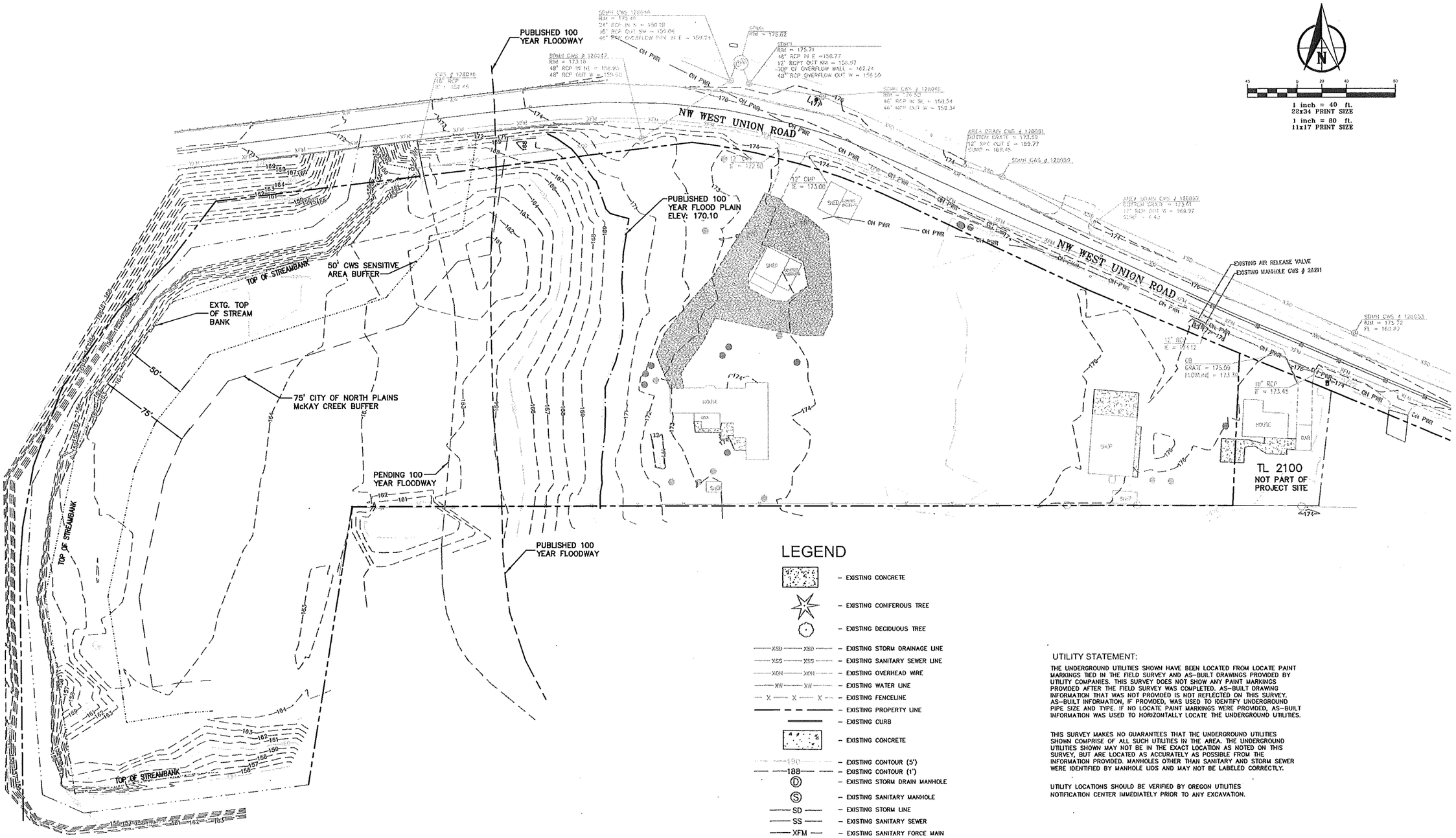
LOCATION MAP
NOT TO SCALE



LEGEND

- EXISTING CONCRETE
- EXISTING CONIFEROUS TREE
- EXISTING DECIDUOUS TREE
- EXISTING STORM DRAINAGE LINE
- EXISTING SANITARY SEWER LINE
- EXISTING OVERHEAD WIRE
- EXISTING WATER LINE
- EXISTING FENCELINE
- EXISTING PROPERTY LINE
- EXISTING CURB
- EXISTING CONCRETE
- EXISTING CONTOUR (5')
- EXISTING CONTOUR (1')
- EXISTING STORM DRAIN MANHOLE
- EXISTING SANITARY MANHOLE
- EXISTING STORM LINE
- EXISTING SANITARY SEWER
- EXISTING SANITARY FORCE MAIN

UTILITY STATEMENT:

THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM LOCATE PAINT MARKINGS TIED IN THE FIELD SURVEY AND AS-BUILT DRAWINGS PROVIDED BY UTILITY COMPANIES. THIS SURVEY DOES NOT SHOW ANY PAINT MARKINGS PROVIDED AFTER THE FIELD SURVEY WAS COMPLETED. AS-BUILT DRAWING INFORMATION THAT WAS NOT PROVIDED IS NOT REFLECTED ON THIS SURVEY. AS-BUILT INFORMATION, IF PROVIDED, WAS USED TO IDENTIFY UNDERGROUND PIPE SIZE AND TYPE. IF NO LOCATE PAINT MARKINGS WERE PROVIDED, AS-BUILT INFORMATION WAS USED TO HORIZONTALLY LOCATE THE UNDERGROUND UTILITIES.

THIS SURVEY MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE OF ALL SUCH UTILITIES IN THE AREA. THE UNDERGROUND UTILITIES SHOWN MAY NOT BE IN THE EXACT LOCATION AS NOTED ON THIS SURVEY, BUT ARE LOCATED AS ACCURATELY AS POSSIBLE FROM THE INFORMATION PROVIDED. MANHOLES OTHER THAN SANITARY AND STORM SEWER WERE IDENTIFIED BY MANHOLE LIDS AND MAY NOT BE LABELED CORRECTLY.

UTILITY LOCATIONS SHOULD BE VERIFIED BY OREGON UTILITIES NOTIFICATION CENTER IMMEDIATELY PRIOR TO ANY EXCAVATION.

KITTREDGE ENGINEERS, LLC
6565 SW 207TH AVENUE
ALOHA, OR 97007
TEL: (503) 708-3942

EXISTING CONDITIONS

McKAY FIELDS SUBDIVISION
DR HORTON
4380 SW MACADAM, SUITE 100 503-222-4151 EXT. 1115 – RYAN O'BRIEN

REGISTERED PROFESSIONAL ENGINEER
PRELIMINARY NOT FOR CONSTRUCTION
CHRISTOPHER P. KITTREDGE
RENEWAL 06/30/13

DATE:	3/19/2013
DRAWN BY:	CPK
PROJ. MGR:	CPK
CHECKED BY:	CPK
PROJECT NUMBER	DRH.001
CASE FILE NUMBER	N/A
SHEET NUMBER	DD2
OF	7

KittredgeC, Plotted: Mar 29, 2013 – 1:04pm, P:\McKay Fields – Ron Guillory\dwg\Planning\Sets\GUI.001 EX COND 02.dwg

Appendix B:

Soil Maps & Classification
Runoff Curve Number Designation

Soil Map—Washington County, Oregon
(McKay Fields Soil Types Map)

Hydrologic Soil Group

Hydrologic Soil Group— Summary by Map Unit — Washington County, Oregon (OR067)				
Map unit symbol	**Map unit name**	**Rating**	**Acres in AOI**	**Percent of AOI**
30	McBee silty clay loam	C	0.6	15.7%
45A	Woodburn silt loam, 0 to 3 percent slopes	C	2.2	55.5%
45B	Woodburn silt loam, 3 to 7 percent slopes	C	1.1	28.9%
Totals for Area of Interest			**3.9**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Table 2-2a Runoff curve numbers for urban areas [1]

Cover description: Cover type and hydrologic condition	Average percent impervious area [2]	Curve numbers for hydrologic soil group: A	B	C	D
Fully developed urban areas (vegetation established)					
Open space (lawns, parks, golf courses, cemeteries, etc.) [3]:					
Poor condition (grass cover < 50%)		68	79	86	89
Fair condition (grass cover 50% to 75%)		49	69	79	84
Good condition (grass cover > 75%)		39	61	74	80
Impervious areas:					
Paved parking lots, roofs, driveways, etc. (excluding right-of-way)		98	98	98	98
Streets and roads:					
Paved; curbs and storm sewers (excluding right-of-way)		98	98	98	98
Paved; open ditches (including right-of-way)		83	89	92	93
Gravel (including right-of-way)		76	85	89	91
Dirt (including right-of-way)		72	82	87	89
Western desert urban areas:					
Natural desert landscaping (pervious areas only) [4]		63	77	85	88
Artificial desert landscaping (impervious weed barrier, desert shrub with 1- to 2-inch sand or gravel mulch and basin borders)		96	96	96	96
Urban districts:					
Commercial and business	85	89	92	94	95
Industrial	72	81	88	91	93
Residential districts by average lot size:					
1/8 acre or less (town houses)	65	77	85	90	92
1/4 acre	38	61	75	83	87
1/3 acre	30	57	72	81	86
1/2 acre	25	54	70	80	85
1 acre	20	51	68	79	84
2 acres	12	46	65	77	82
Developing urban areas					
Newly graded areas (pervious areas only, no vegetation) [5]		77	86	91	94
Idle lands (CN's are determined using cover types similar to those in table 2-2c).					

POST DEVELOPED PERVIOUS AREAS

IMPERVIOUS AREAS

1 Average runoff condition, and $I_a = 0.2S$.

2 The average percent impervious area shown was used to develop the composite CN's. Other assumptions are as follows: impervious areas are directly connected to the drainage system, impervious areas have a CN of 98, and pervious areas are considered equivalent to open space in good hydrologic condition. CN's for other combinations of conditions may be computed using figure 2-3 or 2-4.

3 CN's shown are equivalent to those of pasture. Composite CN's may be computed for other combinations of open space cover type.

4 Composite CN's for natural desert landscaping should be computed using figures 2-3 or 2-4 based on the impervious area percentage (CN = 98) and the pervious area CN. The pervious area CN's are assumed equivalent to desert shrub in poor hydrologic condition.

5 Composite CN's to use for the design of temporary measures during grading and construction should be computed using figure 2-3 or 2-4 based on the degree of development (impervious area percentage) and the CN's for the newly graded pervious areas.

Table 2-2c Runoff curve numbers for other agricultural lands [1]

Cover description		Curve numbers for hydrologic soil group			
Cover type	Hydrologic condition	A	B	C	D
Pasture, grassland, or range—continuous forage for grazing. [2]	Poor	68	79	86	89
	Fair	49	69	79	84
	Good	39	61	74	80
Meadow—continuous grass, protected from grazing and generally mowed for hay.	—	30	58	71	78
Brush—brush-weed-grass mixture with brush the major element. [3]	Poor	48	67	77	83
	Fair	35	56	70	77
	Good	30 [4]	48	65	73
Woods—grass combination (orchard or tree farm). [5]	Poor	57	73	82	86
	Fair	43	65	76	82
	Good	32	58	72	79
Woods. [6]	Poor	45	66	77	83
	Fair	36	60	73	79
	Good	30 [4]	55	70	77
Farmsteads—buildings, lanes, driveways, and surrounding lots.	—	59	74	82	86

Predeveloped pervious AREAS

1 Average runoff condition, and $I_a = 0.2S$.
2 *Poor:* <50%) ground cover or heavily grazed with no mulch.
Fair: 50 to 75% ground cover and not heavily grazed.
Good: > 75% ground cover and lightly or only occasionally grazed.
3 *Poor:* <50% ground cover.
Fair: 50 to 75% ground cover.
Good: >75% ground cover.
4 Actual curve number is less than 30; use CN = 30 for runoff computations.
5 CN's shown were computed for areas with 50% woods and 50% grass (pasture) cover. Other combinations of conditions may be computed from the CN's for woods and pasture.
6 *Poor:* Forest litter, small trees, and brush are destroyed by heavy grazing or regular burning.
Fair: Woods are grazed but not burned, and some forest litter covers the soil.
Good: Woods are protected from grazing, and litter and brush adequately cover the soil.

Appendix C:

Clean Water Services
Runoff Treatment
Control Standards

* SEE PAGE 11 FOR WQ FLOW CALCULATIONS

Chapter 4

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Chapter 4

RUNOFF TREATMENT AND CONTROL

4.01 General Provisions

a. The provisions of this chapter shall apply to all development projects within District and City jurisdiction. Interpretations of such provisions and their application in specific circumstances shall be made by the District and City.

b. Any City operating a local program may adopt stricter design specifications within its jurisdiction than the specifications stated in this chapter.

c. Where District and City standards conflict, the District's standards shall apply.

4.02 General Requirements for Water Quantity and Quality Facilities

4.02.1 Erosion Protection

a. Inlets to water quality and quantity facilities shall be protected from erosive flows through the use of an energy dissipater or rip rap stilling basin of appropriate size based on flow velocities. Flow shall be evenly distributed across the treatment area.

b. All exposed areas of water quality and quantity facilities shall be protected using coconut or jute matting. Coconut matting or high density jute matting (Geojute Plus or approved equal) shall be used in the treatment area of swales and below the water quality volume levels of ponds. Low density jute matting (Econojute or approved equal) may be used on all other zones.

4.02.2 Vegetation

a. Except as specified in section 4.07, vegetation shall be in accordance with Appendix A: Planting Requirements.

b. No invasive species shall be planted or permitted to remain within a facility which may affect its function, including, but not limited to the following:

1. Himalayan blackberry (Rubus discolor)
2. Reed canarygrass (Phalaris arundinacea)
3. Teasel (Dipsacus fullonum)
4. English Ivy (Hedra helix)
5. Nightshade (Solanum sp.)
6. Clematis (Clematis ligusticifolia and C. vitabla)
7. Cattail (Typhus latifolia)

8. Thistle (Cirsium arvense and C. vulgare)
9. Scotch Broom (Cytisus scoparius)

4.02.3 Fencing

a. Unless otherwise approved by the District or City, delineation fencing shall be required around facilities and/or tracts containing facilities. The fence shall be 4-foot high, vinyl-clad chain link fence conforming to CWS Standard Drawing No. 740.

b. When a facility is fenced, the fence shall include a 12-foot wide lockable gate for maintenance access conforming to CWS Standard Drawing No. 740.

c. If a facility is located adjacent to a Vegetated Corridor, wildlife friendly fencing shall be utilized.

4.02.4 Access

a. General Access Requirement

Access roads shall be provided for maintenance of all water quality and quantity facilities. The following criteria are considered to be the minimum required for facilities maintained by the District or Cities. Other permitting jurisdictions may have more restrictive requirements. If the design Engineer anticipates that any of the requirements will not be met due to the configuration of the proposed development, the design Engineer is advised to meet with District or City staff to gain approval for the deviation prior to submittal.

b. Standard Road Design

1. The road section shall be three (3) inches of class "C" asphaltic concrete; over two (2) inches of ¾"-0" compacted crushed rock; over six (6) inches of 1½"-0" compacted crushed rock; over subgrade compacted to 95-percent AASHTO T-99; or, the design Engineer may submit an alternate design certified as capable of supporting a 30-ton maintenance vehicle in all weather conditions.

2. Strengthened sidewalk sections shall be used where maintenance vehicles will cross.

3. Maximum grade shall be 10-percent with a maximum 3-percent cross-slope.

4. Minimum width shall be 12 feet on straight runs and 15 feet on curves.

5. Curves shall have a minimum 40-foot interior radius.

6. Access shall extend to within 10-feet of the center of all structures unless otherwise approved by the District or City.

7. The District or City may require a curb or other delineator at the edge of the road for drainage, a curb stop, or to demarcate the road where the road edge is not apparent.

8. The side slope for road embankments shall be 2H:1V or flatter.

9. A vehicle turnaround shall be provided when the access road exceeds 40' in length.

c. Alternate Access Road

An alternate access road design meeting the requirements of this section may be approved by the District or City for facilities in which access is required for general maintenance and long term care of the facility, but where there is no structure, as determined by the District or City, requiring regular maintenance.

1. The road section shall meet the requirements of 4.02.4(b)(1) or an alternate section certified as capable of supporting AASHTO HS-20 loading.

2. As an alternative to the requirements of 4.02.4(c)(1)), a concrete grid paver surface may be constructed by removing all unsuitable material, laying a geotextile fabric over the native soil, placing pavers, filling the honeycombs/grids with soil, and planting appropriate grasses.

3. Strengthened sidewalk sections shall be required where maintenance vehicles will cross.

4. Maximum grade shall be 20-percent with a maximum 3-percent cross-slope.

5. Minimum finished width shall be 12 feet.

6. The District or City may require a curb or other delineator at the edge of the road for drainage, a curb stop, or to demarcate the road where the road edge is not apparent.

7. The side slope for road embankments shall be 2H:1V or flatter.

8. A vehicle turnaround shall be provided when the access road exceed 40' in length.

4.02.5 Maintenance Responsibilities

a. Unless otherwise approved by the District, newly constructed water quality or quantity facilities serving multiple parcels or public roads shall be publicly maintained.

b. Publicly maintained water quality or quantity facilities shall be covered by a surface and stormwater management easement dedicated to the District or City. The District or City shall also be granted an access easement to maintain the facility. The District will typically not own the land the facility is on.

c. Unless otherwise approved by the District or City, development creating multiple parcels intended for separate ownership shall enclose the publicly maintained water quality and quantity facilities in a tract.

4.03 Water Quantity Control Requirements

4.03.1 Mitigation Requirement for Quantity

Each new development shall incorporate techniques for mitigating its impacts on the public stormwater system in accordance with Section 5.05. The District or City shall determine which of the following techniques may be used to satisfy this mitigation requirement.

a. Construction of permanent on-site stormwater quantity detention facilities designed in accordance with this chapter; or

b. Enlargement or improvement of the downstream conveyance system in accordance with this chapter and Chapter 5;
or

c. Payment of a Storm and Surface Water Management System Development Charge (SWM SDC), as provided in CWS Ordinance 28, which includes a water quantity component to meet these requirements.

4.03.2 Criteria for Requiring On-Site Detention

a. If District or City requires that an on-site detention facility be constructed, the development shall be eligible for a credit against SWM SDC fees, as provided in District Ordinance and Rules.

b. On-site facilities shall be constructed when any of the following conditions exist:

1. There is an identified downstream deficiency, and the District or City determines that detention rather than conveyance system enlargement is the more effective solution.

2. There is an identified regional detention site within the boundary of the development.

3. Water quantity facilities are required by District-adopted watershed management plans or adopted subbasin master plans.

4.03.3 Hydraulic Design Criteria

a. Detention design shall be assessed by dynamic flow routing through the basin. Documentation of the proposed design shall be included in the drainage report. Acceptable analysis programs include those listed below, as well as others using the SBUH or TR-55 methodology, provided the considerations outlined in Section 5.04.2 are followed.

   1. HYD
   3. HEC-1
   4. HEC-HMS
   5. SWMM
   6. HYDRA
   7. Others as approved by the District

b. Peak runoff rates shall not exceed pre-development rates for the specific range of storms, per Subsection 4.03.4(b).

c. A pond overflow system shall provide for discharge of the design storm event without overtopping the pond embankment or exceeding the capacity of the emergency spillway.

d. Provide an emergency spillway sized to pass the 100-year storm event or an approved hydraulic equivalent. Emergency spillway shall be located in existing soils when feasible and armored with riprap or other approved erosion protection extending to the toe of the embankment.

4.03.4 Other Requirements

a. All water quantity facilities shall be designed in accordance with District guidance documents and be consistent with this Chapter.

b. When required, stormwater quantity on-site detention facilities shall be designed to capture runoff so the post-development runoff rates from the site do not exceed the pre-development runoff rates from the site, based on 24-hour storm events ranging from the 2-year return storm to the 25-year

return storm. Specifically, the 2, 10, and 25-year post-development runoff rates will not exceed their respective 2, 10, and 25-year pre-development runoff rates; unless other criteria are identified in an adopted watershed management plan or subbasin master plan.

c. When required because of an identified downstream deficiency, stormwater quantity on-site detention facilities shall be designed such that the peak runoff rates will not exceed pre-development rates for the specific range of storms where the downstream deficiency is evident.

d. Construction of on-site detention shall not be allowed as an option if such a detention facility would have an adverse effect upon receiving waters in the basin or subbasin in the event of flooding, or would increase the likelihood or severity of flooding problems downstream of the site.

e. Low impact development approaches, designed in accordance with this Chapter, can be utilized to meet all or part of any detention requirements on a site.

4.04 Water Quantity Facility Design Standards

4.04.1 Facility Design Criteria

a. The facility can be a combined water quality and quantity facility provided it meets all relevant criteria.

b. Interior side slopes up to the Maximum Water Surface: 3H:1V or flatter.

c. If interior slopes need to be mowed side slope: 4H:1V or flatter.

d. Exterior Side Slopes: 2H:1V or flatter, unless analyzed for stability by a geotechnical engineer.

e. Minimum Freeboard: 1-foot from 25-year design water surface elevation.

f. Provide an approved outlet structure for all flows.

g. Certain situations require use of multiple orifice plates to achieve desired outflow rates.

4.04.2 Walls in Water Quantity Facilities

a. Retaining walls may serve as pond walls if the design is prepared and stamped by a registered professional engineer and a fence is provided along the top of the wall. At least 25% of the pond perimeter shall be vegetated to a side slope of 3H:1V or flatter.

b. Walls that are 4 feet or higher shall meet all of the following criteria:

1. Be approved by a licensed structural or geotechnical engineer;

2. The District shall not have maintenance responsibility for the wall. The party responsible for maintenance of the walls within the water quantity tract or easement shall be clearly documented on the plat or in alternate form as approved by the District.

4.05 Water Quality Treatment Requirements

4.05.1 General

Owners of new development and other activities which create new impervious surfaces or increase the amount of stormwater runoff or pollution leaving the site are required to construct or fund permanent water quality facilities to reduce contaminants entering the storm and surface water system.

4.05.2 Criteria for Requiring Construction of a Water Quality Facility

a. A water quality facility shall be constructed on-site unless, in the judgment of the District or City, any of the following conditions exist:

1. The site topography or soils makes it impractical, or ineffective to construct an on-site facility;

2. The site is small, and the loss of area for the on-site facility would preclude the effective development.

3. There is a more efficient and effective regional site within the subbasin that was designed to incorporate the development or is in the near vicinity with the capacity to treat the site.

4. The development is for the construction of one or two family (duplex) dwellings on an existing lot of record.

b. If construction of an onsite facility is not required as a result of meeting conditions outlined in Section 4.05.2 (a) (1)-(3), the Owner of the development shall pay a System Development Charge In-Lieu of Construction of On-Site Facilities in accordance with District Rules and

Regulations. This charge shall be calculated on an equivalent basis of constructing the minimum Standard Water Quality Swale. This In-Lieu fee shall not apply to single-family residential partitions.

4.05.3 Required Treatment Design Efficiency

a. Stormwater quality facilities shall be designed to remove 65 percent of the total phosphorous from the runoff from the impervious area that is tributary to the facility.

b. The phosphorous removal efficiency specifies only the design requirements and is not intended as a basis for performance evaluation or compliance determination of the stormwater quality control facility installed or constructed pursuant to this Chapter.

c. The following alternative approaches are available for meeting the treatment design efficiency standard in this section:

1. Pretreatment as specified in section 4.05.7 in combination with one of the following facilities:
   A) Vegetated Swale
   B) Extended Dry Basin
   C) Constructed Water Quality Wetland

2. Proprietary treatment systems meeting the requirements of section 4.05.8

3. Low impact development approaches that can be demonstrated, to the satisfaction of the District, to meet the removal efficiency standard in this section.

4.05.4 Design Considerations

a. If an onsite water quality facility cannot be constructed to treat the runoff from the development's impervious surface, then with District or City approval, an on- or off-site water quality facility may be designed to treat runoff from an equivalent area of adjacent untreated impervious surfaces.

b. Facilities shall be designed such that flow from the development is treated off-line from the storm conveyance system and reconnected to upstream flows following treatment. If an off-line facility is not feasible, additional capacity may be required for upstream flow.

c. Discharges to sensitive areas shall maintain the hydro period and flows of pre-development site conditions to the extent necessary to protect the characteristic functions of the sensitive area. Conversely, discharge of flows that may be critical to downstream water quality sensitive areas into

other catchments will not be permitted unless addressed in the applicant's Service Provider Letter.

d. The stormwater quality facilities shall be designed for a dry weather storm event totaling 0.36 inches of precipitation falling in 4 hours with an average storm return period of 96 hours.

e. All water quality facilities shall be designed in accordance with this Chapter.

4.05.5 Impervious Area Used In Design

a. For single family and duplex residential subdivisions, stormwater quality facilities shall be sized for all impervious area created by the subdivision and for all existing impervious area proposed to remain on site, including all existing and proposed residences on individual lots at the rate of 2640-square feet of impervious surface area per dwelling unit. For the purpose of design calculations, the actual impervious surface can be utilized as an alternative to 2640 square feet per dwelling unit when the average lot size on a single-family residential project is less than 2000 sq.ft.

b. Except as noted in subsection (d) below, for all developments other than single family and duplex, including row houses and condominiums, the sizing of stormwater quality facilities shall be based on the impervious area created by the development and for all existing impervious area proposed to remain on site, including structures and all roads and impervious areas. Impervious areas shall be determined based upon building permits, construction plans, or other appropriate methods of measurement deemed reliable by District and/or City.

c. The impervious area used in design shall be modified in accordance with subsection 4.07 when approved low impact development approaches are utilized.

d. For redevelopment sites, the impervious area used to design water quality facilities shall be based on Table 4-1.

TABLE 4-1
IMPERVIOUS AREA REQUIRING TREATMENT
ON REDEVELOPMENT SITES

Existing Impervious Area on Site	Existing Impervious Area Disturbed by Redevelopment	Impervious Area Required to Treat
< 5,280 sq.ft.	≤ 100%	No new treatment required
≥ 5,280 sq.ft. and < 0.5 acres	< 1,000 sq.ft.	No new treatment required
	≥ 1,000 sq.ft.	100% of impervious area
≥ 0.5 acres and < 5 acres	< 1,000 sq.ft.	No new treatment required
	≥1000 sq.ft. and < 25%	Disturbed impervious area + 25% of undisturbed impervious area
	≥ 25% and < 50%	Disturbed impervious area + 50% of undisturbed impervious area
	≥ 50%	100% of impervious area
≥ 5 acres	< 1,000 sq.ft.	No new treatment required
	≥1000 sq.ft. and < 50%	Disturbed impervious area + 50% of undisturbed impervious area
	≥ 50%	100% of impervious area

4.05.6 Water Quality Volumes and Flows

a. Water Quality Storm
The water quality storm is the storm required by regulations to be treated. The storm defines both the volume and rate of runoff. The water quality storm is defined in subsection 4.05.4 (d).

b. Water Quality Volume (WQV)
The WQV is the volume of water that is produced by the water quality storm. The WQV equals 0.36 inches over the impervious area that is required to be treated as shown in the formula below:

$$\text{Water Quality Volume (cu.ft)} = \frac{0.36\ \text{(in.)} \times \text{Area (sq.ft.)}}{12\ \text{(in./ft.)}}$$

c. Water Quality Flow (WQF)
The WQF is the average design flow anticipated from the water quality storm as shown in the formulas below:

$$\text{Water Quality Flow (cfs)} = \frac{\text{Water Quality Volume (cu.ft.)}}{14{,}400\ \text{seconds}}$$

or

$$\text{Water Quality Flow (cfs)} = \frac{0.36\ (\text{in.}) \times \text{Area (sq.ft.)}}{12(\text{in/ft})(4\ \text{hr})(60\ \text{min/hr})(60\ \text{sec/min})}$$

4.05.7 Pretreatment

a. Pretreatment Required

Unless approved by the District, sheet flow of impervious surfaces into water quality facilities shall not be allowed without pretreatment. Incoming flows to the water quality facility shall be pretreated using a water quality manhole in accordance with subsection 4.06.1 or other pre-treatment method as approved by the District or City. Other methods of pretreatment may include proprietary devices, filter strip, trapped catch basin, or other methods as approved by the District or City.

b. Proprietary Pre-Treatment Devices

1. The use of proprietary pre-treatment devices shall be permitted on a case by case basis with approval by the District or City.

2. The devices will be sized in accordance with the manufacturer's recommendations; however, the minimum treatment flow must be the water quality flow.

3. Technical submittals from the manufacturer are required, including hydraulic design criteria, particulate removal efficiency, and maintenance requirements and schedule.

4.05.8 Proprietary Treatment Systems

a. Proprietary treatment systems shall meet the removal efficiency requirement defined in section 4.05.3(a) and be approved by the District for use in the situations identified in subsection (c) below.

b. Maintenance
   1. Proprietary treatment systems shall be maintained by the District or Cities except those systems used in the situations specified in section 4.05.8(c)(1) and (2) below.
   2. Proprietary systems require a long-term maintenance plan identifying maintenance techniques, schedule, and responsible parties. This maintenance plan shall be submitted and approved with the drainage report for a project.

c. Proprietary treatment systems shall be allowed in situations meeting one

of the following criteria:

1. Treatment of runoff from a single parcel.
2. Treatment of runoff from an adjoining commercial, industrial, or multi-family, or condominium parcels which share a common parking lot.
3. Treatment of runoff from new and expanded collector and arterial roadways where no other opportunities exist for treatment without necessitating the removal of homes or businesses.
4. Treatment of runoff from new developments in transit-oriented or similar high-density zoning classifications where the development is primarily single-family residential and the average lot size is less than 2500 square feet.
5. Treatment of runoff as part of a master planned regional facility approved by the District.

4.06 Water Quality Facility Design Standards

4.06.1 Water Quality Manholes

a. Hydraulic Criteria:

1. Minimum Design Flow: Water Quality Flow
2. Upstream flow splitter may be used to bypass conveyance flows in excess of the Water Quality flow.

b. Design Criteria:

1. Shall conform to CWS Standard Drawing No. 250 or an equivalent detail approved by the District or City.
2. Minimum Manhole Diameter: 60-inch
3. Maximum size of incoming pipe: 18-inch
4. Sump Depth: No deeper than 5 feet from invert out to bottom of sump
5. Volume of sump: 20 cubic feet/ 1.0 cfs of flow into the water quality manhole, up to the 25-year flow. Flow calculations shall include the effect of an upstream flow splitter.
6. Maintain a 3-foot clear access zone between the inside structure.
7. Orient access to structure in a clear zone.

