Staff Report

Planned Development Review, Tentative Plat Review
and Tree Felling Review

Files: PD-01-20, SD-02-20, and SP-08-20

July 27, 2020

PLANNING COMMISSION: Planning Commission (Type III process)

HEARING DATE: Monday, August 3, 2020

HEARING TIME: 5:15 p.m.

HEARING LOCATION: Due to Governor Brown’s Executive Orders limiting public gatherings during the COVID-19 pandemic, this meeting is accessible to the public via phone and video connection.

At 5:15 p.m., join with the GoToMeeting app on your computer, tablet, or smartphone (using your device’s microphone and speakers):

https://www.gotomeet.me/CommunityDevelopmentCityofAlbany/pc

You can use your microphone or dial in using your phone:
Phone: 571-317-3122
Access Code: 498-239-709

Summary

The proposed development is for the phased construction of a Planned Development that will result in 11 single family lots and 44 apartment units. The development will be constructed over five phases. The site is currently vacant, 6.46 acres in size, and located at 840 Airport Road. A location map is included in Attachment A.

The site is located in a RS-5 – Residential Single-Family zoning district that includes wetlands and several white oak trees. The applicant plans to use the flexibility of the planned development standards to preserve these areas as much as possible, resulting in an improved development for the residents of the new development and the surrounding neighborhood. A site plan is included in Attachment Q.5, Sheet C3.

A total of 2.7 acres of natural open space area is proposed to be preserved, which includes a 0.93-acre grove of white oak trees on the east side of the property and 1.75 acres of grassy meadow wetland. Other common areas include a recreation building with deck and barbeque, and outdoor picnic and landscaped areas. The Common
Area Plan (Attachment Q.12, Sheet C10) shows the proposed common areas that total 3.2 acres of the 6.46-acre site.

The surrounding area has single-family residences to the north and west. Single-family residences are planned on the north and west side of the development to keep the visual impact on the surrounding area to a minimum while maintaining the look and feel of the existing residential neighborhood. A multi-family residential apartment complex is located at the center of the development to minimize visual impacts.

Planned Development Review criteria under ADC 11.240-11.330, Tentative Plat Review criteria under ADC 11.180, Tree Felling criteria under ADC 9.208(2), and Multi-Family Residential Design Standards under ADC 8.200-8.305 are addressed in this report. These criteria must be satisfied to grant approval for this application.

Application Information

Proposal: Request for a Planned Development with Land Division and Tree Felling application. The applicant is proposing a total of 55 residential units: 44 multi-family residential units and 11 single-family homes on individual lots.

Staff Report Prepared By: Melissa Anderson, Project Planner

Property Owners: Victor M. Shults (Mike) and Susan Y. Willis
PO Box 41,
St. Paul, OR  97137

Applicant: Well Built Homes
Attn: Mike Shults
PO Box 41
St. Paul, OR  97137

Applicant’s Engineer: Andrey Chernishov
HBH Consulting Engineers
501 E. First Street
Newberg, OR  97132

Address/Location: 840 Airport Road

Map/Tax Lot: Linn County Assessor’s Map No. 11S-03W-09BB Tax Lots 2700 and 2701

Zoning District: RS-5 (Residential Single Family)

Comprehensive Plan Land Use Map Designation Residential Low Density

Total Land Area 6.46 acres

Existing Land Use: Vacant

Neighborhood: Santiam

Surrounding Zoning: North: RS-6.5 (Residential Single Family)
South: RS-6.5, OP (Office Professional) & RM (Residential Medium Density)
East: Right-of-Way
West: RS-6.5

Surrounding Uses:
North: Residential
South: Residential
East: Airport Road and Interstate 5
West: Residential

Prior History:
ZC-03-19: Rezone from RS-6.5 to RS-5 was approved September 25, 2019 (Ordinance 5933). Lot Line Adjustment file LA-03-16 to reorient a property line on site was approved in 2017.

Notice Information
A Notice of Public Hearing was mailed to property owners located within 500 feet of the subject property on July 13, 2020. The Notice of Public Hearing was posted on the subject property by July 24, 2020. The staff report was posted on the City’s website July 27, 2020. At the time this staff report was completed, no comments had been received.

Appeals
Within five days of the Planning Commission’s final decision on this application, the Community Development Director will provide written notice of decision to the applicant and any other parties entitled to notice. A decision of the Planning Commission may be appealed to the City Council if a person with standing files a Notice of Appeal and associated filing fee with the City within 10 days of the date the City mails the notice of decision.

Staff Analysis
The Albany Development Code (ADC) includes the following review criteria for a conditional use review, which must be met for the applications to be approved. Code criteria are written in **bold italics** and are followed by findings and conclusions.

PLANNED DEVELOPMENT REVIEW CRITERIA (ADC 11.240-11.330)

**Definition (ADC 11.240)**
A planned development is a master planned environment intended for a variety of related activities. It promotes an integrated, coordinated development of land, normally involving increased flexibility in use and design standards, with special incentives or restrictions on development. A planned development may be primarily residential uses with associated commercial uses, a mixed-use development, or it may be a commercial or industrial development.

**Finding of Fact**
The proposal is for an integrated and coordinated development of land for residential use, consistent with the definition stated above.

**purposes (ADC 11.250)**
The purposes of a Planned Development are to:

1. Encourage more innovative planning that results in more desirable or sustainable environments or neighborhoods, improved protection of open spaces, transportation options, and site phasing of developments through the application of flexible and diversified land development standards than would otherwise occur under conventional land development procedures; and
(2) Facilitate the efficient use of land and resources in regard to land uses, buildings, circulation systems, natural features, energy conservations, open space and utilities.

Finding of Fact
The application proposes an integrated planned development for residential uses. The planned development proposes efficient use of land and protection of open spaces. Flexibility in standards are described under Criterion ADC 11.280 (below). These criteria are met.

Procedure (ADC 11.260)
A planned development is processed in two steps. The first step is review of the planned development project design and land uses by the Planning Commission under the Type III procedure. The final approval is reviewed by the director through the Type I procedure.

Finding of Fact
Through this land use review process, the subject application for a planned development is processed in accordance with a two-step process. The planned development project design and land uses are reviewed by the Planning Commission through a Type III procedure, in accordance with ADC 1.360. The final approval would be reviewed by the Community Development Director through a Type I procedure, in accordance with ADC 1.320. This criterion is met.

Permitted Buildings and Uses (ADC 11.270)
The following buildings and uses are permitted individually or in combination in a planned development:

(1) Residential areas:
   (a) Accessory buildings and uses (permitted in combination with principal uses only);
   (b) Duplexes;
   (c) Dwellings, multiple-family;
   (d) Dwellings, single-family;
   (e) Open space;
   (f) Parks, playgrounds, golf courses, driving ranges, community centers, or recreation facilities supported by the planned development; and
   (g) Commercial services to primarily serve the Residential Planned Development.

Finding of Fact
The subject planned development proposes single-family and multi-family residential land uses, in combination with recreational uses and open space areas. This criterion is met.

Standards That May Be Modified (ADC 11.280)
The following standards may be modified in order to create developments that are superior to those that could be developed through the conventional development standards:

Criterion 1

_Deviation Standards. Minimum lot area, width and frontage, height and yard requirements will not be used to dictate the development but will act as general guidelines that may be adjusted to provide for a higher quality development._

Finding of Fact
1.1 The subject property is located in the RS-5 – Single Family Residential zoning district. The development standards of the RS-5 zone are presented under ADC 3.390, Table 1. In the RS-5 zone, the minimum lot size is 5,000 square feet, and the minimum lot width and depth is 40 feet and 70 feet, respectively.
1.2 The applicant addresses this criterion on Attachment E.18. Those findings are included here by reference.

1.3 The development proposes 12 parcels; one parcel is over five acres and 11 parcels are proposed for single-family dwellings. All of the proposed parcels meet the minimum lot width and depth standards; however, two of the proposed single-family home parcels are less than 5,000 square feet in area. The Preliminary Plat shows Lot 4 is proposed to be 4,774 square feet and Lot 11 is proposed to be 4,615 square feet in size (Attachment Q.4). The criterion above allows for a modification in the lot area. In addition, ADC 3.200 allows for lot size variation within subdivisions. Therefore, the minimum lot area standards are met.

1.4 Similar to planned developments, which permit modification to development standards, cluster development standards permit modifications to front yard setbacks and lot coverage. ADC 11.495, Table 11-2 states the RS-5 zone is allowed a 10-foot front yard setback (vs. 15 feet) and a 70 percent lot coverage (vs. 60 percent). Using this standard that is otherwise permitted outright in cluster developments, this modification to the front yard setback and lot coverage may be applied to future single-family home Lots 1-11. A condition of approval is included to permit a 10-foot front yard setback and a 70 percent lot coverage for Lots 1-11. Note: the minimum driveway length from the front property line is 20 feet; the modification to the front yard setback for the house does not apply to the minimum 20-foot setback for garages.

1.5 The planned development does not propose modifications to the lot frontage or height requirements.

Conclusions

1.1 The proposal does not request modifications to the lot area, frontage or height requirements through this planned development process.

1.2 A modification to the front yard setback and lot coverage for proposed single-family Lots 1-11 is permitted through this planned development process; this is consistent with developments in the RS-5 zone per ADC 11.495, Table 11-2.

1.3 This criterion can be met with the following condition.

Condition of Approval

Condition 1 Lots 1-11 are permitted to have a 10-foot front yard setback and a 70 percent lot coverage. Notwithstanding this modification, the minimum driveway length from the garage to the front property line is 20 feet, in accordance with ADC 3.190, Table 1.

Criterion 2

Minimum Parking. Where the development provides common parking areas for adjacent uses, no minimum number of parking spaces will be required. It is the developer’s responsibility to provide adequate off-street parking and loading areas. In proposing the parking areas, the developer shall provide the City with information on expected demand for parking, including trip generation for the uses that share the parking area.

Finding of Fact

2.1 The minimum parking requirements are listed under ADC 9.020, Table 9-1. Two on-site parking spaces are required and can be provided on each of the proposed single-family parcels. A total of 60 on-site parking spaces is required for a multi-family development with eight two-bedroom units and 36 one-bedroom units. A total of 81 parking spaces are proposed for the multi-family apartment complex (50 spaces and 31 garages). Therefore, the subject planned development does not propose modifications to the parking requirements.

2.2 The applicant addresses this criterion on Attachment E.18.

2.3 This criterion is met.
Criterion 3

Streets. Private streets may be constructed in a planned development. These streets may be narrower than usual where on-street parking is prohibited and where access is limited to pre-approved locations. Any private street in an industrial planned development must be constructed to public standards. All lots must be provided with direct access to a public or private street.

Finding of Fact
3.1 The planned development for residential use proposes on-site private streets with a reduced road width. Findings for the proposed private streets and access is addressed in full, later in this report, under Tentative Plat Review Criterion Four (ADC 11.180) and Site Plan Review Criterion Four, (ADC 2.450(4)). Those findings are included here by reference.
3.2 All of the lots are provided with direct access to a public or private street. Lots 1-7 and Lot 12 have access to private streets and Lots 8-11 have access to Franklin Avenue.
3.3 The applicant addresses this criterion on Attachment E.18. Staff concurs with the applicant’s findings for the modification to the street standards.
3.4 This criterion is met.

Professional Design Team Required (ADC 11.290)
An applicant for a planned development approval must certify in writing that a member of each of the following professions will be used in the planning and design process for the proposed development:

(1) A licensed architect or professional designer;
(2) A certified nurseryman, landscape architect, or landscape designer approved by the director; and
(3) A registered engineer or land surveyor.

Finding of Fact
The subject planned development includes a professional design team that includes a professional designer, certified nurseryman, a registered engineer, landscape designer and transportation engineer. The design team is presented in the application material on Attachment E.2. This criterion is met.

Preliminary Plan Submittal Review Criteria (ADC 11.310)
A planned development request will be granted interim approval by the review body if the development meets the Site Plan Review criteria of Section 2.450 and all of the following applicable criteria:

Finding of Fact
The Site Plan Review criteria of Section 2.450 are addressed later in this report. Those findings and conclusions are included here by reference. Criteria one through six of ADC 11.310 are address below.

Criterion 1
The increased flexibility in Code standards and permitted uses will result in an improved development for the City, the surrounding area, and users of the development as compared to strict compliance with Code provisions.

Findings of Fact
1.1 The subject property is located in the RS-5 zoning district, where a standard single-family residential subdivision is permitted outright with clear and objective criteria, in accordance with state law requirements for “needed housing.” As such, the 6.46-acre site could be developed as a standard residential subdivision with approximately 45 single-family dwellings with an average lot size of 5,000 square feet. A standard subdivision could be developed without community open space areas, tree preservation, or wetland preservation (with a wetland fill permit from the Department of State Lands).
1.2 A planned development allows a variety of land uses (per ADC 11.270), including multi-family residential development in the RS-5 zone. Through this planned development, the proposed apartment complex may be permitted in combination with single-family residential homes on the same site.

1.3 The planned development allows eight units per acre or 51 (51.68) units on the subject 6.46-acre site. The applicant proposes a total of 55 residential units with the use of density bonuses under ADC 3.220(2) and ADC 3.220(5). Flexibility allowed through this planned development allows a similar density to a standard subdivision, while preserving almost half of the site as natural open space, landscaping or recreation amenities.

1.4 A total of 2.7 acres of natural open space area is proposed to be preserved, which includes a 0.93-acre grove of white oak trees on the east side of the property and 1.75 acres of grassy meadow wetland. Other common areas include a recreation building with deck and barbeque, and outdoor picnic and landscaped areas. The Common Area Plan (Attachment Q.12, Sheet C10) shows the proposed common areas total 3.2 acres of the 6.46-acre site.

1.5 The planned development standards allow flexibility in code standards, of which, the applicant proposes private streets with reduced road width. The minimum right-of-way for a local public street is 52 feet (per ADC 12.120, Table 12-1). This planned development proposes to have several interconnected private roads that will be 24- to 26-feet wide. This allows for more landscaped area, pedestrian paths, open space and landscaped areas.

Conclusions
1.1 Compared to a standard single-family residential subdivision developed in strict compliance with the underlying zoning district, the proposed planned development will result in an integrated community with both single- and multi-family residential uses, natural open space and recreational amenities.

1.2 Reduced road width and a smaller footprint for buildings allow for a planned development that accommodates more open spaces, preservation of oak trees and a wetland meadow.

1.3 The proposed planned development will result in an improved development for the City, the surrounding area, and users of the development as compared to strict compliance with Code provisions.

1.4 This criterion is met without conditions.

Criterion 2
*The project design results in a more efficient provision of open space or utilization of the natural features of the site.*

Findings of Fact
2.1 Smaller private roads combined with compact building design will result in less land impacted by development. As proposed, the planned development preserves almost half of the site as open natural areas, landscaping or as a recreational amenity.

2.2 A total of 2.7 acres of natural open space area is proposed to be preserved, which includes a 0.93-acre grove of white oak trees on the east side of the property and 1.75 acres of grassy meadow wetland. Other common areas include a recreation building with deck and barbeque, and outdoor picnic and landscaped areas. The Common Area Plan (Attachment Q.12, Sheet C10) shows the proposed common areas total 3.2 acres of the 6.46-acre site.

Conclusions
2.1 Smaller private roads combined with compact building design will result in preservation of almost half the site as natural open space or recreation amenities.

2.2 The proposed planned development results in more efficient provision of open space or utilization of the natural features of the site.
2.3 This criterion is met without conditions.

Criterion 3

The project design results in a more efficient utilization of materials and public resources including streets, utilities, and energy supplies.

Findings of Fact
3.1 All on-site streets and utilities of the planned development will be private. The on-site private streets and utilities result in no impact to public resources.
3.2 The planned development allows for smaller private roads, which results in less impervious surfaces and less impact on storm water facilities.
3.3 Findings for public infrastructure improvements within the Franklin Avenue right-of-way are addressed in detail later in this report under Tentative Plat Review Criterion Four and Five (ADC 11.180). Those findings and conclusions are included here by reference.

Conclusions
3.1 All on-site streets and utilities of the planned development will be private, which result in no impact to public resources.
3.2 The existing and proposed public street, stormwater, sanitary, and water infrastructure can support the proposed improvements and will result in efficient new upgraded system.
3.3 The project design results in a more efficient utilization of materials and public resources including streets, utilities, and energy supplies.
3.4 This criterion is met without conditions.

Criterion 4

Provisions will be established to ensure the continued maintenance of any common areas.

Findings of Fact
4.1 The applicant states that a Homeowners Association (HOA) will be created, which will establish maintenance of the common areas (Attachment E.6). The details of the maintenance responsibilities will be reviewed at the time of Final Planned Development Review. The applicant describes maintenance responsibilities to be as follows:

a. Outdoor common areas, such as the wetland meadow and oak grove will be maintained by the property owner of Lot 12 (apartment complex). The property owner and residents of the apartment complex, and the property owners and/or residents of Lots 1-11 (single-family lots) will have access to the common open space areas, including the wetland meadow and oak grove.

b. The Apartment Complex Recreation Building, and the attached decks and patio will be maintained by the property owner of Lot 12 (apartment complex). Access to the Recreation Building will be for the residents of the apartment complex only.

c. The property owner of Lot 12 (apartment complex), and the property owners of Lots 1-7 (single-family lots) will have shared maintenance responsibility of the private street cul-de-sac.

i. Remaining private streets, driveways, and parking areas on Lot 12 (apartment complex) will be maintained by the property owner of Lot 12.

d. The property owners of Lots 5, 6 & 7 will have shared maintenance responsibility of the shared driveway that leads to Lots 5, 6 & 7.

Conclusions
4.1 An HOA will be established to ensure the continued maintenance of all common areas.
4.2 This criterion can be met with the following condition.
Condition of Approval

Condition 2 Prior to Final Plat approval of Phase One, the applicant shall establish a Homeowners Association (HOA) and submit a Declaration of Covenants, Conditions, and Restrictions (CC&R) to the Community Development Department for review and approval. The CC&Rs shall specify the access and maintenance responsibilities of outdoor common areas, indoor recreation areas, private streets, driveways, and parking areas.

Criterion 5

More usable and suitable recreational facilities and other common areas are provided than would normally be provided under conventional development standards.

Findings of Fact

5.1 The planned development allows for a condensed footprint of roads and buildings, which results in less use of land than a conventional single-family residential subdivision.

5.2 Approximately half of the site is proposed for common areas and recreational amenities. A total of 2.7 acres of natural open space area is proposed to be preserved, which includes a 0.93-acre grove of white oak trees on the east side of the property and 1.75 acres of grassy meadow wetland. Other common areas include a recreation building with deck and barbecue, and outdoor picnic and landscaped areas. The Common Area Plan (Attachment Q.12, Sheet C10) shows the proposed common areas total 3.2 acres of the 6.46-acre site.

5.3 The applicant states that the oak grove on the east side will have walking paths, a gazebo, horseshoe pit, and picnic table. The meadow will remain open and allow for pathways and outside recreation as well as open space. The indoor recreation building will have a kitchen with eating area, fireplace with seating and tables for games and gathering, restrooms, workout room with equipment, an office, and a large outdoor deck with BBQ area and tables. The common areas are illustrated on the Site Plan (Attachment Q.5, Sheet C3) and Landscaping Plan (Attachment P, Sheet L.10).

Conclusions

5.1 Compared to a conventional development, the proposed planned development will result in more common open space and recreation amenities. Almost half of the site will be preserved as natural open space, landscaped areas or recreation amenities.

5.2 The proposed planned development will result in more usable and suitable recreational facilities and other common areas than would normally be provided under conventional development standards.

5.3 This criterion is met without conditions.

Criterion 6

The planned development satisfies the development standards in Section 11.330.

Finding of Fact & Conclusion

6.1 The criteria for ADC 11.330 are addressed in the section immediately below. The findings and conclusions for Section 11.330 are included here by reference.

6.2 The planned development satisfies the development standards in Section 11.330. This criterion is met.

Planned Development Standards (ADC 11.330)

In conjunction with standard requirements for setbacks and landscaped areas, the following standards apply to planned developments:

Criterion 1

Open Space and Common Areas in Residential, Mixed-Use, and other Non-Industrial Planned Developments. Open space or common areas shall be provided for common enjoyment. In all
residential developments and mixed-use developments, 25 percent of the gross land area shall be devoted to open space, outdoor living area or common areas as follows.

(a) Land that may be counted towards the open space requirement includes:

• Natural resources accessible to the public;
• Common recreational space or commonly enjoyed amenities accessible to residents, including indoor or rooftop amenities – the total square footage of indoor amenities will be subtracted from the total land area; and
• Common landscaped areas and paths but excluding sidewalks and planter strips in the right-of-way.

Findings of Fact & Conclusion
1a.1 Approximately half of the 6.46-acre site is proposed for common open space areas and recreational amenities. A total of 2.7 acres of natural open space area is proposed to be preserved, which includes a 0.93-acre grove of white oak trees on the east side of the property and 1.75 acres of grassy meadow wetland. Other common areas include a recreation building with deck and barbeque, and outdoor picnic and landscaped areas. The Common Area Plan (Attachment Q.12, Sheet C10) shows the proposed common areas total 3.2 acres of the 6.46-acre site.

1a.2 The applicant states that the oak grove on the east side will have walking paths, a gazebo, horseshoe pit, and picnic table. The meadow will remain open and allow for pathways and outside recreation as well as open space. The indoor recreation building will have a kitchen with eating area, fireplace with seating and tables for games and gathering, restrooms, workout room with equipment, an office, and a large outdoor deck with BBQ area and tables. The common areas and recreational amenities are illustrated on the Site Plan (Attachment Q.5, Sheet C3) and Landscaping Plan (Attachment P, Sheet L.10).

1a.3 Open space and common areas are greater than 25 percent of the gross land area of the site. The common areas are devoted to natural open space areas, landscaping and recreational amenities. This criterion is met.

(b) Locations, shapes, sizes and other characteristics of open spaces shall be consistent with their proposed uses and the purposes of the planned development.

Findings of Fact & Conclusion
1b.1 The Common Area Plan (Attachment Q.12, Sheet C10) shows the location, size and shapes of the proposed open space areas. The common areas and recreational amenities are also illustrated on the Site Plan (Attachment Q.5, Sheet C3) and Landscaping Plan (Attachment P, Sheet L.10).

1b.2 As described in the findings under Criterion 1a (above), the locations, shapes, sizes and other characteristics of open spaces are consistent with their proposed uses and the purposes of the planned development. This criterion is met.

(c) Land in the right-of-way may not count towards the open space requirement unless designed with larger planter strips to allow for mature trees, a multi-use path, or a landscaped median.

Findings of Fact & Conclusion
1c.1 As shown on the Common Area Plan (Attachment Q.12, Sheet C10), none of the open space and common areas are located within the private street right-of-way. This criterion is met.

(d) Side and rear yards may not count towards the minimum open space requirements.

Findings of Fact & Conclusion
1d.1 As shown on the Common Area Plan (Attachment Q.12, Sheet C10), none of the open space and common areas are located within the side and rear yards. This criterion is met.
(e) Outdoor open space or living areas required by this Article may be dedicated to the City provided the size and amount of the proposed dedication meets the criteria of the City for neighborhood parks by one-half and if the City agrees to accept the dedication. The square footage of land dedicated for public parks shall be deemed a part of the development site for the purpose of computing density.

Findings of Fact & Conclusion
1e.1 None of the open space and common areas are proposed to be dedicated to the City. This criterion does not apply.

(f) Approved vegetated post-construction stormwater quality facilities are allowed in open space, outdoor living area, and common areas.

Findings of Fact & Conclusion
1f.1 As shown on the Common Area Plan (Attachment Q.12, Sheet C10), vegetated post-construction stormwater quality facilities are located in common open space areas. Area number five of the Common Area Plan shows stormwater quality facilities within the landscaped areas. The stormwater quality facilities are also illustrated on the Landscaping Plan (Attachment P, Sheet L.10). This criterion is met.

Criterion 2

Natural Resources. The planned development shall provide for the protection of significant landscape features including oak groves, heritage trees as defined by the Albany Municipal Code, and land located within Albany’s natural resource overlay districts and any historic sites and landmarks. Natural and cultural resources shall integrate the proposed development with the environmental characteristics of the site and adjacent uses.

Findings of Fact
2.1 The 6.46-acre site is not located in a natural resource overlay district, per Article 6 of the ADC.
2.2 There are no historic sites, landmarks, or known cultural resources on the development site.
2.3 The site includes a number of white oak trees. The planned development proposes to preserve 0.97 acres of the oak grove on the east side of the site. This oak grove is proposed to be preserved as a natural open space area.