4.06.2 Vegetated Swale

a. Hydraulic Design Criteria

1. Design Flow: Water Quality Flow
2. Minimum Hydraulic Residence Time: 9 minutes
3. Maximum Water Design Depth: 0.5 feet
4. Minimum Freeboard: 1.0 foot (for facilities not protected from

high flows)

5. Manning "n" Value: 0.24
6. Maximum Velocity: 2.0 fps based on 25-year flow

b. Design Criteria

1. Provide an energy dissipater at the entrance to swale, with a minimum length of 4 feet. It will be designed to reduce velocities and spread the flow across the treatment cross section.
2. The use of intermediate flow spreaders may be required.
3. Minimum Length: 100 feet
4. Minimum Slope: 0.5%
5. Minimum Bottom Width: 2 feet
6. Maximum Treatment Depth (measured from top of gravel): 0.5 feet
7. Side Slope:
   A) In Treatment Area: 4H:1V or flatter
   B) Above Treatment Area: 2.5H:1V or flatter
8. The treatment area shall have 2"-¾" river run rock placed 2.5 to 3 inches deep on high density jute or coconut matting over 12 inches of topsoil or base stabilization method as approved by the District or City. Extend river rock, topsoil, and high density jute or coconut matting to top of treatment area (or WQV level). Extend topsoil and low density jute matting to the edge of water quality tract or easement area.
9. Provide an approved outlet structure for all flows.
10. Where swales wrap 180-degrees forming parallel channels, freeboard shall be provided between each of the parallel channels. A 1-foot (above ground surface) wall may be used above the treatment area to provide freeboard while enabling a narrower system. As an alternative, a soil-based berm may be used. The berm shall have a minimum top width of 1 foot and 2.5H:1V or flatter side slopes.
11. Where swales are designed with ditch inlets and outlet structures and design of maintenance access to such structures may be difficult due to swale location, swales may be designed as flow-through facilities with unsumped structures. Maintenance access to one end of the facility will still be required.

4.06.3 Extended Dry Basin

a. Hydraulic Design Criteria:

1. Permanent Pool Depth: 0.4 feet
2. Permanent pool is to cover the entire bottom of the basin.
3. Minimum Water Quality Detention Volume: 1.0 x Water Quality Volume (WQV)
4. Water Quality Drawdown Time: 48 hours

5. Orifice Size:
USE: $D = 24 * [(Q/ (C[2gH]^{0.5}) / \pi]^{0.5}$
Where:
D (in) = diameter of orifice
Q(cfs) = WQV(cf) /(48*60*60)
C = 0.62
H(ft) = 2/3 x temporary detention height to centerline of orifice.
6. Maximum Depth of Water Quality Pool (not including Permanent Pool): 4-feet or as limited by issuing jurisdiction.

b. Design Criteria:

1. Minimum of 2 cells, with the first cell (forebay) at least 10% of surface area. The forebay shall also constitute 20-percent of the treatment volume. Where space limits multi-cell design, use one cell with a forebay at the inlet to settle sediments and distribute flow across the wet pond.
2. Inlet and outlet structures shall be designed to avoid direct flow between structures without receiving treatment (i.e. short circuiting of flow).
3. Minimum Bottom Width: 4 feet
4. Side Slopes in Basin Treatment Area: 3H:1V
5. Minimum Freeboard: 1-foot from 25-year design water surface elevation.
6. The treatment area shall have high density jute or coconut matting over 12 inches of topsoil or base stabilization method as approved by the District or City. If required by the District or City, 2"-¾" river run rock shall be placed 2.5 to 3 inches deep in areas where sustained flow is anticipated to occur. Extend river rock (if required), topsoil, and high density jute or coconut matting to top of treatment area (or WQV level). Extend topsoil and low density jute matting to the edge of water quality tract or easement area.
7. Provide an approved outlet structure for all flows.
8. The Engineer shall certify that the pond storm sewer design is in compliance with Chapter 5 of this Resolution and Order and that at normal design water surface that the upstream storm sewer will not be in a surcharged condition for longer than 24 hours

4.06.4 Constructed Water Quality Wetland

a. Hydraulic Design Criteria:

1. Permanent Pool Volume: 0.55 x Water Quality Volume (WQV)
2. Water Quality Detention Volume: 1.0 x Water Quality Volume (WQV)
3. Water Quality Drawdown Time: 48 hours
4. Orifice Size:

USE: $D = 24 * [(Q/ (C[2gH]^{0.5}) / \pi]^{0.5}$
Where:
D (in) = diameter of orifice
Q(cfs) = WQV(cf) /(48*60*60)
C = 0.62
H(ft) = 2/3 x temporary detention height to centerline of orifice.

5. Maximum Depth of Permanent Pool: 2.5-feet or as limited by issuing jurisdiction
6. Maximum velocity through the wetland should average less than 0.01-fps for the water quality flow. Design should distribute flows uniformly across the wetland.
7. Provide for a basin de-watering system with a 24-hour maximum drawdown time.

b. Design Criteria:

1. Minimum of 2 cells, with the first cell (forebay) at least 10% of surface area. The forebay shall also constitute 20-percent of the treatment volume. Where space limits multi-cell design, use one cell with a forebay at the inlet to settle sediments and distribute flow across the wet pond.
2. Permanent pool depth to be spatially varied throughout wetland.
3. Provide a perimeter zone 10 to 20-feet wide, which is inundated during storm events.
4. Side Slopes for Wetland Planting: 5H:1V or flatter
5. Side Slopes for Non-Wetland Planting: 3H:1V or flatter
6. Over-excavate by a minimum of 20-percent to allow for sediment deposition.
7. Minimum Freeboard: 1-foot from 25-year design water surface elevation.
8. Provide an approved outlet structure for all flows.

4.06.5 Walls in Water Quality Facilities

a. Walls are not allowed in the treatment areas of any water quality facility.

b. Walls that are 4 feet or higher or that are periodically inundated shall meet all of the following criteria:

1. Be approved by a licensed structural or geotechnical engineer.

2. The District shall not have maintenance responsibility for the wall. The party responsible for maintenance of the walls within the tract shall be clearly documented on the plat or in alternate form as approved by the District.

4.07 Low Impact Development Approaches (LIDA)

4.07.1 Purpose

The advantages of LIDA continue to be documented for providing pollutant reduction associated with urban development. Generally, the first priority for LIDA is to minimize stormwater runoff generated from urban development to reduce hydrologic impacts.

Low impact development approaches can offer greater flexibility for the overall use of space on a site, potentially eliminating the need to construct a separate stormwater treatment facility.

Selection of appropriate LIDA, including surface infiltration, should ensure there are no adverse downstream drainage impacts and an appropriate maintenance program can be developed to sustain the functionality of the LIDA.

4.07.2 LIDA Design Considerations

a. LIDA may be used in combination or with standard water quantity and quality facilities to meet the requirements of this Chapter.

b. The applicant shall provide an analysis in the drainage report of the ability of any proposed LIDA to meet the water quantity and quality requirements for a project.

c. LIDA shall be approved on a case by case basis by the District based on their ability to meet the requirements of these rules.

d. Approval of use of an LIDA by the District does not eliminate the need for the applicant to secure approval from other appropriate agencies for use of LIDA on their project.

4.07.3 LIDA Approvable by the District

a. Table 4-2 shows the LIDA the District may approve to meet the requirements of this chapter. The table shows where LIDA can be used in a publicly maintained system and whether LIDA can be designed to meet the quality or quantity requirements of the Chapter. The descriptions provided are general and designers should consult the District's LIDA Handbook for more specific design considerations.

b. Where the impervious area to be treated by an LIDA is less than 15,000 square feet, the Sizing Factor shall be used to calculate the required surface area of the selected LIDA. For impervious areas greater than

15,000 square feet, a specific design for the site shall be required. The Sizing Factor does not apply to quantity control. LIDA used for quantity control shall require a specific design for a site.

c. LIDA not included in Table 4-2 may be approved by the District if the applicant can demonstrate that the LIDA can meet the requirements of this Chapter.

d. LIDA require a long-term maintenance plan identifying maintenance techniques, schedule, and responsible parties. This requirement shall be noted in a maintenance plan and a maintenance agreement shall be submitted and approved with the drainage report for a project.

TABLE 4-2
APPROVABLE LOW IMPACT DEVELOPMENT APPROACHES

LID	Description	Public Systems	Quantity Control	Quality Control	Sizing Factor/ Restrictions
Porous Pavement	Pourous pavement is a water permeable structural ground cover which infiltrate precipitation, attenuates stormwater runoff flows and volumes, and reduces temperature. Pervious concrete and asphalt resemble their solid pavement counterparts, but have more void spaces that allow water to pass through. Pervious pavers are typically made of pre-cast concrete, brick, stone, or cobbles and set to allow water to flow between them.	No	Yes	No	1:1 impervious area deduction
Green Roof	A green roof (or ecoroof) is a vegetated roof system with waterproofing material, drainage, growing medium, and specially selected plants. A green roof can be used to reduce site impervious area and manage stormwater runoff. Green roofs also help mitigate runoff temperatures by keeping roofs cool and retaining most of the runoff in dry seasons. The design must be low maintenance and use irrigation only to sustain the health of vegetation. Building Official approval is required for installation of eco-roofs and roof gardens.	No	No	Yes	1:1 impervious area deduction
Infiltration Planters/Rain Gardens	Infiltration planters or rain gardens are landscaped reservoirs used to collect, filter, and infiltrate stormwater runoff, allowing pollutants to settle and filter out as the water percolates through the planter soil and infiltrates into the ground. Depending on the site, infiltration planters can be constructed with or without walls to contain the facility.	Yes	Yes	Yes	0.06 Min. Width: 30in Max. Slope 0.5%

LID	Description	Public Systems	Quantity Control	Quality Control	Sizing Factor/ Restrictions
Flow-through Planters	Flow-through planters are landscaped reservoirs that collect and filterstormwater runoff, allowing pollutants to settle and filter out as the water percolates through the planter soil until flowing through to an approved conveyance. These are appropriate where soils do not drain well or there are site constraints. Depending on the site, flow-through planters can be constructed with or without walls to contain the facility.	Yes	No	Yes	0.06 Min. Width: 30in Max. Slope 0.5%
LIDA Swales	LIDA swales are narrow, gently sloping depressions planted with dense vegetation or grasses designed to receive, filter, and infiltrate the runoff, allowing pollutants to settle and filter out as the water percolates through the swale soil and infiltrate into the ground. Swales can include check dams to help slow and detain the flow.	Yes	No	Yes	0.06 Min. Bottom Width: 2ft Slope 0.5% to 6.0%
Vegetated Filter Strips	Vegetated filter strips, are gently sloping areas designed to receive sheet flow from adjacent impervious surfaces. Vegetated filter strips are vegetated with grasses and groundcovers that filter and reduce the velocity of stormwater.	Yes	No	Yes	0.06 Min. Width: 5ft Slope: 0.5% to 6.0%

4.07.4 Small Developments and LIDA

For development or redevelopment projects with overall site area less than 1 acre, no additional stormwater treatment is required when all the following conditions are met:

a. At least 75% of the post-development impervious area shall be treated with LIDA providing water quality treatment; and

b. An increased level of erosion control, as identified by the District, shall be used during construction; and

c. The site is vacuumed prior to acceptance by the District, if appropriate for the LIDA utilized.

Appendix D:

- CWS Rainfall Intensities
- On and Off-Site Basin Maps and HydroCAD Modeling Calculations for the 2 – 25 Year Storm Events.
- Time of Concentration Calcs (Quick Eng. Software) & Map
- Water Quality Swale Calcs – Civil Tools.

24-HOUR RAINFALL DEPTHS

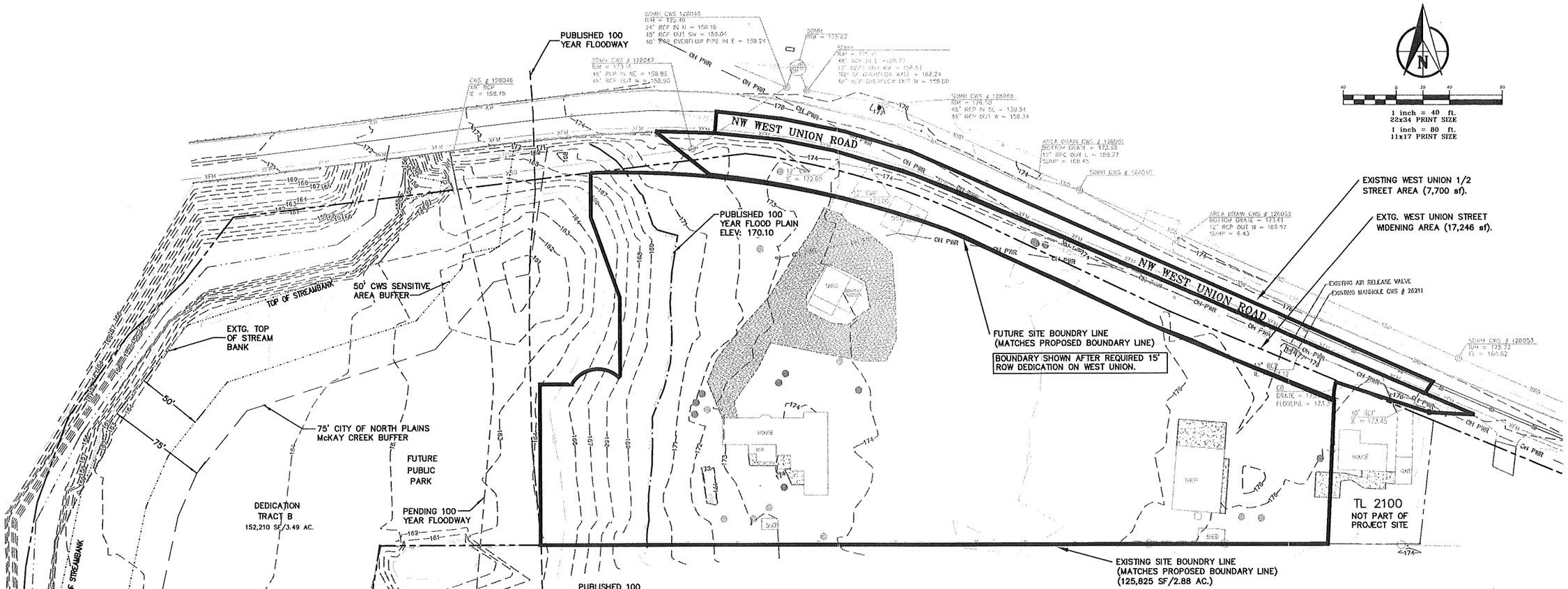
RECURRENCE INTERVAL (YEARS)	TOTAL PRECIPITATION DEPTH (INCHES)
2	2.50
5	3.10
10	3.45
25	3.90
50	4.20
100	4.50

24-HOUR RAINFALL DEPTHS

DRAWING NO. 1280

REVISED 12-06

Clean Water Services
Our commitment is clear.



LEGEND

- EXISTING CONCRETE
- EXISTING CONIFEROUS TREE
- EXISTING DECIDUOUS TREE
- EXISTING STORM DRAINAGE LINE
- EXISTING SANITARY SEWER LINE
- EXISTING OVERHEAD WIRE
- EXISTING WATER LINE
- EXISTING FENCELINE
- EXISTING PROPERTY LINE
- EXISTING CURB
- EXISTING CONCRETE
- EXISTING CONTOUR (5')
- EXISTING CONTOUR (1')
- EXISTING STORM DRAIN MANHOLE
- EXISTING SANITARY MANHOLE
- EXISTING STORM LINE
- EXISTING SANITARY SEWER
- EXISTING SANITARY FORCE MAIN

UTILITY STATEMENT:

THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM LOCATE PAINT MARKINGS TIED IN THE FIELD SURVEY AND AS-BUILT DRAWINGS PROVIDED BY UTILITY COMPANIES. THIS SURVEY DOES NOT SHOW ANY PAINT MARKINGS PROVIDED AFTER THE FIELD SURVEY WAS COMPLETED. AS-BUILT DRAWING INFORMATION THAT WAS NOT PROVIDED IS NOT REFLECTED ON THIS SURVEY. AS-BUILT INFORMATION, IF PROVIDED, WAS USED TO IDENTIFY UNDERGROUND PIPE SIZE AND TYPE. IF NO LOCATE PAINT MARKINGS WERE PROVIDED, AS-BUILT INFORMATION WAS USED TO HORIZONTALLY LOCATE THE UNDERGROUND UTILITIES.

THIS SURVEY MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE OF ALL SUCH UTILITIES IN THE AREA. THE UNDERGROUND UTILITIES SHOWN MAY NOT BE IN THE EXACT LOCATION AS NOTED ON THIS SURVEY, BUT ARE LOCATED AS ACCURATELY AS POSSIBLE FROM THE INFORMATION PROVIDED. MANHOLES OTHER THAN SANITARY AND STORM SEWER WERE IDENTIFIED BY MANHOLE IDS AND MAY NOT BE LABELED CORRECTLY.

UTILITY LOCATIONS SHOULD BE VERIFIED BY OREGON UTILITIES NOTIFICATION CENTER IMMEDIATELY PRIOR TO ANY EXCAVATION.

PRE-DEVELOPED BASIN INFORMATION

TOTAL ON-SITE AREA = 125,825 SF/2.88 AC. (EXCLUDES TRACT B)
TOTAL IMPERVIOUS ON-SITE = 7,700 SF/0.18 AC.
TOTAL PERVIOUS AREA ON-SITE = 118,125 SF/2.70 AC.

TOTAL IMPERVIOUS OFF-SITE = 7,690 SF/0.18 AC. (EXTG. WEST UNION 1/2 STREET)
TOTAL PERVIOUS AREA OFF-SITE = 17,246 SF/0.40 AC. (WEST UNION - FUTURE)

TOTAL SITE AREA = 141,909 SF/3.46 AC. (EXCLUDES TRACT B)
TOTAL IMPERVIOUS SITE AREA = 15,390 SF/0.35 AC.
TOTAL PERVIOUS SITE AREA = 135,471 SF/3.11 AC.

(INCLUDES ON-SITE AREA AND WEST UNION AREAS)

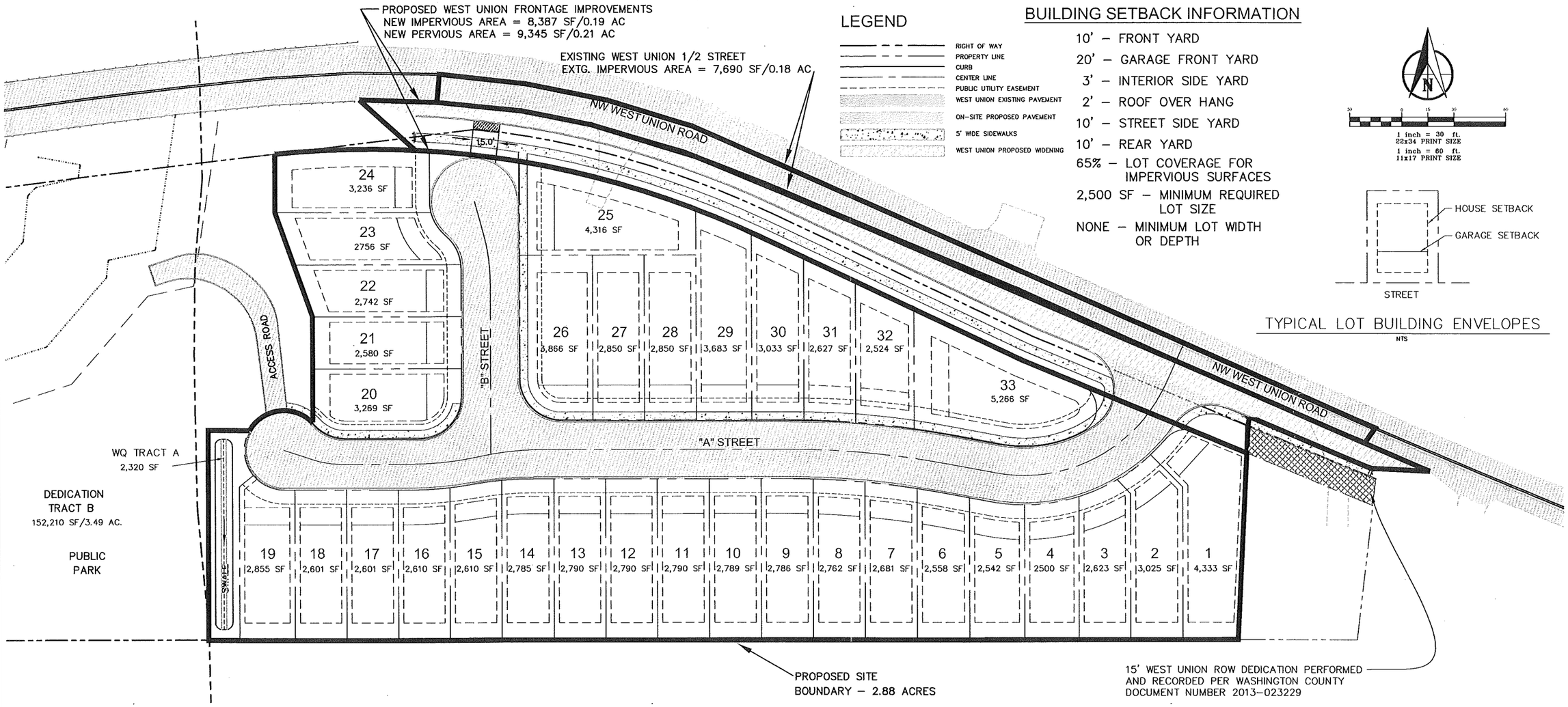
KITTREDGE ENGINEERS, LLC
6565 SW 207TH AVENUE
ALOHA, OR 97007
TEL: (503) 708-3942

EXISTING CONDITIONS
HYDRAULIC BASIN INFORMATION
McKAY FIELDS SUBDIVISION
DR HORTON
4380 SW MACADAM, SUITE 100 503-222-4151 EXT. 1115 - RYAN O'BRIEN

REGISTERED PROFESSIONAL ENGINEER
PRELIMINARY NOT FOR CONSTRUCTION
C. P. KITTREDGE
RENEWAL 06/30/13

DATE: 3/19/2013
DRAWN BY: CPK
PROJ. MGR: CPK
CHECKED BY: CPK
PROJECT NUMBER DRH.001
CASE FILE NUMBER N/A
SHEET NUMBER DD2 OF 7

KittredgeC, Plotted: Mar 29, 2013 - 1:18pm, P:\McKay Fields - Ron Guillory\docs\Drainage\Extg. Cond. basin calcs.dwg



LEGEND

- RIGHT OF WAY
- PROPERTY LINE
- CURB
- CENTER LINE
- PUBLIC UTILITY EASEMENT
- WEST UNION EXISTING PAVEMENT
- ON-SITE PROPOSED PAVEMENT
- 5' WIDE SIDEWALKS
- WEST UNION PROPOSED WIDENING

BUILDING SETBACK INFORMATION

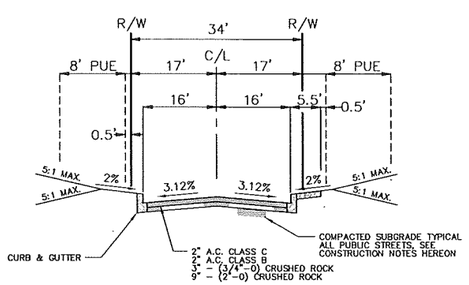
10' – FRONT YARD
20' – GARAGE FRONT YARD
3' – INTERIOR SIDE YARD
2' – ROOF OVER HANG
10' – STREET SIDE YARD
10' – REAR YARD
65% – LOT COVERAGE FOR IMPERVIOUS SURFACES
2,500 SF – MINIMUM REQUIRED LOT SIZE
NONE – MINIMUM LOT WIDTH OR DEPTH

N

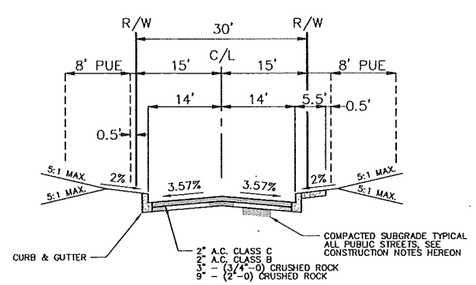
30 0 15 30 60

1 inch = 30 ft.
22x34 PRINT SIZE
1 inch = 60 ft.
11x17 PRINT SIZE

TYPICAL LOT BUILDING ENVELOPES
NTS



34' R/W LOCAL STREET
("B" STREET AND "A" STREET – EAST OF "B" STREET)
NTS



30' R/W LOCAL STREET
("A" STREET – WEST OF "B" STREET)
NTS

POST DEVELOPED BASIN INFORMATION

TOTAL SITE AREA = 125,825 SF/2.88 AC. (EXCLUDES TRACT B)
IMPERVIOUS ON-SITE STREET AREA = 22,762 SF/0.52 AC.
LOTS IMPERVIOUS AREA = 64,109 SF/1.47 AC. (65% TOTAL LOT AREA – PER CODE)
TOTAL ON-SITE PERVIOUS AREA = 38,954 SF/0.89 AC.
TOTAL ON-SITE IMPERVIOUS AREA = 86,871 SF/1.99 AC.

NEW WEST UNION IMPERVIOUS STREET AREA = 8,387 SF/.19 AC.
NEW WEST UNION PERVIOUS STREET AREA = 9,345 SF/.21 AC.
EXTG WEST UNION IMPERVIOUS STREET AREA = 7,690 SF/.18 AC.

TOTAL ON and OFF SITE IMPERVIOUS AREA = 102,948 SF/2.36 AC (includes West Union widening)
TOTAL ON and OFF SITE PERVIOUS AREA = 48,299 SF/1.10 AC (includes West Union widening)

KITTREDGE ENGINEERS, LLC
6565 SW 207TH AVENUE
ALOHA, OR 97007
TEL: (503) 708-3942

PLAT WITH PROPOSED BASIN INFO –
BUILDING SETBACKS & STREET SECTIONS
McKAY FIELDS SUBDIVISION
DR HORTON
4380 SW MACADAM, SUITE 100 503-222-4151 EXT. 1115 – RYAN O'BRIEN

REGISTERED PROFESSIONAL ENGINEER
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CASE FILE NUMBER	N/A
SHEET NUMBER	DD4
OF	7

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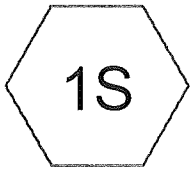
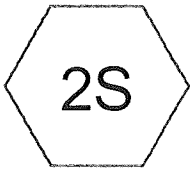
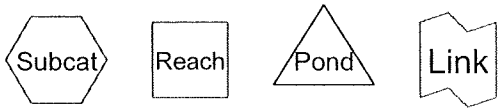


Predeveloped Basin Flows (includes West Union widening)



Post-developed Basin Flows (includes West Union widening)



Routing Diagram for McKay - prelim storm calcs 03-26-2013
Prepared by {enter your company name here}, Printed 3/26/2013
HydroCAD® 10.00 s/n 04592 © 2012 HydroCAD Software Solutions LLC

Summary for Subcatchment 1S: Predeveloped Basin Flows (includes West Union widening)

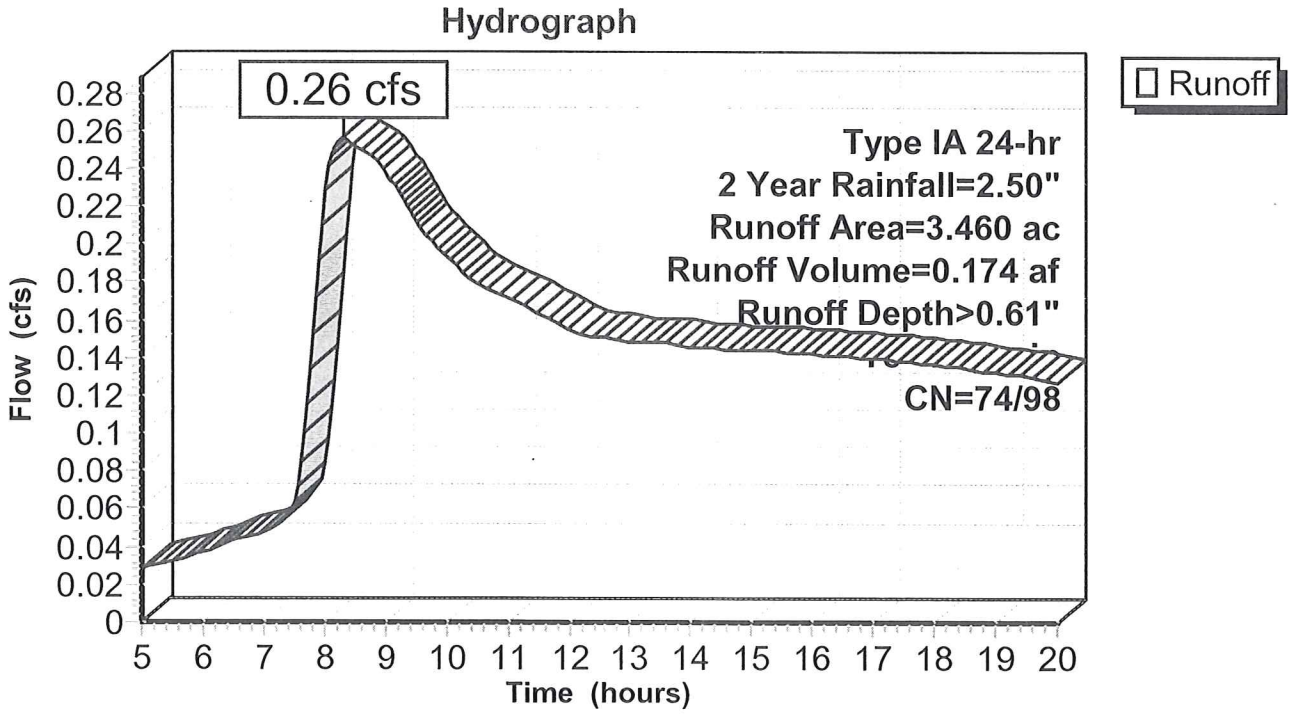
Runoff = 0.26 cfs @ 8.31 hrs, Volume= 0.174 af, Depth> 0.61"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2 Year Rainfall=2.50"

	Area (ac)	CN	Description
*	0.350	98	Impervious
*	3.110	74	Pervious area
	3.460	76	Weighted Average
	3.110	74	89.88% Pervious Area
	0.350	98	10.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
43.5					**Direct Entry,**

Subcatchment 1S: Predeveloped Basin Flows (includes West Union widening)



Summary for Subcatchment 1S: Predeveloped Basin Flows (includes West Union widening)