A concurrent application for Tree Felling is included with this planned development application. The criterion for the Tree Felling permit is addressed later in this report. Those findings and conclusions are included here by reference.

2.4 There are 1.75-acres of wetlands located on the development site. These wetlands are regulated by the Oregon Department of State Lands (DSL). A wetland delineation has been approved by the DSL (Attachment K). No impacts to the wetlands are proposed. As shown on the Site Plan (Attachment Q.5, Sheet C3), the wetland is proposed to be preserved as a natural open space meadow.

Conclusions
2.1 The site has natural resources that includes white oak trees and wetlands.
2.2 No impacts to the wetlands are proposed. The wetland is proposed to be preserved as a natural open space meadow.
2.3 A 0.97-acre oak grove is proposed to be preserved as a natural open space area.
2.4 This criterion is met.
Criterion 3

**Underground Utilities.** In any planned development, all electric and telephone facilities, fire alarm conduits, streetlight wiring, and other wiring, conduits and similar facilities shall be placed underground by the developer, unless allowed above ground by the review body.

Finding of Fact & Conclusion

3.1 All utilities, including electric and telephone facilities, fire alarm conduits, streetlight wiring, and other wiring, conduits and similar facilities are proposed to be underground. This criterion is met.

Criterion 4

**Density.** When calculating density of a proposed planned development, the gross area including streets and park land dedications shall be included, except for land in the Significant Wetland and Waterway overlay district. The maximum density permitted in the RS-5 zoning district is eight units per acre.

Findings of Fact

4.1 The subject property is not located in a Significant Wetland and Waterway overlay district, as defined by Article Six of the ADC. The subject property does have 1.75 acres of wetlands that are regulated by DSL, but those wetlands are not within the Significant Wetland and Waterway overlay district. Therefore, the entire development site may be considered for density purposes.

4.2 The gross area of the development site is 6.46-acres. The subject property is located in the RS-5 zoning district. ADC 11.330(4), Table 11-1, states that the planned development is allowed a density of eight units per acre or a total of 51.68 units.

4.3 The applicant proposes a total of 55 residential units by applying the Transportation density bonus under ADC 3.220(2), and the Solar Access Protection density bonus under ADC 3.220(5).

4.4 Density Bonuses are provided under ADC 3.220, which states: “The following standards may be applied to development sites resulting in allowed reductions in the average minimum lot size and area per unit requirements as indicated. In no instance shall the combined total of all bonus provisions applied to a development result in an overall reduction of more than 30 percent in the standard site size or lot area per unit requirements, or result in a density that exceeds the allowed density in the zone by more than 20 percent. Some bonuses are available for lot design only, with additional bonuses available due to building design or construction.”

4.5 The density bonus provisions under ADC 3.220 are applied to the planned development as a whole, which includes 11 single-family home lots and 44 apartment units. The applicant is not requesting a reduction in the standard site size or lot area. The maximum density bonus allowed is 20 percent of the total 51.68 units, which is an additional 10.33 units. The applicant is proposing a total of 55 units or 3.32 additional units. Therefore, the proposed planned development meets the standards of ADC 3.220. Detailed calculations for the transportation and solar protection density bonuses are provided below.

**Transportation Bonus Provisions (ADC 3.220(2))**

For multi-family developments, condominiums, and townhouses; when any portion of a building is located within 200 feet of a designated arterial, the area per unit requirements in those buildings can be reduced by 10 percent.

4.6 As shown on Attachment Q.13, Sheet C11, portions of Buildings Three and Four are within 200 feet of Airport Road. The area of Buildings Three and Four, as well as the area between the buildings and the Airport Road right-of-way is 1.43 acres. Therefore, 1.43 acres qualify for the density bonus. With an underlying density of eight units per acre, and a density bonus of 10 percent, the planned development is eligible for a total of 1.14 additional units. This calculation is presented below:

\[
1.43 \text{ (acres)} \times 8 \text{ (units per acre)} = 11.44 \text{ units} \\
10\% \times 11.44 \text{ units} = 1.14 \text{ units}
\]
Solar Access Protection (ADC 3.220(5))

If buildings are sited (either by site design or defining buildable areas) and covenants or other mechanisms are established that protect solar access of south building walls from shading by structures and vegetation, a bonus of 10 percent may be allowed. The amount of bonus depends on the restrictiveness of the covenant and the percentage of units affected. In subdivisions, a covenant or other mechanism that provides and protects solar access for the southerly building area of 80 percent or more of the lots from 9:30 a.m. to 2:30 p.m. on December 21 shall be given the full 10 percent bonus. In multiple unit developments, if 80 percent or more of the units receive this same protection for south facing walls, and south facing glass of those units totals at least 7 percent of the conditioned area, the full bonus may be allowed. (South facing is defined as being within 25 degrees of true south.)

4.7 The applicant proposes buildings that are sited with covenants to protect solar access of south building walls from shading by structures and vegetation. As shown on Attachments G and Q.13 (Sheet C11), the planned development will provide solar access for the southerly building area of a portion of the lots and buildings from 9:30 a.m. to 2:30 p.m. on December 21.

4.8 Solar access bonus provision allows up to a 10 percent density increase if at least 80 percent of the proposed units have the applicable solar access protection. The applicant proposes a total of 21 dwelling units (three single-family units plus 18 apartment units) that will benefit from the solar access protection. As shown on the Housing Bonus Plan (Attachment Q.13, Sheet C11), the southern portion of single-family Lots 8-10, and apartment buildings one, two and four qualify for solar protection bonuses.

With 21 units out of the proposed 55 units, only 38 percent of the units qualify for the solar protection bonus. This does not meet the 80 percent required to qualify for the maximum 10 percent density bonus allowed by ADC 3.220(5). Since the 38 percent is 47 percent of the required 80 percent, the applicant qualifies for 47 percent of the maximum bonus. Thus, the solar bonus for the proposed development is 4.7 percent (rather than 10 percent). The calculation for the solar preservation bonus is provided below:

\[
\frac{21 \text{ (units)}}{55 \text{ (units)}} = 38\%
\]
\[
\frac{38\%}{80\%} = 47\% \text{ [or 0.47]}
\]
\[
0.47 / 0.10 = 4.7 \text{ [or 47%]}
\]
\[
4.7 \times 51.68 \text{ units} = 2.42 \text{ units.}
\]

Total Density

4.9 The proposed development qualifies for the Transportation density bonus under ADC 3.220(2), and the Solar Access Protection density bonus under ADC 3.220(5). The permitted density of eight units per acre is a total of 51.68 units. The transportation bonus is a total of 1.14 units, and the solar bonus is a total of 2.42 units. Therefore, a total of 55 dwelling units is allowed with the density bonuses. The calculation for the combined density bonuses is provided below:

\[
51.68 + 2.42 + 1.14 = 55.24 \text{ or 55 Total Units}
\]

Conclusions

4.1 The 6.46-acre site is allowed a density of eight units per acre or a total of 51.68 units.

4.2 The proposed development qualifies for the Transportation density bonus under ADC 3.220(2), and the Solar Access Protection density bonus under ADC 3.220(5), for a total permitted density of 55 units.

4.3 The applicant is not requesting a reduction in the standard site size or lot area, or a density bonus that is more than 20 percent of the total allowed density.

4.4 The solar access protection is noted on the Preliminary Plat (Attachment Q.4, Sheet C2) and will need to be memorialized in the HOA CC&Rs for long-term implementation.
4.5 This criterion can be met with the following condition.

**Condition of Approval**

**Condition 3** Solar Access Protection shall be preserved through the following mechanisms:

a. The Final Plat shall include a note regarding the Solar Access Protection, as proposed on the Preliminary Plat (Sheet C2).

b. The Homeowners Association (HOA) Declaration of Covenants, Conditions, and Restrictions (CC&R) shall specify the provisions for Solar Access Protection, as proposed for the Planned Development and described on the Housing Bonus Plan (Sheet C11).

**Criterion 5**

**Building Spacing and Yard Requirements.** The plan shall provide adequate building separation to allow for light, ventilation, and visual and acoustic privacy for residences and other structures. Fences, insulation, walks, barriers, and landscaping shall be used, as appropriate, for the protection and aesthetic enhancement of property and the privacy of its occupants, screening of objectionable views, and reduction of noise.

**Findings of Fact**

5.1 As shown on the Site Plan (Attachment Q.5, Sheet C3), buildings will be separated from each other by at least 20 Feet and in some case by 30 feet.

5.2 A six-foot fence will be installed along the rear yard property line of the west side homes (Lots 1-7) for visual and acoustic privacy.

5.3 Residential units are setback 200 feet from the eastern property line to provide a separation buffer from Airport Road. Garages and the Oak Grove are located on the east side of the site (towards I-5), which will provide sound mediation as well as visual barrier to Airport Road and I-5.

5.4 As shown on the Landscape Plan (Attachment P, Sheet L1.0) The applicant proposes to plant English Laurels along the eastern perimeter property line to provide a visual barrier to Airport Road and I-5. The applicant states they prefer to not install a fence along the Airport Road property line and prefer to use the landscaped vegetation as a visual barrier rather than a fence.

5.5 There is an existing chain link fence along the southern property line at the base of the wetland meadow. The Landscape Plan (Attachment P, Sheet L1.0) does not show additional landscaping along the southern portion of the wetland meadow, but rather keeps that area as natural open space.

**Conclusions**

5.1 The buildings in the development are laid out in a manner adequate for light, ventilation, visual and acoustic privacy for the residents.

5.2 This criterion is met.

**Criterion 6**

**Building Locations.** Taller buildings shall be located within the planned development in such a way as to avoid adverse impact on neighboring lower buildings and shall not invade the privacy of the occupants of adjacent lower buildings.

**Findings of Fact**

6.1 The planned development is designed with single-family homes around the perimeter of the site. This provides a compatible transition between the existing single-family homes to the north and west and the proposed apartment buildings.

6.2 The apartment buildings are taller, but they are limited to two stories and located on the interior of the site to protect the privacy of the existing homes in the area, as well as the proposed new homes in the development.
6.3 To ensure privacy for the existing homes on the west side of the development, the applicant proposes to install a six-foot perimeter fence and limit new homes on Lots 1-7 from having second story windows facing the west into back yards. This can be accomplished by avoiding windows on the second story west wall or by installing sight-obscuring windows to protect the privacy of neighboring homes. This is included as a condition of approval.

Conclusions
6.1 The development is designed to mitigate adverse impacts and protect the privacy of the existing neighborhood.
6.2 Taller buildings are only two stories tall and located in the center of the property.
6.3 Single-family homes are located around the perimeter, adjacent to existing single-family homes, to protect the privacy of the abutting properties.
6.4 This criterion is met with the following condition.

Condition of Approval
Condition 4 New dwelling on Lots 1-7 shall avoid second story, west-facing windows. Alternatively, new dwellings on Lots 1-7 may install second story west-facing windows if they are constructed of sight-obscuring material (i.e. textured or frosted privacy glass). At the time of building permit, the building plans shall be submitted to the Community Development Department for review and approval to ensure compliance with this standard.

Criterion 7
Perimeter Compatibility. The plan shall minimize adverse impacts of proposed uses and structures in the planned development on existing and anticipated uses and structures on adjacent properties and neighborhoods. The buffering and screening standards in Sections 9.210-9270 apply. If topographical or other physical barriers do not provide reasonable privacy and mitigation of potential adverse impacts on existing uses adjacent to the development, the development shall provide additional setbacks, buffering or screening between residential and non-residential uses.

Findings of Fact
7.1 The planned development is designed to avoid impacts on neighboring properties.
7.2 As described under Criterion Five and Six above, taller buildings are located in the center of the property and they are only two stories tall. Single-family homes are located around the perimeter of the site to effectively create a visual barrier and preserve the quality and feeling of the existing single-family residential neighborhood.
7.3 Lots 1-7 are designed to protect the privacy of abutting properties to the west. Fencing is proposed and if western facing windows are installed on the second floor of the new homes, sight-obscuring privacy windows will be used to protect the privacy of abutting properties to the west.
7.4 Based on the Buffer and Screening Matrix (ADC 9.330, Table 9-4), 10 feet of buffering is required along the eastern property line at Airport Road.
As shown on the Landscape Plan (Attachment P, Sheet L1.0), buildings are set back more than 10 feet from the property line and English Laurels are proposed to be planted along the eastern property line to provide a vegetative buffer.

Conclusions
7.1 The site focuses taller buildings in the middle of the development, far away from property lines and neighbors. The outer edges of the development are planned to have residential single-family homes, similar to the nearby residential neighborhood. This configuration is intended to keep impact on the surrounding area at a minimum while maintaining the feel and look of the neighboring communities.
7.2 This criterion is met without further mitigation.

TENTATIVE PLAT REVIEW (ADC 11.180)

Criterion 1

*The proposal meets the development standards of the underlying zoning district, and applicable lot and block standards of this section.*

Findings of Fact

1.1 The subject property is located at 840 Airport Road (Attachment A). These parcels are also identified as Linn County Tax Assessor’s Map No. 11S-03W-09BB Tax Lots 2700 and 2701.

1.2 As presented on the Preliminary Plat (Attachment Q.4, Sheet C2), the proposal is to divide the 6.46-acre site into 12 lots: Lots 1-11 are proposed for single-family detached dwellings and Lot 12 is a 5-acre lot that is proposed to be developed for a multi-family residential complex.

1.3 The subject property is located in the RS-5 – Single Family Residential zoning district. The development standards for the RS-5 zone are listed under ADC 3.190, Table 1. In the RS-5 zone, the minimum lot size is 5,000 square feet, and the minimum lot width and depth is 40 feet and 70 feet, respectively.

1.4 All of the proposed parcels meet the minimum lot width and depth standards; however, two of the proposed single-family home parcels are slightly less than 5,000 square feet in area. The Preliminary Plat shows Lot 4 is proposed to be 4,774 square feet and Lot 11 is proposed to be 4,615 square feet in size (Attachment Q.4, Sheet C2). ADC 3.200 allows for lot size variation within subdivisions. Therefore, the minimum lot area and dimension standards are met.

1.5 The block standards under ADC 11.090 are not applicable because the preliminary plat does not propose public streets or new blocks. Private streets may be considered through this planned development review process.

Conclusions

1.1 As shown on the Preliminary Plat (Attachment Q.4, Sheet C2), the proposal meets the development standards of the RS-5 zoning district.

1.2 The proposal does not propose public streets or new blocks.

1.3 This criterion is met without conditions.

Criterion 2

*Development of any remainder of property under the same ownership can be accomplished in accordance with this Code.*

Findings of Fact

2.1 The property is owned by Victor M. Shults (Mike) and Susan Y. Willis. There is no other remainder of property under the same ownership to consider with this application.

2.2 Development of the entire site is being considered through this planned development review process.

Conclusions

2.1 There is no remainder of property to consider with the proposed Tentative Plat.

2.2 This criterion is met without conditions.
Criterion 3

*Adjoining land can be developed or is provided access that will allow its development in accordance with this Code.*

Findings of Fact

3.1 This review criterion has been interpreted by the city council to require only that adjoining land either have access, or be provided access, to public streets.

3.2 ADC 12.060 requires that development must have frontage on or approved access to a public street currently open to traffic.

3.3 Adjoining land is located on the west and south side of the site. The properties to the west are single-family residential lots with frontage on Cox Street SE. The properties to the south have frontage on Airport Road. The proposed land division will not impact adjoining land’s access to those public streets.

Conclusions

3.1 All of the adjoining land has frontage on public streets, and the proposed land division will not impact adjoining land’s access to those public streets.

3.2 This criterion is met without conditions.

Criterion 4

*The proposed street plan affords the best economic, safe, and efficient circulation of traffic possible under the circumstances.*

Findings of Fact

4.1 The proposed development is for the phased construction of a Planned Development that will result in 11 single family lots and 44 apartment units. The development will be constructed over five phases and is located on the southwest corner Franklin Avenue and Airport Road.

4.2 The first phase of the development will create seven single family lots along the site’s west boundary. The parcels will be provided access via a private cul-de-sac. Phase 2 of the development will create four single family lots just east of the private cul-de-sac along the south side of Franklin Avenue. Phases 3-5 of the development will together result in construction of 44 apartment units.

4.3 Airport Road is classified as a major collector street, is under the jurisdiction of the Oregon Department of Transportation (ODOT), and is not improved to city standards. The street lacks curb, gutter, and sidewalk. No direct driveway access is proposed from the site to Airport Road. ODOT has developed preliminary plans for the future widening of I-5, and those improvements will impact the alignment and improvements needed along Airport Road.

4.4 Franklin Avenue is classified as a local street and is not improved to city standards. The street lacks curb, gutter, and sidewalk. The right of way width is 50 feet, and the pavement width is approximately 14 feet. The development will have two connection points to Franklin Avenue, and lots 8 through 11 will have direct driveway access to the street.

4.5 ADC 12.122 is the design standard for local streets and calls for a right of way width of 54 feet and a curb to curb width of 30 feet.

4.6 ADC 12.060 requires that all public streets within and adjacent to a new development be improved to city standards. The City Engineer may choose to accept a Petition for Improvement/Waiver of Remonstrance if a determination is made that the construction of an otherwise required improvement is not timely.
4.7 The applicant did not submit a traffic impact analysis (TIA) with the application. City guidelines require submittal of traffic analysis for development’s that generate 50 or more peak hour trips to the public street system.

4.8 Staff estimated project trip generation using ITE trip generation rates for single family homes and low-rise apartment units. When completed the development is expected to generate a total of 426 daily trips. Of those, 36 are expected to occur during the peak PM traffic hour.

4.9 Albany’s TSP assumed that this site would develop with residential land uses and did not identify any capacity or safety issues occurring along the boundary of the site or within the existing neighborhood to the west.

4.10 The intersection of Franklin Avenue and South Shore Drive is located approximately 100 feet west of this development. The intersection is a tee-intersection with no stop control of right of way assignment on the westbound Franklin Avenue approach to the intersection.

4.11 In order to provide for the safe and efficient circulation of traffic during night-time conditions, the installation of streetlights is needed along the Franklin Avenue frontage of the proposed development.

Conclusions

4.1 The development will be constructed in five phases resulting in 11 single family lots and 44 low-rise apartment units.

4.2 The development adjoins Airport Road. The road is under ODOT’s jurisdiction and is not improved to city standards. ADC 12.040 requires that all roads abutting new development be improved to city standards. If the City Engineer determines that the improvement is not timely the City can accept a Petition and Waiver in lieu of the improvements. Because ODOT has future plans to improve I-5 that will impact the alignment and improvements needed on Airport Road the City Engineer has determined that requiring improvements to Airport Road with this development is not timely.

4.3 The development adjoins Franklin Avenue. ADC 12.040 requires that all roads abutting new development be improved to city standards. The development will take direct access from Franklin Avenue, and the City Engineer has determined that the improvement of the road is timely with this development. Construction of the improvements to city standards will require 2 feet of right of way dedication along the development’s frontage on the street.

4.4 The applicant did not submit a traffic study with the application. Staff estimated trip generation using ITE trip rates for single family homes and low-rise apartments. The 426 daily and 36 PM peak hour trips anticipated from the development fall below the city’s threshold for submittal of a traffic analysis with an application.

4.5 The city’s TSP assumed residential development on this site and did not identify any congestion of safety issues occurring next to the development or within the adjoining neighborhood to the west.

4.6 All streets and travel aisles interior to the development will be private.

4.7 The development will add trips to the South Shore Drive/Franklin Avenue intersection. The addition of a stop sign is needed on the Franklin Avenue approach to the intersection to assign right of way.

4.8 The installation of streetlights is needed along the development’s frontage on Franklin Avenue in order to provide for the safe and efficient circulation of traffic.

4.9 This criterion can be met with the following conditions.
Conditions of Approval

**All Phases**

Condition 5 Prior to or with recordation of a final plat map, the applicant shall dedicate two feet of public right of way along the development’s frontage on Franklin Avenue.

Condition 6 The applicant shall install public sidewalk with the construction of street improvements along the portion of Franklin Avenue being improved with each phase of the development.

Condition 7 The applicant shall install street lighting to city standards along the portion of Franklin Avenue being improved with each phase of the development.

**Phase One**

Condition 8 Prior to recordation of the final plat map the applicant shall, or financially assure, the construction of public street improvements on Franklin Avenue from the east side of the proposed private cul-de-sac to existing improvements at the South Shore Drive/Franklin Avenue intersection. Improvements shall include:

a. Construction of curb and gutter along the south side of the road. The face of curb shall be aligned for an ultimate curb to curb width of 30 feet.

b. Installation of new pavement with a width of 24 feet as measured from the new face of curb.

c. A pavement transition approved by the City Engineer shall be installed at the east end of the new street improvement.

d. Installation of a stop sign and stop bar shall be installed on the Franklin Avenue approach to South Shore Drive.

**Phase Two**

Condition 9 Prior to recordation of the final plat map the applicant shall, or financially assure, the construction of public street improvements on Franklin Avenue from the east side of the proposed private cul-de-sac across the frontage of lots 8 through 11. Improvements shall include:

a. Construction of curb and gutter along the south side of the road. The face of curb shall be aligned for an ultimate curb to curb width of 30 feet.

b. Installation of new pavement with a width of 24 feet as measured from the new face of curb.

c. A pavement transition approved by the City Engineer shall be installed at the east end of the new street improvement.

**Phase Three**

Condition 10 Prior to recordation of the final plat map the applicant shall, or financially assure, the construction of public street improvements on Franklin Avenue from the east side of lot 11 to Airport Road. Improvements shall include:

a. Construction of curb and gutter along the south side of the road. The face of curb shall be aligned for an ultimate curb to curb width of 30 feet.

b. Installation of new pavement with a width of 24 feet as measured from the new face of curb.

c. Installation of a curb return on the southwest corner of Franklin Street and Airport Road. The design of the curb return shall be approved by ODOT, and any necessary permits and approvals shall be secured prior to performing any work within ODOT right of way.
Criterion 5
The location and design allow development to be conveniently served by various public utilities.

Findings of Fact
Sanitary Sewer
5.1 City utility maps show an 8-inch public sanitary sewer main along the west boundary of the subject property, and an 8-inch main in Franklin Avenue along the westernmost 75 feet of the subject property’s frontage.

5.2 ORS 92.090 states that no subdivision plat shall be approved unless sanitary sewer service from an approved sewage disposal system is available to the lot line of each and every lot depicted in the proposed subdivision plat.

5.3 AMC 10.01.010 (1) states that the objective of the Albany Municipal Code requirements pertaining to public sanitary sewers is to facilitate the orderly development and extension of the wastewater collection and treatment system, and to allow the use of fees and charges to recover the costs of construction, operation, maintenance, and administration of the wastewater collection and treatment system.

5.4 ADC 12.470 requires all new development to extend and/or connect to the public sanitary sewer system if the property is within 300 feet of a public sewer line.

5.5 ADC 12.490 states that sewer collection mains must be extended along the full length of a property’s frontage(s) along the right(s)-of-way or to a point identified by the City Engineer as necessary to accommodate likely system expansion. ADC 12.510 requires main extensions through the interior of a property to be developed where the City Engineer determines that the extension is needed to provide access to the public system for current or future service to upstream properties. Extension of the sewer across the frontage and/or through the interior of a property makes the system available to adjacent properties. Then, when the adjoining property connects, that property owner must extend the sewer in a similar manner, making the sewer available to the next properties. In this way, each property owner shares proportionately in the cost of extending sewer mains.

5.6 Where a property abuts more than one street or right-of-way, sewer mains shall be extended for the full length of the property frontages along the rights-of-way for all frontages, unless it is determined that the extensions on the frontages from which service is not being taken are not currently needed to provide service to other properties, and that those sewer mains may be completed at a future time.

5.7 It has been determined by the City Engineer that no public sanitary sewer is needed in Airport Road. However, in order to provide direct access to the public sewer system for all of the lots in the proposed subdivision, the applicant must extend a public sewer main in Franklin Avenue to the east boundary of Lot 11.

5.8 All public sanitary sewer mains must be installed in accordance with the City’s Standard Construction Specifications. If being constructed under a private contract, the developer must obtain a Permit for Private Construction of Public Improvements through the City’s Engineering Division.

5.9 The City has sole authority in determining the conditions necessary for providing service to a property (AMC 10.01.100 (5)(e)).

5.10 AMC 15.30.010 states that a Connection Charge shall be due and payable when accessing the City’s sanitary sewers from or for the benefit of any real property against which no assessment has previously been levied or for which the cost of constructing the sanitary sewer has not been paid by the property owner or predecessor thereof.
City records indicate that the subject property has never been assessed for the cost of the public sanitary sewer mains along its west boundary and a portion of its Franklin Avenue frontage. Therefore, connection charges for these sewer mains will be due before the City will approve the final plat for this project.

### Water

City utility maps show a 12-inch public water main in Airport Road, and a 2-inch water line in Franklin Avenue running east from South Shore Drive approximately 450 feet.

ORS 92.090 states that no subdivision plat shall be approved unless water service from an approved water supply system is available to the lot line of each and every lot depicted in the proposed subdivision plat.

ADC 12.410 requires all new development to extend and/or connect to the public water system if the property is within 150 feet of an adequate public main.

ADC 12.450 requires that all new development within the City, where appropriate, provide for the extension of existing water lines serving surrounding areas.

AMC 11.01.120 (2)(e) states that all required public water main extensions must extend to the furthest property line(s) of the development or parcel. Main extensions may be required through the interior of a property to be developed where the City Engineer determines that the extension is needed to provide current or future looping of water mains, or to provide current or future service to adjacent properties. When the owner of a property is required to connect to the public water system, the water main must be extended across the property’s entire frontage and/or through the interior of the property. Extension of the water across the property’s frontage and through the interior of the property makes the system available to adjacent properties. Then, when the adjoining property connects, that property owner must extend the water mains in a similar manner, making the water available to the next properties. In this way, each property owner shares proportionately in the cost of extending water mains.

AMC 11.01.120 (2)(c) states that the City shall have the sole right to determine size, location, and type of facility to be constructed. All engineering of public water facilities shall be based on both domestic and fire protection design criteria, and in accordance with the City’s water facility plan. All public water system improvements to be built under a private contract require that the developer obtain a Permit for Private Construction of Public Improvements.

AMC 11.01.120 (2)(h) states that all public main extensions must include fire hydrants and other appurtenances in a manner consistent with the recommendations of the water system facility plan, the Standard Construction Specifications, and/or the fire marshal.

AMC 11.01.100(1)(d) states that where a parcel has more than 150 feet of frontage along a right-of-way and the parcel is being developed in phases; and the water line is not currently needed for the full length of the parcel to facilitate service to other properties, to provide fire protection, or to meet other utility system needs, the requirement of Section 11.01.100(1)(c) of this code may be reduced, where approved, by delaying the requirement for a water main adjacent to that portion of the parcel which remains as an undeveloped portion of a future phase. Such delay, if authorized, is contingent upon the signing of a waiver of remonstrance agreement which commits the parcel to participate in a future local improvement (assessment) district for the extension of water main(s).

The existing 2-inch water line in Franklin Avenue is not adequate to provide for domestic or fire service to the proposed development. Therefore, the applicant must extend a public water main in Franklin Avenue from the existing main in South Shore Drive to the main in Airport Road.

All public water facilities must be installed in accordance with the City’s Standard Construction Specifications. If being constructed under a private contract, the developer must obtain a Permit for
Private Construction of Public Improvements (Site Improvement Permit) through the City’s Engineering Division.

5.22 Because proposed Lots 2-7 will not have frontage on Franklin Avenue, and therefore will not have direct access to the public water main in Franklin Avenue, the applicant must extend a public water main into the site to provide public water services to those lots. This public main will not be within a public right-of-way so a public utility easement must be granted over the main.

**Storm Drainage**

5.23 City utility maps show no piped public storm drainage facilities in either Airport Road or Franklin Avenue along the subject property’s frontages. Neither of these streets are improved to City standards as they lack curb and gutter, sidewalks, and storm drainage facilities.

5.24 As part of the required public street improvement to Franklin Avenue the applicant must include public storm drainage facilities in the street design.

5.25 It is the property owner’s responsibility to ensure that any proposed grading, fill, excavation, or other site work does not negatively impact drainage patterns to, or from, adjacent properties. In some situations, the applicant may propose private drainage systems to address potential negative impacts to surrounding properties. Private drainage systems that include piping will require the applicant to obtain a plumbing permit from the Building Division prior to construction. In addition, any proposed drainage systems must be shown on the construction drawings. The type of private drainage system, as well as the location and method of connection to the public system must be reviewed and approved by the City Engineer and Building Official.

5.26 ADC 12.530 states that a development will be approved only where adequate provisions for storm and flood water run-off have been made, as determined by the City Engineer.

5.27 ADC 12.580 states that all new development within the City must, where appropriate, provide for the extension of existing storm sewer lines or drainageways serving surrounding areas. Extensions may be required along all frontages and/or through the interior of a property to be developed where the City Engineer determines that the extension is needed to provide service to upstream properties.

5.28 ADC 12.550 states that any public drainage facility proposed for a development must be designed large enough to accommodate the maximum potential run-off from its entire upstream drainage area, whether inside or outside of the development, as specified in the City’s storm drainage facility plan or separate storm drainage studies.

5.29 ADC 12.560 states that where it is anticipated by the City Engineer that the additional run-off resulting from the development will overload an existing drainage facility, the review body will not approve the development until provisions have been made for improvement of the potential problem.

5.30 The City Engineer has determined that the downstream facilities are undersized, and detention will be required. The applicant has submitted a preliminary storm drainage report for the proposed development that includes on-site detention and stormwater quality facilities.

5.31 AMC 12.45.030 states that a post-construction stormwater quality permit shall be obtained for all new development and/or redevelopment projects on a parcel(s) equal to or greater than one acre, including all phases of the development. (Ord. 5841 § 3, 2014).

5.32 The subject property has an area of approximately 6.5 acres; therefore, a stormwater quality permit will be required for this development.

**Fire Safety**

5.33 New development must meet fire safety standards for access and water supply, in accordance with the 2019 Oregon Fire Code (OFC). The Albany Fire Department has reviewed the development plans and found the proposal can feasibly meet fire safety standards if the minimum standards for access and water supply are met; those standards and conditions of approval are outlined in the memo from
Albany Fire Marshal Lora Ratcliff (Attachment R), which include fire sprinklered buildings, wayfinding signage, and alternatives for water supply.

Conclusions
5.1 The Fire Department has reviewed the plans and found the proposal can feasibly meet fire safety standards with conditions of approval, as outlined in the memo from the Albany Fire Marshal. Those requirements are included as a condition of approval.

5.2 A public sanitary sewer main exists along the west boundary of the property, and along a portion of the site’s Franklin Avenue frontage. The subject property has never been assessed for these public sewer mains, so there will be connection charges due before the City will approve the final subdivision plat for any phase of the project or issue a building permit.

5.3 A public sanitary sewer main must be extended in Franklin Avenue from the existing main near the northwest corner of the property to the east boundary of proposed Lot 11 before the City will approve the creation of Lots 8-12, or issue a building permit for any portion of the property beyond Lots 1-7.

5.4 The existing 2-inch water line in Franklin Avenue is inadequate to serve the proposed development. In order to provide water for domestic and fire service a public water main must be looped between the main in South Shore Drive and the main in Airport Road.

5.5 Because proposed Lots 2-7 will not have direct access to the public water main to be constructed in Franklin Avenue, a public water main must be constructed along the east boundary of those lots within the proposed private street to provide for services to each individual lot. A public utility easement must be granted over this public water main.

5.6 Public storm drainage system improvements must be included in the required street improvements to Franklin Avenue.

5.7 Due to downstream deficiencies in the public storm drainage system the applicant must provide on-site stormwater detention for the project.

5.8 Because the site area exceeds one acre the applicant must provide stormwater quality facilities for the project. In addition to the private stormwater quality facilities for the development, the required street improvements must also include public stormwater quality facilities in Franklin Avenue.

5.9 The applicant submitted a storm drainage report for the proposed development. While the report appears to be generally acceptable the final design details will be reviewed as part of the required permits (Stormwater Quality Permit and Site Improvement Permit).

5.10 Final design details for all public infrastructure improvements and on-site detention and stormwater quality facilities must be reviewed in conjunction with the required permits associated with those improvements.

5.11 This review criterion is met with the following conditions of approval.

Conditions of Approval
Condition 11 Prior to issuance of building permits, the applicant shall submit final plans for review and approval by the Albany Fire Department to ensure standards of the Oregon Fire Code are met.

Condition 12 Before the City will sign the final plat creating Lots 1-7, or issue a building permit for construction on the property, the applicant must pay connection charges for the existing public sanitary sewer mains along the property’s west boundary and a portion of the Franklin Avenue frontage.
Condition 13  Before the City will sign the final plat creating Lots 1-7, the applicant must construct a public sanitary sewer main in Franklin Avenue, from the existing main near the northwest corner of the site to the east boundary of proposed private street ("Franklin Court").

Condition 14  Before the City will sign the final plat creating Lots 8-12, the applicant must construct a public sanitary sewer main in Franklin Avenue, to the east boundary of proposed Lot 11.

Condition 15  Before the City will sign the final plat creating Lots 1-7, the applicant must extend a public water main in Franklin Avenue from the existing main in South Shore Drive to the east boundary of Lot 1, and a public water main to the south terminus of the private street ("Franklin Court").

Condition 16  Before the City will sign the final plat creating Lots 8-12 or issue a building permit for construction on this portion of the property, the applicant must construct a public water main in Franklin Avenue easterly to the existing main in Airport Road. This main will complete the connection of the public water system from South Shore Drive to Airport Road.

Condition 17  Before the City will sign the final plat, the applicant must construct public storm drainage improvements in Franklin Avenue in conjunction with the required public street improvements.

Condition 18  Before the City will sign the final plat for any phase of the proposed development, the applicant must construct stormwater collection facilities for that portion of the development. Any phase of the development must include storm drainage facilities capable of serving that phase as a stand-alone development. These storm drainage facilities must include on-site detention and stormwater quality facilities. The facilities must be designed and constructed to accommodate any future runoff that may discharge into those facilities.

NOTE: Alternatively, the applicant may provide financial assurances for the required public infrastructure in order to obtain City approval for the final plat(s) or building permits.

Criterion 6
Activities and developments within special purpose districts must comply with the regulations described in Articles 4 (Airport Approach), 6 (Natural Resources), and 7 (Historic), as applicable.

Findings of Fact
6.1  Article 4: Airport Approach. Figure 4-1 of ADC Article 4 shows that the subject property is located in the Airport Approach District. This district is comprised of several imaginary surfaces above which aircraft are allowed to operate.

The proposed development will be under the outermost surface called the Conical Surface. The Conical Surface begins at the outer boundary of the Horizontal Surface, at an elevation of 372 feet (NGVD 1929) above the airport elevation. The existing ground elevation is approximately 220 feet (NGVD 1929), and the maximum height limit of the RS-5 zone is 30 feet above grade for a total elevation of 250 feet which is 122 feet below the maximum height (372') established by the Conical Surface.

There are no design features of the proposed development with navigational signals or radio communications, or that would induce confusing light patterns, or create bird-strike hazards that would endanger or interfere with aircraft intending to use the airport.

The subject property is located within the airport noise sensitivity area defined by 55 and 60 ldn noise contours. ADC 4.440 states that when a property is "in the 55 to 60 Day-Night Sound Level (ldn) area, a declaration of anticipated noise levels shall be attached to any land use application and recording of
such declaration may be required for approval on each parcel within such area.” A declaration of anticipated noise levels is included as a condition of approval for the tentative plat.

6.2 Article 6 Steep Slopes, Comprehensive Plan Plate 7: There are not areas of steep slopes on the subject property.

6.3 Article 6: Floodplains, Comprehensive Plan Plate 5 shows the property is shown on Flood Insurance Rate Map (FIRM) #41043C0214H. The subject property is located outside of the Special Flood Hazard Area (SFHA), otherwise known as the 100-year floodplain.

6.4 Article 6: Wetlands, Comprehensive Plan Plate 6: There are 1.75-acres of wetlands located on the development site. A wetland delineation has been approved by the DSL (Attachment K). No impacts to the wetlands are proposed. As shown on the Site Plan (Attachment Q.5, Sheet C3), the wetland is proposed to be preserved as a natural open space meadow.

Any impacts to wetlands are regulated by the Oregon Department of State Lands (DSL) and the U.S. Army Corps of Engineers (ACOE). The Community Development Department sent a wetland land use notice to DSL regarding the proposed development. DSL responded and noted that the proposal appears to avoid impacts to the wetlands located on-site (Attachment S).

6.5 Article 6 Natural Resource Overlays: The site is not located in a Significant Wetland Overlay (/SW) or a Riparian Corridor Overlay (/RC) district.

6.6 Historic and Archaeological Resources, Comprehensive Plan, Plate 9: The property is not located in a Historic District and there are no known archeological resources on-site.

6.7 There are a number of White Oak Trees on-site. The applicant has submitted an application for a Tree Felling. The Tree Felling Criterion under ADC 9.208(2) are addressed later in this report.

Conclusion

6.1 The site is located in the airport overlay district, but the proposed development does not exceed the height limit or cause interference with the aircraft using the airport.

6.2 The subject property is not located in any other special purpose overlay district.

6.3 This criterion is met without conditions.

Condition of Approval

Condition 19 The final plat for each phase shall include a declaration of anticipated airport noise levels between 55 to 60 Day-Night Sound Level (ldn).

SITE PLAN REVIEW CRITERIA (ADC 2.450)

Criterion 1

Public utilities can accommodate the proposed development.

Finding of Fact & Conclusion

1.1 Findings for utility infrastructure are addressed in detail earlier in this report under Tentative Plat Review Criterion Five (ADC 11.180(5)). Those findings and conclusions are included here by reference.

1.2 This criterion is met with the conditions of approval under Tentative Plat Review Criterion Five.
Criterion 2
The proposed post-construction stormwater quality facilities (private and/or public) can accommodate the proposed development, consistent with Title 12 of the Albany Municipal Code.

Finding of Fact & Conclusion
2.1 Findings for stormwater quality are addressed in detail earlier in this report under Tentative Plat Review Criterion Five (ADC 11.180(5)). Those findings and conclusions are included here by reference.
2.2 This criterion is met with the conditions of approval under Tentative Plat Review Criterion Five.

Criterion 3
The transportation system can safely and adequately accommodate the proposed development.

Finding of Fact & Conclusion
3.1 The ability of the transportation system to accommodate the proposed development is discussed in detail earlier in this report under Tentative Plat Review Criterion Four (ADC 11.180(4)). Those findings and conclusions are included here by reference.
3.2 This criterion is met with the conditions of approval under Tentative Plat Review Criterion Four.

Criterion 4
Parking areas and entrance-exit points are designed to facilitate traffic and pedestrian safety and avoid congestion.

Findings of Fact
Access
4.1 The access points for the proposed development will all be from Franklin Avenue. They consist of two private shared driveways that benefit lots 1 through 7 and the 44 apartment units being constructed with the development.
4.2 The design and location of all site driveways comply with the driveway design and spacing standards contained in ADC 12.100.
4.3 The street improvement proposed for the development's frontage on Franklin Avenue consists of a partial width improvement with a paved width of 24 feet. That width is sufficient to allow for two-way vehicle travel but does not provide sufficient room for on street parking.
4.4 In an email dated March 31, 2020, ODOT staff noted that the development site had several existing driveway connections to Airport Road and that none of them were being proposed for use by the project. ODOT asked that those existing driveways be removed as part of the development.
4.5 Pedestrian access improvements include an ADA compliant sidewalk along the Franklin Avenue frontage. The private interior roads are also connected to the development via an ADA sidewalk that runs from Franklin Avenue through the development. Pedestrian paths connect the residences to common open space areas such as the oak grove and wetland meadow.
4.6 Public Comment: Mr. Mark Leonard submitted an email concerning the proposed development on March 31, 2020 (Attachment C). In that email Mr. Leonard expressed concerns about the existing geometry of the South Shore Drive/Franklin Avenue intersection, expressed a preference that Franklin Street not be connected to South Shore Drive, and asked if other street patterns had been looked at as part of the development’s review.
Response: Staff contacted Mr. Leonard by phone to discuss his concerns regarding the development. The somewhat unusual geometry of the intersection is due to the two streets intersecting on a curve,
at something other than 90 degrees, and the use of large radius returns when the neighborhood was originally developed. There is no stop control on the Franklin Avenue approach to the intersection, which is unique among the other local street intersections along South Shore Drive. Some of Mr. Leonard's concerns regarding the operation of the intersection will be addressed with the widening of the street and the addition of stop control on the Franklin Avenue approach with this development. In regard to whether or not Franklin Avenue should remain connected to South Shore Drive, staff explained that the initial project review relied on the sections of the ADC that limit block lengths and require connectivity in the street system. Those code sections include ADC 11.090(5) and ADC 12.060.

**Parking**

4.7 **Vehicle Parking:** Table 9-1 of the ADC identifies the minimum parking requirements. The planned development proposes 11 single-family home lots. The single-family homes require two on-site parking spaces for each home. Lots 1-11 will have standard 20-foot driveways and garages, which meet the standard for two on-site parking spaces.

The planned development proposes 44 multifamily housing units. A total of 60 on-site parking spaces is required for a multi-family development with 8 two-bedroom units and 36 one-bedroom units. A total of 81 parking spaces are proposed for the multi-family apartment complex. There are 50 on-site parking stalls, eight of which are ADA and nine of which are compact stalls. In addition to the 50 parking stalls, there are 31 detached garages to serve as additional parking and storage. As proposed, the vehicle parking standards are met.

4.8 **Bicycle Parking:** The bicycle parking requirement is identified under ADC 9.120(13). The minimum bike parking requirement for multi-family development is one bike parking space for every four dwelling units. With a total of 44 multi-family dwelling units proposed, a minimum of 11 bike parking spaces are required. The planned development proposes two outdoor bike racks, one of which is covered, for a total of 12 on-site bike parking spaces for the apartment complex. This meets the minimum number of required bicycle parking spaces.

At the time of building permit, the applicant will need to show details for the bicycle parking to show it meets the minimum design standards of ADC 9.120(13)(e-h), such as 50 percent sheltered, being secured to the ground, meeting all clearance standards, etc. This is included as a condition of approval.

4.9 **ADC 9.120(14) requires on-site lighting to be directed down and contained on-site to meet code requirements.** The applicant states that lighting is planned to be provided on the apartment complex buildings, as shown in the Site Lighting plans (Attachment H). The Plan shows that the lighting will be located away from any abutting or adjacent properties.

**Conclusions**

4.1 The proposed individual and shared private driveways proposed with the development comply with the design and spacing standards contained in ADC 12.100.

4.2 On street parking will need to be restricted along the development’s frontage on Franklin Avenue in order to maintain two lanes of traffic on the street and provide sufficient operating space for access by emergency vehicles.

4.3 ODOT has requested that several unused site driveways to Airport Road be removed with the development.

4.4 A total of 60 vehicle parking spaces are required for the apartment complex and 81 parking spaces are being provided. At the time of building permit, the parking plan will be reviewed again for consistency with the parking lot design standards of Article 9.

4.5 A total of 11 bicycle parking spaces are required and 12 bicycle parking spaces are being provided. At the time of building permit, the applicant will need to show details for the bicycle parking to show it meets the minimum design standards of ADC 9.120(13)(e-h).
4.6 The lighting plan shows the lighting will be contained on-site.

4.7 This criterion is met with the following conditions.

Conditions of Approval

Condition 20 The applicant shall install “no parking” signs on the south side of Franklin Avenue with the construction of street improvements. The signs shall be placed at a spacing of no more than 200 feet.

Condition 21 Prior to recordation of the plat map for Phase 1, all existing site driveways to Airport Road shall be removed. The applicant shall secure all necessary permits and approvals from ODOT prior to performing any work within ODOT right of way.

Condition 22 Prior to issuance of a building permit, the applicant shall submit a site plan to the Community Development Department for review and approval to ensure consistency with the standards of Table 9-2: Parking Lot Design and Supplemental Drawings.

Condition 23 Prior to issuance of a building permit, the applicant shall provide detailed plans to show how the bicycle parking meets the standards of ADC 9.120(13)(e-h).

Condition 24 Site lighting must be directed down, contained on site, and shielded, full cut-off design.

Criterion 5

The design and operating characteristics of the proposed development are reasonably compatible with surrounding development and land uses, and any negative impacts have been sufficiently minimized.

Findings of Fact

5.1 Site Plan Review is intended to promote functional, safe, and attractive developments that maximize compatibility with surrounding developments and uses and with the natural environment. Site Plan Review is not intended to evaluate the proposed use or structural design of the proposal. Rather, the review focuses on the layout of a proposed development, including building placement, setbacks, parking areas, external storage areas, open areas, and landscaping. Where conflicts are identified, mitigation can be required through conditions of approval.

5.2 The site is located in a RS-5 – Residential Single-Family zoning district that includes wetlands and several white oak trees. The site is currently vacant, 6.46 acres in size, and located at 840 Airport Road. A location map is included in Attachment A.

5.3 The adjacent properties to the west, south, and north are zoned as RS-6.5. The adjacent properties to the southwest are zoned Office Professional. The area directly to the east is Airport Road and I-5. The other side of I-5 is zoned as Light Industrial and is part of the Airport. A zoning map is included in Attachment B.

5.4 The proposed development is for the phased construction of a Planned Development that will result in 11 single family lots and 44 apartment units. Single family dwellings are permitted outright in the RS-5 zone and multi-family residential development is allowed in the RS-5 zone through this planned development review process. The development will be constructed over five phases. A site plan is included in Attachment Q.5, Sheet C3, and the phasing plan is included in Attachment Q.12, Sheet C10.

5.5 The surrounding area has single-family residences to the north and west. Single-family residences are planned on the north and west side of the site to maintain the look and feel of the existing residential neighborhood. A multi-family residential apartment complex is located at the center of the development for compatibility with the surrounding land uses and to minimize visual impacts.
5.6 A total of 2.7 acres of natural open space area is proposed to be preserved, which includes a 0.93-acre grove of white oak trees on the east side of the property and 1.75 acres of grassy meadow wetland. Other common areas include a recreation building with deck and barbecue, and outdoor picnic and landscaped areas. The Common Area Plan (Attachment Q.12, Sheet C10) shows the proposed common areas total 3.2 acres of the 6.46-acre site.

5.7 Setbacks, Building Height and Lot Coverage. ADC 3.190, Table 1, shows the development standards for residential districts.

Building Height. The maximum height in the RS-5 zoning district is 30 feet. The building elevations for the proposed apartment buildings show building height is less than 30 feet in height.

Lot Coverage. Application of the planned development review standards permits a maximum lot coverage of 70 percent in the RS-5 zoning district. At the time of building permit, each of the new single-family homes on Lots 1-11 will need to be reviewed for lot coverage.

Lot 12 is five acres in size and proposed for a multi-family apartment complex. Over half of Lot 12 will be preserved as natural open space area, which includes a 0.93-acre grove of white oak trees on the east side of the property and 1.75 acres of grassy meadow wetland. The Common Area Plan (Attachment Q.12, Sheet C10) shows the proposed natural open space areas on Lot 12.

Setbacks. Application of the planned development review standards permits a front yard setback of 10 feet and a garage setback of 20 feet. Interior setbacks are 5 to 6 feet for single-family homes. Lots 8-10 have a 20-foot rear yard solar access protection setback. At the time of building permit, each of the new single-family homes on Lots 1-11 will be reviewed for compliance with setback standards.

The proposed apartment buildings, garages and parking areas are located on the interior of the site (Lot 12), more than 20 feet from any front or interior property line.

In addition to the minimum setbacks, a “Special Noise Corridor Setback” is required along Airport Road. ADC 3.320 requires residential developments adjacent to Interstate 5 to maintain a 50-foot setback from the designated right-of-way in addition to the required setbacks for the Zoning District. The standard minimum front setback in the RS-5 zone is 15 feet and the I-5 right-of-way includes Airport Road. Therefore, the minimum setback for the apartment buildings is 65 feet from the eastern property line. As shown on the Site Plan (Attachment Q.5, Sheet C3), all habitable structures are more than 65 feet from the eastern property line.

The “Special Noise Corridor Setback” (ADC 3.320) also states that “the review body may require additional noise mitigating features such as berms, landscaping, fences, or walls within the above described setback areas.” As proposed, the site is designed to mitigate noise from the I-5 corridor by a) locating the apartment buildings approximately 200 feet away from Airport Road, b) locating garage structures between the apartment buildings and the eastern property line, c) retaining a grove of oak trees on the eastern portion of the site, and d) planting a solid hedge of English Laurels along the eastern property line. As proposed, the special noise corridor standards are met; no additional noise mitigation features are recommended.