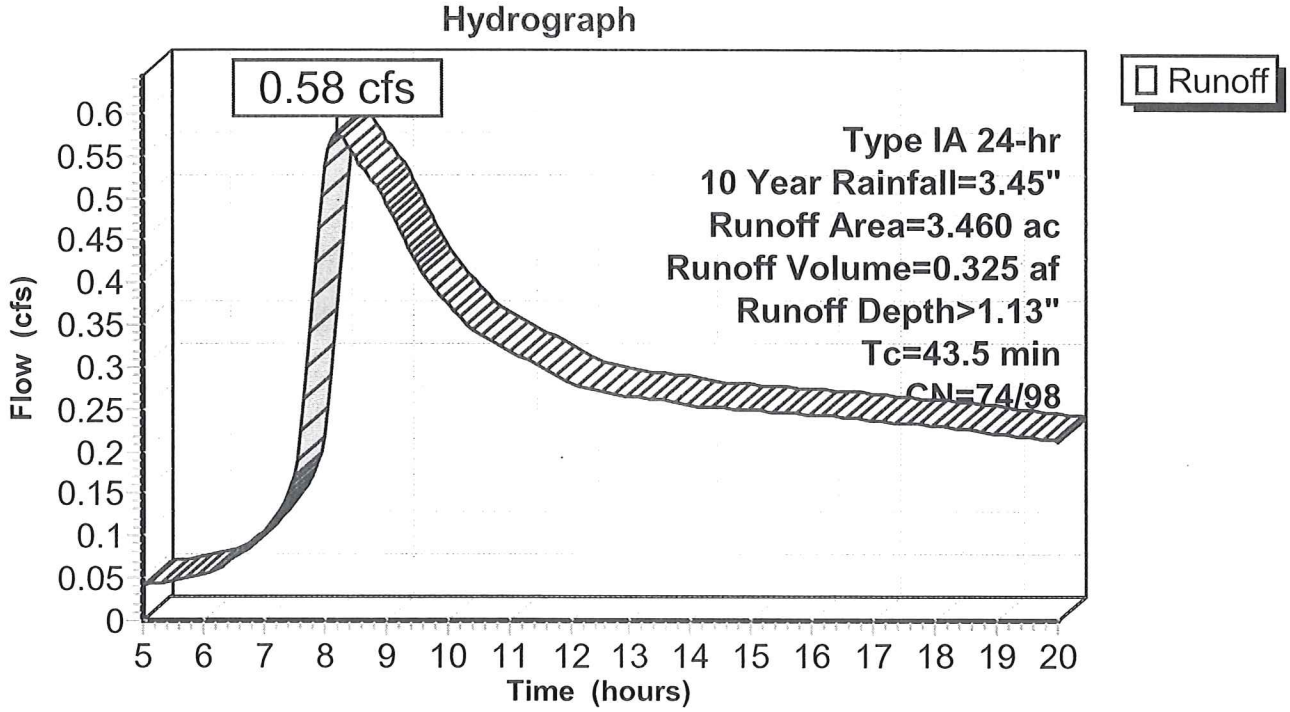
Runoff = 0.58 cfs @ 8.22 hrs, Volume= 0.325 af, Depth> 1.13"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10 Year Rainfall=3.45"

	Area (ac)	CN	Description
*	0.350	98	Impervious
*	3.110	74	Pervious area
	3.460	76	Weighted Average
	3.110	74	89.88% Pervious Area
	0.350	98	10.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
43.5					**Direct Entry,**

Subcatchment 1S: Predeveloped Basin Flows (includes West Union widening)



Summary for Subcatchment 1S: Predeveloped Basin Flows (includes West Union widening)

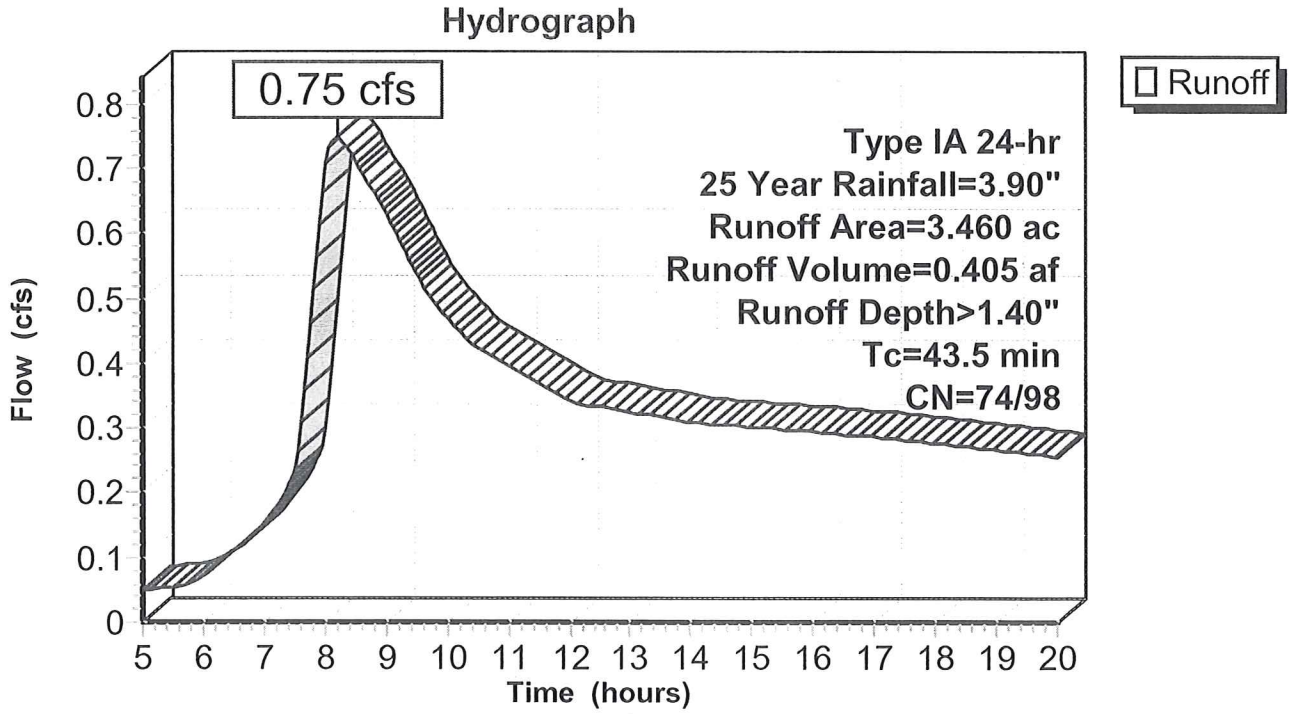
Runoff = 0.75 cfs @ 8.20 hrs, Volume= 0.405 af, Depth> 1.40"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type IA 24-hr 25 Year Rainfall=3.90"

	Area (ac)	CN	Description
*	0.350	98	Impervious
*	3.110	74	Pervious area
	3.460	76	Weighted Average
	3.110	74	89.88% Pervious Area
	0.350	98	10.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
43.5					**Direct Entry,**

Subcatchment 1S: Predeveloped Basin Flows (includes West Union widening)



Summary for Subcatchment 2S: Post-developed Basin Flows (includes West Union widening)

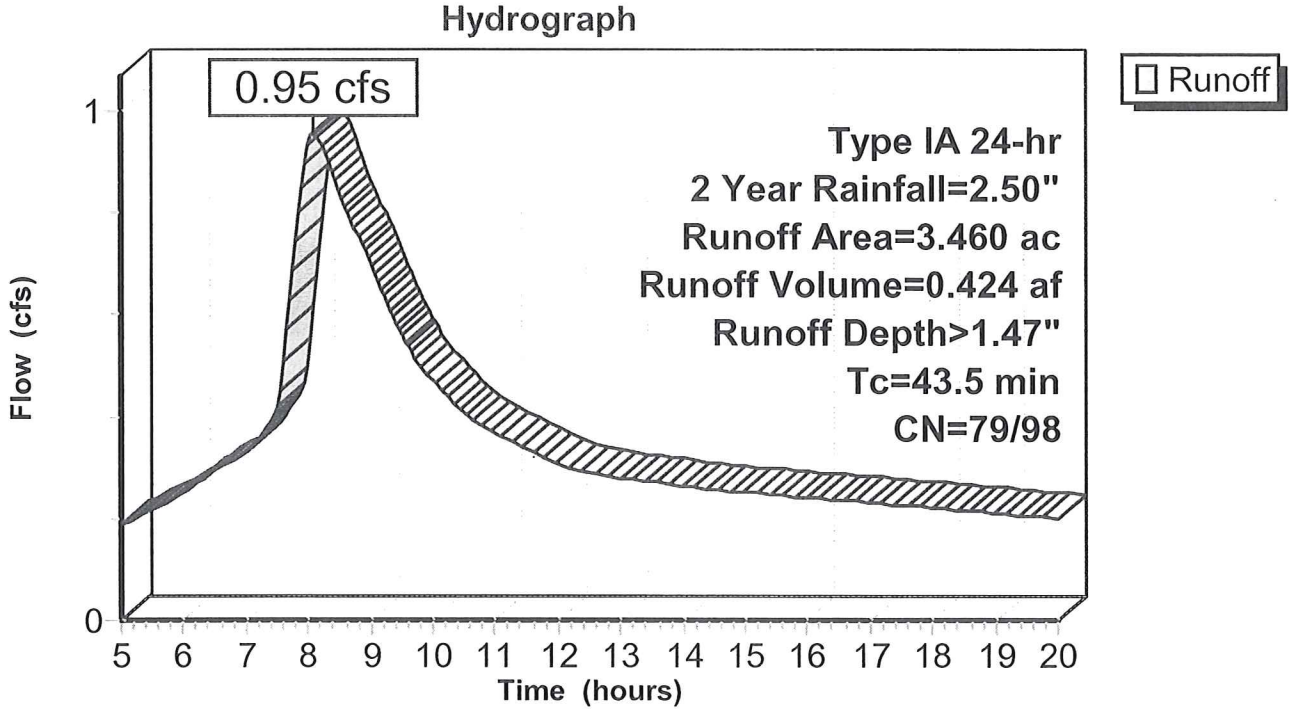
Runoff = 0.95 cfs @ 8.08 hrs, Volume= 0.424 af, Depth> 1.47"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2 Year Rainfall=2.50"

	Area (ac)	CN	Description
*	2.360	98	Impervious
*	1.100	79	Pervious area
	3.460	92	Weighted Average
	1.100	79	31.79% Pervious Area
	2.360	98	68.21% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
43.5					**Direct Entry,**

Subcatchment 2S: Post-developed Basin Flows (includes West Union widening)



Summary for Subcatchment 2S: Post-developed Basin Flows (includes West Union widening)

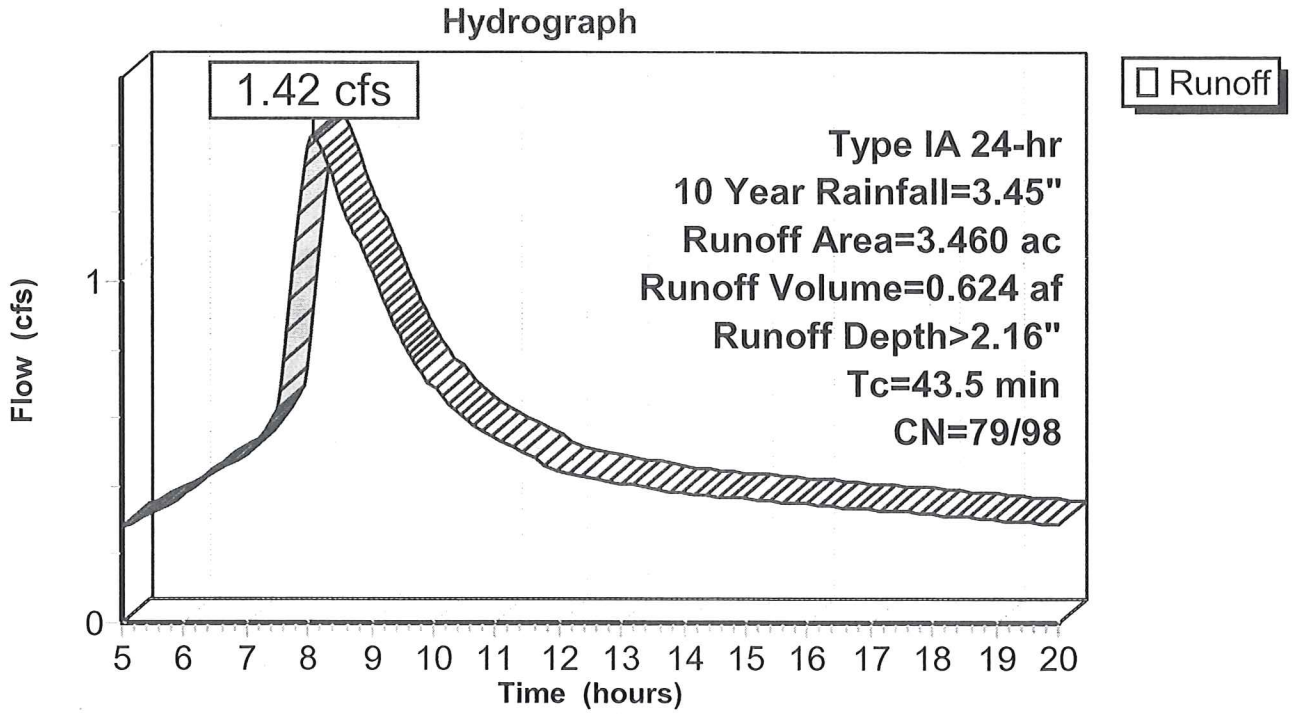
Runoff = 1.42 cfs @ 8.07 hrs, Volume= 0.624 af, Depth> 2.16"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10 Year Rainfall=3.45"

	Area (ac)	CN	Description
*	2.360	98	Impervious
*	1.100	79	Pervious area
	3.460	92	Weighted Average
	1.100	79	31.79% Pervious Area
	2.360	98	68.21% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
43.5					**Direct Entry,**

Subcatchment 2S: Post-developed Basin Flows (includes West Union widening)



Summary for Subcatchment 2S: Post-developed Basin Flows (includes West Union widening)

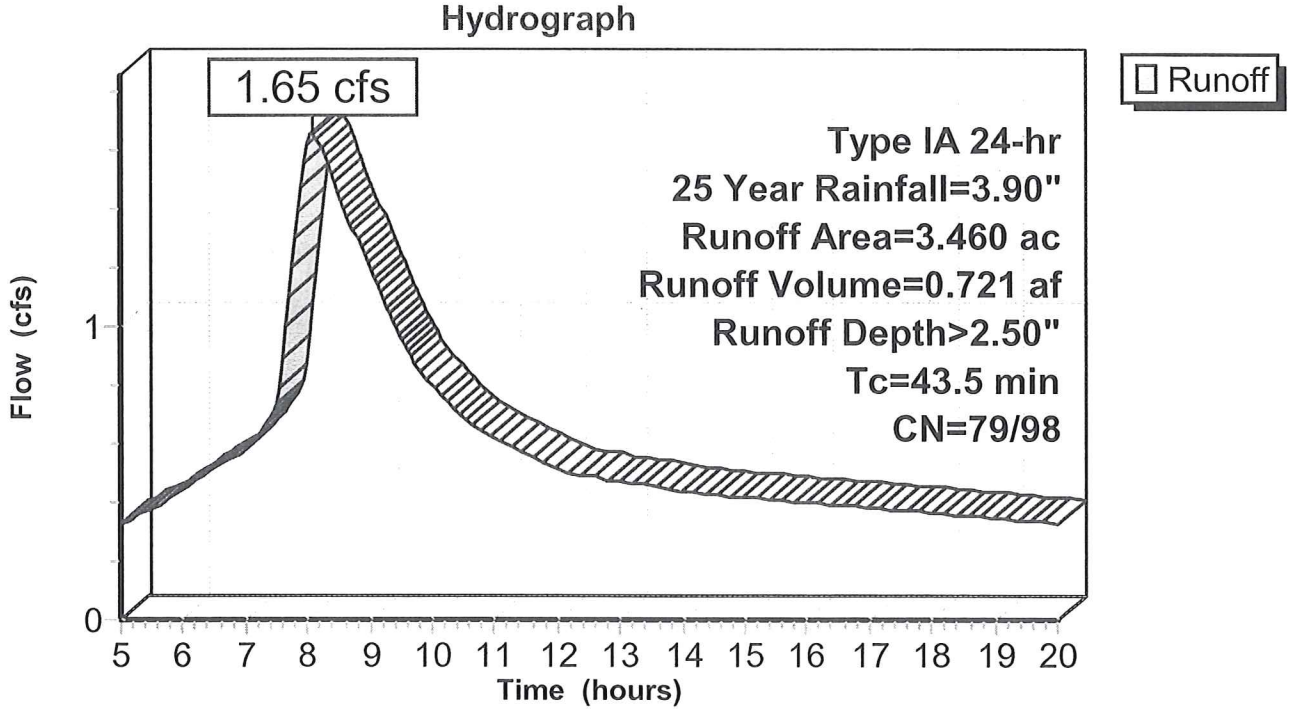
Runoff = 1.65 cfs @ 8.07 hrs, Volume= 0.721 af, Depth> 2.50"

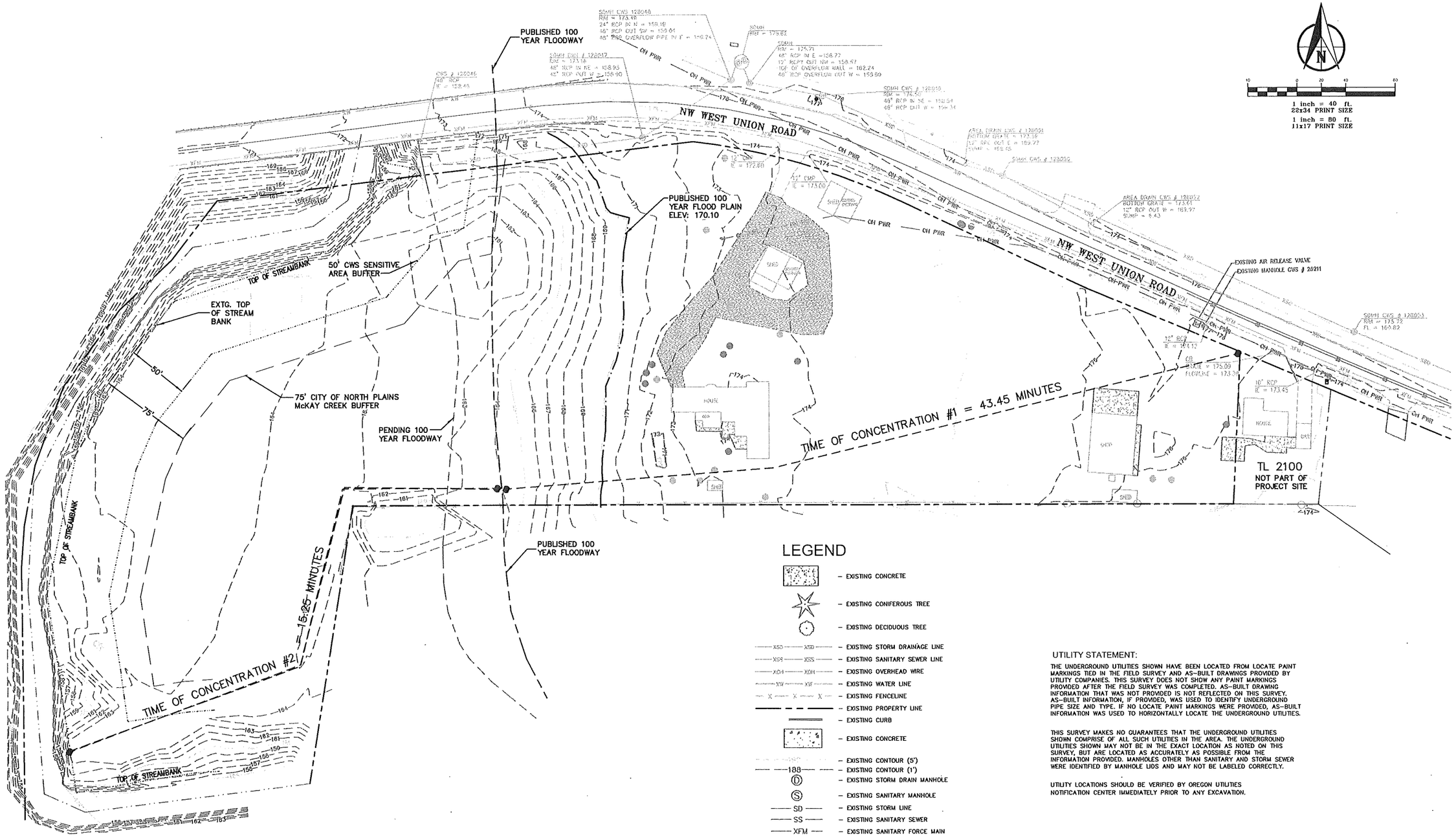
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type IA 24-hr 25 Year Rainfall=3.90"

	Area (ac)	CN	Description
*	2.360	98	Impervious
*	1.100	79	Pervious area
	3.460	92	Weighted Average
	1.100	79	31.79% Pervious Area
	2.360	98	68.21% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
43.5					**Direct Entry,**

Subcatchment 2S: Post-developed Basin Flows (includes West Union widening)





LEGEND

- EXISTING CONCRETE
- EXISTING CONIFEROUS TREE
- EXISTING DECIDUOUS TREE
- EXISTING STORM DRAINAGE LINE
- EXISTING SANITARY SEWER LINE
- EXISTING OVERHEAD WIRE
- EXISTING WATER LINE
- EXISTING FENCELINE
- EXISTING PROPERTY LINE
- EXISTING CURB
- EXISTING CONCRETE
- EXISTING CONTOUR (5')
- EXISTING CONTOUR (1')
- EXISTING STORM DRAIN MANHOLE
- EXISTING SANITARY MANHOLE
- EXISTING STORM LINE
- EXISTING SANITARY SEWER
- EXISTING SANITARY FORCE MAIN

UTILITY STATEMENT:

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THIS SURVEY MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE OF ALL SUCH UTILITIES IN THE AREA. THE UNDERGROUND UTILITIES SHOWN MAY NOT BE IN THE EXACT LOCATION AS NOTED ON THIS SURVEY, BUT ARE LOCATED AS ACCURATELY AS POSSIBLE FROM THE INFORMATION PROVIDED. MANHOLES OTHER THAN SANITARY AND STORM SEWER WERE IDENTIFIED BY MANHOLE LIDS AND MAY NOT BE LABELED CORRECTLY.

UTILITY LOCATIONS SHOULD BE VERIFIED BY OREGON UTILITIES NOTIFICATION CENTER IMMEDIATELY PRIOR TO ANY EXCAVATION.

KITTREDGE ENGINEERS, LLC
6565 SW 207TH AVENUE
ALOHA, OR 97007
TEL: (503) 708-3942

PRE-DEVELOPED TIME OF CONCENTRATION McKAY FIELDS SUBDIVISION

DR HORTON

4380 SW MACADAM, SUITE 100 503-222-4151 EXT. 1115 – RYAN O'BRIEN

REGISTERED PROFESSIONAL ENGINEER — PRELIMINARY NOT FOR CONSTRUCTION — CHRISTOPHER P. KITTREDGE — RENEWAL 06/30/13

DATE:	3/19/2013
DRAWN BY:	CPK
PROJ. MGR:	CPK
CHECKED BY:	CPK
PROJECT NUMBER	DRH.001
CASE FILE NUMBER	N/A
SHEET NUMBER	DD1
OF	7

KittredgeC, Plotted: Mar 29, 2013 – 1:21pm, P:\McKay Fields – Ron Guillory\docs\Drainage\McKay Tc Dwg.dwg

Project McKay Fields
McKay Fields - Predeveloped Time of Concentration

TIME OF CONCENTRATION
Pre-developed Time of Concentration #1

2-year, 24-hour rainfall = 2.50"

	flow type	*description*	*coeff.*	*distance*	*fall*	*slope*	*t/c*
1	overland sheet	short.grass,lawns	n=0.15	300.0'	2.5'	0.83%	37.89'
2	shallow concentrated	light.cultivation	K=8	400.0'	9.0'	2.25%	5.56'

total Time of Concentration = 43.45'

Project McKay Fields
McKay Fields - Predeveloped Time of Concentration

TIME OF CONCENTRATION
Pre-developed Time of Concentration #2

2-year, 24-hour rainfall = 2.50"

	flow type	*description*	*coeff.*	*distance*	*fall*	*slope*	*t/c*
1	shallow concentrated	light.cultivation	K=8	475.0'	2.0'	0.42%	15.25'

total Time of Concentration = 15.25'

McKay Fields

Water Quality Swale Calculations → WQ CALCULATIONS ONLY.

Man Made Channels -- English Units

Civil Tools for Windows
(03-26-2013, 15:37:10)

```
          Flow Depth = 0.290 ft
            Flowrate = 0.210 cfs
Channel Bottom Width = 4.000 ft
  Channel Side Slope = 0.240 ft/ft
       Channel Slope = 0.00500 ft/ft
   Channel Roughness = 0.240
         Wetted Area = 1.18 sf
    Wetted Perimeter = 4.60 ft
            Velocity = 0.18 fps
          Froude No. = 0.06
                Flow = Sub-Critical
```

Swale Conveyance Calculations

25 Year Design Storm Event → 25 YEAR CONVEYANCE CALCULATIONS ONLY.

Man Made Channels -- English Units

Civil Tools for Windows
(03-26-2013, 20:11:49)

```
          Flow Depth = 1.080 ft
            Flowrate = 1.650 cfs
Channel Bottom Width = 4.000 ft
  Channel Side Slope = 0.250 ft/ft
       Channel Slope = 0.00500 ft/ft
   Channel Roughness = 0.240
         Wetted Area = 4.61 sf
    Wetted Perimeter = 6.23 ft
            Velocity = 0.36 fps
          Froude No. = 0.06
                Flow = Sub-Critical
```

Appendix E:

City of North Plains
Flood Code

Corresponding Zone Plan Designation	Upon Annexation
Medium/Low Density Residential	R7.5
Medium/High Density Residential	R5
High Density Residential	R2.5
Commercial	C1 or C2
Industrial	M1 or M2
Neighborhood Community	NC

If areas are annexed that are within any 100-year flood plain as defined in the North Plains or Washington County Comprehensive Plans, the areas shall also be assigned the Flood Plain Overlay Zone.

Chapter 16.65
HOW LAND MAY BE USED AND DEVELOPED
Floodplain Overlay DISTRICT (FP)

16.65.000 Purpose

The purpose of the Flood Plain Overlay District (FP) is to promote the public health, safety and general welfare, and to minimize public and private losses due to flood conditions in specific areas by provisions designed:

A. To protect human life and health;

B. To minimize expenditure of public money and costly flood control projects;

C. To minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;

D. To minimize prolonged business interruptions;

E. To minimize damage to public facilities and utilities such as water and gas mains, electric, telephone and sewer lines, streets and bridges located in areas of special flood hazard;

F. To help maintain a stable tax base by providing for the sound use and development of areas of special flood hazard so as to minimize future flood blight areas;

G. To ensure that potential buyers are notified that property is in an area of special flood hazard; and

H. To ensure that those who occupy the areas of special flood hazards assume responsibility for their actions.

16.65.005 Definitions

For the purpose of this Section, the following words, terms and expressions shall be interpreted in accordance with the following definitions, unless the context requires otherwise.

Appeal: A request for a review of the Planning Commission's interpretation of any provision of this Section or a request for a variance.

Area of Shallow Flooding: Area designated AO or AH on the Flood Insurance Rate Map (FIRM). The base flood depths range from one to three feet; a clearly defined channel does not exist; the path of flooding is

unpredictable and indeterminate; and velocity flow may be evident. AO is characterized as sheet flow and AH indicates ponding.

Area of Special Flood Hazard: The land in the Flood Plain within a community subject to a one percent or greater chance of flooding in any given year. Designation on maps always includes the letter A.

Base Flood: The flood having a one percent chance of being equaled or exceeded in any given year. The base flood is also referred to as the "100-year flood." Designation on maps always includes the letter A.

Basement: Any area of the building having its floor subgrade (below ground level) on all sides.

Critical Facility: A facility for which even a slight chance of flooding might be too great. Critical facilities include, but are not limited to schools, nursing homes, hospitals, police, fire and emergency response installations, installations which produce, use or store hazardous materials or hazardous waste.

Development: Any man-made change to improved or unimproved real estate, including but not limited to buildings or other structures, mining, dredging, filling, grading, paving, excavation, or drilling operations or storage of equipment or materials located within the area of special flood hazard.

Elevated Building: For insurance purposes, a non basement building which has its lowest elevated floor raised above ground level by foundation walls, shear walls, post, piers, pilings, or columns.

Existing Manufactured Home Park or Subdivision: A manufactured home park subdivision for which the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including, at a minimum, the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads) is completed before the effective date of the adopted floodplain management regulations.

Expansion to An Existing Manufactured Home Park or Subdivision: The preparation of additional sites by the construction of facilities for servicing the lots on which the manufactured homes are to be affixed(including the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads).

Flood or Flooding: A general and temporary condition of partial or complete inundation of normally dry land areas from: The overflow of

inland or tidal waters; and/or the unusual and rapid accumulation of runoff of surface waters from any source.

Flood Insurance Rate Map (FIRM): The official map on which the Federal Insurance Administration has delineated both the areas of special flood hazards and the risk premium zones applicable to the community.

Flood Insurance Study: The official report provided by the Federal Insurance Administration that includes flood profiles, the Flood Boundary-Floodway Map, and the water surface elevation of the base flood.

Floodplain Administrator; The Planning Commission of the City of North Plains shall be the Floodplain Administrator

Flood Way: The channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than one foot.

Lowest Floor: The lowest enclosed area (including basement). An unfinished or flood resistant enclosure, usable solely for parking of vehicles, building access or storage, in an area other than a basement area is not considered a building's lowest floor, provided that such enclosure allows the entry and exit of flood waters.

Manufactured Home: A structure, transportable in one or more sections, which is built on a permanent chassis and is designed for use with or without a permanent foundation when connected to the required utilities. For Flood Plain management purposes, the term "manufactured home" also includes park trailers, travel trailers, and other similar vehicles placed on a site for greater than 180 consecutive days.

Manufactured Home Park or Subdivision: A parcel or contiguous parcels of land divided into two or more manufactured home lots for rent or sale.

New Construction: Structures for which the start of construction commenced on or after January 18, 1982.

New Manufactured Home Park or Subdivision: A manufactured home park or subdivision for which the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including at a minimum, the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads) is completed on or after the effective date of adopted floodplain management regulations.