5.8 Density. The permitted density of a planned development in the RS-5 zone is eight units per acre or a total of 51.68 units on this 6.46-acre site. The application qualifies for the Transportation density bonus under ADC 3.220(2), and the Solar Access Protection density bonus under ADC 3.220(5). With these density bonuses, the proposal may develop a total of 55 units. The proposed development will result in a total of 55 units: 11 single family lots and 44 apartment units.

Detailed findings for the density calculation are addressed earlier in this report under Planned Development Criterion Four (ADC 11.330). Those findings and conclusions are included here by reference.
5.9 **Landscaping.** In the RS-5 zone, 100 percent of the yard adjacent to the street is required to be landscaped, in accordance with ADC 9.140(1), which states:

The minimum landscaping for every 50 linear feet of street frontage (or portion thereof, deducting the width of the driveway) is:

- One tree at least 6 feet tall.
- Four 1-gallon shrubs or accent plants.
- The remaining area treated with attractive ground cover (e.g., lawn, bark, rock, ivy, and evergreen shrubs).

At the time of building permit and before issuance of a certificate of occupancy, the single-family home Lots 1-11 will be required to install front yard landscaping in accordance with ADC 9.140(1).

The Landscape Plans (Attachment P, Sheets L1.0 & L2.0) show landscaping in the front yard and throughout the apartment complex on Lot 12. A final landscape plan consistent with the standards of ADC 9.140 will need to be submitted for review and approval by the Community Development Department before building permits can be issued.

5.10 **Landscaping Around and Within Parking Areas.** Landscaping in parking lots is required to provide shade, reduce stormwater runoff, and direct traffic. Parking lots must be landscaped in accordance with the minimum standards of ADC 9.150, which are:

1. **Planter Bays.** Parking areas shall be divided into bays of not more than 12 parking spaces. At both ends of each parking bay there shall be curbed planters at least 5 feet wide, excluding the curb. Each planter shall contain one canopy tree at least 10 feet high and decorative ground cover containing at least two shrubs for every 100 square feet of landscape area. Neither planter bays nor their contents may impede access on required public sidewalks or paths, or landscaped-accessible parking spaces.

2. **Entryway Landscaping.** Both sides of a parking lot entrance shall be bordered by a minimum 5-foot-wide landscape planter strip meeting the same landscaping provisions as planter bays, except that no sight-obscuring trees or shrubs are permitted.

3. **Parking Space Buffers.** Parking areas shall be separated from the exterior wall of a structure by pedestrian walkways or loading areas or by a 5-foot strip of landscaping materials.

The Landscape Plans (Attachment P, Sheets L1.0 & L2.0) show landscaping throughout the parking lot for the apartment complex on Lot 12. A final landscape plan consistent with the standards of ADC 9.150 will need to be submitted for review and approval by the Community Development Department before building permits can be issued.

5.11 **Irrigation System.** ADC 9.160 requires that all required landscape areas be provided with a piped underground irrigation system. The Landscape Plans (Attachment P, Sheets L1.0 & L2.0) do not include irrigation plans; therefore, an irrigation plan consistent with the standards of ADC 9.160 will need to be provided prior to issuance of a building permit, unless a licensed landscape architect or certified nurseryman submits written verification that the proposed plant materials do not require irrigation.

5.12 **Buffering and Screening:** To reduce the impacts on adjacent uses of a different type, buffering and screening are required in accordance with the matrix in ADC 9.300. When Buffering is required, ADC 9.240 states the minimum improvements are:

a) At least one row of trees. These trees will be not less than 10 feet high at the time of planting for deciduous trees and spaced not more than 30 feet apart and 5 feet high at the time of planting for evergreen trees and spaced not more than 15 feet apart.

b) At least five 5-gallon shrubs or ten 1-gallon shrubs for each 1,000 square feet of required buffer area.

c) The remaining area treated with attractive ground cover (e.g., lawn, bark, rock, ivy, and evergreen shrubs).

When Screening is required, ADC 9.250 states that the minimum screening standards are:

a) One row of evergreen shrubs that will grow to form a continuous hedge at least 4 feet tall within two years of
planting, or

b) A fence or masonry wall at least 5 feet tall constructed to provide a uniform sight-obscuring screen, or
c) An earth berm combined with evergreen plantings or a fence that forms a sight and noise buffer at least 6 feet tall within two years of installation.

Based on the Buffer and Screening Matrix (ADC 9.330, Table 9-4), 10 feet of buffering is required along the eastern property line at Airport Road. As shown on the Landscape Plan (Attachment P, Sheet L1.0), buildings are setback more than 10 feet from the property line and English Laurels are proposed to be planted along the eastern property line to provide a vegetative buffer. A final landscape plan will need to be submitted for review and approval by the Community Development Department to ensure the standards of ADC 9.240 are incorporated into these plans.

5.13 Environmental Standards. ADC 9.440 - 9.500 include environmental standards related to noise, visible emissions, vibrations, odors, glare, heat, insects, rodents, and hazardous waste. The design and operating characteristics of the proposed residential planned development is like other residential uses in the area.

Noise: Noise generated in association to the proposed use will include standard residential mechanical equipment and daytime on-site parking lot traffic. No noise is anticipated to exceed the noise source standards of ADC 9.440.

Visible Emissions: There will be no emissions or discharge from the development.

Vibrations: Vibrations that exceed 0.002g peak are not expected to be produced in association to the proposed use.

Odors: The proposed use is not anticipated to produce continuous, frequent, or repetitive odors or emissions.

Heat: This is not applicable to the operations on this site.

Insects and Rodents: The proposed residential uses do not attract insects or rodents.

Lighting and Glare: ADC 9.480 states that no direct or sky reflecting glare in excess of 0.5-foot candles of light be visible at the lot line shall be permitted. In addition, ADC 9.120(14) requires on-site lighting to be directed down and contained on site to meet code requirements.

5.14 Refuse Containers. ADC 3.390 requires that any refuse container or disposal area that would otherwise be visible from a public street, customer, resident parking area, public facility, or any residential area must be screened from view by placement of a sight-obscuring fence, wall, or hedge at least six feet tall. All refuse materials must be contained within the screened area and must be located at least 15 feet of a dwelling window.

As shown on the Site Plan (Attachment Q.5, Sheet C3), the applicant proposes to locate two refuse container areas near the garages on the eastern side of the site, at least 15 feet from a dwelling window. The screening around the trash enclosures is proposed to be a six-foot high solid wood fence (Attachment F).

5.15 Fences. ADC 9.370 lists the standards for fences. A six-foot fence will be installed along the rear yard property line of the west side homes (Lots 1-7). There is an existing chain link fence along the southern property line at the base of the wetland meadow. The applicant does not propose to install a fence along the Airport Road property line and prefers to use the landscaped vegetation as a visual barrier rather than a fence.

5.16 The multi-family design standards in Article Eight are addressed later in this report. Those findings and conclusions are included here by reference.
Conclusions

5.1 The proposed development is for the phased construction of a Planned Development that will result in 11 single family lots and 44 apartment units.

5.2 The planned development is designed to integrate into the existing residential neighborhood by locating the single-family homes around the perimeter and the multi-family residential apartment complex in the center of the development.

5.3 Open space and common areas are provided to minimize impacts to the existing natural features and to provide noise and visual buffers from surrounding uses.

5.4 The proposal meets the standards for density, building height, lot coverage, setbacks, and the environmental standards.

5.5 Any adverse impacts associated with the use of the property can be mitigated through such means as shielded lighting and landscaping.

5.6 Condition of Approval #23 (above), will ensure that all exterior lighting fixtures shall be of a shielded, full cut-off design.

5.7 A final landscape and irrigation plan will need to be submitted and approved prior to site improvements. The plan shall be in substantial conformance with the preliminary plans, as shown on Landscape Plan Sheets L1.0 & L2.0.

5.8 As shown on the site plan, the applicant proposes to locate refuse container areas within trash enclosures designed to meet the code.

5.9 Based on the observations above, the site plan will be compatible with existing or anticipated uses in terms of size, intensity, setbacks, lighting, screening and landscaping with conditions of approval.

Conditions of Approval

Condition 25 Prior to issuance of a building permit, a final landscape and irrigation plan shall be submitted for review and approval by the Community Development Department. The plan shall be in substantial conformance with the preliminary plans, as shown on Landscape Plan Sheets L1.0 & L2.0. The plans shall also meet the minimum standards for landscaping under ADC 9.140, landscape parking lot standards of ADC 9.150, buffering standards of ADC 9.240 and irrigation standards of ADC 9.160.

Condition 26 Prior to issuance of a certificate of occupancy for the multi-family development on Lot 12, all proposed and required site improvements for each phase (e.g. vehicle and bicycle parking, landscaping, community amenities, refuse screening, lighting, etc.), shall be constructed and completed in accordance with approved plans. Landscaping may be financially secured through a completion guarantee, per ADC 9.190.

Criterion 6

Activities and developments within special purpose districts must comply with the regulations described in Articles 4 (Airport Approach), 6 (Natural Resources), and 7 (Historic), as applicable.

Findings of Fact

2.1 Findings for activities and development in special purpose districts is addressed in detail earlier in this report under Tentative Plat Review Criterion Six (ADC 11.180(6)). Those findings and conclusions are included here by reference.

2.2 This criterion is met without conditions.
Criterion 7  
*The site is in compliance with prior land use approvals.*  

Findings of Fact and Conclusion  
7.1 In 2019, the Albany City Council approved the subject property to be rezoned from RS-6.5 to RS-5, under planning file ZC-03-19. The rezone was approved without conditions. There are no other previous development approvals to consider with this application. This criterion is met.

Criterion 8  
*Sites that have lost their nonconforming status must be brought into compliance and may be brought into compliance incrementally in accordance with Section 2.370.*  

Findings of Fact and Conclusion  
8.1 The site is vacant and is not a nonconforming site. This criterion is not applicable.

MULTIPLE FAMILY DEVELOPMENT DESIGN STANDARDS (ADC 8.200 to 8.300)  
In addition to the review criteria above, the following Design Standards must be met. **Note:** If there is a checked box symbol (☑) preceding a standard, it means staff has compared the applicant’s findings and plans to the standard(s) and find the standard(s) is met without comment. If the box is unchecked (☒), staff has provided findings and conclusions as to the reason(s) why the standard is not met and has added a condition. "NA" preceding the standard means it is not applicable to this particular development.

N/A 8.210 Relationship to Historic Overlay Districts. For residential property inside the Historic Overlay Districts, see Article 7 for additional historic review criteria.  

☑ 8.220 Recreation and Open Space Areas. In multi-family developments, a portion of the land not covered by buildings and parking shall be of adequate size and shape and in the proper location to be functional for outdoor recreation and relaxation. The standards are also intended to ensure that project open space is an integral part of the overall development design, not merely leftover space. In larger developments, there should be a variety of open space activities.

1) Common Open Space. For projects of 10 or more units, common open space shall be required at a ratio of 0.25 square feet for each 1.0 square feet of living space.  

a) Areas designated as common open space shall be at least 500 square feet in size with no horizontal dimension less than 20 feet. The open space shall be functional and shall include one or more of the following types of uses:
- swimming pools, spas, and adjacent patios and decks
- developed and equipped adult recreation areas
- sports courts (tennis, handball, volleyball, etc.)
- community centers
- food and ornamental gardens
- lawn or hard surface areas in which user amenities such as trees, shrubs, pathways, covered picnic tables, benches, and drinking fountains have been placed
- natural areas

b) Developments shall provide a mix of passive and active recreational uses from the above list if the open space can accommodate more than one use.

c) Indoor or covered recreational space may count towards 50 percent of the common open space requirement.

d) No more than 20 percent of the common open space requirement shall be on land with slopes greater than 20 percent.

e) Areas Excluded. Streets and parking areas, including areas required to satisfy parking lot landscape standards, shall not be applied toward the minimum useable open space requirement. Required
setback areas may be applied toward the minimum useable open space requirement, with the exception of active, noise-generating activities.

f) Designated on Site Plan. Areas provided to satisfy the minimum useable open space requirement shall be so designated on the development site plan and shall be reserved as open space. Adult recreation areas shall not be allowed in any required setback and shall be centrally located.

g) Open Space and Recreation Area Credit. An open space credit, not to exceed 25 percent of the common open space requirements, may be granted if there is direct access by a pedestrian path, not exceeding 1/4 mile, from the proposed multiple family development to an improved public park and recreation area or public school playground.

b) Approved vegetated post-construction stormwater quality facilities are allowed in common open space areas

Findings of Fact

The applicant proposes 44 apartment units, which total 30,704 square feet of living space (Attachment E.5). Based on a ratio 0.25 square feet for each 1.0 square foot of living space, a total of 7,676 square feet of common open space is required.

The Phasing and Common Area Plan (Attachment Q.12, Sheet C10) shows the common areas provided. A total of 2.7 acres of natural open space area is proposed to be preserved, which includes a 0.93-acre grove of white oak trees on the east side of the property and 1.75 acres of grassy meadow wetland. Other common areas include a recreation building with deck and barbeque, and outdoor picnic and landscaped areas. Calculations are provided below, which shows 3.2 acres (142,276 s.f.) of the 6.46-acre site is proposed as open space and common areas.

The common open space areas are at least 500 square feet in size with no horizontal dimension less than 20 feet. As required by code, the indoor recreation center accounts for less than 50 percent of the common open space provided on site. Therefore, the planned development meets these criteria as proposed.

2) **Children’s Play Areas.** Multiple family developments larger than 10 units (excluding 1-bedroom and studio units) shall designate one or more children’s play areas.

a) Children’s play areas shall be placed within 300 feet of the units they are intended to serve. More than one play area may be needed in larger developments.

b) No horizontal dimension of a children’s play area shall be less than 20 feet.

c) Placement of children’s play areas shall not be allowed in any required setback and shall be centrally located.

d) Children’s play areas may be part of the common open space area but do not count toward the use requirement as outlined in Section 8.220(1)(a).

Findings of Fact

Approximately half of the 6.46-acre site is proposed for natural open space and common areas, which far exceeds the minimum amount of common areas required per this code. Within the three acres of open space areas, there is adequate space for children’s play areas that meet the size and dimensions of
these standards. Fencing around children’s play areas and children’s play equipment is not proposed and is not required per these criteria.

8.230 Private Open Space. In all newly constructed multiple family developments except in the CB, HD and LE zoning districts and assisted-living and nursing home developments, private open space shall be provided as follows:

1) At-Grade Dwellings. Dwellings located at finished grade, or within 5 feet of finished grade, shall provide at least 96 square feet of private open space per unit, with no dimension less than 8 feet. Private open space for at-grade dwellings may be provided within interior courtyards created within a single building or cluster of buildings. Private open space for at-grade dwellings shall be screened from view from public streets.

2) Above-Grade Dwellings. Dwellings located more than 5 feet from finished grade shall provide a minimum of 80 square feet of private open space per dwelling unit (such as a yard, deck or porch), with no dimension less than 6 feet. Private open space for units located more than 5 feet above grade may be provided individually, as with a balcony or collectively by combining into a larger area that serves multiple units.

3) Access to Private Open Space. All private open space shall be directly accessible from the dwelling unit through a doorway.

4) Privacy Requirements. Private open space, excluding front porches, shall be physically and visually separated from common open space.

Findings of Fact

The site plan application includes building plans for the multi-family apartment buildings (Attachment O). These plans show that all of the private open space is accessible through the back door of each apartment unit. The lower floor of each building includes private concrete patios that appear to meet the minimum size standard. Private open space for at-grade apartment units all face the interior of the development and are not visible from public streets; therefore, the private open space for at-grade apartment are not required to be screened from view.

The private open space areas located above grade, on the second floor, are balconies that appear to meet the minimum size standard. At the time of building permit, all private open space patios and balconies will be reviewed to ensure compliance with the minimum standards of the above criteria.

N/A 8.240 Maximum Setbacks for Street Orientation.

1) On sites with 100 feet or more of frontage on a collector or local public street, at least 50 percent of the site width shall be occupied by a building(s) placed no further than 25 feet from the front lot line.

2) On sites with less than 100 feet of frontage on a collector or local public street, at least 40 percent of the site width shall be occupied by a building(s) placed no further than 25 feet from the front lot line.

3) As used in these standards, “site width” does not include significant natural resources as mapped by the City, delineated wetlands, slopes greater than 20 percent, recorded easements, required fire lanes and other similar non-buildable areas as determined by the City.

Findings of Fact

The subject property has more than 100 feet of frontage on a major collector public street at Airport Road; however, the noise corridor setback requires buildings to be setback at least 65 feet from the property line. Therefore, this criterion is not applicable.

8.250 Functional Design and Building Details. These standards are intended to promote functional design and building details in new construction that contribute to a high-quality living environment for residents and enhance compatibility with the neighborhood.

1) The design of new buildings shall avoid long, flat, uninterrupted walls or roof planes. Changes in wall plane and height, and inclusion of elements such as balconies, porches, arbors, dormers, gables and other human-scale design elements such as landscaping should be used to achieve building articulation.
2) Buildings shall be massed so individual units or the common main entrance is clearly identifiable from the private or public street that provides access unless the units are located on upper floors above non-residential uses.

3) Stairways shall be incorporated into the building design. External stairways, when necessary, should be recessed into the building, sided using the same siding materials as the building, or otherwise incorporated into the building architecture.

4) Building facades shall be broken up to give the appearance of a collection of smaller buildings.

Findings of Fact

Architectural building plans and elevations for the apartment complex are shown on Attachments N and O. The plans show the required building articulation is provided with balconies, porches, dormers, offsets, and landscape features to avoid long, flat, uninterrupted walls and roof planes. All external stairways are physically and visually incorporating stairways into the building design. The building facades are further broken up with elements such as gable roofs, porches, and breezeways shown in the architectural drawings. Various materials, textures, and earth-toned colors are used to create attractive building design.

8.260 Building Orientation and Entries. These standards are intended to promote building and site design that contributes positively to a sense of neighborhood and to the overall streetscape by carefully relating building mass, entries and yards to public streets.

1) As many of the dwelling unit entries as possible shall face public local residential streets and along the internal street system of larger scale developments. Internal units may face a courtyard or plaza, but not a parking lot. The use of front porches or entry patios and terraces is encouraged.

2) Building entries and entries to individual units shall be clearly defined, visible for safety purposes, and easily accessible. Arches, gateways, entry courts, and awnings are encouraged to shelter entries.

3) Individual entries are encouraged; the use of long access balconies and/or corridors that are monotonous and impersonal are discouraged.

4) The primary entrance(s) of ground floor units of residential building(s) located within 25 feet of a local street may face the street. Primary entrances may provide access to individual units, clusters of units, courtyard dwellings, or common lobbies. No off-street parking or circulation shall be located between the front of the building and the street. The following exceptions to this standard are allowed:
   - On corner lots, the main building entrance(s) may face either of the streets or be oriented to the corner.
   - For buildings that have more than one entrance serving multiple units, only one entrance must meet this requirement.

Findings of Fact

As this is a planned development, single-family residences are planned around the perimeter of the site, and the apartment complex is located at the center of the development to maintain the look and feel of the existing residential neighborhood.

Off-street parking is located between the apartment buildings and Airport Road; however, with the noise corridor setback from Airport Road and the grove of oak trees on the east side of the site, the apartment buildings are best located further away from Airport Road.

The circulation system on-site is a combination of private streets. All of the apartment building entries are clearly defined and easily accessible from the private streets. There are no long balconies or monotonous corridors.

8.270 Transition to Lower Density Uses. The following design standards shall be incorporated into the design of multiple-family housing to create transitions between multiple-family developments and nearby, lower-density residential development, in order to reduce the impacts of building mass and scale.
1) When abutting single-family homes, buildings shall be set back at least one foot for each foot in building height from the property line. Building height is measured from the average grade to the top of the wall facing the property line or to the top of the highest window or door, whichever is higher.

2) Smaller-scale buildings should be sited in the area immediately adjacent to single-family zoning districts, and larger-scale buildings sited at the interior of the development or adjacent to other multiple-family developments.

3) Parking and maneuvering areas, driveways, active recreation areas, loading areas and dumpsters should not be located between multiple family buildings and abutting single family homes.

Findings of Fact

The surrounding area has single-family residences to the north and west. Single-family residences are planned on the north and west side of the development to keep the visual impact on the surrounding area to a minimum while maintaining the look and feel of the existing residential neighborhood. The apartment complex is located at the center of the development to minimize visual impacts. There are no parking areas, driveways, active recreation areas, loading areas or dumpsters located between the multiple family buildings and abutting single family homes.

8.280 Pedestrian Connections. Pedestrian circulation systems shall be designed to provide clear and identifiable connections within the multiple-family development and to adjacent uses and public streets/sidewalks.

1) Each multiple family development shall contain an internal pedestrian circulation system that makes clear, easily identifiable and safe connections between individual units and parking and shared open space areas. All pedestrian ways shall comply with the requirements of the Americans with Disabilities Act.

2) The pedestrian circulation system shall be designed to provide safe crossings of streets and driveways. Reflective striping should be used at crossings to emphasize the crossing under low light and inclement weather conditions.

3) Safe, convenient, and attractive pedestrian connections shall be provided between the multiple family development and adjacent uses such as parks, schools, retail areas, bus stops, and other pedestrian ways. Connections shall be made to all adjacent streets and sidewalks at 200-300 foot intervals.

Pedestrian connections are shown on the Landscape Plan and Site Plan (Attachments P and Q.5). The internal pedestrian circulation system consists of hard surface sidewalks, five to seven and one-half-foot wide, for safe connections between the residential units, parking, recreation areas, trash disposal area, and the public sidewalks. The accessways shown are intended to comply with the provisions of the Americans with Disabilities Act. Pedestrian connections to adjacent public sidewalks are provided at Franklin Avenue at reasonable intervals.

8.290 Vehicle Circulation System. On-site circulation shall be clearly identifiable, safe, pedestrian friendly and interconnected.

1) Internal vehicle circulation system of a multiple family development shall be a continuation of the adjacent public street pattern wherever possible and promote street connectivity. Elements of the public street system that shall be emphasized in the internal circulation system include the block pattern, sidewalks, street trees, on-street parking and planter strips.

2) The vehicle circulation system and building pattern shall mimic a traditional local street network and break the development into numerous smaller blocks with all of the public street system elements highlighted above. Private streets are acceptable, unless a public street is needed to extend the public street grid. The connectivity and block length standards in Articles 11 and 12 apply to all public and private streets.

3) The streets that form the primary internal circulation system may include parallel parking and accessways to parking bays or courts, but should not be lined with head-in parking spaces.
4) Interior roadways shall be designed to slow traffic speeds. This can be achieved by meandering the roadway, keeping road widths to a minimum, allowing parallel parking, and planting street trees to visually narrow the road.

Findings of Fact

The project site is located at the southwest corner of Franklin Avenue and Airport Road. There is a street stub at Cox Street SE that would have continued through the property, but it terminates at the wetland meadow, which is proposed to be preserved in its natural state and not developed.

Private streets are planned for the development and designed to promote connectivity throughout the development. Street connectivity is provided via two access points at Franklin Avenue. Public street improvements on Franklin Avenue will include sidewalks and street trees, per engineering standards.

Findings of Fact

Access to the site and parking lot is provided via private streets from Franklin Avenue. The apartment complex is located at the center of the development to maintain the look and feel of the existing residential neighborhood.

Off-street parking is located between the apartment buildings and Airport Road; however, with the noise corridor setback from Airport Road and the grove of oak trees on the east side of the site, the apartment buildings are best located further away from Airport Road.

The parking lot is broken up into smaller bays with landscaped parking islands throughout the development, in accordance with the standards of ADC 9.150. All of the parking spaces are located within 100 feet of the building entrance for each unit.

Conclusions

DS.1 The recreation and open space standards are met with large areas reserved for common natural open space and indoor recreation uses and features.

DS.2 Private open space is provided for each apartment through concrete at-grade patios and balconies on the upper levels of the buildings. At the time of building permit, the private open space will be reviewed to ensure compliance with the minimum standards.

DS.3 The buildings are located on the site to effectively meet the maximum setback requirement from public streets, as well as the minimum setback requirement from property lines.

DS.4 The architectural design of the proposed apartment buildings meets the functional design and building detail standards.