Recreational Vehicle: A vehicle which is:

(A) Built on a single chassis;

(B) 400 square feet or less when measured at the largest horizontal projection;

(C) Designed to be self-propelled or permanently towable by a light duty truck; and

(D) Designed primarily not for use as a permanent dwelling but as

Start of Construction: Includes substantial improvement, and means the date the building permit was issued, provided the actual start of construction, repair, reconstruction, placement or other improvement was within 180 days of the permit date. The actual start means either the first placement of permanent construction of a structure on a site, such as the pouring of slab or footings, the installation of piles, the construction of columns, or any work beyond the state of excavation; or the placement of a manufactured home on a foundation. Permanent construction does not include land preparation, such as clearing, grading and filling; nor does it include the installation of streets and/or walkways; nor does it include excavation for a basement, footings, piers, or foundation or the erection of temporary forms; nor does it include the installation on the property of accessory buildings, such as garages or sheds not occupied as dwelling units or not part of the main structure.

Structure: A walled and roofed building including a gas or liquid storage tank that is principally above ground.

Substantial Damage: Damage of any origin sustained by a structure whereby the cost of restoring the structure to its before damaged condition would equal or exceed 50 percent of the market value of the structure before the damage occurred.

Substantial Improvement: Any repair, reconstruction, or improvement of a structure, the cost of which equals or exceeds 50 percent of the market value of the structure either:

1. Before the improvement or repair is started, or

2. If the structure has been damaged and is being restored, before the damage occurred. For the purposes of this definition, "substantial improvement" is considered to occur when the first alteration of any wall, ceiling, floor, or other structural part of the building commences, whether or not that alteration affects the external dimensions of the structure.

The term does not, however, include either:

1. Any project for improvement of a structure to comply with existing state or local health, sanitary or safety code specifications which are solely necessary to assure safe living conditions, or

2. Any alteration of a structure listed on the National Register of Historic Places or a State Inventory of Historic Places.

Variance: A grant of relief from the requirements of this section which permits construction in a manner that would otherwise be prohibited by the section.

16.65.010 General Provisions

A. Area of Application

All property, regardless of the underlying zoning designation, which falls within the boundaries of the 100-year Flood Plain, also known as the area of special flood hazard, shall be subject to the provisions of Zoning District (FP) of this Ordinance.

B. Basis for Establishing the Areas of Special Flood Hazard

The areas of special flood hazard identified by the Federal Insurance Administration in a scientific and engineering report entitled "The Flood Insurance Study of the City of North Plains, Oregon, Washington County, Oregon," dated March 16, 1989, with the accompanying Flood Insurance Maps are hereby adopted by reference and declared to be a part of this Ordinance. The Flood Insurance Study is on file at the City of North Plains, City Hall, North Plains, Oregon. The City shall utilize all authoritative information available in determining the location of special flood hazard areas.

C. Compliance

No structure or land shall hereafter be constructed, located, extended, converted, or altered without full compliance with the terms of this Ordinance and other applicable regulations.

D. Abrogation and Greater Restrictions

This Ordinance is not intended to repeal, abrogate, or impair any existing easements, covenants or deed restriction conflict or overlap, whichever imposes the more stringent restrictions shall prevail.

E. Interpretation

In the interpretation and application of this section, all provisions shall be:

1. Considered as minimum requirements;
2. Literally construed in favor of the governing body; and
3. Deemed neither to limit nor repeal any other powers granted under state statutes.

F. Disclaimer of Liability

The degree of flood protection required by this ordinance is considered reasonable for regulatory purposes and is based on scientific and engineering considerations. Larger floods can and will occur on rare occasions. Flood heights may be increased by man-made or natural causes. This ordinance does not imply that land outside the areas of special flood hazards or uses permitted within such areas will be free from flooding or flood damages. This ordinance shall not create liability on the part of the City of North Plains, any officer or employee thereof, or the Federal Insurance Administration, for any flood damages that result from reliance on this ordinance or any administrative decision lawfully made thereunder.

G. Critical Facilities

Critical facilities as defined by this Chapter shall not be located in a flood way or flood plain.

H. Accessory Structures

Accessory structures shall not be located within a floodplain or floodway.

16.65.015 Administration

A. Development Permit Required

A development permit shall be obtained before construction or development begins within any area of special flood hazard established in Chapter 16.65.010 (A). The permit shall be required for all structures including manufactured homes, as set forth in the Definitions, and for all other development including fill and other activities, also as set forth in the Definitions.

B. Application for Development Permit

Application for a development permit shall be made on forms furnished by the City Recorder, and accompanied by the appropriate fee, and may include, but not be limited to, plans in duplicate drawn to scale showing the nature, location, dimensions, and elevations of the area in question, existing or proposed structures, fill, storage of materials and drainage facilities. Specifically, the following information is required:

1. Elevation in relation to mean sea level of the lowest floor (including basement) of all structures;

2. Elevation in relation to mean sea level to which the structure has been flood proofed;

3. Certification by a registered professional engineer or architect that the flood proofing methods for any nonresidential structure meet the flood proofing criteria in Chapter 16.65.025 (B).

4. Description of the extent to which any watercourse will be altered or relocated as a result of proposed development.

C. Designation of Planning Commission as Administrative Body

The Planning Commission is hereby appointed to administer and implement this ordinance by granting or denying development permit applications in accordance with its provisions. "Flood Plain Development Permits shall be subject to the public notice requirements and public hearing requirements of this chapter.

The duties of the Planning Commission shall include, but not be limited to:

1. Permit Review

a. Review all development permits to determine that the permit requirements of this ordinance have been satisfied.

b. Review all development permits to determine that all necessary permits have been obtained from those federal, state, or local governmental agencies from which prior approval is required.

c. Review all development permits to determine if the proposed development is located in the flood way. If

located in the flood way, assure that the encroachment provisions of Chapter 16.65.025 (D) are met.

2. **Use of Other Base Flood Data**

When base flood elevation data has not been provided in accordance with Chapter 16.65.010 (B), the Planning Commission shall obtain, review and reasonably utilize any base flood elevation and flood way data available from federal, state, or other sources, in order to administer Chapter 16.65.025.

3. **Information to be Obtained and Maintained**

a. Where base flood elevation data is provided through the Flood Insurance Study or required as in Chapter 16.65.015 (2), obtain and record the actual elevation (in relation to mean sea level) of the lowest habitable floor (including basement) of all new or substantially improved structures, and whether or not the structure contains a basement.

b. For all new or substantially improved flood proofed structures:

(i) Verify and record the actual elevation (in relation to the mean sea level), and

(ii) Maintain the flood proofing certifications required in Chapter 16.65.015 (B)(3).

c. Maintain for public inspection all records pertaining to the provisions of this ordinance.

4. **Alteration of Watercourses**

a. Notify adjacent communities and the Oregon Department of Land Conservation and Development prior to any alteration or relocation of a watercourse, and submit evidence of such notification to the Federal Insurance Administration.

b. Require that maintenance is provided within the altered or relocation portion of said watercourse so that the flood carrying capacity is not diminished.

5. **Interpretation of FIRM Boundaries**

Make interpretations where needed as to exact location of the boundaries of the areas of special flood hazards (for example, where there appears to be a conflict between a mapped boundary

and actual field conditions). The person contesting the location of the boundary shall be given a reasonable opportunity to appeal the interpretation.

16.65.020 Provisions for Flood Hazard Protection

In all areas of special flood hazards the following standards are required:

A. Anchoring

1. All new construction and substantial improvements shall be anchored to prevent flotation, collapse or lateral movement of the structure.

2. All manufactured homes must likewise be anchored to prevent flotation, collapse or lateral movement, and shall be installed using methods and practices that minimize flood damage. Anchoring methods may include, but are not limited to use of over-the-top or frame ties to ground anchors (Reference FEMA's Manufactured Home Installation in Flood Hazard Areas" guidebook for additional techniques).

B. Construction Materials and Methods

1. All new construction and substantial improvements shall be constructed with materials and utility equipment resistant to flood damage.

2. All new construction and substantial improvements shall be constructed using methods and practices that minimize flood damage.

3. Electrical, heating, ventilation, plumbing, and air-conditioning equipment and other service facilities shall be designed and/or otherwise elevated or located so as to prevent water from entering or accumulating within components during conditions of flooding.

C. Utilities

1. All new and replacement water supply systems shall be designed to minimize or eliminate infiltration of flood waters into the system;

into the systems and discharge from the systems into flood waters; and

3. On-site disposal systems shall be located to avoid impairment to them or contamination from them during flooding.

D. Subdivision Proposals

1. All subdivision proposals shall be consistent with the need to minimize flood damage;

2. All subdivision proposals shall have public utilities and facilities such as sewer, gas, electrical and water systems located and constructed to minimize or eliminate flood damage;

3. All subdivision proposals shall have adequate drainage provided to reduce exposure to flood damage; and

4. Base flood elevation data shall be provided for subdivision proposals and other proposed development which contain at least 50 lots or 5 acres, whichever is less.

E. Review of Building Permits

Where elevation data is not available, either through the Flood Insurance Study or from another authoritative source, applications for building permits shall be reviewed to assure that proposed construction will be reasonably safe from flooding. The test of reasonableness is a local judgment and includes use of historical data, high water marks, photographs of past flooding, etc., where available. The City of North Plains has been notified that failure to elevate at least two feet above grade in these zones may result in higher insurance rates.

16.65.025 Specific Standards

In all areas of special flood hazards where base flood elevations data has been provided as set forth in Chapter 16.65.010 (B) or 16.65.020 (C)(2), the following provisions are required:

A. All Development

All development within the boundaries of the 100-year Flood Plain shall conform to the following cut and fill standards:

1. No net fill in the flood plain is allowed. All fill placed in a flood plain shall be balanced within at least an equal amount of soil material removal;

2. Excavation areas shall not exceed fill areas by more than 50 percent of the area;

3. Any excavation below the bank full stage of No Name Creek or McKay Creek shall not compensate for fill;

4. Excavation to balance a fill shall be located on the same parcel as the fill unless it is not reasonable or practicable to do so. In such cases, the excavation shall be located in the same drainage basin and as close as possible to the fill site, so long as the proposed excavation and fill in the Flood plain Overlay District and to minimize erosive velocities. Stream crossings shall be as close to perpendicular to stream flow as practicable. Bridges shall be used instead of culverts wherever practicable

B. <u>Residential Construction</u>

New construction and substantial improvement of any residential structure shall have the lowest floor, including basement, elevated to one foot above base flood elevations. Below grade crawl spaces shall not be permitted. Fully enclosed areas below the lowest floor that are subject to flooding are prohibited. Parking, crawl spaces and storage is allowed below the lowest floor provided the area is designed to permit the entry and exit of flood waters. Openings may be equipped with screens, louvers, or other coverings or devices provided that they permit the automatic entry and exit of floodwaters.

C. <u>Nonresidential Construction</u>

New construction and substantial improvement of any commercial, industrial or other nonresidential structure shall either have the lowest floor, including basement, elevated to one foot above the base flood elevation; or, together with attendant utility and sanitary facilities, shall:

1. Be flood proofed so that below the base flood level the structure is watertight with walls substantially impermeable to the passage of water;

2. Have structural components capable of resisting hydrostatic and hydrodynamic loads and effects of buoyancy; and

3. Be certified by a registered professional engineer or architect that the design and methods of construction in accordance with accepted standards of this subsection based on their development and/or review of the structural design, specifications and plans. Such certifications shall be provided to the official as set forth in Chapter 16.65.015 (B)(3).

4. Nonresidential structures that are elevated, not flood proofed, must meet the same standards for space below the lowest floor as described in Chapter 16.65.025 (A).

5. Applicants flood proofing nonresidential buildings shall be notified that flood insurance premiums will be based on rates that are one foot below the flood proofed level (e.g., a building constructed to the base flood level will be rated as one foot below that level).

D. <u>Manufactured Home</u>

All manufactured homes to be placed or substantially improved within Zones AI-30, AH, and AE (as defined by the Federal Emergency Management Agency) shall be elevated on a permanent foundation such that the lowest floor of the manufactured home is one foot above the base flood elevation and be securely anchored to an adequately anchored foundation system in accordance with the provisions of Chapter 16.65.020(A).

E. <u>Flood Ways</u>

Located within areas of special flood hazard established in Chapter 16.65.010(A) are areas designated as flood ways. Since the flood way is an extremely hazardous area due to the velocity of flood waters which carry debris, potential projectiles and erosion potential, the following provisions apply, these provisions apply to all floodways:

1. Prohibit encroachments, including fill, new construction, substantial improvements, and other development within Zones A1 and A2 (as defined by the Federal Emergency Management Agency) unless certification by registered professional engineer or architect is provided demonstrating that encroachments shall not result in any increase in flood levels during the occurrence of the base flood discharge.

2. If Chapter 16.65.025 (D)(1) is satisfied, all new construction and substantial improvements shall comply with all applicable flood hazard reduction provisions of Chapter 16.65.025.

3. Prohibit the placement of any mobile homes, except in an existing mobile home park or existing mobile home subdivision.

4. The placement of mobile homes in existing mobile home parks and subdivisions will comply with Subsections 16.65.025 (C) 1-3.

F. Recreational Vehicles

Recreational vehicles shall be prohibited from locating in flood hazard areas.

16.65.030 VARIANCE PROCEDURE

When a variance to the standards of this chapter is requested, the following provisions regarding a variance application and decision shall be followed instead of the provisions of the Variance section of this chapter.

A. Appeal Board

1. The Planning Commission as established by the zoning ordinance shall hear and decide appeals and requests for variances from the requirements of this Chapter.

2. The Planning Commission shall hear and decide appeals when it is alleged there is an error in any requirement, decision, or determination made by the City in the enforcement or administration of this ordinance.

3. Those aggrieved by the decision of the Planning Commission, or any taxpayer, may appeal such decision to the City Council as set out in this chapter.

4. In considering such application, the Planning Commission and/or City Council shall consider all technical evaluations, all relevant factors, standards specified in other sections of this Zoning and Development Ordinance, and:

   a. The danger that materials may be swept onto other lands to the injury of others;

   b. The danger to life and property due to flooding or erosion damage;

   c. The susceptibility of the proposed facility and its contents to flood damage and the effect of such damage on the individual owner;

d. The importance of the services provided by the proposed facility to the community;

e. The necessity to the facility of waterfront location, where applicable;

f. The availability of alternative locations for the proposed use which are not subject to flooding or erosion damage;

g. The compatibility of the proposed use with existing and anticipated development;

h. The relationship of the proposed use to the comprehensive plan and flood plain management program for that area;

i. The safety of access to the property in times of flood for ordinary and emergency vehicles;

j. The expected heights, velocity, duration, rate of rise, and sediment transport of the flood waters and the effects of wave action, if applicable, expected at the site;

k. The costs of providing governmental services during and after flood conditions, including maintenance and repair of public utilities and facilities such as sewer, gas, electrical, and water systems, and streets and bridges.

5. Upon consideration of the conditions for variances below and the purposes of this ordinance, the Planning Commission may attach such conditions to the granting of variances as it deems necessary to further the purposes of this ordinance.

6. The City Planner shall maintain the records of all appeal actions and report any variances to the Federal Insurance Administration upon request.

B. <u>Conditions for Variances</u>

1. Generally, the only condition under which a variance from the elevation standard may be issued is for new construction and substantial improvements to be erected on a lot of one-half acre or less in size contiguous to and surrounded by lots with existing structures constructed below the base flood level, providing all other sections of this chapter have been considered. As the lot

size increases the technical justification required for issuing the variance increases.

2. Variances may be issued for the reconstruction, rehabilitation, or restoration of structures listed on the National Register of Historic Places or the Statewide Inventory of Historic Properties, without regard to the procedures set forth in this section.

3. Variances shall not be issued within a designated floodway if any increase in flood levels during the base flood discharge would result.

4. Variances shall only be issued upon a determination that the variance is the minimum necessary, considering the flood hazard, to afford relief.

5. Variances shall only be issued upon:

   a. A showing of good and sufficient cause;

   b. A determination that failure to grant the variance would result in exceptional hardship to the applicant;

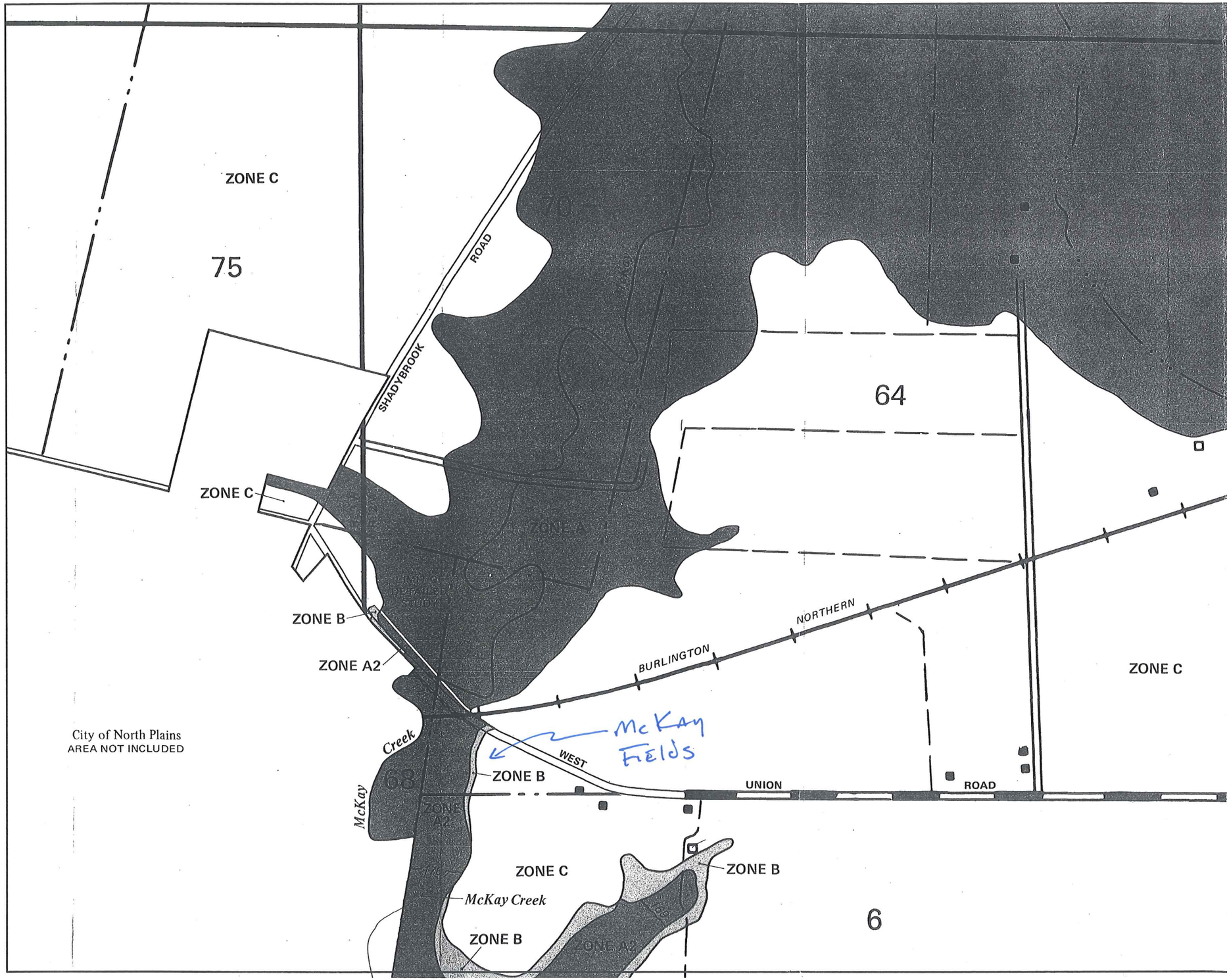
   c. A determination that the granting of a variance will not result in increased flood heights, additional threats to public safety, extraordinary public expense, create nuisances, cause fraud on or victimization of the public as identified in Chapter 16.65, or conflict with existing local laws or ordinances.

6. Variances as interpreted in the National Flood Insurance Program are based on the general zoning principle that they pertain to a physical piece of property; they are not personal in nature and do not pertain to the structure, its inhabitants, economic or financial circumstances. They primarily address small lots in densely populated residential neighborhoods, As such, variances from the flood elevations should be quite rare.

7. Variances may be issued for nonresidential buildings in very limited circumstances to allow a lesser degree of floodproofing than watertight or dry-floodproofing, where it can be determined that such action will have low damage potential, complies with all other variance criteria, and otherwise complies with development standards in this section.

8. Any applicant to whom a variance is granted shall be given written notice that the structure will be permitted to be built with a lowest

floor elevation below the base flood elevation and that the cost of flood insurance will be commensurate with the increased risk resulting from the reduced lowest flood elevation.



APPROXIMATE SCALE
500 0 500 FEET

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

WASHINGTON COUNTY, OREGON
(UNINCORPORATED AREAS)

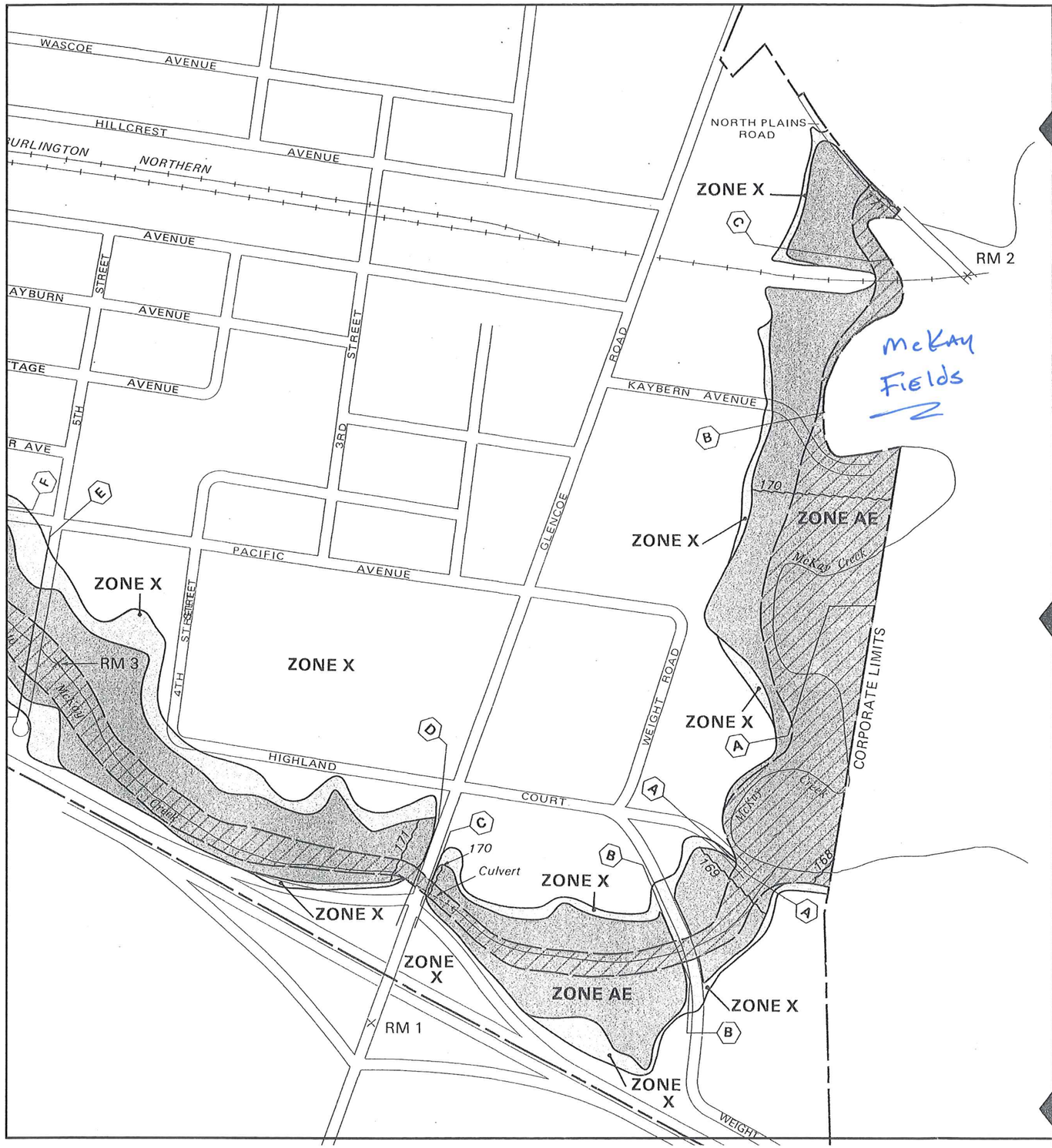
PANEL 326 OF 575
(SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY-PANEL NUMBER
410238 0326 B

EFFECTIVE DATE:
SEPTEMBER 30, 1982

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov



Where Uniform Within Zone*

RM7X Elevation Reference Mark

*Referenced to the National Geodetic Vertical Datum of 1929

NOTES

This map is for use in administering the National Flood Insurance Program; it does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size, or all planimetric features outside Special Flood Hazard Areas.

Areas of special flood hazard (100-year flood) include Zones A, A1-30, AE, AH, AO, A99, V, V1-30 AND VE.

Certain areas not in Special Flood Hazard Areas may be protected by flood control structures.

Boundaries of the floodways were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the Federal Emergency Management Agency.

Floodway widths in some areas may be too narrow to show to scale. Floodway widths are provided in the Flood Insurance Study Report.

Coastal base flood elevations apply only landward of the shoreline.

Elevations reference marks are described in the Flood Insurance Study Report.

MAP REPOSITORY
City Hall
City of North Plains
440 Commercial Ave.
North Plains, OR 97133
(Maps available for reference only, not for distribution.)

INITIAL IDENTIFICATION:
JULY 16, 1976

FLOOD HAZARD BOUNDARY MAP REVISIONS:

FLOOD INSURANCE RATE MAP EFFECTIVE:
APRIL 1, 1982

FLOOD INSURANCE RATE MAP REVISIONS:
Map revised MARCH 16, 1989 to add base flood elevations, to change special flood hazard areas and to update map format.

To determine if flood insurance is available, contact an insurance agent or call the National Flood Insurance Program at (800) 638-6620.

APPROXIMATE SCALE IN FEET
400 0 400

APPROXIMATE SCALE IN FEET
400 0 400

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

CITY OF
NORTH PLAINS,
OREGON
WASHINGTON COUNTY

ONLY PANEL PRINTED

COMMUNITY-PANEL NUMBER
410270 0001 B

MAP REVISED:
MARCH 16, 1989

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

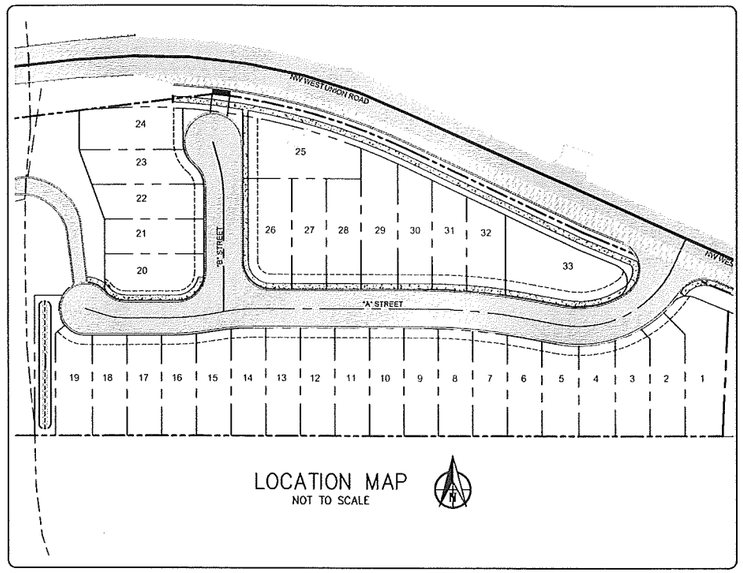
← NORTH 1" = 300' JOB 100

McKAY FIELDS

CITY OF NORTH PLAINS, OREGON

LOCATED IN SECTION 6,
TOWNSHIP 1 NORTH, RANGE 2 WEST, WILLAMETTE MERIDIAN

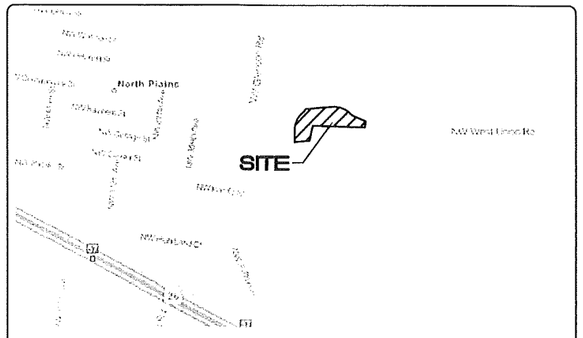
DESIGN DEVELOPMENT DRAWINGS



LOCATION MAP
NOT TO SCALE

SHEET INDEX

DD1. COVER SHEET/ VICINITY MAP/ SHEET INDEX
DD2. EXISTING CONDITIONS
DD3. AERIAL PHOTO WITH SITE BOUNDARY OVERLAY
DD4. PRELIMINARY PLAT WITH STREET SECTIONS
DD5. OVER-ALL SITE PLAN (INCLUDES WETLAND AREA)
DD6. PRELIMINARY GRADING PLAN
DD7. PRELIMINARY UTILITY PLAN



VICINITY MAP
NOT TO SCALE

VERTICAL DATUM:

BENCHMARK: WACO BM 215
DATUM: WASHINGTON COUNTY
DESCRIPTION: 4" BRASS DISK SET IN NW QUADRANT OF SHADYBROOK AND GLENCOE ROAD.
ELEVATION: 176.49'

APPLICANT

DR HORTON
RYAN O'BRIEN
4380 SW MACADAM, SUITE 100
PORTLAND, OREGON 97239
PH. 503-222-4151 EXT.1115

CIVIL ENGINEER

KITTREDGE ENGINEERS
CHRIS KITTREDGE, PE
6565 SW 207TH AVENUE
ALOHA, OR 97007
PH. 503-708-3942

GEOTECHNICAL ENGINEER

CARLSON GEOTECHNICAL
7185 SW SANDBURG ST., SUITE 110
TIGARD, OR 97281
PH. 503-601-8250

SURVEYOR

CMT SURVEYING AND CONSULTING INC.
SHAUN FIDLER, PLS
PO BOX 3251
CLACKAMAS, OREGON 97015
PORTLAND, OREGON 97223
(503) 850-4672

PROJECT PLANNER

RYAN O'BRIEN - DR HORTON
4380 SW MACADAM, SUITE 100
PORTLAND, OREGON 97239
503-222-4151 EXT. 1115

SEWER UTILITIES

CLEANWATER SERVICES
2550 SW HILLSBORO HWY
HILLSBORO, OR 97123
(503) 681-5114
ATTN: MARVIN SPEARING

STORM UTILITIES

CLEAN WATER SERVICES
2550 SOUTHWEST HILLSBORO HWY.
HILLSBORO, OR 97123
503-681-3600
ATTN. MARVIN SPEARING

WATER UTILITIES

CITY OF NORTH PLAINS
BLAKE BOYLES - PUBLIC WORKS DIRECTOR
31360 NW COMMERCIAL STREET
NORTH PLAINS, OREGON 97133
503-647-5555