DS.5 The design of the overall development meets the standards for Building Orientation and Entries, Pedestrian Connections, Vehicle Circulation System, and Parking.

DS.6 The planned development can meet the Multi-Family Design Standards with the following condition.
Condition of Approval

Condition 27 Prior to issuance of a building permit, the applicant shall submit a site plan and building plans to the Community Development Department for review and approval that shows the standards for private open space per ADC 8.230 are met. Outdoor storage closets on decks and balconies may not be included in the dimension and area requirements of the private open space decks and patios.

TREE FELLING CONCURRENT WITH DEVELOPMENT (ADC 9.208(2))

ADC 9.207 states that Site Plan Review approval is required for the felling of five or more trees larger than 25 inches in circumference (approximately eight inches in diameter) on a lot or property in contiguous, single ownership in excess of 20,000 square feet in any zone. According to ADC Section 9.208, Tree Felling criteria replace the Site Plan Review criteria found in Article 2 of the ADC for the purpose of reviewing tree felling.

The applicant proposes to remove 258 trees from the site that are greater than 25 inches in circumference. As illustrated on the Tree Removal Plan (Attachment F), the trees identified for removal are all located in areas where construction is proposed. The applicant submitted an application for tree felling concurrent with the planned development review application. As such, the tree felling criteria under ADC 9.208(2)(a-c) are applicable and addressed below.

**Criterion 2(a)** It is necessary to fell tree(s) in order to construct proposed improvements in accordance with an approved site plan review or conditional use review, or to otherwise utilize the applicant’s property in a manner consistent with its zoning, this code, applicable plans adopted by the City Council, or a logging permit issued by the Oregon Department of Forestry.

Findings of Fact & Conclusion

2a.1 Based on the Arborist Report (Attachment J), and a site survey shown on the Existing Conditions Plan (Attachment Q.2, Sheet G2), there are a total of 329 trees on the property. Of these, 309 are Oregon White Oak trees. The Arborist Report states: “A majority of this sites grade is flat, surrounded by groves of Oak trees located along the East, North, Northwest, as well as some scattered along the West side of the property. The most prominent grove would be located along the North and Northeast side of this lot. This site hosts mostly all native trees. The predominant species is Oregon White Oak (*Quercus garryana*), with a few Green Ash trees, Plum trees and Hawthorns (Attachment J.2).”

The applicant proposes to remove 258 trees from the site that are greater than 25 inches in circumference. A total of 71 trees are proposed to be preserved; 58 of the 71 trees are Oregon White Oak trees. The number and type of tree proposed for removal is presented below.

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Botanical Name</th>
<th>Total</th>
<th>Retain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oregon White Oak</td>
<td><em>Quercus garryana</em></td>
<td>309</td>
<td></td>
</tr>
<tr>
<td>Green Ash</td>
<td><em>Fraxinus pennsylvania</em></td>
<td>13</td>
<td>11</td>
</tr>
<tr>
<td>Hawthorn</td>
<td><em>Crataegus sp.</em></td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Plum</td>
<td><em>Prunus subg.</em></td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>329</strong></td>
<td></td>
</tr>
</tbody>
</table>

**Removal Diameter**

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Diameter</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oregon White Oak</td>
<td>6-36&quot;</td>
<td>251</td>
</tr>
<tr>
<td>Oregon White Oak</td>
<td>6-39&quot;</td>
<td>58</td>
</tr>
</tbody>
</table>

2a.2 As shown on the Demolition Plan and the Site Grading Plan (Attachments Q.3 & Q.10), the trees proposed for removal are located in the areas proposed for development. Thus, it is necessary to fell 258 trees in order to construct the proposed planned development.
2a.3 The Arborist Report includes tree protection measures for the project, and the Site Grading Plan notes that tree protection fencing is to be located a minimum of 15 feet from the center of the tree. A condition of approval is included to ensure the trees proposed for preservation are protected during construction of the planned development.

2a.4 This criterion can be met with the following conditions.

**Conditions of Approval**

**Condition 28** Prior to issuance of an Erosion Prevention Sediment Control (EPSC) permit for each phase of development, tree protection measures shall be implemented in accordance with the Arborist Report. At a minimum, tree protection measures shall include installation of a tree protection fence located a minimum of 15 feet from the center of the tree.

**Condition 29** In the event additional trees need to be removed to accommodate the proposed development, a new tree felling application shall be submitted to the Community Development Department for review and processing, in accordance with ADC 9.208(2).

**Criterion 2(b)** The proposed felling is consistent with state standards, city ordinances, and the proposed felling does not negatively impact the environmental quality of the area, including but not limited to: the protection of nearby trees and windbreaks; wildlife; erosion; soil retention and stability; volume of surface runoff and water quality of streams; scenic quality, and geological sites.

**Findings of Fact & Conclusion**

2b.1 The proposed tree felling does not violate any state standards. The proposed tree felling is reviewed through this land use process, consistent with the ADC.

2b.2 The proposed tree felling does not unreasonably impact the environmental quality of the area for the following reasons:

a. The site is zoned RS-5, which is intended for residential development.

b. Prior to initiating development of the site, an Erosion Prevention Sediment Control (EPSC) permit is required to ensure soil retention and stability.

c. Trees proposed for removal are all located on the development site. The grove of oak trees proposed to be protected on the east side of the site will continue to act as a windbreak for the proposed new residential development.

d. The property is not designated as sensitive habitat area.

e. Surface water runoff and water quality of streams is addressed through the stormwater drainage and water quality management plans, in accordance with the City’s engineering standards.

f. The planned development is designed to preserve the scenic quality of the oak trees. Natural open space areas are proposed, including a 0.93-acre grove of white oak trees on the east side of the property.

g. There are no geologic sites on the property protected by the trees.

2b.3 This criterion is met without conditions.

**Criterion 2(c)** The uniqueness, size, maturity, structure, and historic value of the trees have been considered and all other options for tree preservation have been exhausted. The director may require that trees determined to be unique in species, size, maturity, structure, or historic values are preserved.
Findings of Fact & Conclusion

2c.1 The proposed tree felling plan has been reviewed the City Forrester Rick Barnett. Mr. Barnett states that the applicant has done a very good job of trying to work to save the natural resources that he can, (primarily trees), on this hard-to-develop piece of land.

2c.2 A total of 2.7 acres of natural open space area is proposed to be preserved on this 6.46-acre site. These natural open space areas include a 0.93-acre grove of white oak trees on the east side of the property and 1.75 acres of grassy meadow wetland.

2c.3 The uniqueness, size, maturity, structure, and historic value of the trees have been considered. The proposed planned development includes a balance of residential development at a density appropriate for the zone, while preserving a significant portion of the site as natural open space.

Criterion 2(d)  *Tree felling in Significant Natural Resource Overlay Districts meets the applicable requirements in Article 6.*

Findings of Fact & Conclusion

2d.1 The Property is not located within a Significant Natural Resource Overlay District. This criterion does not apply.

Tree Felling Criteria Conclusion

For the reasons stated above, the request for Tree Felling concurrent with Planned Development Review meets all applicable review criteria with the conditions stated in this section.

Overall Conclusion

As proposed and conditioned, the application for a Planned Development Review, Tentative Plat Review and Tree Felling satisfy all applicable review criteria as outlined in this report.

Conditions of Approval

**Planned Development**

Condition 1 Lots 1-11 are permitted to have a 10-foot front yard setback and a 70 percent lot coverage. Notwithstanding this modification, the minimum driveway length from the garage to the front property line is 20 feet, in accordance with ADC 3.190, Table 1.

Condition 2 Prior to Final Plat approval of Phase One, the applicant shall establish a Homeowners Association (HOA) and submit a Declaration of Covenants, Conditions, and Restrictions (CC&R) to the Community Development Department for review and approval. The CC&Rs shall specify the access and maintenance responsibilities of outdoor common areas, indoor recreation areas, private streets, driveways, and parking areas.

Condition 3 Solar Access Protection shall be preserved through the following mechanisms:

a. The Final Plat shall include a note regarding the Solar Access Protection, as proposed on the Preliminary Plat (Sheet C2).

b. The Homeowners Association (HOA) Declaration of Covenants, Conditions, and Restrictions (CC&R) shall specify the provisions for Solar Access Protection, as proposed for the Planned Development and described on the Housing Bonus Plan (Sheet C11).

Condition 4 New dwelling on Lots 1-7 shall avoid second story, west-facing windows. Alternatively, new dwellings on Lots 1-7 may install second story west-facing windows if they are constructed of sight-obscuring material (i.e. textured or frosted privacy glass). At the time of building permit, the building plans shall be submitted to the Community Development Department for review and approval to ensure compliance with this standard.
Transportation

**All Phases**

- **Condition 5** Prior to or with recordation of a final plat map, the applicant shall dedicate two feet of public right of way along the development’s frontage on Franklin Avenue.

- **Condition 6** The applicant shall install public sidewalk with the construction of street improvements along the portion of Franklin Avenue being improved with each phase of the development.

- **Condition 7** The applicant shall install street lighting to city standards along the portion of Franklin Avenue being improved with each phase of the development.

**Phase One**

- **Condition 8** Prior to recordation of the final plat map the applicant shall, or financially assure, the construction of public street improvements on Franklin Avenue from the east side of the proposed private cul-de-sac to existing improvements at the South Shore Street/Franklin Avenue intersection. Improvements shall include:
  
  a. Construction of curb and gutter along the south side of the road. The face of curb shall be aligned for an ultimate curb to curb width of 30 feet.
  
  b. Installation of new pavement with a width of 24 feet as measured from the new face of curb.
  
  c. A pavement transition approved by the City Engineer shall be installed at the east end of the new street improvement.
  
  d. Installation of a stop sign and stop bar shall be installed on the Franklin Avenue approach to South Shore Drive.

**Phase Two**

- **Condition 9** Prior to recordation of the final plat map the applicant shall, or financially assure, the construction of public street improvements on Franklin Avenue from the east side of the proposed private cul-de-sac across the frontage of lots 8 through 11. Improvements shall include:
  
  a. Construction of curb and gutter along the south side of the road. The face of curb shall be aligned for an ultimate curb to curb width of 30 feet.
  
  b. Installation of new pavement with a width of 24 feet as measured from the new face of curb.
  
  c. A pavement transition approved by the City Engineer shall be installed at the east end of the new street improvement.

**Phase Three**

- **Condition 10** Prior to recordation of the final plat map the applicant shall, or financially assure, the construction of public street improvements on Franklin Avenue from the east side lot 11 to Airport Road. Improvements shall include:
  
  a. Construction of curb and gutter along the south side of the road. The face of curb shall be aligned for an ultimate curb to curb width of 30 feet.
  
  b. Installation of new pavement with a width of 24 feet as measured from the new face of curb.
  
  c. Installation of a curb return on the southwest corner of Franklin Street and Airport Road. The design of the curb return shall be approved by ODOT, and any necessary permits and approvals shall be secured prior to performing any work within ODOT right of way.

**Utilities**

- **Condition 11** Prior to issuance of building permits, the applicant shall submit final plans for review and approval by the Albany Fire Department to ensure standards of the Oregon Fire Code are met.
Condition 12 Before the City will sign the final plat creating Lots 1-7, or issue a building permit for construction on the property, the applicant must pay connection charges for the existing public sanitary sewer mains along the property’s west boundary and a portion of the Franklin Avenue frontage.

Condition 13 Before the City will sign the final plat creating Lots 1-7, the applicant must construct a public sanitary sewer main in Franklin Avenue, from the existing main near the northwest corner of the site to the east boundary of proposed private street ("Franklin Court").

Condition 14 Before the City will sign the final plat creating Lots 8-12, the applicant must construct a public sanitary sewer main in Franklin Avenue, to the east boundary of proposed Lot 11.

Condition 15 Before the City will sign the final plat creating Lots 1-7, the applicant must extend a public water main in Franklin Avenue from the existing main in South Shore Drive to the east boundary of Lot 1, and a public water main to the south terminus of the private street ("Franklin Court").

Condition 16 Before the City will sign the final plat creating Lots 8-12 or issue a building permit for construction on this portion of the property, the applicant must construct a public water main in Franklin Avenue easterly to the existing main in Airport Road. This main will complete the connection of the public water system from South Shore Drive to Airport Road.

Condition 17 Before the City will sign the final plat, the applicant must construct public storm drainage improvements in Franklin Avenue in conjunction with the required public street improvements.

Condition 18 Before the City will sign the final plat for any phase of the proposed development, the applicant must construct stormwater collection facilities for that portion of the development. Any phase of the development must include storm drainage facilities capable of serving that phase as a stand-alone development. These storm drainage facilities must include on-site detention and stormwater quality facilities. The facilities must be designed and constructed to accommodate any future runoff that may discharge into those facilities.

NOTE: Alternatively, the applicant may provide financial assurances for the required public infrastructure in order to obtain City approval for the final plat(s) or building permits.

Airport Overlay

Condition 19 The final plat for each phase shall include a declaration of anticipated airport noise levels between 55 to 60 Day-Night Sound Level (Ldn).

Parking & Access

Condition 20 The applicant shall install “no parking” signs on the south side of Franklin Avenue with the construction of street improvements. The signs shall be placed at a spacing of no more than 200 feet.

Condition 21 Prior to recordation of the plat map for Phase 1, all existing site driveways to Airport Road shall be removed. The applicant shall secure all necessary permits and approvals from ODOT prior to performing any work within ODOT right of way.

Condition 22 Prior to issuance of a building permit, the applicant shall submit a site plan to the Community Development Department for review and approval to ensure consistency with the standards of Table 9-2: Parking Lot Design and Supplemental Drawings.

Condition 23 Prior to issuance of a building permit, the applicant shall provide detailed plans to show how the bicycle parking meets the standards of ADC 9.120(13)(e-h).

Condition 24 Site lighting must be directed down, contained on site, and shielded, full cut-off design.
Compatibility

Condition 25 Prior to issuance of a building permit, a final landscape and irrigation plan shall be submitted for review and approval by the Community Development Department. The plan shall be in substantial conformance with the preliminary plans, as shown on Landscape Plan Sheets L1.0 & L2.0. The plans shall also meet the minimum standards for landscaping under ADC 9.140, landscape parking lot standards of ADC 9.150, buffering standards of ADC 9.240 and irrigation standards of ADC 9.160.

Condition 26 Prior to issuance of a certificate of occupancy for the multi-family development on Lot 12, all proposed and required site improvements for each phase (e.g. vehicle and bicycle parking, landscaping, community amenities, refuse screening, lighting, etc.), shall be constructed and completed in accordance with approved plans. Landscaping may be financially secured through a completion guarantee, per ADC 9.190.

Design Standards

Condition 27 Prior to issuance of a building permit, the applicant shall submit a site plan and building plans to the Community Development Department for review and approval that shows the standards for private open space per ADC 8.230 are met. Outdoor storage closets on decks and balconies may not be included in the dimension and area requirements of the private open space decks and patios.

Tree Felling

Condition 28 Prior to issuance of an Erosion Prevention Sediment Control (EPSC) permit for each phase of development, tree protection measures shall be implemented in accordance with the Arborist Report. At a minimum, tree protection measures shall include installation of a tree protection fence located a minimum of 15 feet from the center of the tree.

Condition 29 In the event additional trees need to be removed to accommodate the proposed development, a new tree felling application shall be submitted to the Community Development Department for review and processing, in accordance with ADC 9.208(2).

Options for the Planning Commission

The Planning Commission has three options with respect to the proposed development:

Option 1: Approve the request as proposed and conditioned; or

Option 2: Approve the request with amendments; or

Option 3: Deny the request.

Staff Recommendation

Based on the analysis provided in this report, staff recommends the Planning Commission pursue Option 1 and approve the proposed phased planned development.

If the Planning Commission follows this recommendation, the following motion is suggested:

I move to approve the proposed expansion the application for Planned Development Review, Tentative Plat Review and Tree Felling under planning files PD-01-20, 3D-02-20, and SP-08-20. This motion is based on the findings and conclusions in the staff report, and the findings in support of the application made by the Planning Commission during deliberations on this matter.
Attachments

A. Location Map  
B. Zoning Map  
C. Comment from Mr. Mark Leonard (dated July 15, 2020)

Applicant’s Submittal:

D. Trip Generation Evaluation by Sandow Engineering (dated June 20, 2019)  
E. Applicant’s Finding of Fact  
F. Trash Enclosure Fencing  
G. Solar Access Protection Information  
H. Lighting Plans  
I. Tree Felling Application  
J. Arborist Report by Jeremy Saucedo, Monarch Tree Service (dated March 6, 2020)  
K. Department of State Lands Wetland Concurrence and Wetland Delineation  
L. Stormwater Report by Andrey Chernishov, PE, of HBH Consulting Engineers (dated March 15, 2020)  
M. Single Family Home Designs  
N. Multi-Family Residential Design Renderings  
O. Multi-Family Residential Building Plans and Elevations  
P. Landscape Plans (Sheets L1.0 & L2.0)  
Q. Civil Plan Set:  
   Q.1 Cover (Sheet G1)  
   Q.2 Existing Conditions (Sheet G2)  
   Q.3 Demolition Plan (Sheet C1)  
   Q.4 Preliminary Plat (Sheet C2)  
   Q.5 Site Plan (Sheet C3)  
   Q.6 Franklin Road & Storm Plan (Sheet C4)  
   Q.7 Franklin Water & Sanitary Sewer Plan (Sheet C5)  
   Q.8 On-Site Road & Storm Plan (Sheet C6)  
   Q.9 On-Site Water & Sanitary Sewer Plan (Sheet C6)  
   Q.10 Site Grading Plan (Sheet C7)  
   Q.11 Grading Cross Sections (Sheet C8)  
   Q.12 Phasing and Common Area Plan (Sheet C9)  
   Q.13 Housing Bonuses (Sheet C10)  
   Q.14 Housing Bonus Plan (Sheet C11)  
   Q.15 Fire Plan (Sheet F1)  
R. Comment from Fire Marshal Lora Ratcliff (dated June 17, 2020)  
S. Response to Wetland Notice from the Oregon Department of State Lands (dated April 16, 2020)
I left a voice mail for you to call; but you might want to come out and look at the intersection going from Franklin onto South Shore to better understand the problem. Your map doesn’t accurately portray the issue; but, the property on that borders Cox Street, South Shore Drive, and Franklin Avenue sticks out further than the property on the opposite side that borders both Franklin and South Shore. Also, my property is on the lake side of South Shore Drive, facing the Franklin Avenue intersection if someone were to hit the gas instead of the brake pedal, like this elderly woman did at Fred Meyers killing that one women who was at the hair salon in the east corner of the building, the driver could end up in my front room. Personally, I would feel better if Franklin were a dead end where the street intersects with South Shore Drive. Much like this did when Costco was built and they made Bain Street a dead end where it came out on Pacific.

In the Approval Standards for this application, item 4, it says that two entry exits on Franklin were the best economic, safe, and efficient circulation of traffic under the circumstances. Is there some documentation you can send me that mentions other options considered and the reasons why they were ruled out?

Thanks
June 20th, 2019

Mike Shults
PO BOX 41
St Paul Oregon 97137

RE: Franklin Reserve Trip Generation Evaluation

Sandow Engineering has prepared a Traffic evaluation for the proposed zone change of Tax Lots 2700 and 2701 adjacent to Airport Road in Albany, Oregon. The site is currently zoned RS 6.5, and the applicant is requesting a zone change RS 5.0 to support the proposed development. As the applicant is proposing a zone change, transportation planning rule (TPR) compliance needs to be demonstrated. The following provides a TPR evaluation and a trip generation estimation.

TRANSPORTATION PLANNING RULE EVALUATION

To be consistent with TPR findings, the traffic generated by the proposed zoning needs to be found to not have a significant effect on the adjacent transportation system. This is achieved by determining if the proposed zoning will generate more trips or have a higher impact on the surrounding transportation system than the existing zoning. This is done by evaluating a reasonable “worst-case” development scenario for both the existing and proposed zoning.

The existing zoning, RS 6.5, has a maximum density of 6 units per acre. The site is 6.5 acres resulting in a maximum density of 39 homes. Under the existing zoning the residential units are all assumed to be single family detached housing. The proposed zoning, RS 5.0, has a maximum density of 13 units per acre (attached homes) resulting in 85 units. All units under the proposed zoning are assumed to be attached family housing.

To determine the level of traffic generated by the site, the trip generation rates from the Institute of Transportation Engineers Trip Generation Manuals 10th edition were used. The trip generation rate for the existing zoning was completed using the ITE Land Use Code 210 Single-Family Detached Housing. The trip generation estimate for the proposed zoning was completed using the ITE Land Use Code 220-Multifamily Housing (low-rise). The 10th edition of the ITE Trip Generation Manual provides rates for single-family detached as a separate land use (Land Use 210), and all attached housing up to two stories has been lumped into a single land use 220-Multifamily Housing (low-rise).

Additionally, the trip generation rates for the PM peak hour were used as the vehicle trips for the PM peak hour are higher than the trips for the AM peak hour. Table 1 provides the trip generation estimate for the proposed and existing zoning “worst-case” development scenario.
TABLE 1: WORST CASE-TRIP GENERATION-PM PEAK HOUR

<table>
<thead>
<tr>
<th>ITE Land Use</th>
<th>Size</th>
<th>Trip Generation</th>
<th>Trips</th>
</tr>
</thead>
<tbody>
<tr>
<td>210 Single-Family Detached Housing</td>
<td>39 Units</td>
<td>0.99 x units</td>
<td>39</td>
</tr>
<tr>
<td>Proposed Zoning</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>220 Multi-Family Housing (low-rise)</td>
<td>85 Units</td>
<td>0.56 x units</td>
<td>48</td>
</tr>
<tr>
<td>Change in Vehicles Trips</td>
<td></td>
<td></td>
<td>9</td>
</tr>
</tbody>
</table>

As illustrated, the proposed zoning has the potential to generate 9 additional PM peak hour trips. The City of Albany Traffic Impact Analysis requirements demonstrates that an increase in traffic of less than 50 to a development site is considered insignificant as it is not required to provide further evaluation. The proposed zoning will only increase the development level traffic by 9 PM peak hour trips. Therefore the increase in traffic resulting from the proposed zoning is considered insignificant.

TPR FINDINGS
Consistent with the Transportations Rule the following elaborates on how this development meets the TPR requirements.

Goal 12, (OAR) 660-12-0060 (1) requires that a local government ensures that an amendment to a functional plan, an acknowledged comprehensive plan, or a land use regulation (including a zoning map) does not significantly affect a transportation facility if it would:

“(a) Change the functional classification of an existing or planned transportation facility (exclusive of correction of map errors in an adopted plan);

The proposed zone change will not cause traffic levels or patterns that would change the functional classification of and existing or planned transportation facility.

(b) Change standards implementing a functional classification system; or

The proposed zone change will not cause traffic levels or patterns that would change the standards implementing a functional classification system.

(c) Result in any of the effects listed in paragraphs (A) through (C) of this subsection based on projected conditions measured at the end of the planning period identified in the adopted TSP. As part of evaluating projected conditions, the amount of traffic projected to be an enforceable,
ongoing requirement that would demonstrably limit traffic generation, including, but not limited to, transportation demand management. This education may diminish or completely eliminate the significant effect of the amendment.

(A) Types or levels of travel or access that are inconsistent with the functional classification of an existing or planned transportation facility.

The proposed zone change will not cause traffic levels or patterns that are inconsistent with the functional classification of an existing or planned transportation facility.

(B) Degrade the performance of an existing or planned transportation facility such that it would not meet the performance standards identified in the TSP or comprehensive plan; or

The proposed zone change will not cause traffic levels or patterns that would degrade the performance of an existing or planned transportation facility such that it would not meet the performance standards.

(C) Degrade the performance of an existing or planned transportation facility that is otherwise projected to not meet the performance standards identified in the TSP or comprehensive plan. OAR 660-12-0060(1)

The proposed zone change will not cause traffic levels or patterns that would further degrade the performance of an existing or planned transportation facility that does not meet the performance standards.

CONCLUSION
As illustrated, the proposed zoning has the potential to generate 9 additional PM peak hour trips. The City of Albany Traffic Impact Analysis requirements demonstrates that an increase in traffic of less than 50 to a development site is considered insignificant as it is not required to provide further evaluation. The proposed zoning will only increase the development level traffic by 9 PM peak hour trips. Therefore the increase in traffic resulting from the proposed zoning is considered insignificant.

Please feel free to contact me if you have any questions or if you need any additional information.

Sincerely,

Kelly Sandow PE

SANDOW ENGINEERING
Franklin Reserve

Planned Development Submittal
Submitted to City of Albany, Oregon

Applicant:
Well Built Homes
PO Box 41
Saint Paul, OR 97137

Owners:
Victor M. Shults
Susan Y. Willis
EXHIBIT 1
CONTACTS

Applicant:
Well Built Homes
e-mail – WellBuiltHomes@yahoo.com
phone – 503-572-8068

Owners:
Victor M. Shults (Mike) and Susan Y. Willis
e-mail – WillisShults@yahoo.com
phone – 503-572-8068 – Mike
phone – 971-400-1225 – Susan

Engineering:
HBH Consulting Engineers
Andrey Chernishov – AChernishov@HBH-Consulting.com
Phone – 503-537-9554

Design:
Candid Design
Kymber Kincanon
e-mail – Kymber@CandidHomeDesign.com
phone – 503-432-1358

Landscape:
Otten and Associates Landscape Design
Erin Holsonback
e-mail – Erin@OttenLA.com
phone – 503-972-0311

Traffic Analysis:
Sandow Engineering
Kelly Sandow
e-mail - KellySandow@SandowEngineering.com
phone – 541-513-3376

Arborist:
Monarch Landscape
Jerreme Saucedo
e-mail – BeauSancedo@MonarchLandscape.com
phone – 503-593-7087

Wetland Delineation:
Turnstone Environmental Consultants
Jeff Reams
e-mail – Jeff@TurnstoneEnvironmental.com
phone – 503-510-3630

Concurrence Approval Wetland Delineation:
Department of State Lands
Lauren Brown
e-mail
phone – 503-986-5200
## EXHIBIT 3
PROPOSED SUMMARY AND TAX LOT INFORMATION

<table>
<thead>
<tr>
<th>TAX ID</th>
<th>OWNER</th>
<th>ZONED</th>
<th>LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>2700</td>
<td>Victor M Shults and Susan Y Willis</td>
<td>R-5</td>
<td>840 Airport Road Albany, OR</td>
</tr>
<tr>
<td>2701</td>
<td>Victor M Shults and Susan Y Willis</td>
<td>R-5</td>
<td>840 Airport Road Albany, OR</td>
</tr>
</tbody>
</table>
Proposal for a Planned Development
at
840 Airport Road, Albany, Oregon

11 one or two story single family detached homes
and
A total of 44 apartments (for seniors age 55+)
  8 two bedroom units
  36 one bedroom units
1 recreation building for apartment residents
50 open parking spaces for residents
31 garages along the east side of apartments for noise and visual barrier from Interstate 5 freeway

Approximately 1.75 acres of 6.5 acres, or 27%, to remain as a neighborhood green space, open to residents and neighbors for recreation and enjoyment. A large grove of white oak trees on the east side of development (almost 1 acre) will be preserved in their natural setting and will add to the neighborhood parklike setting of trees and open meadow along with approximately $\frac{1}{2}$ acre of common areas for walking paths and recreation for a total of 3+ acres of undeveloped open space for all to enjoy and will be left in an open and undeveloped state.

We have an opportunity to create and achieve a landmark development. Our plan to utilize this overlooked and heavily burdened, difficult piece of property, is to build 11 new single family affordable homes and a 44 unit senior housing project. Homes that reflect the pride and respect that they deserve by creating a neighborhood in a park-like setting. A place where kids can play and seniors can walk safely and enjoy their time with the neighbors. A place they want and choose to live. A real home that makes you feel good and one that has open spaces and is still close to all shopping, restaurants, and amenities. Easy access to roads and freeways. A place to come home, sit on your patio, enjoy the views, the open field, the natural trees, gather with friends by the fireplace in the recreation center, use the kitchen for informal gatherings, or just reconnect with your new friends. Let’s preserve some beautiful trees in their natural setting. Let’s use this plan development to accomplish the best overall use of this overlooked piece of land. This planned development will be an asset to the community, neighbors and City of Albany. An opportunity to show the forward thinking of city officials, while keeping an almost forgotten priority of privacy and space. All this can be done while preserving our natural wet lands and native oak trees with no negative impact on surrounding homes or neighbors and not overburdening our local schools.

SDC info:
44 one bathroom units
Maximum 2 occupants per unit, 55 years old or older

11 single family homes
Three bedroom, two bathroom homes
APARTMENTS

A Unit 799 8 2 bedroom - 1 bathroom
B Unit 664 28 1 bedroom - 1 bathroom
C Unit 715 8 1 bedroom - 1 bathroom

44 units
Building I 5,582 sq. ft. 8 units 2 - 2 bedroom units and 6 - 1 bedroom units
Building II 5,582 sq. ft. 8 units 2 - 2 bedroom units and 6 - 1 bedroom units
Building III 11,098 sq. ft. 16 units 2 - 2 bedroom units and 14 - 1 bedroom units
Building IV 8,442 sq. ft. 12 units 2 - 2 bedroom units and 10 - 1 bedroom units
Rec. Bldg. 1,225 sq. ft. Rec. Bldg

Entire Apartment Project - 31,929 sq. ft.

GARAGES
10 x 20 Garages 6,200 sq. ft. 31 200 sq. ft. each

This is a senior only (55+) apartment building. We will supply the following:

- Walking paths
- Picnic area
- BBQ and tables
- Horseshoe area
- Gazebo with tables

Also...a dedicated recreation building will have a kitchen with eating area, fireplace with seating and tables for games and gathering, restrooms, workout room with equipment, an office with staff available for help and support, and a large outdoor deck with BBQ area and tables.

There is an elementary school west of property, less than ¼ mile, with easy walking or bike access with play area and equipment.
Homeowners Association Access and Access Easement

All homeowners within planned development will have access to all exterior common areas as shown on map of common area.
The Recreation Building and the attached decks and patio will be for residents of the apartment units only.
The civil drawings will show an easement to allow access for
There will be a homeowners association with covenants and restrictions clearly stating in the title and sales documents relating to the single home lots 1-11
The maintenance and upkeep of all common areas will be the responsibility of the owner of the apartment units.
Road maintenance will also be the responsibility of owner of apartment units.
The applicant is proposing the development of an RS-5 zoned area that includes a wetland and a white oak grove, both significant natural resources. The applicant plans to use the lessened restrictions of a planned development to preserve these areas as much as possible, resulting in an improved development for the City, surrounding area, and the residents of the new neighborhood. The property is currently zoned as RS-5. The site was zoned as residential before trees, open space, wetlands, and noise reduction were considered a priority; the applicant is providing mitigation for each of these site constraints while developing the property such that these important spaces can be utilized by the community.

The applicant is proposing 55 units, 44 multi-residential senior housing units and 11 single-family lots. This layout results in 52.5% of open space and common area provided. The buildings are laid out in a manner adequate for light, ventilation, visual and acoustic privacy for both the residences therein and the surrounding buildings. These are interconnected via aesthetic multimodal paths and with noise reducing landscaping. The lighting plan will be meet city requirements (provided by others). The private property will be maintained by an HOA group of the western lots and the property owner of the senior living units.

The surrounding area has single-family residences to the north and west. Single-family residences are planned in the development on the north and west sides to keep the visual impact on the surrounding area to a minimum while maintaining the look and feel of the neighboring communities. The two-story multi-residential units of the development are located at the center of the development to keep them away from neighbors and to minimize visual impacts. There are a total of 50 private parking spaces provided, eight of which are ADA and nine are compact, as well as 31 private garages for the multi-story residences. Twelve bike parking spaces are provided for the multi-story residences: half uncovered & half covered. One bike parking space is required for every four multi-family units. Since 44 units are proposed, 11 bike spaces are required.

The existing public infrastructure has capacity to support the development. There are existing water mains on SE Shore Drive and Airport Road which will be connected via a new 8" main to support the development. There is an existing sanitary sewer system on SE Franklin Ave which can support an extension and connection to the development. Currently there is only a single existing storm catch basin at the west end of Franklin Ave and a series of unconnected ditches running down the length of the street. The applicant is proposing public storm water quality improvements for Franklin Avenue and private storm water quality/quantity treatment facilities onsite. These improvements will reduce post-developed peak runoff rates to below pre-developed conditions.
To Whom It May Concern, PE

Andrey Chernishov, PE

Type III Planned Development Written Responses

Planned Development-Preliminary Submittal Review Criteria (ADC 11.310)

Criterion (1) The increased flexibility in Code standards and permitted uses will result in an improved development for the City, the surrounding area, and the users of the development as compared to strict compliance with Code provision.

Fact: There are approximately 1.76 acres of open grassy meadow wetland on the site. The project would result in zero disturbance to these lands. The project also contains a grove of white oak trees on the east side of the property, of which .94 acres will be preserved. A total of 2.73 acres of natural open space will be preserved along with approximately ½ acre of common area, for a total of 3+ acres of open, useable recreation area.

Fact: Under RS-5 the maximum dwelling units per acre is 8. This planned development will have density of 8.51 dwelling units per acre by utilizing City of Albany builder density bonus incentives for passive solar and proximity to arterial roads.

Fact: The minimum right of way for a local public city street is 52’. This PUD will have several interconnected private roads that will be 24’ to 26’ wide. This allows for more landscaped area, pedestrian pathways and vegetation.

Conclusion: Compared to a single-family residential subdivision developed in strict compliance with underlying zoning for the site, the proposed planned development will result in a community that is an improved development for the City, surrounding area, and the residents of the new neighborhood filling the need for senior housing and affordable homes. Reduced road width and a smaller footprint for buildings allowed for a planned development will create more open spaces allowing for preservation of oak trees and a wetland meadow creating a peaceful and beautiful development.

Criterion (2) The project design results in a more efficient provision of open space or utilization of the natural features of the site.

Fact: There are approximately 1.76 acres of existing wetlands on the site. The project would result in zero disturbance to these wetlands. The project also contains a grove of white oak trees on the east side of the property, of which 0.97 acres will be preserved along with approximately ½ acre of common area for a total of 3+ acres of natural open space that will be preserved.

Fact: Smaller private roads along with building density allowed with a PUD will result in less land impacted by development.
Fact: This planned development combined with senior housing will fill a much needed demand for housing and allow neighbors and the community to enjoy the resulting open park like setting.

Conclusion: This is a beautiful 6.5 acre piece of undeveloped ground that was zoned in a time when trees and open space were not a priority as they are now, a time before noise regulations and before wetland were recognized as important and vital to the overall health and well-being of the land. This is a step forward to allow this type of utilization for the enjoyment and use of all in our community.

Criterion (3) The project design results in a more efficient utilization of materials and public resources including streets, utilities, and energy supplies.

Fact: Upgrade of water system 8” line South Shore to Airport Road.

Fact: Upgrade to Franklin with a much needed storm water control and containment.

Fact: Sidewalks and a paved 24’ wide street. This improves multimobile access.

Fact: The applicant is proposing a public storm water quality treatment planter facilities along Franklin Avenue, previously non-existent.

Fact: The PUD allows for private roads. No city maintenance or expense to the tax payers or local residents and the smaller private roads allow for less impervious surfaces and create less impact on storm water facilities.

Fact: Senior housing has zero impact on local schools.

Fact: Senior housing has less traffic impact.

Conclusion: The existing and proposed public storm, sanitary, and water infrastructure can support the proposed improvements and will result in efficient new upgraded system.

Criterion (4) Provisions will be established to ensure the continued maintenance of any common area.

Fact: Common area, wetland meadow and oak grove will be maintained by owner of senior housing units, a permanent and transferable agreement.

Fact: A HOA will be created to maintain the west side road and will include 7 lots/homes on the west side.

Conclusion: This criterion will be met by the property owner of senior living units and a HOA that involves 7 homes at west side.

Criterion (5) More usable and suitable recreational facilities and other common areas are provided than would normally be provided under conventional development standards.

Fact: A condensed footprint of roads and buildings allow for less use of land and results in more open and common areas.
Fact: The approximately 1 acre oak grove on the east side will have walking paths, a gazebo, horseshoe pit, and picnic table.

Fact: The meadow will remain open and allow for pathways and outside recreation as well as open space.

Fact: An indoor recreation building will have a kitchen with eating area, fireplace with seating and tables for games and gathering, restrooms, workout room with equipment, an office, and a large outdoor deck with BBQ area and tables.

Conclusion: Because space saved through utilization of planned development, we will be able to have a great deal of recreation space and amenities.

Criterion (6) The planned development satisfies the development standards in Section 11.330

Fact: The applicant demonstrates satisfaction of the development standards in Section 11.330. See the Planned Development Standards section of this document below.

Conclusion: The applicant demonstrates satisfaction of the development standards in Section 11.330. See the Planned Development Standards section of this document below.

Planned Development Standards (ADC 11.330)

Criterion (1) Open Space and Common Areas in Residential, Mixed-use, and other Non-Industrial Planned Developments. Open space or common areas shall be provided for common enjoyment. In all residential developments and mixed-use developments, 25 percent of the gross land area shall be devoted to open space, outdoor living area or common areas as follows.

a. Land that may be counted towards the open space requirement includes:
   i. Natural resources accessible to the public;
   ii. Common recreational space or commonly enjoyed amenities accessible to residents, including indoor or rooftop amenities – the total square footage of indoor amenities will be subtracted from the total land area; and
   iii. Common landscaped areas and paths but excluding sidewalks and planter strips in the right-of-way.

b. Locations, shapes, sizes and other characteristics of open spaces shall be consistent with their proposed uses and the purposes of the planned development.

c. Land in the right-of-way may not count towards the open space requirement unless designed with larger planter strips to allow for mature trees, a multi-use path, or a landscaped median.

d. Side and rear yards may not count towards the minimum open space requirements.

e. Outdoor open space or living areas required by this Article may be dedicated to the City provided the size and amount of the proposed dedication meets the criteria of the City for neighborhood parks by one-half and if the City agrees to accept the dedication. The square footage of land dedicated for public parks shall be deemed a part of the development site for the purpose of computing density.

f. Approved vegetated post-construction stormwater quality facilities are allowed in open space, outdoor living area and common areas.
Fact: Combining the preserved wetlands (1.76 acres), preserved oak grove common area (0.97 acres), the common recreational building, common open landscaped areas and stormwater facilities (0.65 acres) totals to 3.38 acres or 52.5% of gross land area.

Conclusion: 52.5% open space and common area is provided, which exceeds the 25% required.

Criterion (2) Natural Resources. The planned development shall provide for the protection of significant landscape features including Oak groves, heritage trees as defined by the Albany Municipal Code and land located within Albany’s natural resource overlay districts and any historic sites and landmarks. Natural and cultural resources shall integrate the proposed development with the environmental characteristics of the site and adjacent uses.

Fact: With help from the city forester and a certified arborist (see report) we will be preserving approximately 1/3 of all the oak trees on site.

Fact: We will be preserving a large grove .97 acres of land and oak trees which will aid in the tree health and natural setting for residents of community to enjoy

Fact: There are no historic sites, landmarks, or cultural resources on the development site.

Fact: We are not in a natural resource overlay district.

Conclusion: With our retention of wetland meadow and oak grove and no impact to natural resource overlay or cultural resources, we meet these requirements.

Criterion (3) Underground Utilities. In any planned development, all electric and telephone facilities, fire alarm conduits, street light wiring, and other wiring, conduits and similar facilities shall be placed underground by the developer, unless allowed above ground by the review body.

Fact: All utilities will be underground.

Conclusion: We do not plan to vary from this plan.

Criterion (4) Density. When calculating density of a proposed planned development, the gross area including streets and park land dedications shall be included, except for land in the Significant Wetland and Waterway overlay district. The maximum density permitted per acre for RS-5 zone is 8.

Fact: We do not have land that is in a waterway overly district or any land considered significant wetland.

Fact: 6.46 acres x 8 units/acre = 51.68 units total.

Fact: Solar Bonus: 18 apartments and 4 homes meet the solar bonus requirements. 22 units x 10% bonus = 2.2 bonus units.

Fact: Transportation Bonus: A portion of Buildings 3 & 4 are within 200 ft of Airport Road. The area of Buildings 3 & 4, as well as the area between the buildings and the Airport Rd ROW is 1.43 acres. 1.43 acres x 8 units/acre = 11.44 units. 10% x 11.44 units = 1.14 units.
**Fact:** There is a total of 11 lots and 44 apartment units spread across the site for a total of 55 units total. This results in a density of 8.51 dwelling units per acre.

**Fact:** Total units allowed is 51.68 units + 2.2 solar bonus units + 1.14 transportation bonus units = 55.02 units.

**Conclusion:** While using city bonus incentives of passive solar and transportation proximity the implementation of a planned development allows the site to achieve a slightly higher density while creating more recreational resources for the community.

**Criterion (5) Building Spacing & Yard Requirements.** The plan shall provide adequate building separation to allow for light, ventilation, and visual and acoustic privacy for residences and other structures. Fences, insulation, walks, barriers, and landscaping shall be used, as appropriate, for the protection and aesthetic enhancement of property and the privacy of its occupants, screening of objectionable views, and reduction of noise.

**Fact:** Buildings will be separated by at least 20’ and in some case 30’.

**Fact:** Fencing will be used on west side homes for visual and acoustic privacy. Garages to the east (towards I5) will provide much needed sound mediation as well as much needed visual barrier to I5.

**Fact:** We will also fence along Airport Road as and added noise and visual barrier, along with tree planting to add in recreational usage.

**Conclusion:** The buildings in the development are laid out in a manner adequate for light, ventilation, visual and acoustic privacy for both the residences therein and the surrounding buildings. These areas are connected with appropriate aesthetic multimodal paths and landscaping that provides significant enhancement to the occupants while providing privacy and a reduction of noise.

**Criterion (6) Building Locations.** Taller buildings shall be located within the planned development in such a way as to avoid adverse impact on neighboring lower buildings and shall not invade the privacy of the occupants of adjacent lower buildings.

**Fact:** The tallest buildings is two story and those building are from 150/300’ from existing neighbor homes.

**Fact:** Building orientation are of such to prevent invasion of privacy of existing homes as well as new homes being built.

**Fact:** Homes that back to west side of existing homes will not have any second story windows facing west or into back yards.

**Fact:** New home to west side of property will also at as a visual mitigation and will have 6’ back yard fencing to add to privacy.
Conclusion: The design and development is so to purposefully not have an adverse impact on the neighbors. The taller buildings are only two stories tall and located in the center of the property and buildings are orientated to provide privacy.

Criterion (7) Perimeter Capability. The plan shall minimize adverse impacts of proposed uses and structures in the planned development on existing and anticipated uses and structures on adjacent properties and neighborhoods. The buffering and screening standards in Sections 9.210-9.270 apply. If topographical or other physical barriers do not provide reasonable privacy and mitigation of potential adverse impacts on existing uses adjacent to the development, the development shall provide additional setbacks, buffering or screening between residential and non-residential uses.

Fact: This planned development was designed to have zero impact on neighbors with homes backing up to existing west side homes.

Fact: Homes facing existing homes on Franklin.

Fact: No second story window on west side homes facing to west/neighbors back yards.

Fact: 6’ fences alone meet required standard for buffering and will be along west side and Airport Rd.

Fact: The private homes will effectively create a visual barrier and preserve the neighborhood quality and feeling.

Fact: The planned development meets the buffering and screening standards of Section 9.210-9.9270 by installing a 6’ fence around the perimeter of the 6.46 acre property. In addition, landscaping on the south and east side of the property will have vegetation to act a screening. An approximate 300’ buffer exists between building 3 & 4 and west property line.

Conclusion: The site focuses taller buildings in the middle of the development, far away from property lines and neighbors. The outer edges of the development are planned to have residential single-family units, similar to the zones those areas border. This configuration is intended to keep impact on the surrounding area at a minimum while maintaining the feel and look of the neighboring communities.

Site Plan Review Criteria (ADC 2.450)

Criterion (1) Public utilities can accommodate the proposed development.

Fact: City maps show an 8-inch public sanitary sewer main along the west boundary of Tax Lot 2701, and an 8-inch sanitary sewer main along the westernmost 75 feet of the Franklin Avenue frontage of Tax Lot 2701. Tax lot 2700 currently does not have direct access to a public sanitary sewer main.

Fact: Future development of the site under the proposed plan would not be expected to overload the existing public sanitary sewer system downstream of the subject properties.

Fact: City utility maps show a 12-inch public water main in Airport Road, and a 2-inch water line in Franklin Avenue. The 2-inch line is not available for any additional connections due to its age.
and size. Tax lot 2701 does not currently have direct access to an adequate public water main. The proposed plan adds a new 8” water main extended from SE Shore Drive to SE Airport Rd. Construction of such a line would provide adequate flows for domestic and firefighting purposes for the development and the other residences located on Franklin Avenue.

**Fact:** City utility maps show no piped public storm drainage facilities adjacent to the subject properties. Airport Road is an ODOT right-of-way with shallow ditches along the roadway and Franklin Avenue has shallow ditching along a small portion of the south side of the street and no ditching along the western portion of the south side of the street.

**Fact:** There is an existing sanitary sewer main along the westernmost 75 feet of Franklin Avenue frontage of Tax Lot 2701. This is proposed to be extended east, spanning the majority of Franklin Avenue.

**Fact:** The applicant is proposing storm water quality treatment facilities along Franklin Avenue, previously non-existent.

**Fact:** The applicant is proposing storm water quality/quantity facilities onsite which treat and detain runoff from the site to predeveloped conditions. The storm water will be conveyed via 12” pipes from these facilities to the existing public system.

**Conclusion:** The existing public storm, sanitary, and water infrastructure in addition to the proposed public utility improvements are capable of supporting the proposed development.

**Criterion (2)** The proposed post-construction stormwater quality facilities (private and/or public) can accommodate the proposed development, consistent with Title 12 of the Albany Municipal Code.

**Fact:** As seen in the submitted storm report, post-developed peak runoff from the site is less than the pre-developed condition. This is done to the effect that the onsite facilities compensate for the lack of detention and increase in impervious area resulting from the improvements in the public ROW.

**Conclusion:** The post-developed flow from the entire project will be less than the predeveloped flow from the entire project.

**Criterion (3)** The transportation system can safely and adequately accommodate the proposed development.

**Fact:** Albany’s Transportation System Plan includes improvements necessary to accommodate anticipated development through the year 2030. The TSP does include sidewalk improvements along Airport Road and an Environmental Impact Study (EIS) for Santiam interchange options and area management. That interchange is part of the state highway system under ODOT jurisdiction.

**Fact:** The subject application includes a Trip Generation study and TPR Assessment. The analysis was performed by Sandow Engineering and is dated June 20, 2019. The analysis compared the number of PM peak hour vehicle trips that could be generated by development of the site under the previous zoning of RS-6.5 to the current zoning of RS-5.
The trip generation estimated developed conditions for the existing RS-6.5 zone designation used ITE code 210, “Single Family Homes” and was based on a development potential of 39 possible lots. The trip generation was 39 PM peak hour traffic trips.

The trip generation estimate for the proposed RS-5 zone designation used ITE code 220, “Multi-Family Housing (low-rise)” and was based on a development potential of 85 units. The trip generation estimate was for 48 PM peak hour trips.

Based on the study results, as a fully developed RS-5 zone designation with 88 units only an additional 9 trips would be generated for a site with 88 units compared to a site of 39 possible units under RS-6.5 designation. The proposed development would have 55 units, a combination of “Multi-Family Housing (low-rise)” and “Single Family Homes”. This suggests that the actual number of trips generated by the development will be less than a fully developed RS-5 zone with 88 units.

Per the City of Albany Division 1.3: a Traffic Impact Analysis that demonstrates an increase in traffic of less than 50 to a development site is considered insignificant and does not require further evaluation. Since the development contains less units than “Multi-Family Housing (low-rise)” and “Single Family Homes” at the full build out condition, a worst-case scenario of which is 48 additional generated trips, further analyses is not warranted.

**Conclusion:** As a planned development, the proposed conditions are predicted to contribute a lesser effect than if the lots were developed solely as RS-5 multifamily residential. Regardless if the land was developed to that extreme condition, further traffic analyses would not be warranted based on the conclusions of the attached traffic study.

**Criterion (4) Parking areas and entrance-exit points are designed to facilitate traffic and pedestrian safety and avoid congestion.**

**Fact:** The development plans 11 single-family home lots. The 11 lots will have standard 20’ driveways and garages. There will be significant parking available for the residences of each lot, as well as some additional street parking.