NORTH PLAINS CITY PLANNER

ANGIE LEHNERT
ASSISTANT PLANNER
31360 NW COMMERCIAL STREET
NORTH PLAINS, OREGON 97133
(503) 389-1395

LEGAL DESCRIPTION/ADDRESS

TAX MAP T1N R2W; SECTION 6, TAX LOT 1200, 1202, 2000,
30240 AND 30140 NW WEST UNION ROAD
NORTH PLAINS, OR 97113

PROPOSED USE

33-LOT SUBDIVISION
SINGLE FAMILY - RESIDENTIAL

SITE ZONING

R-2.5 MULTI FAMILY RESIDENTIAL

SITE AREA

6.37 ACRES = 277,477 S.F.

WASHINGTON CO. FIRE DISTRICT #2

STATION 17
31370 NW COMMERCIAL STREET
NORTH PLAINS, OREGON 97133
503-647-5524

OWNER-Tax Lots 1200, 2000

WEST UNION ROAD LLC
RON GUILLORY
P.O. BOX 12
HILLSBORO, OREGON 97123
PH. 503-640-5788

OWNER-Tax Lot 1202

KENNY FIELDS
30240 NW WEST UNION ROAD
NORTH PLAINS, OREGON 97133
PH. 503-680-0369

NORTH PLAINS CITY ENGINEERS

KYLE McTEAGUE & FULGENCE BUGINGO
MURRAY SMITH & ASSOCIATES
121 SW SALMON, SUITE 900
PORTLAND, OREGON 97204
(503) 225-9010

KITTREDGE ENGINEERS, LLC
6565 SW 207TH AVENUE
ALOHA, OR 97007
TEL: (503) 708-3942

COVER SHEET
McKAY FIELDS SUBDIVISION
DR HORTON
4380 SW MACADAM, SUITE 100 503-222-4151 EXT. 1115 - RYAN O'BRIEN

REGISTERED PROFESSIONAL ENGINEER
OREGON
PRELIMINARY NOT FOR CONSTRUCTION
C. P. KITTREDGE
RENEWAL 06/30/13

DATE:	3/19/2013
DRAWN BY:	CPK
PROJ. MGR:	CPK
CHECKED BY:	CPK
PROJECT NUMBER	DRH.001
CASE FILE NUMBER	N/A
SHEET NUMBER	DD1
OF	7

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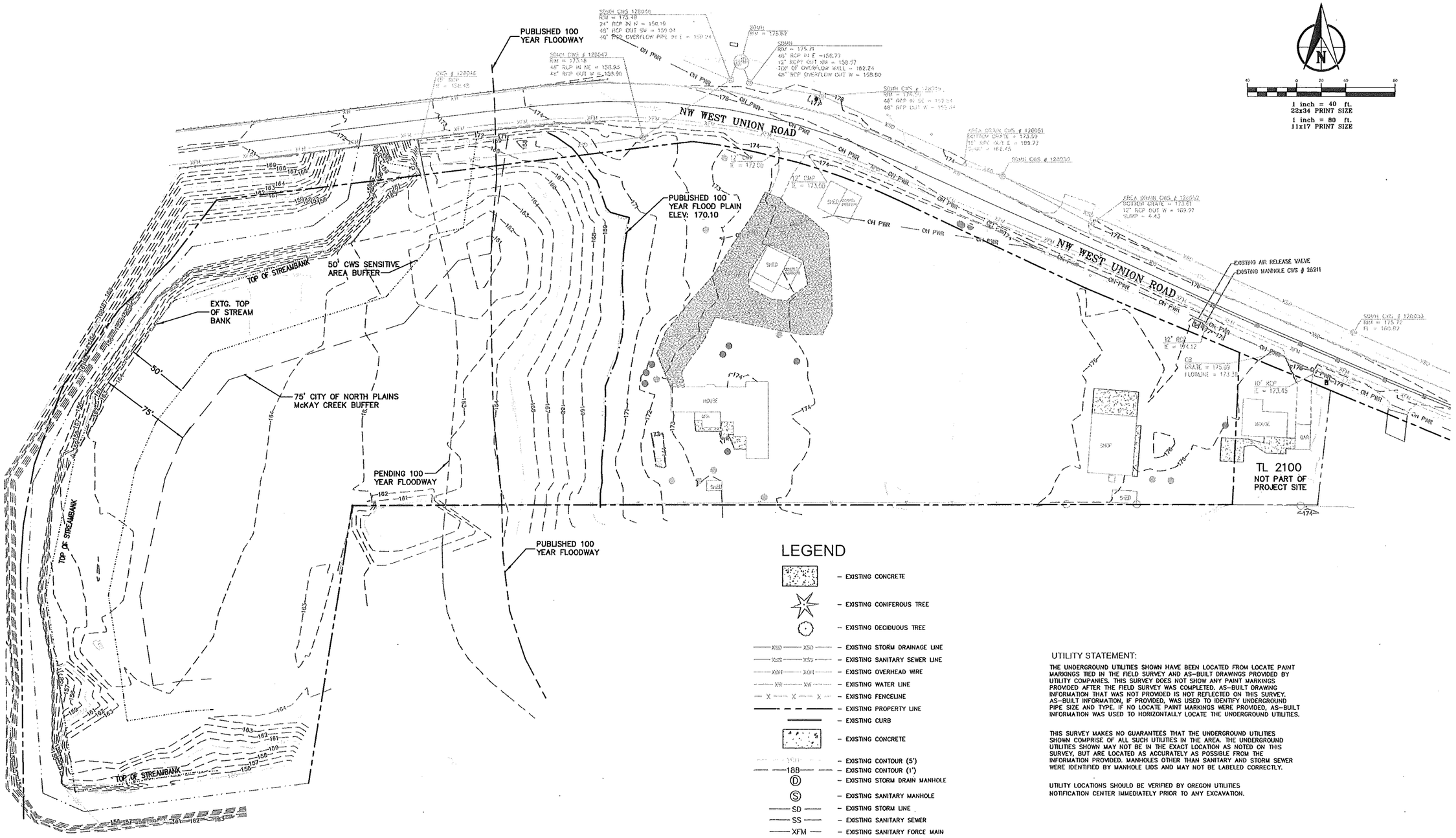


LEGEND

- EXISTING CONCRETE
- EXISTING CONIFEROUS TREE
- EXISTING DECIDUOUS TREE
- EXISTING STORM DRAINAGE LINE
- EXISTING SANITARY SEWER LINE
- EXISTING OVERHEAD WIRE
- EXISTING WATER LINE
- EXISTING FENCELINE
- EXISTING PROPERTY LINE
- EXISTING CURB
- EXISTING CONCRETE
- EXISTING CONTOUR (5')
- EXISTING CONTOUR (1')
- EXISTING STORM DRAIN MANHOLE
- EXISTING SANITARY MANHOLE
- EXISTING STORM LINE
- EXISTING SANITARY SEWER
- EXISTING SANITARY FORCE MAIN

UTILITY STATEMENT:

THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM LOCATE PAINT MARKINGS TIED IN THE FIELD SURVEY AND AS-BUILT DRAWINGS PROVIDED BY UTILITY COMPANIES. THIS SURVEY DOES NOT SHOW ANY PAINT MARKINGS PROVIDED AFTER THE FIELD SURVEY WAS COMPLETED. AS-BUILT DRAWING INFORMATION THAT WAS NOT PROVIDED IS NOT REFLECTED ON THIS SURVEY. AS-BUILT INFORMATION, IF PROVIDED, WAS USED TO IDENTIFY UNDERGROUND PIPE SIZE AND TYPE. IF NO LOCATE PAINT MARKINGS WERE PROVIDED, AS-BUILT INFORMATION WAS USED TO HORIZONTALLY LOCATE THE UNDERGROUND UTILITIES.

THIS SURVEY MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE OF ALL SUCH UTILITIES IN THE AREA. THE UNDERGROUND UTILITIES SHOWN MAY NOT BE IN THE EXACT LOCATION AS NOTED ON THIS SURVEY, BUT ARE LOCATED AS ACCURATELY AS POSSIBLE FROM THE INFORMATION PROVIDED. MANHOLES OTHER THAN SANITARY AND STORM SEWER WERE IDENTIFIED BY MANHOLE LIDS AND MAY NOT BE LABELED CORRECTLY.

UTILITY LOCATIONS SHOULD BE VERIFIED BY OREGON UTILITIES NOTIFICATION CENTER IMMEDIATELY PRIOR TO ANY EXCAVATION.

KITTREDGE ENGINEERS, LLC
6565 SW 207TH AVENUE
ALOHA, OR 97007
TEL: (503) 708-3942

EXISTING CONDITIONS

McKAY FIELDS SUBDIVISION
DR HORTON
4380 SW MACADAM, SUITE 100 503-222-4151 EXT. 1115 – RYAN O'BRIEN

REGISTERED PROFESSIONAL ENGINEER
PRELIMINARY NOT FOR CONSTRUCTION
C. P. KITTREDGE
RENEWAL 06/30/13

DATE:	3/19/2013
DRAWN BY:	CPK
PROJ. MGR:	CPK
CHECKED BY:	CPK
PROJECT NUMBER	DRH.001
CASE FILE NUMBER	N/A.
SHEET NUMBER	DD2
OF	7

KittredgeC, Plotted: Mar 29, 2013 – 1:04pm, P:\McKay Fields – Ron Guillory\dwg\Planning\Sets\GUL.001 EX COND 02.dwg

KITTREDGE ENGINEERS, LLC
6565 SW 207TH AVENUE
ALOHA, OR 97007
TEL: (503) 708-3942

AERIAL PHOTO WITH
SITE BOUNDARY OVERLAY
McKAY FIELDS SUBDIVISION

DR HORTON
4380 SW MACADAM, SUITE 100 503-222-4151 EXT. 1115 - RYAN O'BRIEN

REGISTERED PROFESSIONAL ENGINEER
PRELIMINARY NOT FOR CONSTRUCTION
C. P. KITTREDGE
RENEWAL 06/30/13

DATE:	3/19/2013
DRAWN BY:	CPK
PROJ. MGR:	CPK
CHECKED BY:	CPK
PROJECT NUMBER	DRH.001
CASE FILE NUMBER	N/A
SHEET NUMBER	DD3
OF	7

KittredgeC, Plotted: Mar 27, 2013 - 12:44pm, P:\McKay Fields - Ron Guillory\dwg\Planning\Sets\GUL001 P-AERIAL 03.dwg

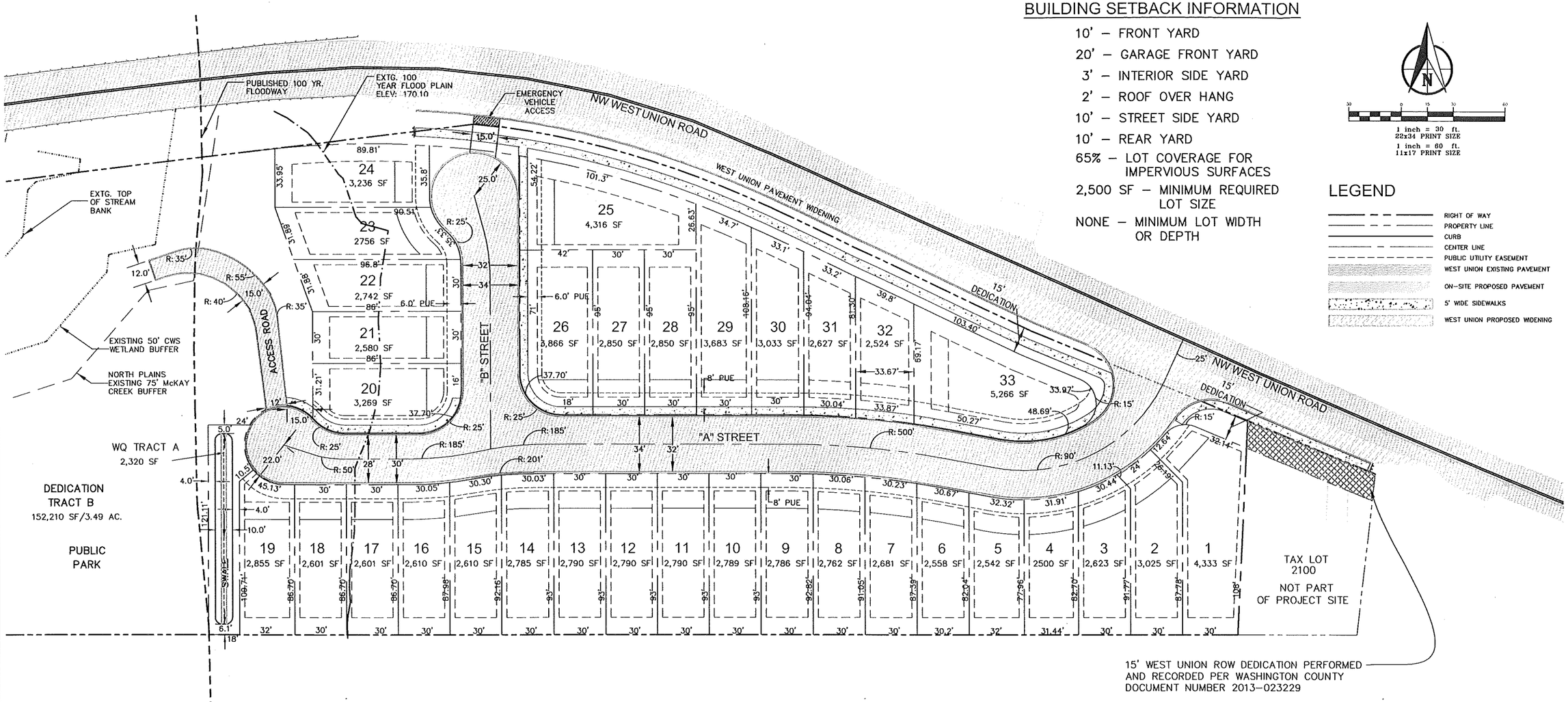
BUILDING SETBACK INFORMATION

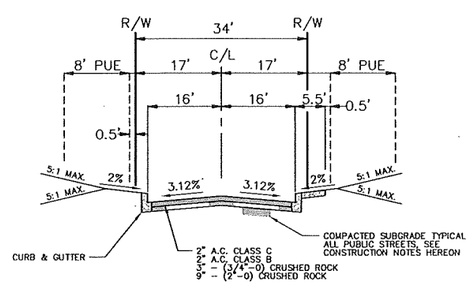
- 10' – FRONT YARD
- 20' – GARAGE FRONT YARD
- 3' – INTERIOR SIDE YARD
- 2' – ROOF OVER HANG
- 10' – STREET SIDE YARD
- 10' – REAR YARD
- 65% – LOT COVERAGE FOR IMPERVIOUS SURFACES
- 2,500 SF – MINIMUM REQUIRED LOT SIZE
- NONE – MINIMUM LOT WIDTH OR DEPTH

1 inch = 30 ft.
22x34 PRINT SIZE
1 inch = 60 ft.
11x17 PRINT SIZE

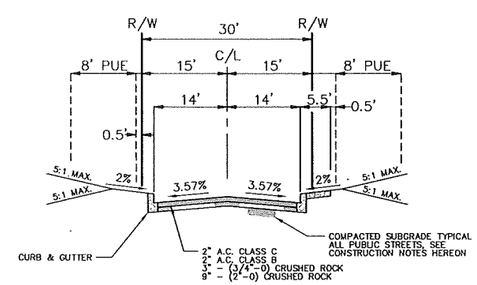
LEGEND

- RIGHT OF WAY
- PROPERTY LINE
- CURB
- CENTER LINE
- PUBLIC UTILITY EASEMENT
- WEST UNION EXISTING PAVEMENT
- ON-SITE PROPOSED PAVEMENT
- 5' WIDE SIDEWALKS
- WEST UNION PROPOSED WIDENING

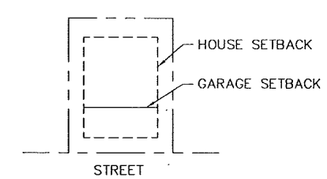




34' R/W LOCAL STREET
("B" STREET AND "A" STREET – EAST OF "B" STREET)
NTS



30' R/W LOCAL STREET
("A" STREET – WEST OF "B" STREET)
NTS



TYPICAL LOT BUILDING ENVELOPES
NTS

KITTREDGE ENGINEERS, LLC
6565 SW 207TH AVENUE
ALOHA, OR 97007
TEL: (503) 708-3942

PRELIMINARY PLAT
WITH STREET SECTIONS
McKAY FIELDS SUBDIVISION
DR HORTON
4380 SW MACADAM, SUITE 100 503-222-4151 EXT. 1115 – RYAN O'BRIEN

REGISTERED PROFESSIONAL ENGINEER
PRELIMINARY NOT FOR CONSTRUCTION
OREGON
P. KITTREDGE
RENEWAL 06/30/13

DATE:	3/19/2013
DRAWN BY:	CPK
PROJ. MGR:	CPK
CHECKED BY:	CPK
PROJECT NUMBER	DRH.001
CASE FILE NUMBER	N/A
SHEET NUMBER	DD4
OF	7

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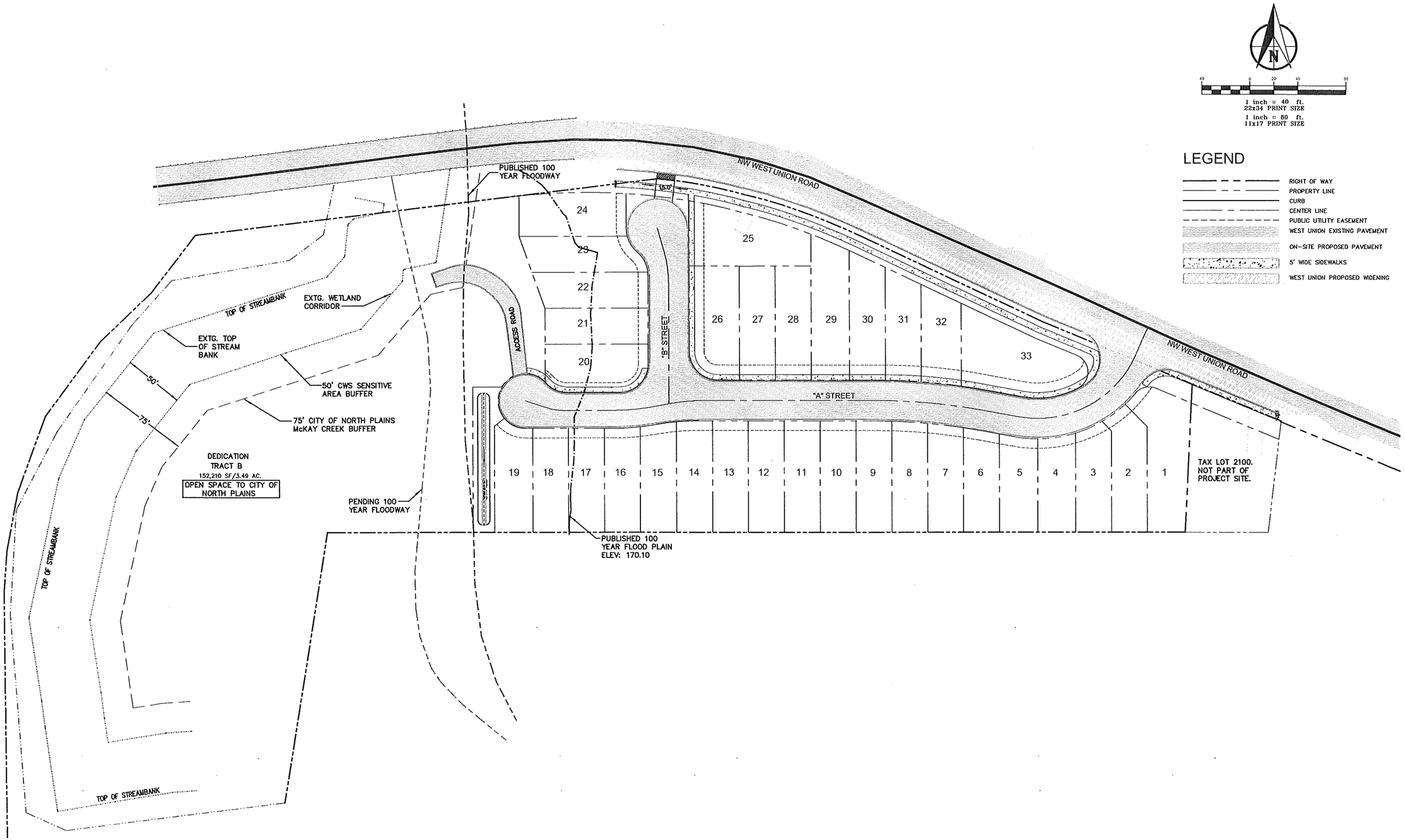


KITTREDGE ENGINEERS, LLC
6565 SW 207TH AVENUE
ALOHA, OR 97007
TEL: (503) 708-3942

OVER ALL SITE PLAN

McKAY FIELDS SUBDIVISION

DR HORTON

4380 SW MACADAM, SUITE 100 503-222-4151 EXT. 1115 – RYAN O'BRIEN

REGISTERED PROFESSIONAL ENGINEER
PRELIMINARY NOT FOR CONSTRUCTION
C. P. KITTREDGE
RENEWAL 06/30/13

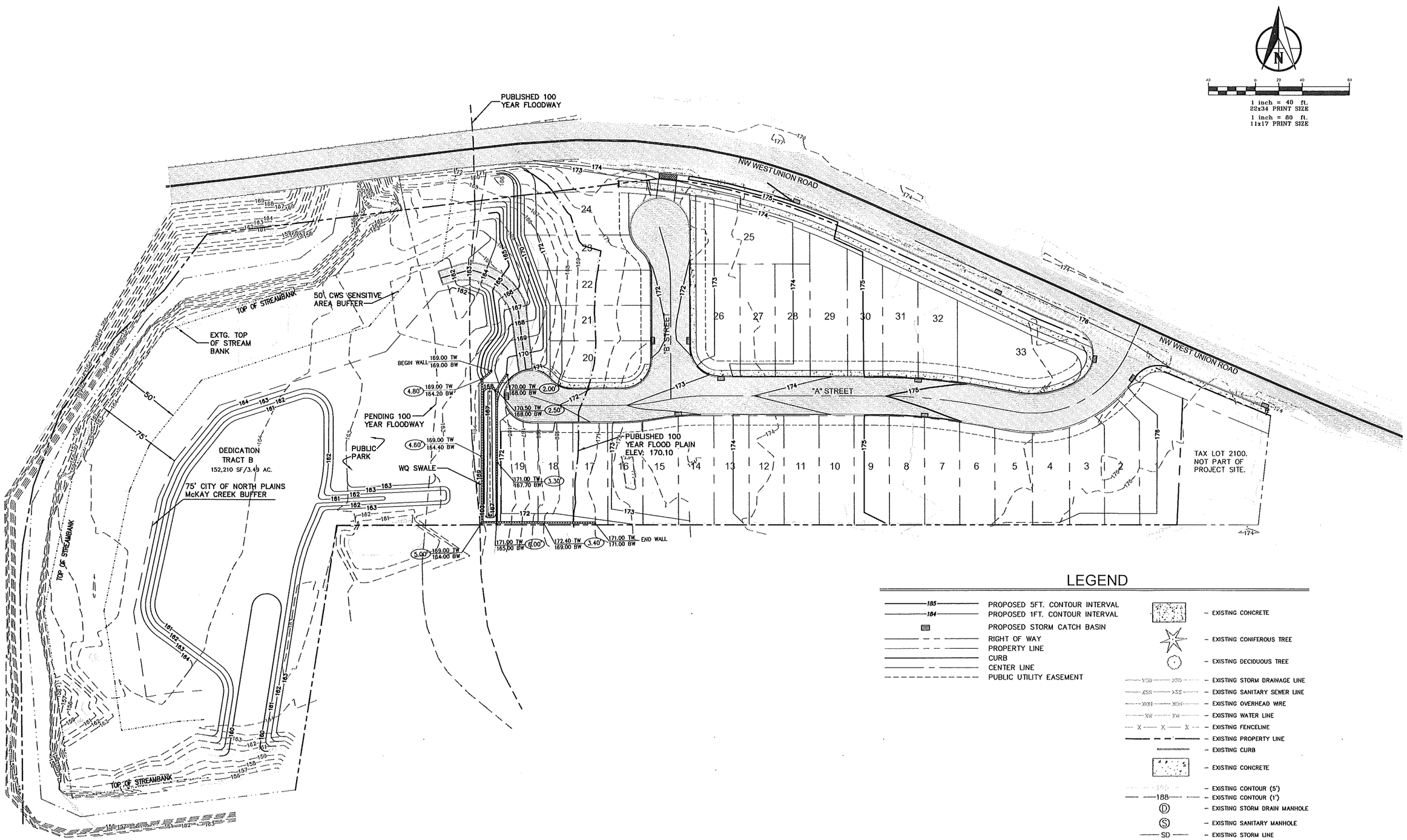
DATE:	3/19/2013
DRAWN BY:	CPK
PROJ. MGR:	CPK
CHECKED BY:	CPK

PROJECT NUMBER
DRH.001

CASE FILE NUMBER
N/A

SHEET NUMBER
DD5
OF 7

KittredgeC, Plotted: Mar 27, 2013 – 12:49pm, P:\McKay Fields – Ron Gullory\dwg\Planning\Sets\GUL.001 OVER-ALL SITE 05.dwg



LEGEND

- 185 — PROPOSED 5FT. CONTOUR INTERVAL
- 184 — PROPOSED 1FT. CONTOUR INTERVAL
- PROPOSED STORM CATCH BASIN
- RIGHT OF WAY
- PROPERTY LINE
- CURB
- CENTER LINE
- PUBLIC UTILITY EASEMENT
- EXISTING CONCRETE
- EXISTING CONIFEROUS TREE
- EXISTING DECIDUOUS TREE
- SD — EXISTING STORM DRAINAGE LINE
- SS — EXISTING SANITARY SEWER LINE
- OH — EXISTING OVERHEAD WIRE
- W — EXISTING WATER LINE
- X — EXISTING FENCELINE
- EXISTING PROPERTY LINE
- EXISTING CURB
- EXISTING CONCRETE
- 190 — EXISTING CONTOUR (5')
- 188 — EXISTING CONTOUR (1')
- D — EXISTING STORM DRAIN MANHOLE
- S — EXISTING SANITARY MANHOLE
- SD — EXISTING STORM LINE
- SS — EXISTING SANITARY SEWER
- XFM — EXISTING SANITARY FORCE MAIN

KITTREDGE ENGINEERS, LLC
6565 SW 207TH AVENUE
ALOHA, OR 97007
TEL: (503) 708-3942

PRELIMINARY
GRADING PLAN
McKAY FIELDS SUBDIVISION
DR HORTON
4380 SW MACADAM, SUITE 100 · 503-222-4151 EXT. 1115 – RYAN O'BRIEN

REGISTERED PROFESSIONAL ENGINEER
PRELIMINARY NOT FOR CONSTRUCTION
CHRIS P. KITTREDGE
RENEWAL 06/30/13

DATE:	3/19/2013
DRAWN BY:	CPK
PROJ. MGR:	CPK
CHECKED BY:	CPK
PROJECT NUMBER	DRH.001
CASE FILE NUMBER	N/A
SHEET NUMBER	DD6
OF	7

SDMH CWS 128048
RIM = 175.49
24" RCP IN N = 159.19
48" RCP OUT SW = 159.04
48" RCP OVERFLOW PIPE IN E = 159.24

SDMH
RIM = 175.82

SDMH
RIM = 175.71
48" RCP IN E = 158.77
12" RCP? OUT NW = 158.57
TOP OF OVERFLOW WALL = 162.24
48" RCP OVERFLOW OUT W = 158.60

SDMH CWS # 128047
RIM = 173.18
48" RCP IN NE = 158.95
48" RCP OUT W = 158.90

CWS # 128046
48" RCP
IE = 158.48

SDMH CWS # 128049
RIM = 176.50
48" RCP IN SE = 156.54
48" RCP OUT W = 159.34

AREA DRAIN CWS # 128051
BOTTOM GRATE = 173.59
12" RPC OUT E = 169.77
SUMP = 168.45

SDMH CWS # 128050

AREA DRAIN CWS # 128052
BOTTOM GRATE = 173.61
12" RCP OUT W = 169.97
SUMP = 6.43

12" CMP
IE = 172.60

12" CMP
IE = 173.00

12" RCP
IE = 174.12

CB
GRATE = 175.09
FLOWLINE = 173.39

10" RCP
IE = 173.48

SDMH CWS # 128053
RIM = 175.72
FL = 160.82

NW WEST UNION ROAD

"B" STREET

"A" STREET

ACCESS ROAD

PROPOSED STORM LINE (TYP)

PROPOSED SANITARY LINE (TYP)

PROPOSED WATER LINE (TYP)

PROPOSED SANITARY LATERAL (TYP)

PROPOSED STORM LATERAL (TYP)

PROPOSED WATER METER (TYP)

PROPOSED WATER QUALITY SWALE

SWALE

SEE GRADING PLAN FOR SWALE OUTFALL CONTINUATION.

PUBLIC PARK

TL 2100
NOT PART OF PROJECT SITE

1 inch = 30 ft.
22x34 PRINT SIZE
1 inch = 60 ft.
11x17 PRINT SIZE

LEGEND

	PROPOSED STORM DRAIN LINE
XSD	EXISTING STORM DRAIN LINE
SS	PROPOSED SANITARY SEWER LINE
XSS	EXISTING SANITARY SEWER LINE
WAT	PROPOSED WATER LINE
XW	EXISTING WATER LINE
	PROPOSED STORM DRAIN CATCH BASIN
D	PROPOSED STORM SEWER MANHOLE
S	PROPOSED SANITARY SEWER MANHOLE
	PROPOSED BLOW OFF
	PROPOSED FIRE HYDRANT
	PROPOSED GATE VALVE
	PROPOSED WATER METER
	RIGHT OF WAY
	PROPERTY LINE
	CURB
	CENTER LINE
	PUBLIC UTILITY EASEMENT
	STORM & SANITARY EASEMENT

KITTREDGE ENGINEERS, LLC
6565 SW 207TH AVENUE
ALOHA, OR 97007
TEL: (503) 708-3942

PRELIMINARY
UTILITY PLAN
McKAY FIELDS SUBDIVISION
DR HORTON
4380 SW MACADAM, SUITE 100 503-222-4151 EXT. 1115 – RYAN O'BRIEN

REGISTERED PROFESSIONAL ENGINEER
PRELIMINARY
NOT FOR CONSTRUCTION
C. P. KITTREDGE
RENEWAL 06/30/13

DATE: 3/19/2013
DRAWN BY: CPK
PROJ. MGR: CPK
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PROJECT NUMBER
DRH.001
CASE FILE NUMBER
N/A

SHEET NUMBER
DD7
OF 7

Appendix G:

- Clean Water Services Flood Model Narrative
- Map with HEC RAS station locations.
- Post. Developed Earthwork Quantities
- HEC RAS Pre and Post sections.