**Fact:** The development plans 44 units of low-rise two story multifamily housing. The development has a proposed 50 parking stalls, 8 of which are ADA and 9 of which are compact stalls. In addition to the 50 parking stalls, there are also 31 detached garages from the units to serve as additional parking and storage. This almost doubles the required parking for senior apartments.

**Fact:** There are two entrances to the development on Franklin Avenue that connect to interior private road improvements the applicant is proposing. These improvements include an ADA compliant sidewalk along the Franklin Avenue frontage. The private interior roads are also connected to the development via an ADA sidewalk that runs from Franklin Avenue through the development.

**Fact:** As stated previously, the traffic impact analyses found that in a worst case developed scenario this land could be developed to generate an additional 48 PM peak hour trips. The area is being developed to less than the worst-case scenario, meaning less peak hour trips will be generated than estimated in the analyses. The number of trips predicted do not warrant further traffic analyses under Albany city code.
Fact: ODOT is not allowing this property to access from Airport Rd. The City of Albany is agreement with this.

Conclusion: Parking and access points for the proposed development have been designed to facilitate traffic and pedestrian safety, while avoiding congestion. The driveways will be designed to City of Albany standards. All areas of the development are linked to the public right-of-way via an ADA travel path.

Criterion (5) The design and operating characteristics of the proposed development are reasonably compatible with surrounding development and land uses, and any negative impacts have been sufficiently minimized.

Fact: The adjacent properties to the west, south, and north are zoned as RS-6.5. The adjacent properties to the southwest are zoned as Office Professional. The area directly to the east is I-5. The other side of I-5 is zoned as Light Industrial and is part of the Airport. The proposed use is compatible with the surrounding area and land uses.

Conclusion: The proposed planned development is compatible with the surrounding development and land uses. The new community will be less dense than the surrounding neighborhoods because it takes advantage of the flexibility encouraged by planned development via a combination of multi-type housing in order to promote traditional neighborhood design and preserve greater amounts of space. It should be noted that the 55 proposed units is less than the 88 units that could be added under RS-5.

The applicant’s proposal would preserve over 42% of the natural features of the site for open space. In addition, 10.5% of the total of 3+ acres, or 52% of the site will be improved common open areas that will be landscaped. The majority of open space is preserved for wetlands with other parts of the site dedicated for parks and multiuse paths that will provide recreational opportunities for residents in the surrounding neighborhoods. The applicant’s traffic impact analysis recommends that no traffic mitigation measures are necessary, as traffic generated by the proposed development will not result in any significant adverse impacts. In summary, the proposed development is compatible with the surrounding development and land uses and all potential negative impacts have been minimized.

Criterion (6) Activities and developments within special purpose districts must comply with the regulations described in Articles 4 (Airport Approach), 6 (Natural Resources), and 7 (Historic), as applicable.

Fact: This development complies with the regulations in Article 4.400-4.440.

Fact: The applicant is leaving the existing wetland undisturbed.

Fact: The applicant is preserving approximately 1/3 of all the oak trees.

Fact: The development is not disturbing any historical sites.

Fact: The development is creating over ½ of all space to open area usable for recreation.

Conclusion: The development is within the Airport Approach district. The proposed development is well within height restrictions set forth in ADC and does not include anything that could interfere with communication or navigation between airport and the aircraft.
**Criterion (7)**  The site is in compliance with prior land use approvals.

**Fact:** The site was originally zoned as RS-6.5 and was recently rezoned to RS-5. The site complies and is compliance with current and past land use approvals.

**Conclusion:** The site was previously zoned as residential and is currently zoned as residential. Implementation of the proposed plan complies with current and past land use approvals.

**Criterion (8)**  Sites that have lost their nonconforming status must be brought into compliance, and may be brought into compliance incrementally in accordance with Section 2.370

**Fact:** The applicant is aware of this requirement.

**Conclusion:** The applicant will not purposefully or maliciously bring the site out of nonconforming status. If such an event is reached, the applicant will remedy the situation by all means available to bring the site to conformance, whether incrementally or instantaneously.
STANDARDS THAT MAY BE MODIFIED

1. Development Standards: Two of the 11 single family lots will be less than 5,000 sq. ft. in an R-5 zone. The flexibility of a planned development guidelines, rather than a ridged standard, will allow the rear yards to accommodate solar easement protection while allowing a comfortable setting and privacy. The planned development allows for multi-family units in an R-5 zone. This will be the largest contributing factor that makes it possible to create a development that has 50% or more of all land left as common area to be enjoyed by all. The preservation of natural features and oak trees with trails, outside seating and recreation areas, is only possible with a smaller footprint of multi-family residences allowable within a planned development. The building placement will contribute to the privacy and little or no visible impact on the neighboring homes. This flexibility is only attainable through the use of a planned development.

2. Minimum Parking: The city requirement for parking has been met. The use of covered garages will be used to mitigate the noise and visual impact of I-5 freeway. By creating a barrier between the multi-family living space and I-5 will allow for the preservation of a large grove of natural oak trees, approx. 1 acre of land and trees, due to the smaller footprint.

3. Streets: The use of smaller private streets in this planned development contribute greatly to less impact on a piece of already burdened property, but one that has great natural features that will be preserved and enjoyed. Creating open space and privacy for the new and existing residents, this planned development will allow for the best use of this property while enhancing and complimenting the neighborhood feeling. Adding permanent, dedicated open meadows and natural oak groves in a ratio of open space to developed area not commonly seen or practical unless utilizing the flexibility of a planned development.

SUMMARY:

Utilizing a planned development will allow for smaller private streets, and a few smaller single family home lots. The planned development will allow multi-family units, which will result less land being developed and less impact on natural resources.

By allowing the planned development flexibility through design and planning we can mitigate the negative effects of the I5 freeway while saving a large grove of native oak trees and keeping an environmentally important wet land meadow. With our placement of new homes at the perimeter of the property the location of the 2 story only, senior living space in the center, surrounded by trees and meadows we will create a great asset and contribution to the City of Albany. With housing needs at an all-time high this development will fill the need and supply a great and comfortable open place to live for young families and seniors in the community.
CRITERION 1: The proposal meets the development standards of the underlying zoning district, and applicable lot and block standards of this Section.

FACT: The proposed land division will be in accordance with the planned development guidelines and regulations and meet development standards of a planned development.

FACT: The requirements of a planned development allow for a different set of guidelines for lot and street block development.

FACT: The proposal meets the development standards of the underlying zone district by utilizing the flexibility of a planned development allowed in this RS-5 zone

CONCLUSION: The proposed planned development is acceptable with underlying zoning and will meet the planned development requirements for design and development standards.

CRITERION 2: Development of any remainder of property under the same ownership can be accomplished in accordance with the Code.

FACT: The proposed land division divides all of the land area within the subdivision boundaries into 12 lots. All of the proposed lots will be utilized per planned development requirements and the proposed use in order to be granted the approval for the planned development. The developer does not own any of the adjacent properties.

FACT: None of the proposed lots will be developed in any way other than what is approved by the planning department.

CONCLUSION: There is no remainder of land to consider with the application.

CRITERION 3: Adjoining land can be developed or is provided access that will allow its development in accordance with the Code.

FACT: All adjoining property have access to streets.

FACT: No adjoining lot or parcel of property will require or depend on this property for access.

CONCLUSION: No access through this parcel is required for development of adjoining property.

CRITERION 4: The proposed street plan affords the best economic, safe, and efficient circulation of traffic possible under the circumstances.

FACT: Developer will be improving Franklin Avenue to a 24' wide street with 5' sidewalk and storm water containment. Safe use for bicycles and pedestrians.

FACT: The State of Oregon O.D.T. does not want added access from planned development to Airport Road. The City of Albany agrees with this recommendation.
FACT: Franklin Ave. with improvements and strict adherences to development standards will allow the two access points to be safe and efficient.

CONCLUSION: With no access to Airport Road, Franklin Ave. is the only access to parcel. With two access points, one at each end of Franklin Ave, this will minimize impact.

**CRITERION 5: The location and design allow for development to be conveniently served by various public utilities.**

FACT: See civil drawing Exhibit 16 and supplemental utility map Exhibit 21.

FACT: The new planned development will add an 8” water line from existing South Shore Blvd., run East on Franklin Ave. to Airport Road where it will turn into an existing 12” line.

FACT: The new planned development will tie into 8” sewer line that currently runs east 80’ on Franklin Ave. The lot with single family homes at west side of property will utilize existing 8” sewer line at west property line.

FACT: Storm water will be accessed on South Shore Blvd and come east on Franklin Ave to project.

FACT: All public utilities (water, sewer, storm water) are available to this planned development. Please see Exhibit 16 and Exhibit 21.

CONCLUSION: All public utilities are either close to parcel or are more than capable of serving the proposed development. See Exhibit 16.

**CRITERION 6: Activities and developments within special purpose districts must comply with the regulations described in Articles 4 (Airport Approach), 6 (Natural Resources), and 7 (Historic) as applicable.**

FACT: Planned development is not within natural resource overlay.

FACT: There are no historic building or resources within the 6.45 acre property.

FACT: We will comply with airport approach height regulations. Building will be over 30’ high.

CONCLUSION: Planned development is not in a natural resource overlay development and not in a historic area or has no historic structures. The height of buildings do not conflict with airport approach.
8.220
1. Common Space Requirements – We have 30,120 sq. ft. of living space in 44 units. Please see description sheet UNIT AND BUILDING TYPES AND SIZES for apartment types, square footage, and number of units. The required space of .25 sq. ft. per 1.00 sq. ft. of living space dictates that 7,520 sq. ft. is required. We have provided 142,276 sq. ft. of common space, or 3.26 acres. Please see PHASING AND COMMON AREA PLAN map.
   a. Recreation Building (Community Center) 35’ x 35’ = 1,225 sq. ft. enclosed space with exercise room, gathering room with fire pace and full kitchen with tables, sofas and chairs for relaxing and gathering. Outside decks 10’ x 20’ = 200 sq. ft. and 10’ x 15’ sq. ft. = 150 sq. ft. for a total of 350 outside decks at the Recreation Building with tables and chairs. BBQ area with picnic tables 35’ x 40’ = 1,400 sq. ft. of gathering space with Oak trees.
   Inside recreation building - 1,225 sq. ft.
   Decks - 350 sq. ft. at recreation building
   BBQ and gathering area - 1,400 sq. ft. at recreation building
   Total of 2,975 feet of common area at the recreation building
   The protected natural features preserved oak grove will be to the east of garages and have walking paths, tables, gazebo, and horseshoe pit with lawn and a mix of shrubs and paths.
   Covered picnic tables (gazebo) benches .94 of an acre = 40,946 sq. ft.
   Natural area will be the wetland (meadow) area of 1.75 acres, or 76,230 sq. ft. This will be mowed and cared for so it is usable and accessible. We can use as walking and recreation but no removal or fill is allowed. It’s a great open meadow/dog park gathering area.
   To the south of building 4 is a large area approx. 70’ x 90’ 6,300 sq. ft. that will make a great outdoor area. It will have lawn, shrubs, trees, tables and pathways.
   That is 142,276 sq. ft. of common space, or 3.26 acres.
   There is additional area to the west of building 3 and 4 between the building and the wetland meadow (approx. .36 acres) that will be maintained and could be used as a golf putting area. The storm water areas are included as open space. There are a lot of trees and space dedicated to this project.
   g. The 25% credit of common space requirements will not be needed. From my property to Cox, then down Locust Ave. (all city streets) there is an elementary school playground, 400 yards (less than ¼ mile to the school).

8.220
2. N/A We are less than 10 units. 8 two bedroom units only

8.225
Recreation building 1,225 sq. ft. with patio, decks and outside tables

8.230
1. At grade dwellings. All bottom units shall have 96 sq. ft of patio.
2. Above grade dwellings shall have 80 sq. ft. decks.
3. Yes, deck to rear of building accessible by a door.
4. Not sure if the openness and view of the meadow would want to be eliminated. I guess some bushes could be a separation if necessary.
8.240
This is a planned development and development standards will not be used to dictate the development. (see Article 11.280-1).
1. N/A this is a planned development (see Article 11.280-1)
2. N/A this is a planned development (see Article 11.280-1)
3. N/A this is a planned development (see Article 11.280-1)

8.250
1. Building meet this requirement by using dormers on roof and entry way roofs, steps in building in front of patio and steps in building at rear.
2. Entry ways are clearly identifiable by entry way roofs that extend beyond building.
3. Stairways are recessed into building.
4. Buildings are small and have steps and roof design to break up building elevation.

8.255
This is a planned development and is not in the HD, DMU, CB and WF zoning districts.

8.260
1. These streets are private and the entryways face those private streets.
2. See building elevations covered entryway and roof designed to clearly define entry and accentuate design and provide sheltered entries.
3. Each unit has a private exterior entry door and a covered entry that is central and identifiable as a building entry.
4. No units are located within 25 feet of a local street.

8.265
The planned development is not located in one of these zoning districts.

8.270
1. These design standards are not applicable to this planned development, however the building setbacks meet this requirement.
2. The buildings are located to meet this requirement.

8.280
1. Our parking crossing and access to gazebo and handicap parking garage will be ADA.
2. At entrance (two on Franklin) will be striped with cross walk
3. Yes. We have access to local streets, between 200/300 feet.

8.290
1. Street connectivity is accomplished with two access points and design elements such as sidewalks and street trees are provided.
2. Private streets and in a planned development are designed to promote connectivity.
3. These are private streets in a planned development and are not through streets. They are for residents only.
4. These are access roads to units and not through streets.

8.300
1. Parking will not be visible from local streets.
2. The site has planting areas and trees and numerous small bays of parking.
UNIT AND BUILDING TYPES AND SIZES

BUILDING 1
2 - A units
6 - B units

BUILDING 2
2 - A units
6 - B units

BUILDING 3
2 - A units
10 - B units
4 - C units

BUILDING 4
2 - A units
6 - B units
4 - C units
A unit - 2 Bedroom = 790 sq. ft.
B unit - 1 Bedroom = 640 sq. ft. - 656 sq. ft.
C unit - 1 Bedroom = 707 sq. ft.

TOTAL UNITS - 44
8 - 2 Bedroom (A units)
36 - 1 Bedroom (B and C units)

Building 1 - 5,452
Building 2 - 5,452
Building 3 - 10,939
Building 4 - 8,280
TOTAL SQ. FT. PER BUILDING = 30,120 sq. ft.
11.330 Planned Development Standards

1. Open Space – see civil drawings from HBH page C-10. It shows approx. 50% common area.
   A. Common recreational space and amenities accessible to residents.
   B. The common area is consistent with the intended use.
   C. No right of way area was or is part of the common area.
   D. No side yard or rear yards were in common area.
   E. City of Albany has indicated they are not interested in the land for a park.
   F. The post-construction storm water facilities are included in common area calculations.
   See page C-10 from civil drawings from HBH for more information.

2. Natural Resources – We have provided for the protection of a large grove of oak trees and mandate the upkeep and care of these trees to owner of senior housing units.

3. Underground Utilities – Yes, all utilities will be underground.

4. Density – Density has been calculated based on gross area.

5. Building spacing and yard requirements – Buildings are spaced to allow light, ventilations, and privacy for residents. Landscaping has been used along with additional parking structures to screen noise and adverse views.
   See page 1 of color landscape drawing from Otten & Assoc., and page C-3 from civil drawings from HBH.

6. Building Locations – The two-story buildings are located in the center of the property where they will not invade privacy of existing homes.

7. Perimeter Compatibility – Existing homes on the west side of Cox Street that have rear yards that back up to planned development property will have single family homes that have their rear yards to west or abutting those homes and we will be providing a fence at the rear of these yards as well. The homes on the north side of Franklin Ave. will have an improved street, planter strip and 5’ sidewalk then will have new single family homes that face north.
Solar Access Protection ADC 3.220 (5)

See HBH civil drawings plan sheet C-2 and C11.
The Solar Access Protection easement to inforce solar access will be to the south of the 4 homes on Franklin Ave..
All 16 apartment units in building 1 and 2.
1 unit on the 1st floor and 1 unit on the 2nd floor located at the south end of building 4.
The Solar Access Protection easement will read that no fences, bushes or trees will be over 5’ in height, closer than 20’ of said buildings described above. This Solar Access Protection is enforceable for a minimum of 25 years from date of completion and occupancy.
This Solar Access Protection easement will be attached to Deed of Sale and be shown in title report for the sale of 4 homes on Franklin Ave.
The apartments will be protected in the same manner in case of change of ownership.
Restrictions will be in the tile report and on an easement of conveyance.
c. Airport Overlay ADC 4.420-4.440 – Airport noise and building height.
With our 400+ feet of laurel hedge along I5/Airport Road and our garages, the noise from I5 and the airport is mitigated to a level of almost 20’ high. Then all of the oak trees with heavy foliage and tree canopies we have preserved along the I5 corridor extend to 60+ feet create a great noise barrier. The apartments all utilize a living area with decks and patios facing to the west and south away from the airport and I5 noise. Please see site plan showing our 50’ required set back from east property line and additional 15’ required by City of Albany for living space (habitable) structures. In fact, you will see we are almost 200’ to the entry of the apartments. With the above buffers between I5 and apartment we have exceeded the required noise buffering as far as height requirements of buildings. We will be 30’ or less, well below existing trees and height requirements.
g. Special Noise Corridor Setback ADC 3.320

see response “c” (below) as well as attached map with written responses.

c. Airport Overlay ADC 4.420-4.440 – Airport noise and building height.
With our 400+ feet of laurel hedge along I5/Airport Road and our garages, the noise from I5 and
the airport is mitigated to a level of almost 20’ high. Then all of the oak trees with heavy foliage
and tree canopies we have preserved along the I5 corridor extend to 60+ feet create a great
noise barrier. The apartments all utilize a living area with decks and patios facing to the west
and south away from the airport and I5 noise. Please see site plan showing our 50’ required set
back from east property line and additional 15’ required by City of Albany for living space
(habitable) structures. In fact, you will see we are almost 200’ to the entry of the apartments.
With the above buffers between I5 and apartment we have exceeded the required noise
buffering as far as height requirements of buildings. We will be 30’ or less, well below existing
trees and height requirements.
Solar Access Protection ADC 3.220 (5)

See HBH civil drawings plan sheet C-2 and C11. The Solar Access Protection easement to inforce solar access will be to the south of the 4 homes on Franklin Ave.
All 16 apartment units in building 1 and 2.
1 unit on the 1st floor and 1 unit on the 2nd floor located at the south end of building 4.
The Solar Access Protection easement will read that no fences, bushes or trees will be over 5’ in height, closer than 20’ of said buildings described above. This Solar Access Protection is enforceable for a minimum of 25 years from date of completion and occupancy.
This Solar Access Protection easement will be attached to Deed of Sale and be shown in title report for the sale of 4 homes on Franklin Ave.
The apartments will be protected in the same manner in case of change of ownership. Restrictions will be in the tile report and on an easement of conveyance.
ATTACHMENT G

Solar Access
All units: exact exterior rear elevation

Sized units:
A unit: 799.94 ft² = 9.48 ft
B unit: 664.97 ft² = 7.50 ft
C unit: 715.43 ft² = 8.16 ft

70% bonus since no access to due south
All units will have 5.64 ft

Notes:
- 12' x 12' window
- 6' x 5' door
- 12' x 30' roof
- 10' x 12' floor
- 3' x 30' balcony
- 19' x 30' balcony

Floor plans:
- 1st floor: living room, kitchen, dining room, laundry room
- 2nd floor: master bedroom, guest bedroom, bathroom

Dimensions:
- 12' x 12' window
- 6' x 5' door
- 12' x 30' roof
- 10' x 12' floor
- 3' x 30' balcony
- 19' x 30' balcony

Total area:
- 1st floor: 1,500 sq ft
- 2nd floor: 1,200 sq ft

Patio:
- 12' x 12'

Deck:
- 12' x 5'

Note: Measurements and dimensions are approximate and may vary.
Unit B = 664.2 ft² 1/4 = 46.5 ft² Class 5

Unit A = 647.4 ft² 1/4 = 45.4 ft² Class 5

Solar Access

BLD H South Wall

3' x 4'6" 6' x 4'

10' x 20" 5' x 20"

13' 5" H 2'4" H 2'4" H 2'4" H
EXTERIOR LIGHTING PLAN - TYPES AND EXAMPLES

NEW APARTMENTS
PRELIMINARY - NOT FOR CONSTRUCTION
FRANKLIN AVE
ALBANY, OR
Warranties & Certifications

LED MINI WALL PACK DIMENSIONS

Applications

- Parking Lots
- Loading Bay Lights
- Commercial And Industrial Exterior
- Parking Garages
- Gas Stations

- Security
- Commercial Entryways
- Metal Building Lighting
- Commercial Complex
- Industrial Facilities
- Commercial Lighting
Increase visibility and security with this mini photocontrol LED wall pack. It emits 3,750 lumens of natural white light, and its integrated dusk-to-dawn photocell allows for effortless operation and energy savings. The 30-watt LED wall pack replaces 100-watt metal-halide (MH) fixtures while lasting at least 3 times longer. Construction consists of a weatherproof powder coated aluminum housing with wiring and conduit knockouts and a polycarbonate lens. Easily mount the wall pack on a recessed junction box. Installation hardware and a foam mounting pad are included. The LED wall pack operates on 120-277 VAC. It’s great for entryways, walkways, security lighting, and more.

**Warranties & Certifications**

[5yr Warranty] [DLC Listed] [ETL US] [Intertek]

**LED MINI WALL PACK DIMENSIONS**

![Dimensions Diagram]

**Applications**
COMMUNITY DEVELOPMENT DEPARTMENT
Planning Division
P.O. Box 490
333 Broadalbin Street SW
Albany, OR 97321
Phone 541-917-7550
Fax 541-791-0150
www.cityofalbany.net

Site Plan Review - Tree Felling
Application Supplement
Checklist & Review Criteria

INFORMATION AND INSTRUCTIONS:

- See fee schedule for filing fee (subject to change every July 1): staff will contact you for payment after submittal.
  - Concurrent with a Development Proposal:
  - Not Concurrent with a Development Proposal:

- All plans and drawings must be to scale, and review criteria responses should be provided as specified in this checklist.

- Email all materials to eplans@cityofalbany.net. Please call 541-917-7550 if you need assistance.

- Depending on the complexity of the project, paper copies of the application may be required.

- Before submitting your application, please check the following list to verify you are not missing essential information. An incomplete application will delay the review process.

**SITE PLAN REVIEW – TREE FELLING CHECKLIST**

- [ ] PLANNING APPLICATION FORM WITH AUTHORIZING SIGNATURES
- [ ] SUPPLEMENTAL APPLICATION INFORMATION (see below)
- [ ] REVIEW CRITERIA (see below)
- [ ] SITE PLAN AND TREE INVENTORY (see below)
- [ ] TREE PRESERVATION PLAN (see below)

Rev. 07/2017
SITE PLAN REVIEW - TREE FELLING OVERVIEW

ALBANY DEVELOPMENT CODE SECTIONS 9.205-9.208

Trees of significant size represent a visual and aesthetic resource to the community. Trees provide benefits including shading, reduction in excess stormwater runoff, erosion control, and wildlife habitat. These standards are intended to balance the preservation of significant trees as a benefit to the community with the individual right to use and enjoy property. **When Tree Felling Approval is Required:** In any zoning district to fell five or more trees that have a trunk that is larger than 25 inches in circumference when measured 54 inches from the base of the tree and that are located on a property (or properties under single ownership) that are larger than 20,000 square feet in area.

**Definitions:** For the purposes of this application, these definitions apply:

1. **Fell:** To remove or sever a tree or the intentional use of any procedure the natural result of which is to causes the death or substantial destruction of the tree. Fell does not in any context include normal pruning of trees.

2. **Tree:** A living, standing, woody plant.

3. **Tree Circumference:** The circumference of a tree is measured at 4-1/2 feet above mean ground level from the base of the trunk. To obtain the circumference of a tree with multiple trunks, add the individual trunk circumferences, which are greater than 6 inches in circumference.

**Exemptions:** The following activities are exempt from site plan review:

1. The action of any City official or of any public utility necessary to remove or alleviate an immediate danger to life or property; to restore utility service, or to reopen a public street to traffic.
2. Felling of any tree that is defined as a nuisance under the Albany Municipal Code.
3. Felling necessary to maintain streets or utilities within a public right-of-way or utility easement, provided the Tree Commission or City Forester approved the proposed tree felling.
4. Felling of trees planted as Christmas trees.
5. Felling of trees on property under a Forest Stewardship Plan approved by the Oregon Department of Forestry.