Floodplains & Models

Looking for reference information about flooding?

Clean Water Services has worked with the Federal Emergency Management Services and Washington County to conduct a re-study of the floodplain in Washington County. The models referenced here represent the best available information on the floodplain's location, water surface elevation, and cubic feet per second of peak stream flows, and are currently undergoing an approval process through FEMA. Until the models are accepted by FEMA, they are not final, but remain the best available information.

This data was created for the floodplain update project and was submitted to FEMA on 3-3-06. While these maps may help developers and others locate floodplains, they are not to be used to determine whether property owners need flood insurance. Only FEMA has that information at www.fema.gov. FEMA also has floodplain data on areas outside the Urban Growth Boundary.

The models are developed for use by engineers and can be viewed by obtaining free software, HEC-RAS or HEC-HMS, from the US Army Corps of Engineers. Others may wish to view maps or obtain GIS data and may do so by viewing the Watershed Data Catalog and clicking on 100-Year Floodplain, or Cross Sections with Water Surface Elevations.

Hydrology & Hydraulics Models contain projected 2, 5, 10, 25, 50,100, & 500 year flows.

Stream or Area Name	Hydraulics (HEC-RAS Models)	Existing & Future Hydrology (HEC-HMS Models)	Future Hydrology (HEC-HMS Models)
Allen	Allen		
Beal	Beal		
Beaverton	Beaverton	East	
Bethany	Bethany	East	
Bronson	Bronson	East	
Butternut	Butternut	East	
Cedar	Cedar	Cedar	Cedar
Cedar Mill - North Johnson	Cedar Mill - North Johnson	CM Update	
Celebrity	Celebrity	East	
Chicken	Chicken	Chicken	Chicken
Council	Council	Dairy	
Dairy	Dairy	Dairy	
Dawson	Dawson	East	
Deer	Deer		
Erickson	Erickson	East	
Fanno	Fanno	Fanno	
Gales		Gales	
Glencoe	Glencoe		
Gordon	Gordon		
Hall	Hall	East	
Hedges	Hedges	Hedges	Hedges
Holcomb	Holcomb	East	
Johnson South	Johnson South	East	
Lake Oswego		Lake Oswego	
McKay	McKay	Dairy	
Nyberg	Nyberg	Nyberg	Nyberg
Rock	Rock	East	
Rock South	Rock South	Rock South	Rock South
Storey	Storey	Dairy	
Tualatin Lower	Tualatin Lower		
Tualatin Upper	Tualatin Upper		
Turner	Turner	East	
Waible	Waible	Dairy	
Willow	Willow	East	

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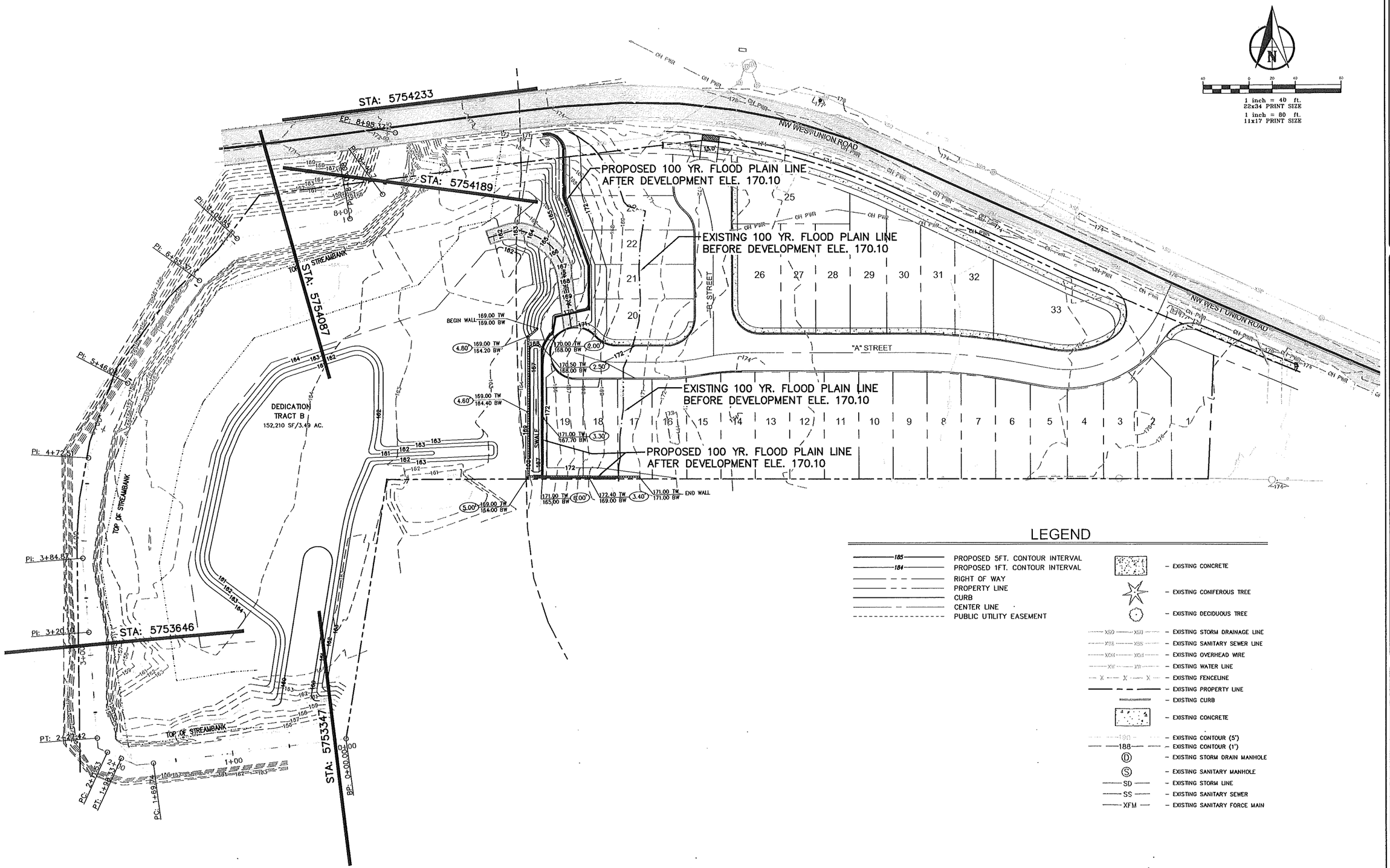
Composite Volumes

Index	Surface Pair		Volume					
	Base Surface	Comparison Surface	Cut	Fill	Net	Cut Factor	Fill Factor	Cut (adjusted)
1	CPK_SURF_UPDATED (1)	FG Surf only 3-22-2013	3447.81 Cu. Yd.	3170.56 Cu. Yd.	277.25 Cu. Yd....	1.000	1.000	3447.81 Cu. Yd.

↳ SCREEN Print from AutoCAD Civil 3D
EARTHWORK CALCULATIONS

Panorama

TL 2000



KITTREDGE ENGINEERS, LLC
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FLOOD PLAIN ANALYSIS
SECTION LOCATIONS
McKAY FIELDS SUBDIVISION
DR HORTON
4380 SW MACADAM, SUITE 100 503-222-4151 EXT. 1115 – RYAN O'BRIEN

REGISTERED PROFESSIONAL ENGINEER
PRELIMINARY
NOT FOR CONSTRUCTION
CHRIS P. KITTREDGE
RENEWAL 06/30/13

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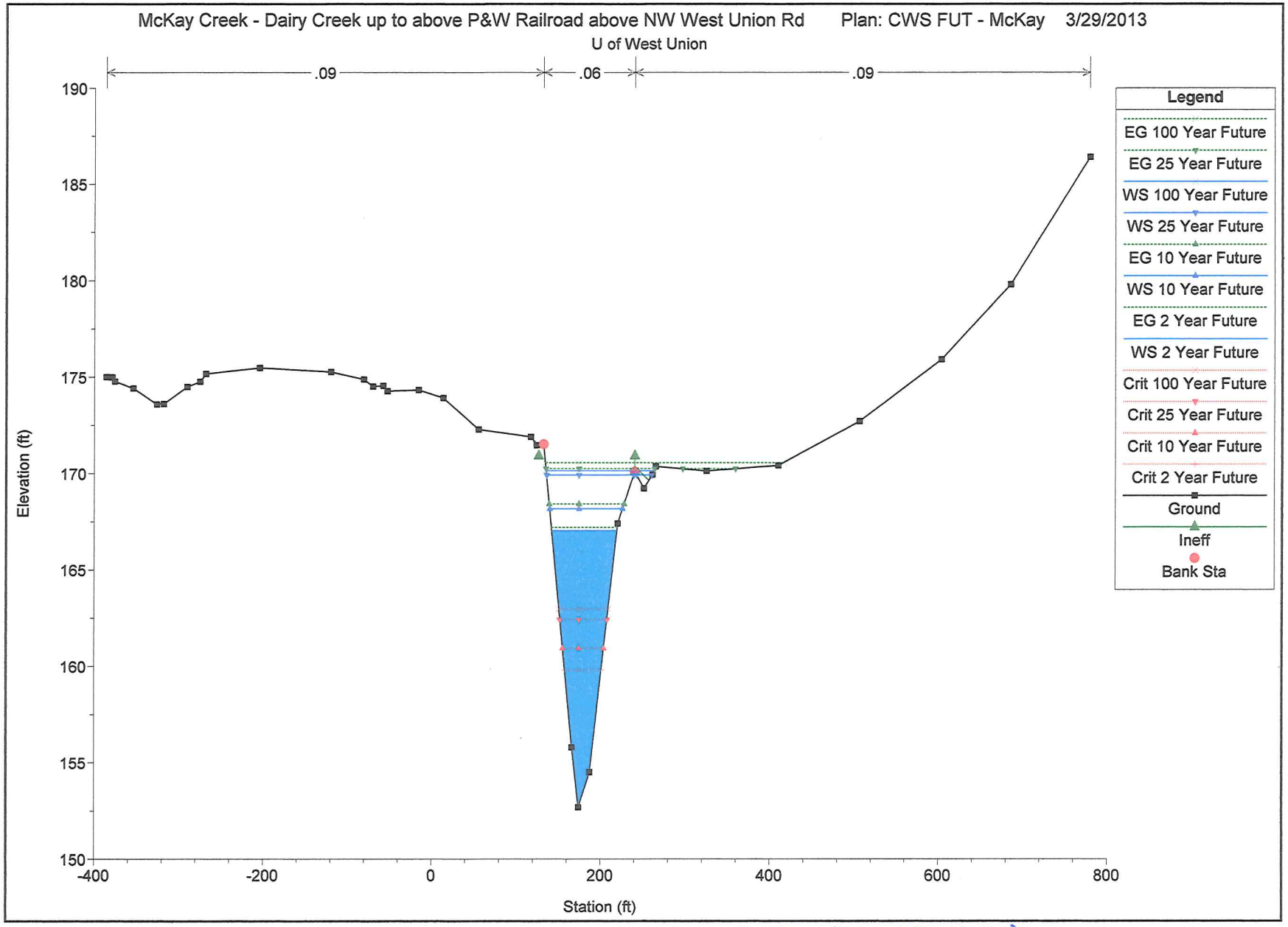
PROJECT NUMBER	DRH.001
CASE FILE NUMBER	N/A
SHEET NUMBER	EX1 OF 1

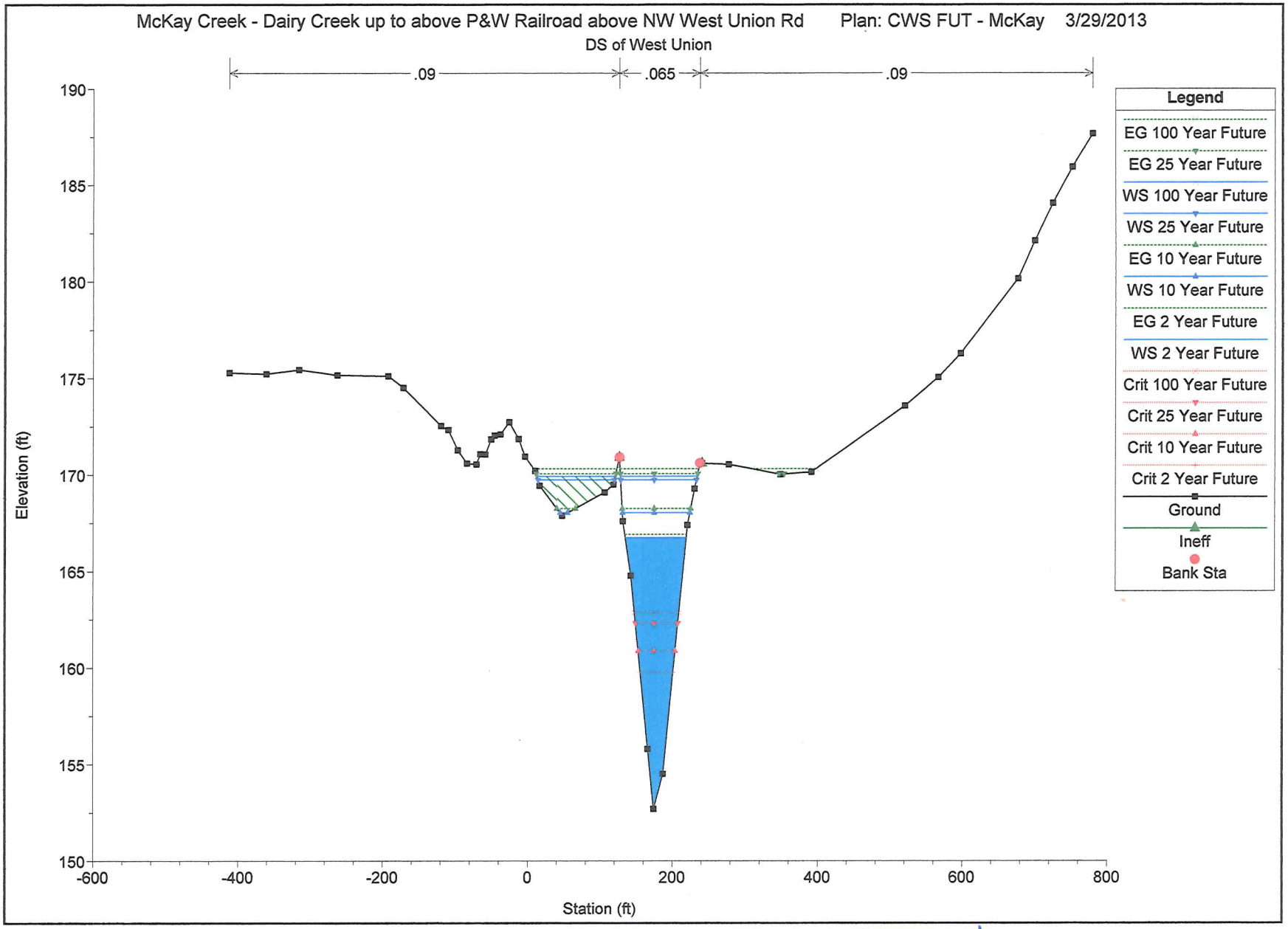
UN-ALTERED FLOOD PLAIN SECTION DATA (CLEAN WATER SERVICES & WASHINGTON COUNTY FEMA FLOOD PLAIN MODEL)

HEC-RAS Plan: CWS 2040 FUT Locations: User Defined

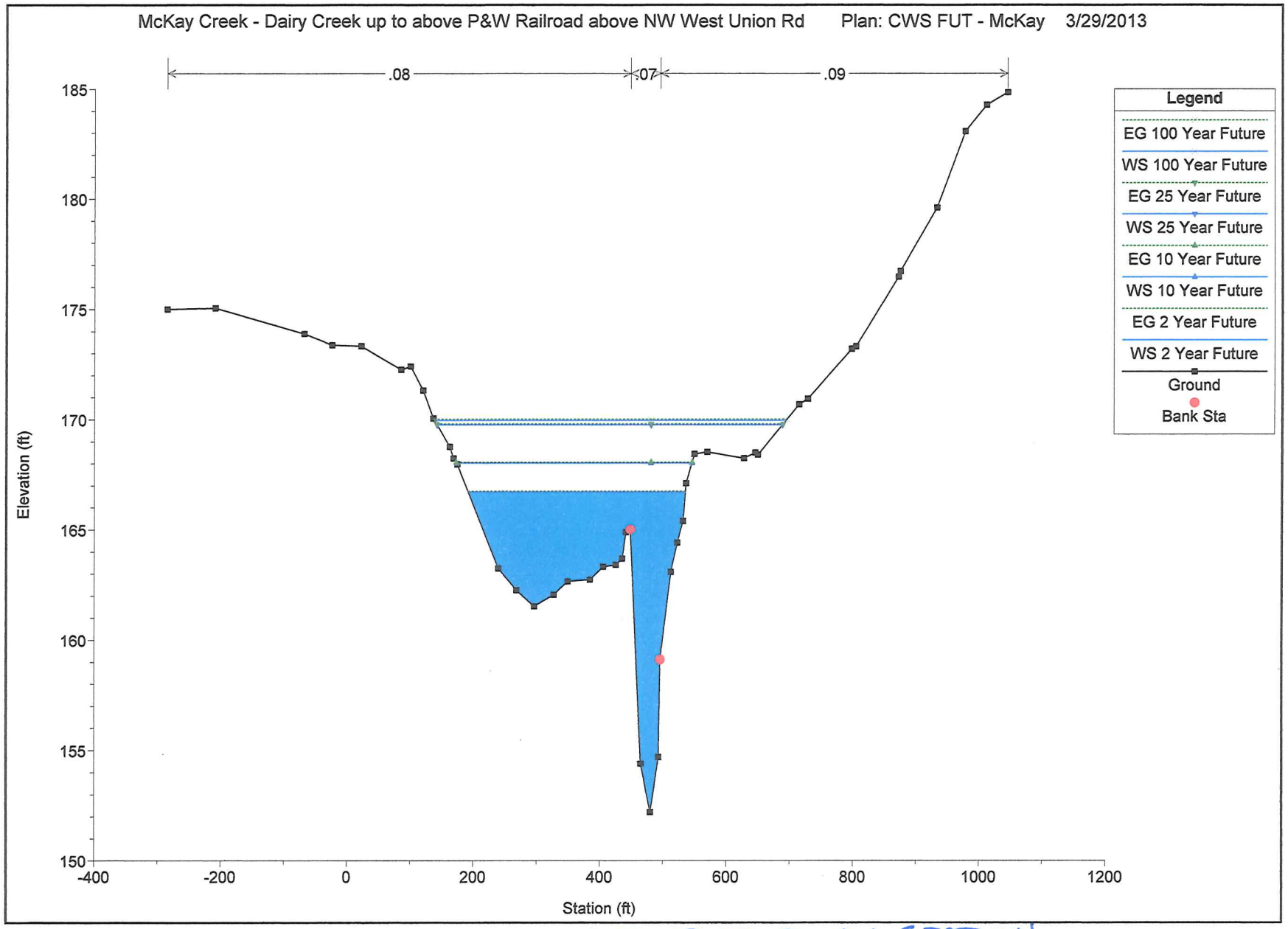
River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
McKay Creek	McKay	5754233	2 Year Future	2042.00	152.70	167.02	159.78	167.19	0.001254	3.33	613.07	77.28	0.21
McKay Creek	McKay	5754233	10 Year Future	2830.00	152.70	168.15	160.91	168.40	0.001745	4.01	704.90	86.30	0.25
McKay Creek	McKay	5754233	25 Year Future	4088.00	152.70	169.90	162.40	170.24	0.002265	4.69	870.85	121.32	0.28
McKay Creek	McKay	5754233	100 Year Future	4629.00	152.70	170.13	162.95	170.54	0.002717	5.17	894.59	127.74	0.31
McKay Creek	McKay	5754211		Bridge									
McKay Creek	McKay	5754189	2 Year Future	2042.00	152.70	166.73	159.74	166.89	0.001523	3.27	623.82	83.89	0.21
McKay Creek	McKay	5754189	10 Year Future	2830.00	152.70	168.02	160.85	168.25	0.001915	3.84	737.58	102.94	0.24
McKay Creek	McKay	5754189	25 Year Future	4088.00	152.70	169.73	162.30	170.04	0.002352	4.51	906.69	210.16	0.27
McKay Creek	McKay	5754189	100 Year Future	4629.00	152.70	169.92	162.85	170.31	0.002852	5.00	926.56	214.00	0.30
McKay Creek	McKay	5754087	2 Year Future	2042.00	152.20	166.70		166.74	0.000465	2.07	1576.73	343.31	0.11
McKay Creek	McKay	5754087	10 Year Future	2830.00	152.20	168.01		168.06	0.000453	2.20	2043.77	371.66	0.11
McKay Creek	McKay	5754087	25 Year Future	4088.00	152.20	169.76		169.81	0.000445	2.39	2885.79	545.55	0.11
McKay Creek	McKay	5754087	100 Year Future	4629.00	152.20	169.96		170.02	0.000522	2.61	2996.51	555.37	0.12
McKay Creek	McKay	5753646	2 Year Future	2042.00	152.90	166.61		166.62	0.000238	1.49	2405.61	502.24	0.08
McKay Creek	McKay	5753646	10 Year Future	2830.00	152.90	167.93		167.94	0.000226	1.57	3101.21	572.54	0.08
McKay Creek	McKay	5753646	25 Year Future	4088.00	152.90	169.68		169.70	0.000212	1.67	4150.24	622.62	0.08
McKay Creek	McKay	5753646	100 Year Future	4629.00	152.90	169.87		169.89	0.000252	1.83	4266.99	627.95	0.09
McKay Creek	McKay	5752091	2 Year Future	2042.00	151.80	166.16		166.20	0.000569	2.23	1940.66	550.51	0.12
McKay Creek	McKay	5752091	10 Year Future	2830.00	151.80	167.55		167.59	0.000454	2.17	2743.31	605.44	0.11
McKay Creek	McKay	5752091	25 Year Future	4088.00	151.80	169.37		169.40	0.000363	2.13	3946.58	711.38	0.10
McKay Creek	McKay	5752091	100 Year Future	4629.00	151.80	169.50		169.53	0.000439	2.36	4036.98	717.59	0.11



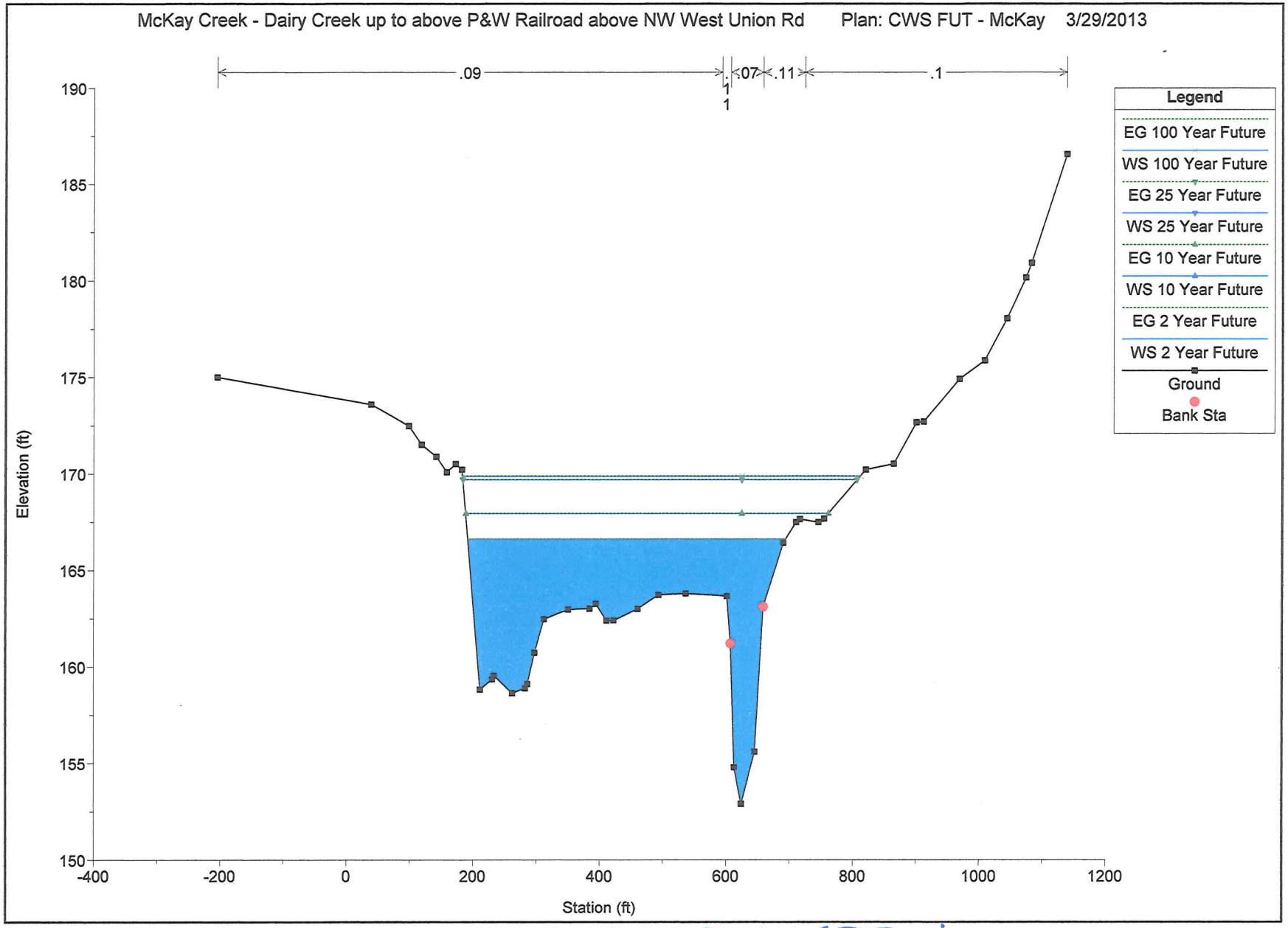
UNALTERED FLOOD PLAIN SECTION
STA 5754233



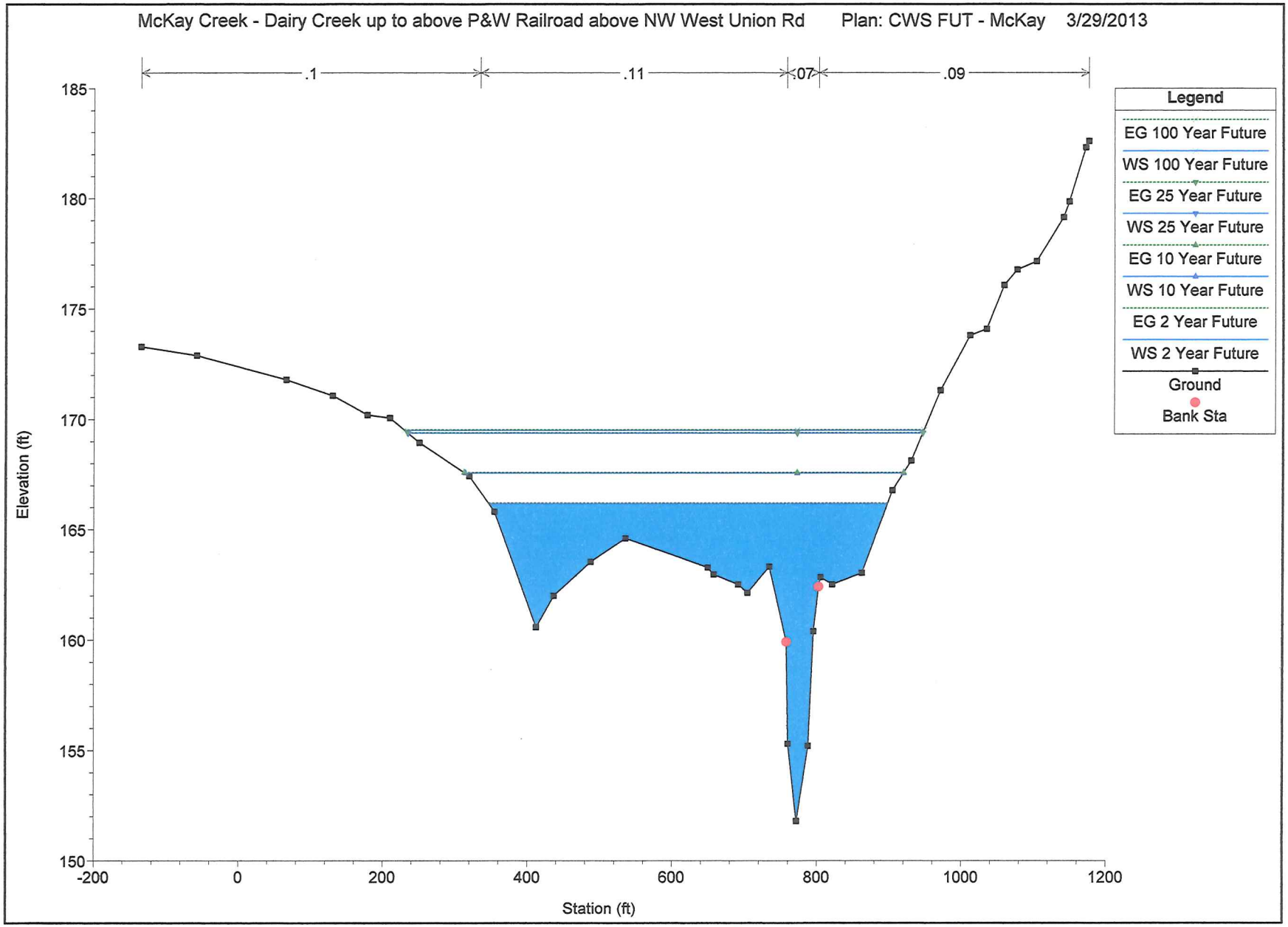
UNALTERED FLOOD PLAIN SECTION
STA 5754189



UNALTERED FLOOD PLAIN SECTION
STA 5754087



UNALTERED FLOOD PLAIN SECTION
STA 5753646

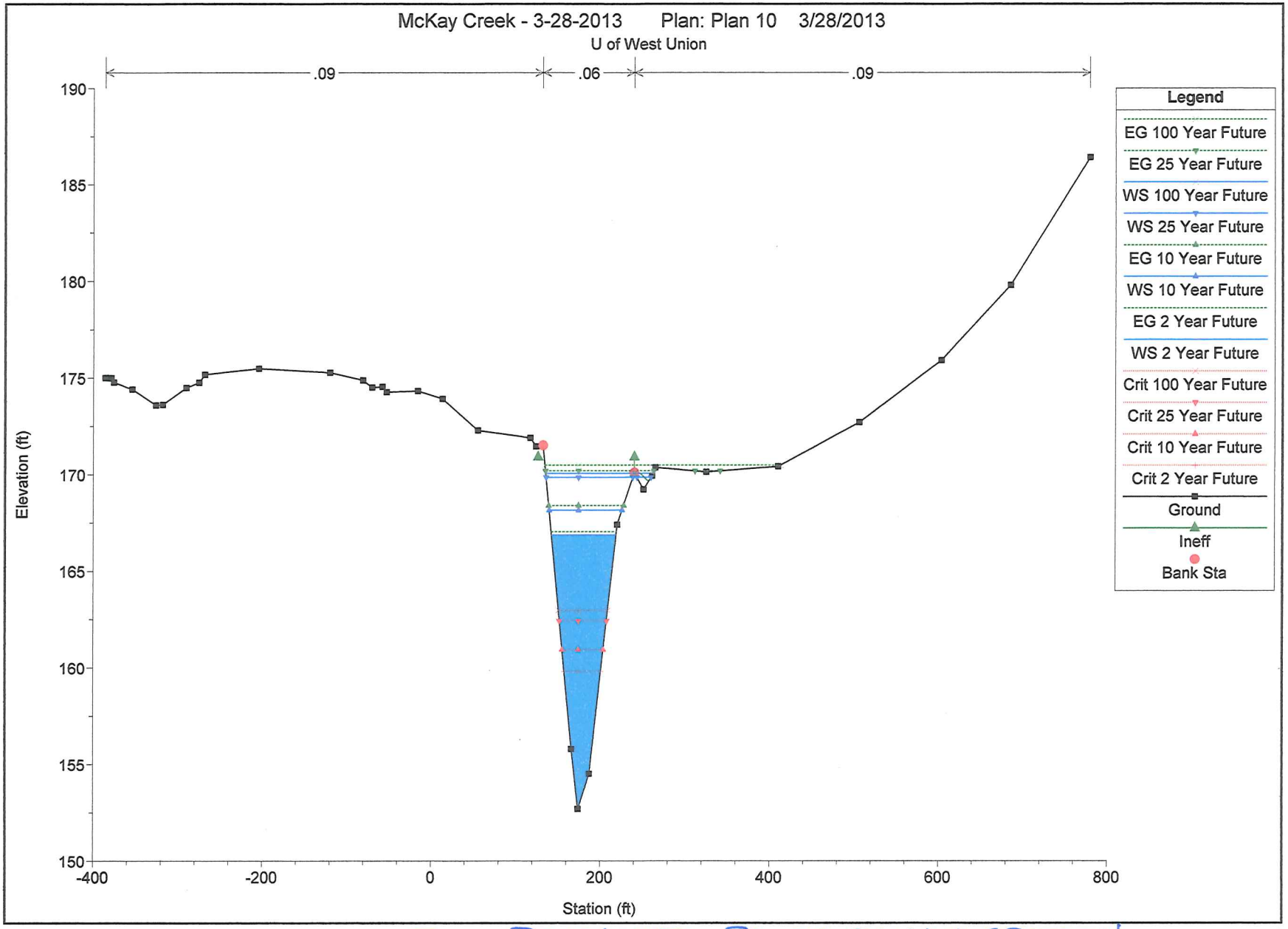


ORIGINAL FLOOD PLAIN SECTION 5752091
(UNALTERED)

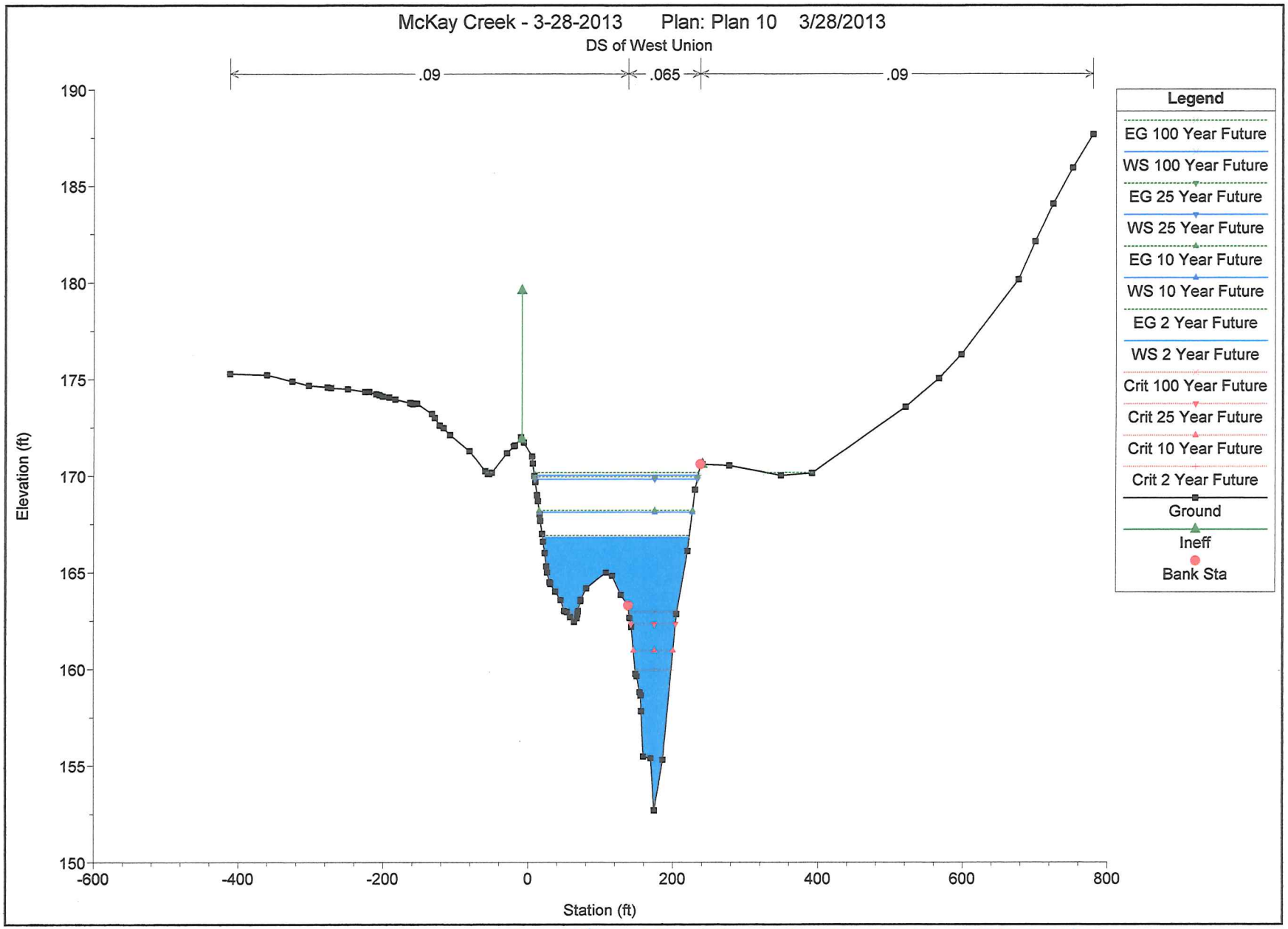
ALTERED POST-DEVELOPED FLOOD PLAIN SECTION DATA (CLEAN WATER SERVICES AND WASHINGTON COUNTY FEMA FLOOD PLAIN MODEL)

HEC-RAS Plan: CWS 2040 FUT Locations: User Defined

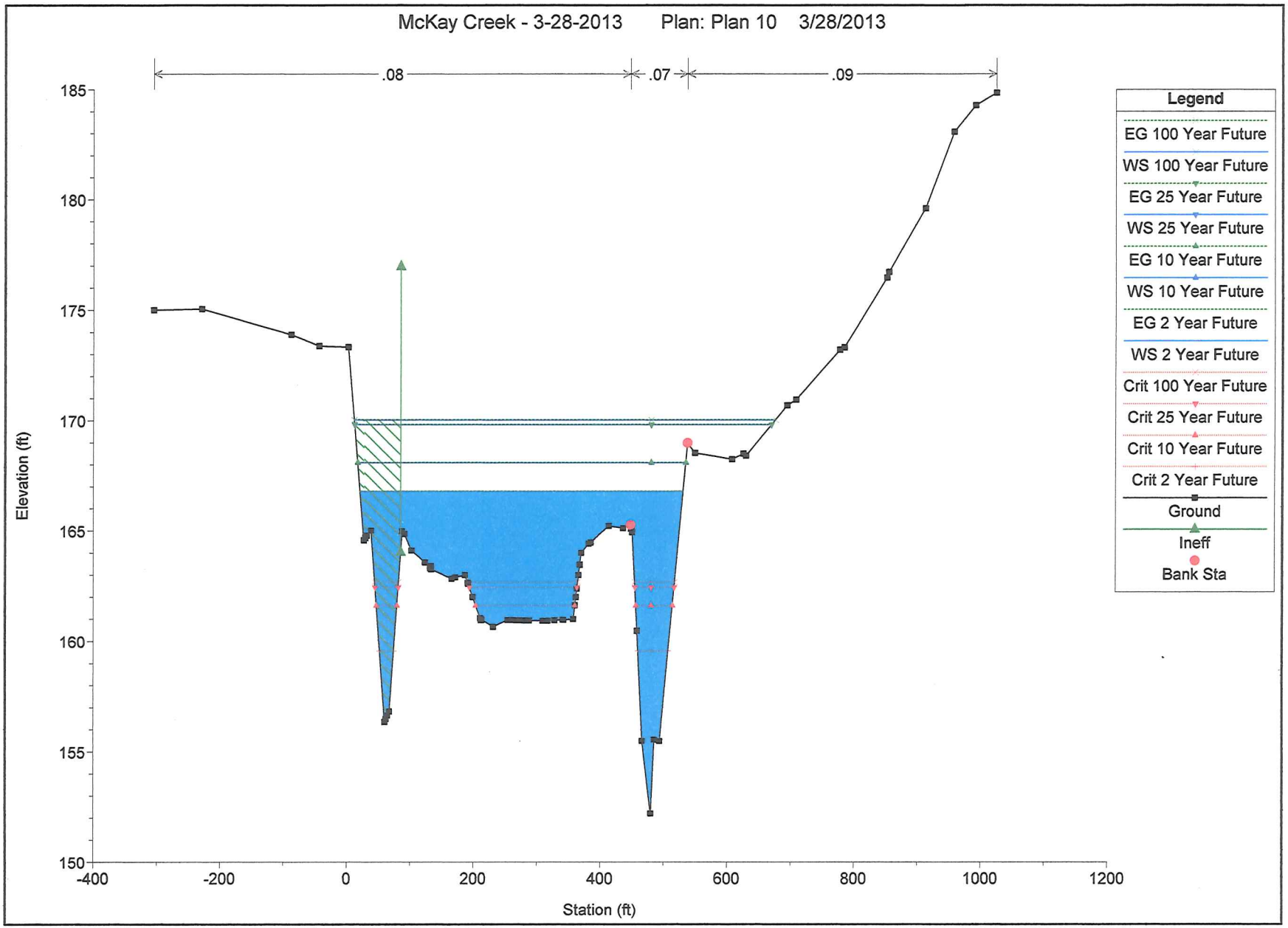
River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
McKay Creek	McKay	5754233	2 Year Future	2042.00	152.70	166.84	159.78	167.02	0.001330	3.40	599.74	76.47	0.21
McKay Creek	McKay	5754233	10 Year Future	2830.00	152.70	168.13	160.91	168.38	0.001756	4.03	702.91	86.08	0.25
McKay Creek	McKay	5754233	25 Year Future	4088.00	152.70	169.84	162.40	170.18	0.002305	4.73	864.22	118.98	0.29
McKay Creek	McKay	5754233	100 Year Future	4629.00	152.70	170.05	162.95	170.47	0.002789	5.22	886.12	126.17	0.32
McKay Creek	McKay	5754211		Bridge									
McKay Creek	McKay	5754189	2 Year Future	2042.00	152.70	166.80	159.93	166.89	0.000947	2.65	973.58	202.16	0.17
McKay Creek	McKay	5754189	10 Year Future	2830.00	152.70	168.09	160.94	168.20	0.000989	2.91	1240.14	210.95	0.17
McKay Creek	McKay	5754189	25 Year Future	4088.00	152.70	169.81	162.32	169.94	0.001035	3.22	1614.49	223.80	0.18
McKay Creek	McKay	5754189	100 Year Future	4629.00	152.70	170.02	162.95	170.18	0.001232	3.53	1661.42	225.64	0.20
McKay Creek	McKay	5754087	2 Year Future	2042.00	152.20	166.78	159.54	166.80	0.000264	1.31	2168.09	509.26	0.08
McKay Creek	McKay	5754087	10 Year Future	2830.00	152.20	168.08	161.62	168.10	0.000246	1.36	2748.13	517.13	0.08
McKay Creek	McKay	5754087	25 Year Future	4088.00	152.20	169.81	162.43	169.83	0.000226	1.45	3684.93	656.88	0.08
McKay Creek	McKay	5754087	100 Year Future	4629.00	152.20	170.02	162.67	170.05	0.000265	1.58	3807.86	663.45	0.09
McKay Creek	McKay	5753646	2 Year Future	2042.00	152.90	166.63	159.00	166.66	0.000559	1.68	1624.27	514.08	0.12
McKay Creek	McKay	5753646	10 Year Future	2830.00	152.90	167.95	160.13	167.98	0.000477	1.76	2177.11	614.37	0.11
McKay Creek	McKay	5753646	25 Year Future	4088.00	152.90	169.70	161.63	169.73	0.000400	1.84	3035.45	670.49	0.11
McKay Creek	McKay	5753646	100 Year Future	4629.00	152.90	169.88	162.07	169.93	0.000470	2.03	3132.98	676.55	0.12
McKay Creek	McKay	5753347	2 Year Future	2042.00	152.90	166.54		166.56	0.000263	1.40	2373.14	500.88	0.08
McKay Creek	McKay	5753347	10 Year Future	2830.00	152.90	167.87		167.88	0.000244	1.47	3067.18	570.84	0.08
McKay Creek	McKay	5753347	25 Year Future	4088.00	152.90	169.63		169.65	0.000225	1.55	4116.58	621.08	0.08
McKay Creek	McKay	5753347	100 Year Future	4629.00	152.90	169.80		169.83	0.000268	1.71	4226.76	626.12	0.08
McKay Creek	McKay	5752091	2 Year Future	2042.00	151.80	166.16		166.20	0.000569	2.23	1940.70	550.51	0.12
McKay Creek	McKay	5752091	10 Year Future	2830.00	151.80	167.55		167.59	0.000454	2.17	2743.35	605.45	0.11
McKay Creek	McKay	5752091	25 Year Future	4088.00	151.80	169.37		169.40	0.000363	2.13	3946.56	711.37	0.10
McKay Creek	McKay	5752091	100 Year Future	4629.00	151.80	169.50		169.53	0.000439	2.36	4037.06	717.60	0.11



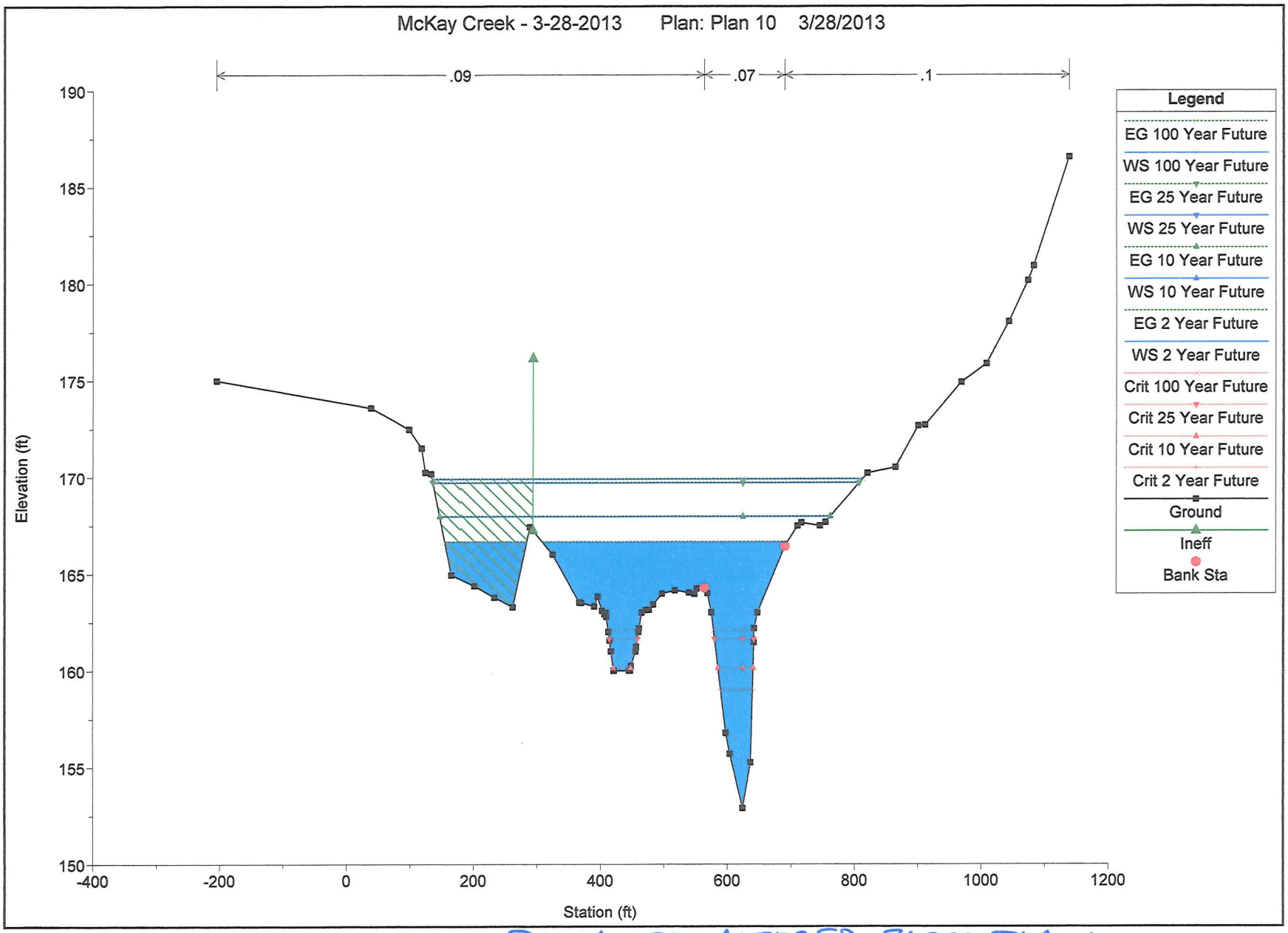
POST DEVELOPED FLOOD PLAIN SECTION
THIS SECTION IS JUST NORTH OF WEST UNION RD AND WAS NOT ALTERED BY SITE GRADING
STA ST54233



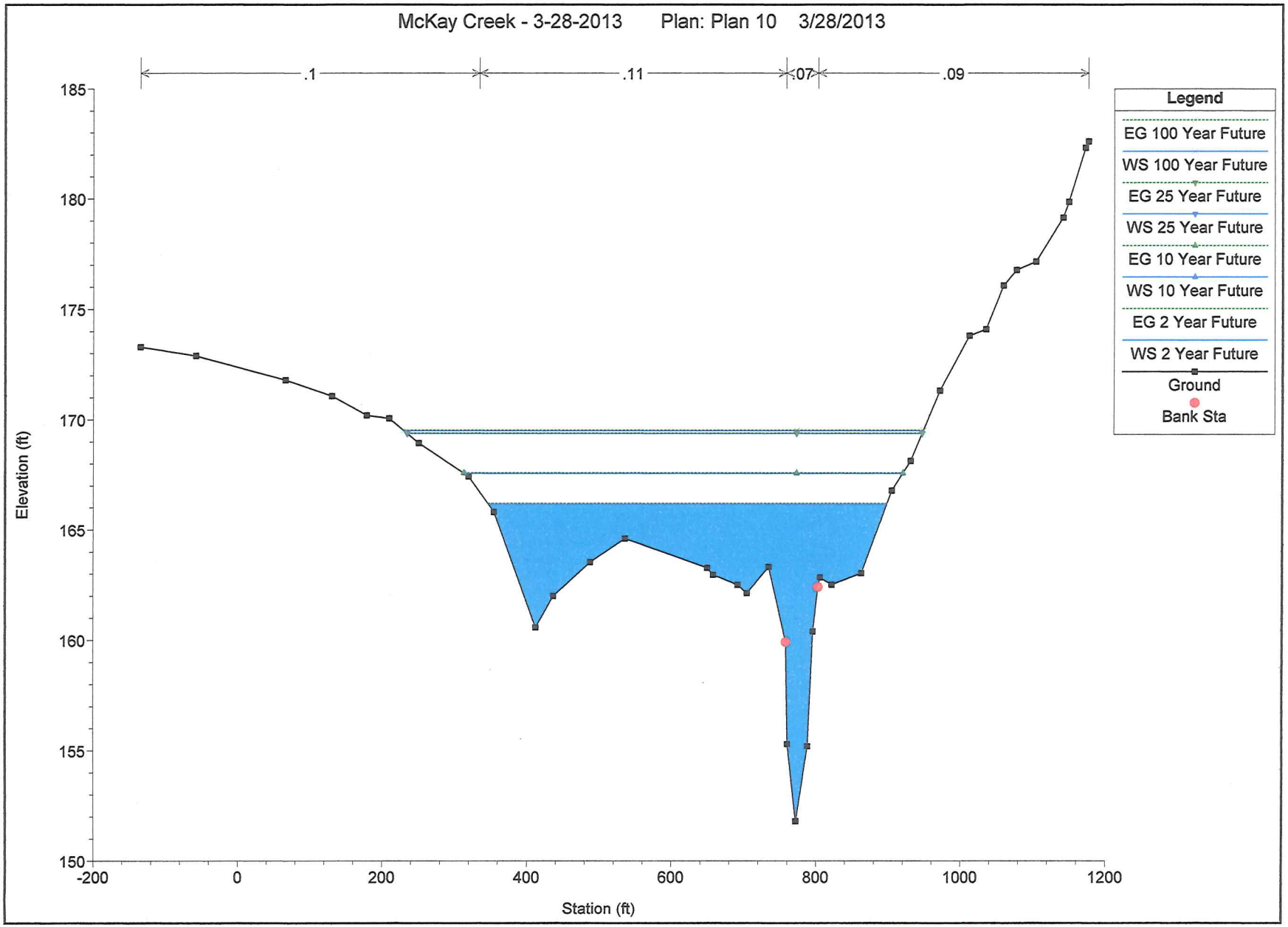
POST DEVELOPED FLOOD PLAIN SECTION
STA 5754189



POST DEVELOPED ALTERED FLOOD PLAIN
SECTION. STA 575 4087



POST - DEVELOPED ALTERED FLOOD PLAIN SECTION. STA 5753646



FLOOD PLAIN SECTION AFTER BUILD-OUT
THIS SECTION IS DOWNSTREAM OF SITE
AND WAS NOT ALTERED - STA 5752.091

City of North Plains
Planning Commission Staff Report: Variance

I. Overview

Application: The applicant is requesting a variance to reduce flag lot setbacks for Highland Court Subdivision from 10 feet to 3 feet at future residential subdivision at the intersection of Highland Court and NW 307th Avenue

City File Number: HighlandCrt-13-017-VAR

Location: The intersection of Highland Court and NW 307th Avenue (bordered properties in maps below)

TLID: 1N301DD01900 & 1N301DD01400

Lot Size: Approximately 2.41 acres

Zoning: R-2.5

Owner: DR Horton Homes

Applicant: Ryan O'Brien/DR Horton Homes

Date of Public Hearing: May 8, 2013

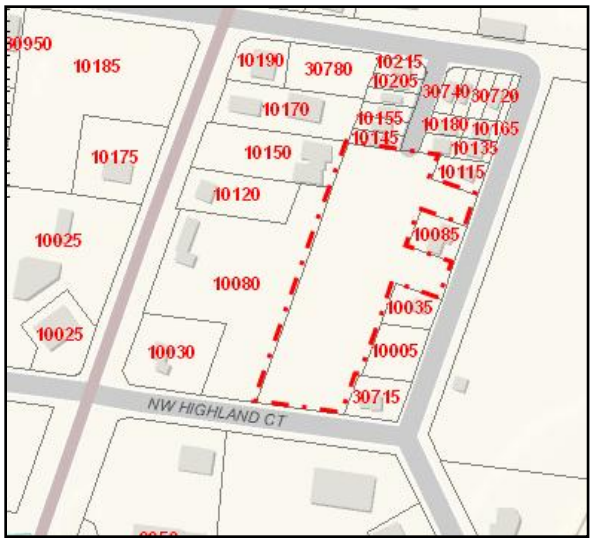


Figure 1 Highland Court Subdivision Lot 1N301DD01900

Figure 2 Highland Court Subdivision Lot 1N301DD01400

II. Exhibits

- Variance application & supporting materials
- Returned comment forms

III. Applicable Review Criteria from the *North Plains Zoning and Development Ordinance*:

- Chapter 16.30 R-2.5 Zone
- Chapter 16.170 Application Review
- Chapter 16.185 Variance

IV. Zoning Code Review & Findings

Below are applicable citations/applicable review criteria from the *North Plains Zoning Ordinance* and findings in response to the criteria. Unless discussed

Figure 3 Aerial view of Highland Court

below, the applicant has met the requirements of the applicable review criteria fully, and/or the Code's criteria are not applicable to this proposal and therefore do not warrant discussion.

CHAPTER 16.30 R-2.5 ZONE

16.30.015 Dimensional Standards

The following dimensional standards shall be the minimum requirements for all development in the R 2.5 District except for modifications permitted under Lot, Building, & Yard Exceptions or Planned Unit Development sections of this chapter. In addition, a minor adjustment of up to 10% of the required setback, area, lot size, lot depth or lot width may be granted by the City pursuant to Variance section of this chapter provided the adjustment complies with administrative variance review criteria.

A. Lot/Parcel Size

- Lots created by subdivision: 6,000 square feet maximum lot size per dwelling unit
- Single-family dwelling: 2,500 square feet minimum
- Two-family dwelling (duplexes),Triplexes & attached single family dwellings: 2,500 square feet per unit minimum lot size
- Multi-family dwelling developments (greater than 3 units):10,000 4,000 square feet minimum foot lot;
- All other uses 4,000 square feet minimum

B. Lot/Parcel Depth and Width

- No minimum lot width or depth.

C. Setback Requirements

Principle structures, accessory dwellings and accessory structures with a floor area greater than 200 square feet shall maintain the following minimum yard setbacks except that development on flag lots shall be subject to the setback standards for Flag Lots.

D. Front Yard:

- For all structures: 10 feet
- Garage: 20 feet
- Garages, carports, accessory dwellings and accessory structures shall be flush with, or recessed behind, the front building elevation of the principle structure.

E. Rear Yard:

- street-access lots 10 feet
- alley-access lots 6 feet
- Accessory Structures and Accessory Dwellings 5 feet

F. Side Yard:

- Side yards should be established to create separation between structures and meet fire codes and provide space for pervious surface area
- Single family dwellings created by subdivision must have at least one side yard
- Adjacent to street - 10 feet plus additional necessary to comply with the standards of Clear Vision Areas section of this chapter.
- Accessory Structures and Accessory Dwellings - 5 foot Adjacent to street setback, except as

provided for in the Accessory Use, Structures and Dwellings section of this chapter.

Findings: Dimensional standards are met by the applicant.

G. Flag lots approved:
10 feet for all yards, except pursuant to that the yard facing the garage shall be a minimum of 20 feet.

Findings: Since the proposed homes on lots 17-21 face a private driveway instead of public street all are considered flag lots.

The variance request is from 16.30.015.G which requires 10 foot interior side yards for flag lots. Applicant is requesting three foot interior side yards are proposed for Lot 17 to 21.

H. Height of Buildings
Buildings shall not exceed a height, measured from grade, of 35 feet. Accessory dwellings and accessory structures shall not exceed 25 feet.

I. Lot/Parcel Coverage
In the R2.5 District, the maximum lot coverage for impervious surfaces shall not exceed 65%

Findings: Applicant will be required to meet coverage standards.

CHAPTER 16.185 VARIANCE

16.185.000 Purpose and Scope
The purpose of a variance is to provide relief when a strict application of the zoning requirements of lot width, lot depth, building height, setback, access, or other dimensional or site requirements-would impose practical difficulties. These difficulties may result from geographic, topographic or other physical conditions on the site or in the immediate vicinity. No variance shall be granted which allows the establishment or expansion of use otherwise prohibited or subject to conditional use procedures.

16.185.010 Type III Variance Review Criteria
A variance may be authorized upon adequate demonstration by the applicant that the proposed variance satisfies the following criteria:
A. That special conditions and circumstances exist which are peculiar to the land, building or structure involved;
B. That granting the proposed variance would be in the public interest and would be in harmony with the purpose of the underlying zoning district and the intent and purpose of this Ordinance;
C. That the variance would result in minimal detriment to the immediate vicinity;
D. That the variance requested is the minimum variance which would make possible the reasonable use of the applicant's land, building or structure; and
E. That the special conditions and circumstances on which the application is based do not result from the negligent or knowing violation of this Ordinance by the applicant.

Findings: Most homes in the area are single story and two story detached single family dwellings, that stand at a height less than 25 feet from grade.

If the full 10 feet were required for side yards on lots 17 – 20, structures would be limited to a building envelope of 17 feet in width. Technically homes can be built in such an envelope. To create a detached single family home with multiple bedrooms and a garage in such a narrow footprint would likely require a third story resulting in structures approaching the maximum building height of 35 feet which would be taller than existing neighborhood structures.

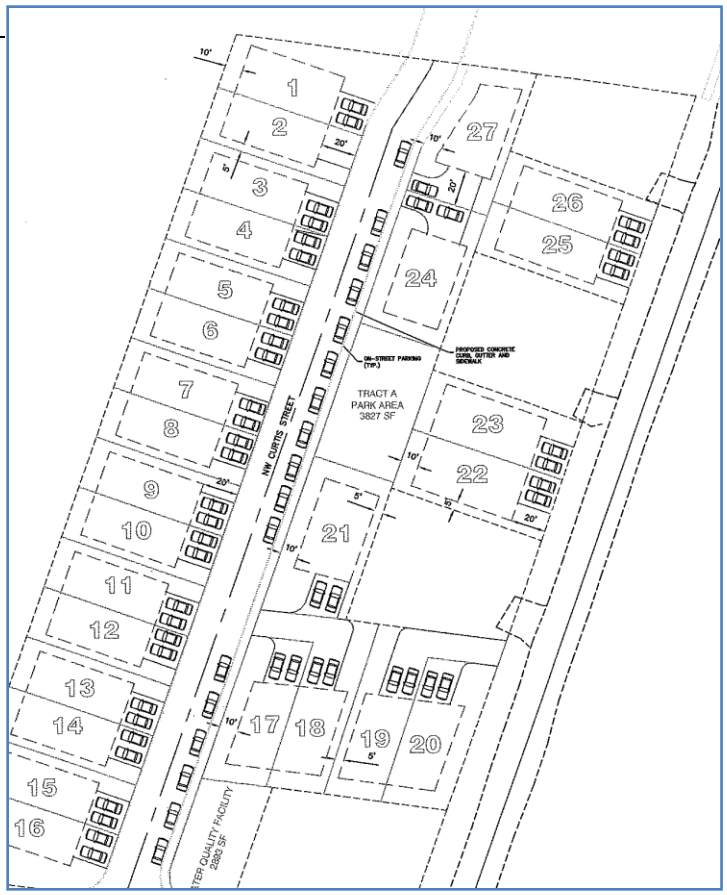


Figure 4 Original Subdivision Map

The original subdivision map reflected attached homes. Without a variance the builder could construct single-family attached housing which would have no side yard. The applicant correctly notes there have been significant changes in the Municipal Code. In 2006 a proposal for single family detached homes would have been impractical. The newer code encourages single family house construction on small lots within the R2.5 zone, and lots 1-16 and 22-27 will be constructed as single family detached homes. Single family detached homes are the norm on Curtis Street and 307th Avenue.

A three foot interior side yard would provide pedestrians walking on the public easement along the frontage of the houses with the same visual scale and appearance as other new homes proposed within the Highland Court Subdivision. A variance for a 3 foot interior side yard within lots 17-20 would be consistent in design and scale within the neighborhood.

The applicant stated *"…This variance is justified because the reduced setbacks only affect the lots in this subdivision and not adjacent lots. The only exception is the side yard of Lot 21 which is next to the rear yard of tax lots 1800. The house on Lot 21 could maintain a 10 foot interior side yard by reducing the street side yard. A variance has been submitted for this lot in the event the future home owner wants an interior side yard less than 10 feet."* Because the placement of a 24 foot width dwelling can be accommodated with side yards as prescribed in the code without a variance, and it presents no hardship to the builder, a variance appears inappropriate for lot 21.

16.185.020 Conditions of Approval

In approving an application for a variance, the Planning Commission may impose such conditions as it deems appropriate to ensure that the intent of this Section is carried out. Such conditions shall be reasonably related to the variance criteria set forth in this chapter.

Finding The purpose of granting variance for lots 17-20 is to ensure a consistent appearance and feel within the Highland Court neighborhood. Easy pedestrian/bicycle access to lots in this neighborhood are an essential aspect of the quality of life for residents of the subdivision and as such the following conditions are proposed:

1. A 5-foot wide pedestrian path should be installed within the public pedestrian easement of lots 17-21 to ensure access between the eastern and western portions of the subdivision by either the date ownership of any lot is transferred from DR Horton to another party, or within six months of the date of City of North Plains land use approval building permits for lots 17-21, whichever is earlier; and

2. DR Horton shall provide that maintenance of the path is a shared responsibility for lots 17-21 and incorporate a deed restriction into documents transferring ownership of the real property.

CHAPTER 16.170 APPLICATION REVIEW

Findings: Staff is administering this application in accordance with all criteria and procedures contained in 16.170.

VI. CONCLUSION & RECOMMENDATION

Based upon the findings contained in this Staff Report, the application materials and information submitted by the applicant, and testimony before the Planning Commission, the following actions are recommended for File #HighlandCrt-13-017-05-VAR:

1. A variance on lots 17-20 is approved, and

2. A variance on lot 21 is denied

This decision includes the following conditions of approval:

1. A 5-foot wide pedestrian path should be installed within the public pedestrian easement of lots 17-21 to ensure access between the eastern and western portions of the subdivision by the either the date ownership of any lot is transferred from DR Horton to another party, or within one year of the date of this approval, whichever is earlier; and

2. DR Horton shall provide that maintenance of the path is a shared responsibility for lots 17-21 and incorporate a deed restriction into documents transferring ownership of the real property.

Sample Motion: I move to adopt the findings contained within this Staff Report and approve File #HighlandCrt-13-017-05-VAR.

NORTH PLAINS
City to the Sunset

City of North Plains

31360 NW Commercial St. North Plains, OR 97133
Ph. 503-647-5555 Fax 503-647-2031
Email: info@northplains.org

LAND USE APPLICATION

Applicant General Information

Applicant Name: DR Horton, represented by Ryan O'Brien

Mailing Address: 4386 SW Macadam Avenue, suite 100
Street *Apartment/Unit #*

Portland Oregon 97239
City *State* *ZIP Code*

Email Address: rmobrien@drhorton.com Phone: (503) 502 - 7546

Property Owner: DR Horton

Mailing Address: same as above
Street *Apartment/Unit #*

City *State* *ZIP Code*

Email Address: Phone: ( ) -

Property Description

Address:
Street *Apartment/Unit #*

City *State* *ZIP Code*

Tax Lot ID (TLID): 1900 & 400, Map 1N3-1DD Existing Zoning: r-2.5

Property Area: 2043 acres Existing Land Use: vacant

General Development Description: Varaince to reduce the interior side yards from 10 feet to 3 feet for Lots 17 to 21 in the approved Highland Court preliminary plat

Fees

Land Use Process	Fee	Land Use Process	Fee
☐ Annexation	$10,000 deposit*	☐ Non-Conforming Use	$200
☐ Appeal	$226	☐ Subdivision	$1,895
☐ Comp Plan Amendment, Text	$8,000	☐ Manu Home Park	$2,910
☐ Comp Plan Amendment, Map	$5,000	☐ Modification – Minor	$134
☐ Conditional Use, Residential	$391	☐ Modification – Major	$1,423
☐ Conditional Use, Ind. & Comm.	$525	☐ SNR Permit	$1,047
☐ Design Review Type II	$137	☐ Similar Use	$403**
☐ Design Review Type III	$726	☐ Street Vacation	$1,169
☐ Floodplain Permit	$1,047	☐ UGB Expansion	$28,000
☐ Partition, with street dedication	$669	☐ Variance, Administrative	$98
☐ Partition, no street dedication	$331	☒ Variance, PC Hearing	$450
☐ Lot Line Adjustment	$312	☐ Zoning Code Amendment	$1,474

☐ Other: _____	

* plus $9,000 election deposit
** waived until 2013

Information to Include with Your Application

- Narrative describing the Development Proposal and addressing the Decision Criteria. *All applications will be reviewed based on the Criteria of North Plains Zoning Ordinance.* Ask Staff for the applicable chapters to address in your narrative.
- Application and Filing Fee
- Plans drawn to scale showing:
  - All property boundaries in which development is occurring
  - All adjacent roads (with names and dimensions)
  - Location and dimensions of all existing and proposed accessways/driveways
  - Location, size (area), and setbacks of existing and proposed buildings
  - Location, size, and layout of existing and proposed landscaping
  - Location, number and size of existing and proposed parking areas, including handicapped spaces
  - Location, number and size of existing and proposed loading areas
  - Location, number, size, and types of existing and proposed lighting
  - Location, number, size, and types of existing and proposed fencing and or/screening
  - Pedestrian circulation
  - Outdoor seating areas
  - Flood plains
  - Water courses
  - Significant vegetation,
  - Easements

After initial review, the City may require additional information.

Additional Information

In order to expedite and complete the processing of this application, the City of North Plains requires that all pertinent material required for review of this application be submitted at the time application is made. If the application is found to be incomplete, review and processing of the application will not begin until the application is made complete.

I certify that the statements made in this application are complete and true to the best of my knowledge. I understand that any false statements may result in denial of this application.

I understand that there may be additional costs of processing this application including, but not limited to, planning, engineering, city attorney and administration. The City will notify the applicant if there will be additional costs.

Date: 3-26-13 Signature of Applicant: [signature] for DR Horton

Date: 3-26-13 Signature of Property Owner: [signature] for DR Horton

FOR OFFICE USE

Received by: [illegible]/PS Date: 3/27/13

Fee paid: _____ Receipt No. _____ Application No. _____

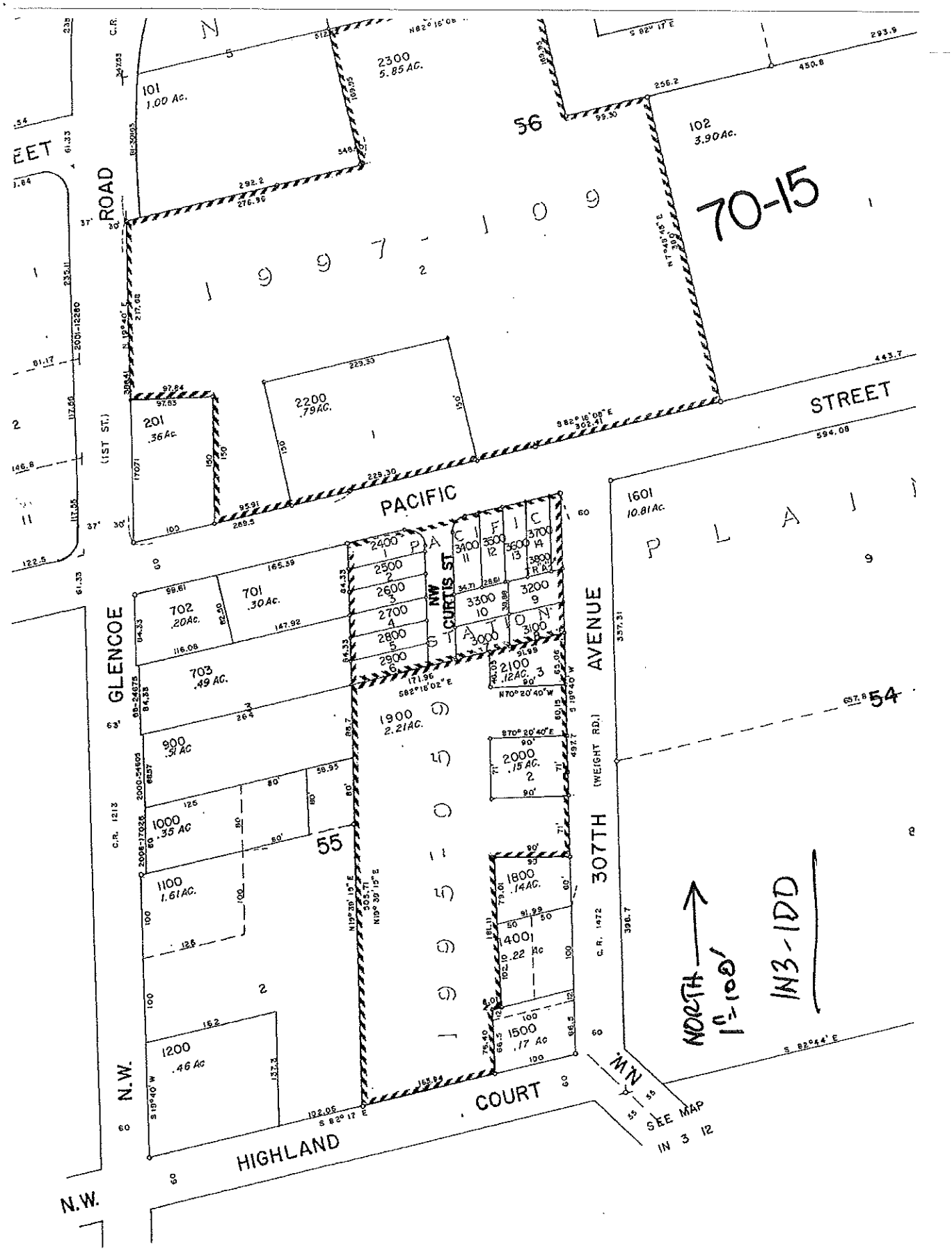
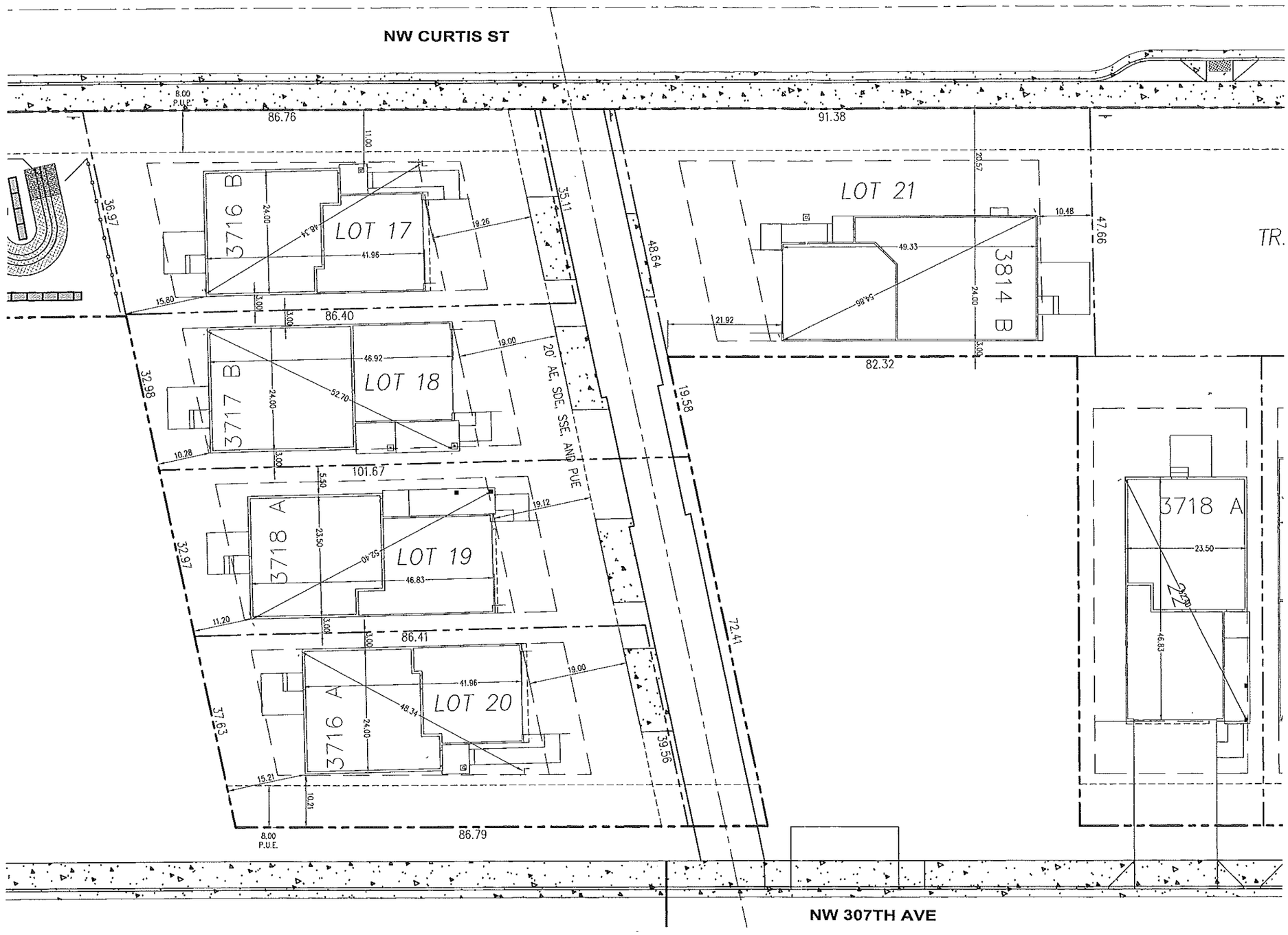

PACIFIC
STREET
GLENCOE
ROAD
(1ST ST.)
N.W.
HIGHLAND
COURT
NW CURTIS ST
307TH AVENUE
(WEIGHT RD.)
C.R. 1213
C.R. 1472
56
55
54
70-15
1997-109
2300 5.85 AC.
101 1.00 Ac.
102 3.90 Ac.
201 .36 Ac.
2200 .79 AC.
1601 10.81 Ac.
702 .20 Ac.
701 .30 Ac.
703 .49 AC.
900 .51 AC
1000 .35 AC
1100 1.61 AC.
1200 .46 Ac
1900 2.21 AC.
2100 .12 AC.
2000 .15 AC.
1800 .14 AC.
1400 .22 Ac
1500 .17 Ac
NORTH 1"=100'
IN3-1DD
SEE MAP IN 3 12

EXHIBIT "A"

HIGHLAND COURT
LOTS 17-21
NORTH PLAINS, OR

SETBACK REQUIREMENTS	
FRONT (GARAGE)	20'
FRONT (TO BLDG/PORCH)	10'
SIDE YARD (CORNER)	10'
SIDE YARD (INTERIOR)	3'
REAR YARD	10'



ADDRESS: LOTS 17-21	
PLAN :	
SCALE: 1" = 20'	
DATE : 3/25/2013	

D.R. Horton Homes
4380 SW. Macadam Avenue, Suite 100
Portland Oregon
PHONE : 503.222.4151 FAX : 503.222.3717

EXHIBIT "B"

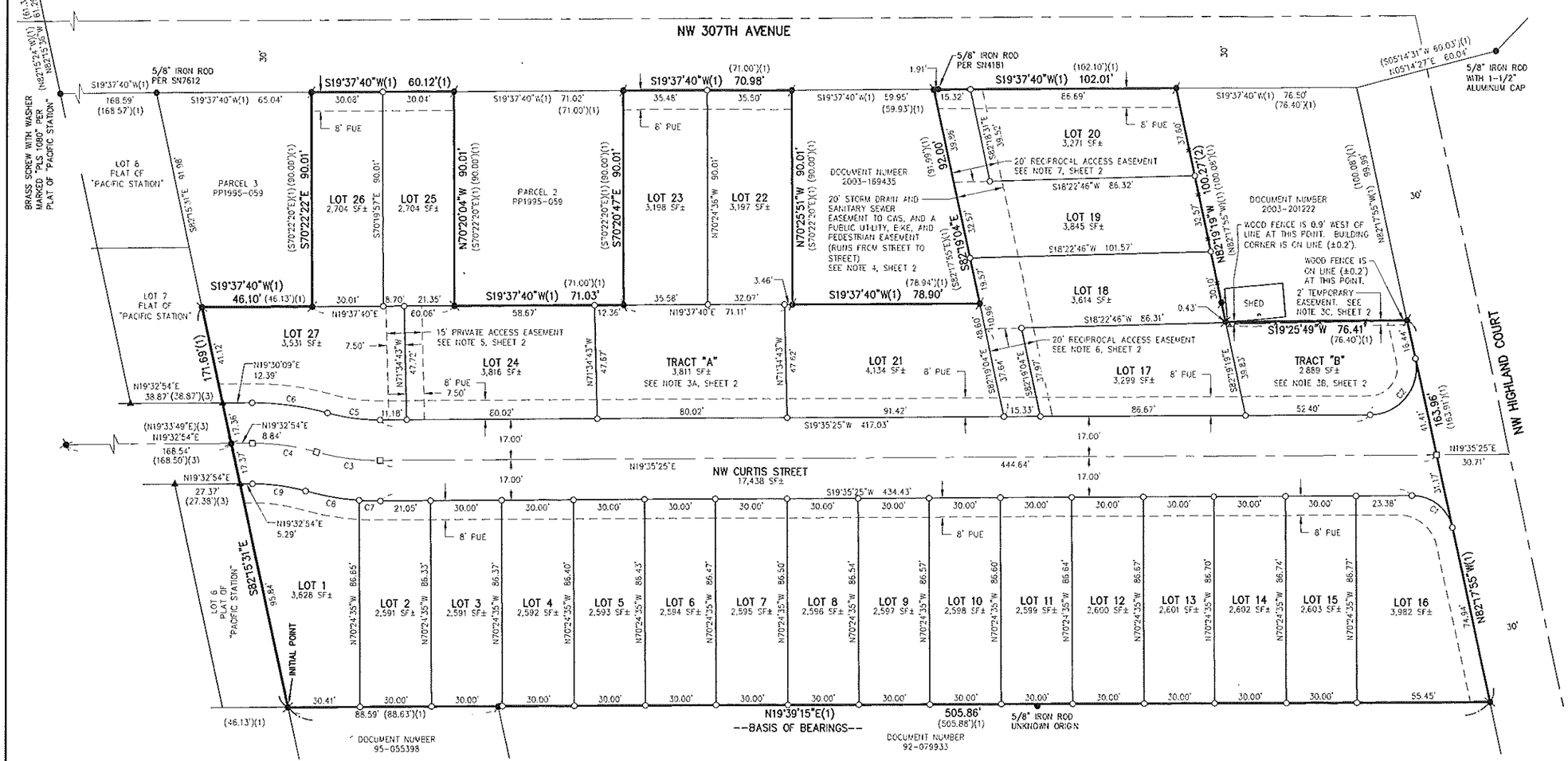
G:\Plans\Plats\Highland Court\Plat Layout\DRH63-BS.dwg - SHEET: Lots 17-21 Mar. 25, 13 - 5:59 PM GACulp

HIGHLAND COURT

RECORDED AS DOCUMENT NUMBER: _____

A REPLAT OF PARCEL 1 PER PARTITION PLAT 1995-059 AND A PORTION OF LOT 1, BLOCK 55
PER PLAT OF "NORTH PLAINS" LOCATED IN THE SOUTHEAST ONE-QUARTER OF SECTION 1,
TOWNSHIP 1 NORTH, RANGE 3 WEST, WILLAMETTE MERIDIAN
CITY OF NORTH PLAINS, WASHINGTON COUNTY, OREGON
FEBRUARY 11, 2013

SCALE 1" = 30'



MONUMENT LEGEND:

- ● – FOUND MONUMENT AS NOTED. HELD UNLESS OTHERWISE NOTED
- – FOUND 5/8" IRON ROD WITH YELLOW PLASTIC CAP MARKED "RPLS 1910" PER SN25777
- – FOUND 5/8" IRON ROD WITH 1-1/2" ALUMINUM CAP MARKED "KEENON LAND SERVICES INC" PER PLAT OF "PACIFIC STATION"
- ▲ – FOUND 5/8" IRON ROD WITH YELLOW PLASTIC CAP MARKED "KEENON LAND SERVICES INC" PER PLAT OF "PACIFIC STATION"
- ○ – SET 5/8" X 30" IRON ROD WITH ORANGE PLASTIC CAP MARKED "HHPR INC", WILL BE SET AS REMAINING MONUMENTATION. SET ON _____
- □ – SET 5/8" X 30" IRON ROD WITH 1-1/2" ALUMINUM CAP MARKED "HHPR INC" IN MONUMENT BOX. WILL BE SET AS REMAINING MONUMENTATION. SET ON _____

ABBREVIATIONS:

PUE	= PUBLIC UTILITY EASEMENT. SEE NOTE 2, SHEET 2
WCDR	= WASHINGTON COUNTY DEED RECORDS
WCSR	= WASHINGTON COUNTY SURVEY RECORDS
SF	= SQUARE FOOT

REFERENCE SURVEYS LEGEND:

###.##'	– MEASURED DISTANCE
(###.##')(#)	– RECORD DISTANCE PER REFERENCE NUMBER (BELOW)
###.##'(#)	– MEASURED AND RECORD DISTANCE PER REF. NO. (BELOW)
(1)	– RECORD INFORMATION PER SN30732, WCSR
(2)	– RECORD INFORMATION PER SN25777, WCSR
(3)	– RECORD INFORMATION PER PLAT OF "PACIFIC STATION", WCSR
(4)	– RECORD INFORMATION PER PARTITION PLAT 1995-059, WCSR

CURVE TABLE

CURVE	RADIUS	DELTA	LENGTH	LONG CHORD
C1	17.00'	078°06'40"	23.18'	N58°38'45"E, 21.42'
C2	19.50'	101°53'20"	34.68'	S31°21'15"E, 30.28'
C3	97.50'	015°58'58"	27.20'	N27°34'54"E, 27.11'
C4	97.50'	016°01'29"	27.27'	N27°33'38"E, 27.18'
C5	80.50'	015°58'58"	22.46'	S27°34'54"W, 22.38'
C6	114.50'	016°01'29"	32.02'	N27°33'38"E, 31.92'
C7	114.50'	004°29'02"	8.96'	S21°49'56"W, 8.96'
C8	114.50'	011°29'56"	22.98'	S29°49'25"W, 22.94'
C9	80.50'	016°01'29"	22.51'	N27°33'38"E, 22.44'

REGISTERED PROFESSIONAL LAND SURVEYOR
OREGON
JANUARY 10, 2006
PAUL D. GALLI
78970
RENEWS: 6/30/2013

REVIEW COPY

HHPR Harper Houf Peterson Righellis Inc.
ENGINEERS • PLANNERS
205 SE Spokane Street, Suite 200, Portland, OR 97202
phone: 503.221.1131 www.hhpr.com fax: 503.221.1171

JOB NO.: DRH-63 PDG SHEET 1 OF 2

EXHIBIT "C"

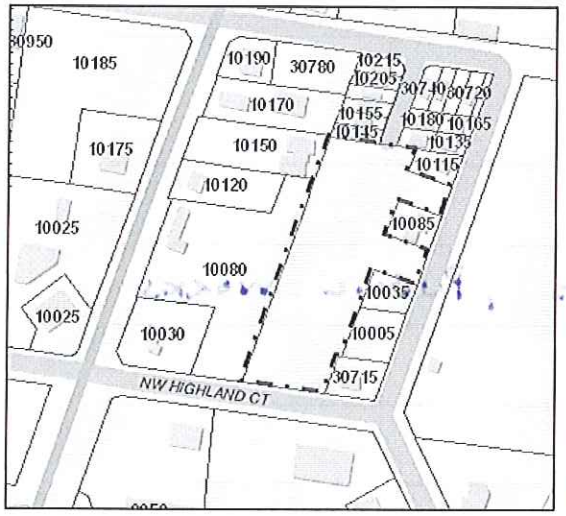
CITY OF NORTH PLAINS
NOTICE OF PUBLIC HEARING &
REQUEST FOR COMMENTS

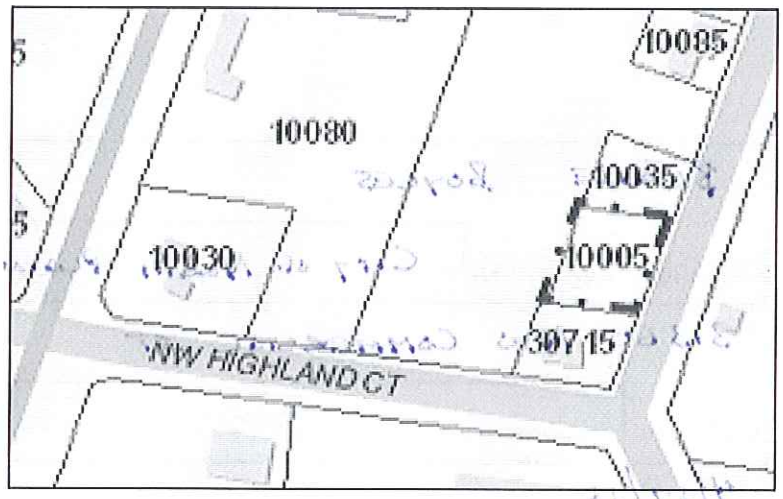
The purpose of this notice is to invite comments on a variance application to reduce flag lot setbacks from 10 feet to 3 feet at future residential subdivision at the intersection of Highland Court and NW 307th Avenue. The City will accept all written comments received prior to the hearing on May 8, 2013, 7pm at Jessie Mays Community Center, 30975 NW Hillcrest Street. Thank you!

APPLICATION: The applicant is requesting a variance to reduce flag lot setbacks from 10 feet to 3 feet at future residential subdivision at the intersection of Highland Court and NW 307th Avenue

CITY FILE NUMBER: HighlandCrt-13-017-VAR

LOCATION: The intersection of Highland Court and NW 307th Avenue (bordered properties in maps below)





TLID: 1N301DD01900 & 1N301DD01400

LOT SIZE: Approximately 2.41 acres

ZONING: R-2.5

OWNER: DR Horton Homes

APPLICANT: DR Horton Homes

DATE OF THIS NOTICE: April 17, 2013

DATE OF PUBLIC HEARING: May 8, 2013

WHAT IS THE DECISION PROCESS? The North Plains Planning Commission will make a decision after the public hearing on May 8, 2013 at Jessie Mays Community Hall, 30975 NW Hillcrest Street, North Plains, Oregon, at 7pm. The Planning Commission's decision may be appealed to the City Council.

HOW CAN I REVIEW THE DOCUMENTS AND STAFF REPORT? You can review application and staff report materials at City Hall. Copies are available at $0.25 per page or can be emailed.

INFORMATION TO INCLUDE IN COMMENTS: Issues which may provide the basis for an appeal to the Land Use Board of Appeals shall be raised in writing prior to the expiration of the comment period. Issues shall be raised with sufficient specificity to enable the decision maker to respond to the issue. Failure of an issue to be raised in a hearing, in person, or by letter, or failure to provide statements or evidence sufficient to afford the decision maker an opportunity to respond to the issue, precludes appeal.

COMMENTS:

NO COMMENT

Name: BLAKE BOYLES

Organization or Business (If Any): CITY OF NORTH PLAINS, PUBLIC WORKS

Address: 31360 NW COMMERCIAL ST

Phone # (Optional):

Date: 4/17/13

Please return by one of the following ways:

MAIL: 31360 NW Commercial Street, North Plains, OR 97133

IN PERSON: City Hall, 31360 NW Commercial Street, North Plains, OR

E-MAIL: angie@northplains.org

PHONE: (503) 647-5555

Please contact City Hall at (503) 647-5555 with any questions

Thank you!

COMMENTS:

How would making the Decision Now benefit the City?
This would be setting a Precedent on 3' Setbacks - not a good thing for the City in Future Planning!
Any Variance (if granted @ the Pleasure of the City) Should be @ Time of actual need.

FYI: I will be out of office from 4/33 to 5/10/13

Name: Tony Spiering

Organization or Business (If Any): Valley Machine

Address: 30780 NW Highland Court

Phone # (Optional): 503-647-2220

Date: 4/22/13

Please return by one of the following ways:

MAIL: 31360 NW Commercial Street, North Plains, OR 97133

IN PERSON: City Hall, 31360 NW Commercial Street, North Plains, OR

E-MAIL: angie@northplains.org

PHONE: (503) 647-5555

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Thank you!