A pre-application meeting is held for all applications, unless the Director determines one is not necessary. The meeting provides for an exchange of information about Development Code and Comprehensive Plan requirements and provides technical and design assistance to the applicant.

The Director acts as the review body for a Tree Felling application (Type II procedure) unless it is filed with a concurrent application that has a higher review level. In that case all concurrent applications are reviewed together at the highest level. Notice of the application is sent to neighbors, residents, and neighborhood associations, if applicable, within a 100 foot boundary of the subject properties where the trees are located. The Director may increase the notice area. Written comments from affected parties are considered when making the decision.

Oregon statutes require that land-use decisions be made within 120 days from the date the application is deemed complete. However, unless the project is complex, or a large number of applications have been submitted for review before your application is submitted, the City typically is able to issue a decision within a shorter time.

Persons with standing may appeal the City's decision filing a Notice of Intent to Appeal to the State Land Use Board of Appeals (LUBA) not later than 21 days after the date of the decision is mailed. In order to be able to appeal to LUBA, an affected party must have raised an issue in writing before the date given in the Notice of Filing.
**Note:** Some properties may have covenants or restrictions, which are private contracts between neighboring landowners. These frequently relate to density, minimum setbacks, or size and heights of structures. While these covenants and restrictions do not constitute a criterion for a City land use decision, they may raise a significant issue with regard to the City's land use criteria. It is the responsibility of the applicant to investigate private covenants or restrictions.

**Supplemental Application Information**

Describe in detail, here or on a separate sheet of paper, the proposed tree felling project. Include the total number of existing regulated trees on the site, and of those, the total number proposed for removal. 

Remove trees to allow construction of 4 single family homes and 41 senior only apartments. Remove trees determined by arborist that are in road, parking, building site, or within zone of destruction. Remove 251 oak trees, Retain 58 (see PDF of Monarch Arborist Report and Maps).

Which type of situation is applicable to this request: ADC 9.208 (1), (2) or (3)? __ (2) ________________

Size of the subject properties _____ 6.5 acres ______

Does the site contain any existing structures, private wells, septic tanks, drain fields?  No _______

If yes, describe:  N/A _______

(Show the location of these features on the accompanying site plan, and if they are to be removed.)

Current use of the subject property  Vacant undeveloped _______

Existing uses and zoning of properties adjacent to the site (including across the street, if applicable):

<table>
<thead>
<tr>
<th>Current Uses</th>
<th>Zoning</th>
</tr>
</thead>
<tbody>
<tr>
<td>North</td>
<td>Homes</td>
</tr>
<tr>
<td>South</td>
<td>Unauthorized storage for old cars and broken down RV's &amp; trailers</td>
</tr>
<tr>
<td>East</td>
<td>I-5 Freeway, East of freeway is airport</td>
</tr>
<tr>
<td>West</td>
<td>Homes</td>
</tr>
</tbody>
</table>

R - 6.5

Is there a phasing plan?  YES ________  If yes, describe here and show the phase lines on the site plan.  Refer to PDF of TBJHBH Civil Eng page 10

To assess whether the City will need additional information and/or whether you must obtain additional permits or applications from other agencies or departments, please answer the following questions.

**Will the tree removal:**

a) Require removal or demolition of any existing structure(s)?  Yes ___  No  V

b) Affect historic structures or historically significant features?  Yes ___  No  V

c) Be located within a 100-year floodplain?  Yes ___  No  V

d) Be located within the designated Willamette Greenway?  Yes ___  No  V

e) Affect an identified wetland?  Yes ___  No  V

f) Require a Variance or Adjustment from a development standard?  Yes  V  No  __

g) Involve fill or removal of contaminated soils or hazardous material?  Yes ___  No  V
h) Involve grading/fill: within the 100-year floodplain or a watercourse, as shown on the City's Drainage Master Plan; over an existing public storm drain, sanitary sewer or waterline; or more than 50 cubic yards in areas that have an average slope of 12% or greater? Yes ☐ No ☑

i) Involve land that has a current average slope of 12% to 25%? Yes ☐ No ☑

j) Involve removal of vegetation or trees? Yes ☑ No ☐

If you answered yes to any of the above, contact the Planning Division before submitting your application.

---

**TREE FELLING REVIEW CRITERIA (ADC 9.208)**

Requests for tree felling will be approved if the review body finds that the application meets all of the criteria applicable to this application either outright or with conditions that bring the proposal into compliance with the criteria.

This application either falls under Situation A, B and/or C as outlined below. Identify which is applicable to your situation and on a separate sheet of paper, prepare a detailed written response using factual statements (called findings of fact) to explain how the proposed Tree Felling complies with each of the review criteria that are applicable to this application. Each criterion must have at least one finding of fact and conclusion statement.

**Situation A:** The Community Development Director shall approve a Site Plan Review for tree felling when the applicant demonstrates that the felling of the tree(s) is warranted because of the condition of the tree(s) with respect to disease, hazardous or unsafe conditions, danger of falling, proximity to existing structures or proposed construction, or interference with utility services or pedestrian or vehicular safety. The Director may require the applicant to provide a Certified Arborist's report.

**Situation B:** For property where a Site Plan Review, Conditional Use, or Land Division application has been approved or is currently under review, the Community Development Director or City Forester shall approve a Site Plan Review for tree felling when the applicant demonstrates that all of the following review criteria are met: Refer to attached Tree Felling Review Criteria response.

1. It is necessary to fell tree(s) in order to construct proposed improvements in accordance with an approved site plan review or conditional use review, or to otherwise utilize the applicant's property in a manner consistent with its zoning, this Code, applicable plans adopted by the City Council, or a logging permit issued by the Oregon Department of Forestry.

2. The proposed felling is consistent with State standards and City ordinances, and does not negatively impact the environmental quality of the area, including but not limited to: the protection of nearby trees and windbreaks; wildlife; erosion; soil retention and stability; volume of surface runoff and water quality of streams; scenic quality, and geological sites.

3. The uniqueness, size, maturity, structure, and historic value of the trees have been considered and all other options for tree preservation have been exhausted. The Director may require that trees determined to be unique in species, size, maturity, structure, or historic value, are preserved.

4. Tree felling in Significant Natural Resource Overlay Districts meets the applicable requirements in Article 6.
TREE FELLING REVIEW CRITERIA (ADC 9.208)

**Situation B:** For property where a Site Plan Review, Conditional Use, or Land Division application has been approved or is currently under review, the Community Development Director or City Forester shall approve a Site Plan Review for tree felling when the applicant demonstrates that all of the following review criteria are met:

**Statement:**
1. It is necessary to fell trees(s) in order to construct proposed improvements in accordance with an approved site plan review or conditional use review, or to otherwise utilize the applicant’s property in a manner consistent with its zoning, this Code, applicable plans adopted by the City Council, or a logging permit issued by the Oregon Department of Forestry.

**Response:**
We will need to cut and remove trees to allow roadway access, required parking spaces, home sites and multi-family units. This will be necessary to allow use of property in a manner consistent with zoning.

**Statement:**
2. The proposed felling is consistent with State standards and City ordinances, and does not negatively impact the environmental quality of the area including but not limited to: the protection of nearby trees and windbreaks; wildlife; corrosion; soil retention and stability; volume of surface runoff and water quality of streams; scenic quality, and geological sites.

**Response:**
This will be consistent with state and city ordinances. Tree felling on this property will not have impact on environmental quality or adversely affect nearby trees or windbreaks or cause soil erosion as all areas will be replanted with shrubs and landscape trees, grass and bark dust to protect water quality, enhance scenic quality.

**Statement:**
3. The uniqueness, size, maturity, structure, and historic value of the trees have been considered and all other options for tree preservation have been exhausted. The Director may require that trees determined to be unique in species, size, maturity, structure, or historic value, are preserved.

**Response:**
The site has been looked at by city forester and by utilizing the planned development as planned it will allow for a greater number of trees to be preserved, because of a smaller building footprint, private roads that are smaller, and careful placement of structures. We have presented the best possible plan to retain as many trees and natural area as possible and have exhausted all options and possibilities.

**Statement:**
4. Tree felling in Significant Natural Resource Overly Districts meets the applicable requirements in Article 6.

**Response:**
We are not in a significant natural resource overly district.
**Situation C:** For property where tree felling has not been approved as part of a Site Plan Review, Conditional Use, or Land Division application, the Community Development Director shall approve a site plan review application for tree felling, if the review criteria above in Situation B are met, AND the following criteria are met:

1. Trees shall be retained in significantly large areas and dense stands so as to ensure against wind throw.
2. Wooded areas that will likely provide an attractive on-site amenity to occupants of future developments shall be retained.
3. Wooded areas associated with natural drainage ways and water areas will be maintained to preserve riparian habitat and minimize erosion. The wooded area to be retained shall be at least 10 feet in width or as required elsewhere in this Code.
4. Wooded areas along ridges and hilltops will be retained for their scenic and wildlife value.
5. Tree felling on developable areas will be avoided to retain the wooded character of future building sites and so preserve housing and design options for future City residents.
6. Wooded areas along property lines shall be retained at a minimum width of 10 feet to provide buffers from adjacent properties.
7. The plan for tree felling shall be consistent with the preservation of the site’s future development potential and zoning.

The Director may attach conditions to the approval to ensure the replacement of trees and landscape or otherwise reduce the effects of the felling, and may require an improvement assurance to ensure that all conditions are met.

---

**SITE AND TREE INVENTORY PLAN REQUIREMENTS**

The map must include all of the following.

- Existing address (if any), section, township, range, and legal description sufficient to define the location and boundaries of the proposed tree felling site. \(\text{Refer to PDF 1B - HBH Civil Eng}^{1}\)
- Names and addresses of the owner(s), developer(s), surveyor and engineer, as applicable. \(\text{Refer to attached contact page}\)
- Date map was drafted and north arrow. \(\text{Refer to PDF 1B - HBH Civil Engineer-page G.2}\)
- Scale of map. (Use 1 inch = 20 feet, unless otherwise approved by Planning staff. For parcels over 100 acres, use 1 inch = 100 feet.) Map must be clearly readable and measurable and fully dimensioned.
- Total land area of the entire site. \(\text{Refer to attached tax lot information sheet}\)
- Show the location of all existing structures, infrastructure, property lines, public and private easements, existing contours, and if applicable, proposed grading.
- If there is a concurrent development plan, in addition, show all proposed structures, public and private easements, and proposed contours after grading. \(\text{Refer to PDF 1B - HBH Civil Engineer-page C.9}\)
- Tree Location/Identification. For each tree on the property that has a trunk larger than 25 inches in circumference, assign it an identification number, and show its location on the property, trunk dimension, species, drip line of its canopy and the square footage of the canopy. (For a tree with multiple trunks, to arrive at total trunk circumference, add together the individual trunks that have a circumference larger than six inches.) \(\text{Refer to PDF 1D - Monarch Arborist Report and Maps}\)
Optional: You may find it helpful to provide the inventory information in table form.

Example:

<table>
<thead>
<tr>
<th>Tree ID Number</th>
<th>Species</th>
<th>Trunk circumference*</th>
<th>Canopy (sq. ft.)</th>
<th>Retain/Remove</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Cottonwood</td>
<td>12</td>
<td>400</td>
<td>Remove</td>
</tr>
<tr>
<td>2</td>
<td>Oregon White Oak</td>
<td>15</td>
<td>600</td>
<td>Retain</td>
</tr>
</tbody>
</table>

* Measured 4.5 feet above mean ground level of the tree.

☒ Identify any "significant" trees located on the site. A significant tree is a tree with a trunk diameter of 25 inches or greater, measured four and one-half feet above the base of the tree.

☒ Identify which trees are proposed for removal. (It is assumed all others will remain.)

Refer to PDF D1 Monarch Arborist Report and maps

TREE PRESERVATION PLAN FOR REMAINING TREES [ADC 9.208(5)]

Precautions shall be made to protect the residual trees and tree roots from damaging agents during and after the removal process. In addition to the above plans, using the following tree protection specifications to the maximum extent feasible, provide a plan that shows how the remaining existing trees will be protected. Refer to PDF D1 Monarch Arborist tree protection plan

1. Within the drip line of any protected existing tree, there shall be no cut or fill over a four-inch depth unless a qualified arborist or forester has evaluated and approved the disturbance.

2. Prior to and during construction, an orange fence shall be erected around all protected existing trees that is a minimum of 4 feet tall, secured with metal T-posts, no closer than 6 feet from the trunk or within the drip line, whichever is greater. There shall be no storage or movement of equipment, material, debris or fill within the fenced tree protection zone. [Ord. 5764, 12/1/11]

3. During the construction stage of development, the applicant shall prevent the cleaning of equipment or material or the storage and disposal of waste material such as paints, oils, solvents, asphalt, concrete, motor oil or any other material harmful to the life of a tree within the drip line of any protected tree or group of trees.

4. No damaging attachment, wires, signs or permits may be fastened to any protected tree.

5. Large property areas containing protected trees and separated from construction or land clearing areas, road rights-of-way and utility easements may be "ribboned off," rather than erecting protective fencing around each tree as required in subsection (5)(b) above. This may be accomplished by placing metal t-post stakes a maximum of 50 feet apart and tying ribbon or rope from stake-to-stake along the outside perimeters of such areas being cleared.

6. The installation of utilities, irrigation lines or any underground fixture requiring excavation deeper than 6 inches shall be accomplished by boring under the root system of protected existing trees at a minimum depth of 24 inches. The auger distance is established from the face of the tree (outer bark) and is scaled from tree diameter at breast height as described in the table below.

<table>
<thead>
<tr>
<th>Tree Diameter at Breast Height (inches)</th>
<th>Auger Distance from Face of Tree (feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>8-9</td>
<td>5</td>
</tr>
<tr>
<td>10-14</td>
<td>10</td>
</tr>
<tr>
<td>15-19</td>
<td>12</td>
</tr>
<tr>
<td>Over 19</td>
<td>15</td>
</tr>
</tbody>
</table>
**Additional plans.** The following may not apply to every site. If an item does apply, show the information on the proposed site plan map and check the box. *Write “NA” in the box if the item does not apply to this proposal, and attach a short explanation.*

- [ ] Label and show the width, direction, and flow of all watercourses on the site.
- [ ] Label and show areas within the 100-year floodplain and other areas subject to inundation or storm water overflow, with approximate high-water elevation. State the base flood elevation (BFE); label and show the floodplain boundary on the map.
- [ ] Label and show the boundaries of all jurisdictional wetlands. Sources: Plate 6 of the Comprehensive Plan, the National Wetland Inventory, and Local Wetland Inventory maps. Land not on these maps still may contain wetlands. *Refer to PDF 1B HBT Eng Civil drawings page 29*

- [ ] Label and show the locations of all natural features, such as rock outcroppings, marshes, wooded areas, and trees that are 8 inches in diameter measured 54 inches above the tree base. *Refer to PDF 1B HBT Eng civil drawings pages G2 + C1*
The Franklin Reserve – 840 Airport Road Albany Oregon – Arborist Report

Introduction

A pre-construction inspection of 49 (Quercus garryana) - Oregon white oak trees that were in or near the (CRZ) Critical Root Zones being impacted, this was carried out on March 3rd, 2020 at approximately 9:30am with Mike Shults to assess the impact of the proposed construction and the trees that are at the most impacted due to the construction and the trees that are in (CRZ) Critical Root Zone will be removed. Trees that will need (RZH) Root Zone Protection will remain, see map and protection plan, at 840 Airport Road, Albany. The trees were assessed from ground level to access the potential impact related to the construction and the health and structure of these trees.

These were assessed using a Level 1 (visual limited tree assessment) and a Level 2 (basic assessment). As used by ISA International Society of Arboriculture in assessing trees across the country.

A level 1 visual limited tree assessment involves assessment of a single tree or a population of trees near potential targets. Looking for obvious defects such as, but not limited to, dead trees, large cavities, large dead and or broken branches, fruiting bodies (fungal structures), severe leans and large cracks.

A Level 2 basic tree assessment is a standard assessment performed in response to most private clients for tree risk assessments. Which entails a complete walkaround the tree, looking at the trunk, buttress roots, and branches. Looking from a distance as well as closeup, to take in consideration of the crown shape and surroundings. Utilizing tools in this case DBH Tape, measuring tape and measuring roller.

A Level 3 advanced assessment was not used in this Pre-construction inspection arborist report. No use of specialized equipment such as tests, samples, climbing, boring, Etc.

A site plan has been supplied identifying the trees and area for the impact assessment. This was the primary documentation used to determine the trees locations and the nature of the tree protection zone required for this project. These details can be found at the end of this document.
Site Description

A majority of this sites grade is flat, surrounded by groves of Oak trees located along the East, North, Northwest, as well as some scattered along the West side of the property. The most prominent grove would be located along the North and Northeast side of this lot.

This site host mostly all native trees. The predominant species is Oregon white oak (*Quercus garryana*), with a few Green Ash trees, Plum trees and Hawthorns.

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Botanical Name</th>
<th>Total</th>
<th>Retain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oregon White Oak</td>
<td><em>Quercus garryana</em></td>
<td>309</td>
<td></td>
</tr>
<tr>
<td>Green Ash</td>
<td><em>Fraxinus pennsylvania</em></td>
<td>13</td>
<td>11</td>
</tr>
<tr>
<td>Hawthorn</td>
<td><em>Crataegus sp.</em></td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Plum</td>
<td><em>Prunus subg.</em></td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>329</strong></td>
<td></td>
</tr>
</tbody>
</table>

- **Tree Protection measures for this project**
  - On site arborist to assess tree root excavation, project arborist contract, and final arborist report at the completion of construction are all included in the tree protection for this project.
  - Standard tree protection 4’ orange fence this should be installed and erected and follow the tree protection plan, per (DBH) Diameter at Breast Height and ISA tree protection guidelines. Absolutely NO encroachment beyond this area is permitting and no access into this area is allowed without permission from the project arborist.
  - Included in the standard tree protection (RPZ) Root Protection Zone warning signs at regular intervals along the entire length or sections of the fenced tree protection area. These signs shall be clearly visible from all areas surrounding the trees’ tree protection zone.
  - Tree protection fencing is the most common method for setting up a (RPZ) Root Protection Zone and is designed to act as physically barrier of protective fencing at the edge of any construction activities which include the follow, soil disturbance, storage of any material of any and all kind, preparation of materials, pedestrian or vehicle access.
  - Trees in the RPZ Root Protection Zone will need periodic deep watering and fertilization of the trees root zone. Recommended to lay some woodchips for the benefit of the tree’s continuous health and longevity.
In Conclusion it’s my recommendation to remove the 49 Oregon white oak (Quercus garryana) that are within in the (CRZ) Critical Root Zone, along with the other trees that would be removed due to construction. The (RPZ) Root Zone Protection shall be set up in accordance to ISA International Society of Arboriculture and their (DBH) Diameter of Breast Height for the trees that are near the construction as shown on the map above.

If you have any questions regarding my finding and recommendations, please call me or email me at the information below.

Jeremy (Beau) Saucedo
ISA Certified Arborist PN-6893-A
Arbor Branch Manager
Monarch Tree Service
Beau.Saucedo@monarchlandscape.com
Phone: (503) 593-7087
TREES NOT IN CRITICAL ROOT ZONE (CRZ)

NOTE: Surveys points can correspond to multiple trees.
Mike Schultz Oak Tree Project 3-3-2020

Legend (J9):

- Oregon State Oak (J9)

* TREES IN CRZ TO BE REMOVED *
Mike Schultz Oak Tree Project 3-3-2020

Proposal 03-10-2020

Quercus garryana
Oregon White Oak
Height: 60' +
Health: 80% - Good
ID# 1

Quercus garryana
Oregon White Oak
Height: 60' +
Health: 80% - Good
ID# 1

Quercus garryana
Oregon White Oak
Height: 60' +
Health: 80% - Good
ID# 2

Google
Removal

Google
Removal

Google
Retain nct in the CRZ
Mike Schultz Oak Tree Project 3-3-2020
Proposal 03-10-2020

**Quercus garryana**
Oregon White Oak
Height: 60'+
Health: 80% - Good
ID# 2

**Quercus garryana**
Oregon White Oak
Height: 60'+
Health: 80% - Good
ID# 3

**Quercus garryana**
Oregon White Oak
Height: 63'+
Health: 83% - Good
ID# 4

Retain not in the CRZ

heavy lean / In the CRZ / Removal

In the CRZ / Removal
Mike Schultz Oak Tree Project 3-3-2020
Proposal 03-10-2020

**Quercus garryana**
Oregon White Oak
Height: 60+
Health: 80% - Good

**Quercus garryana**
Oregon White Oak
Height: 60+
Health: 80% - Good

**Quercus garryana**
Oregon White Oak
Height: 60+
Health: 80% - Good

**Quercus garryana**
Oregon White Oak
Height: 60+
Health: 80% - Good

In the CRZ / Removal

In the CRZ / Removal

In the CRZ / Removal
Mike Schultz Oak Tree Project 3-3-2020
Proposal 03-10-2020

Quercus garryana
Oregon White Oak
ID# 7
Height: 60'+
Health: 80% - Good

Quercus garryana
Oregon White Oak
ID# 7
Height: 60'+
Health: 80% - Good

Quercus garryana
Oregon White Oak
ID# 8
Height: 60'+
Health: 80% - Good

heavy lean / In the CRZ / Removal

heavy lean / In the CRZ / Removal

heavy lean / In the CRZ / Removal

Page 6
Mike Schultz Oak Tree Project 3-3-2020
Proposal 03-10-2020

Quercus garryana  ID# 8
Oregon White Oak  DBH: 19”-24”
Height: 60’+
Health: 80% - Good

Quercus garryana  ID# 9
Oregon White Oak  DBH: 19”-24”
Height: 60’+
Health: 80% - Good

Quercus garryana  ID# 10
Oregon White Oak  DBH: 19”-24”
Height: 60’+
Health: 80% - Good

heavy lean / In the CRZ / Removal

20”

Realign not in the CRZ

12”
Mike Schultz Oak Tree Project 3-3-2020
Proposal 03-10-2020

Quercus garryana
Oregon White Oak
Height: 60'
Health: 80% - Good

Quercus garryana
Oregon White Oak
Height: 60'
Health: 80% - Good

Quercus garryana
Oregon White Oak
Height: 60'
Health: 80% - Good

Retain not in the CRZ.
12"

In the CRZ / Removal
14"

In the CRZ / Removal
14"
Mike Schultz Oak Tree Project 3-3-2020
Proposal 03-10-2020

Quercus garryana  ID# 12
Oregon White Oak
Height: 60'+
Health: 80% - Good

Quercus garryana  ID# 12
Oregon White Oak
Height: 60'+
Health: 80% - Good

Quercus garryana  ID# 13
Oregon White Oak
Height: 63'+
Health: 83% - Good

Retain not in the CRZ
6"

Retain not in the CRZ
6"

heavy lean / In the CRZ / Removal
16"
Mike Schultz Oak Tree Project 3-3-2020
Proposal 03-10-2020

Quercus garryana
Oregon White Oak
Height: 60'+
Health: 80% - Good
ID# 13
DBH: 19"-24"

Quercus garryana
Oregon White Oak
Height: 60'+
Health: 80% - Good
ID# 13
DBH: 19"-24"

Quercus garryana
Oregon White Oak
Height: 60'+
Health: 80% - Good
ID# 14
DBH: 19"-24"

heavy lean / In the CRZ / Removal
16"
Mike Schultz Oak Tree Project 3-3-2020
Proposal 03-10-2020

**Quercus garryana**
- ID# 15
- Oregon White Oak
- Height: 60' +
- Health: 80% - Good

**Quercus garryana**
- ID# 15
- Oregon White Oak
- Height: 60' +
- Health: 80% - Good

**Quercus garryana**
- ID# 16
- Oregon White Oak
- Height: 63' +
- Health: 83% - Good

22"

22"

15"
Mike Schultz Oak Tree Project 3-3-2020
Proposal 03-10-2020

Quercus garryana
Oregon White Oak
Height: 60'+
Health: 80% - Good

ID# 17
DBH: 19"-24"

Quercus garryana
Oregon White Oak
Height: 60'+
Health: 80% - Good

ID# 17
DBH: 19"-24"

Quercus garryana
Oregon White Oak
Height: 60'+
Health: 80% - Good

ID# 17
DBH: 19"-24"

Google
In the CRZ / Removal
13"

Google
In the CRZ / Removal
13"

Google
In the CRZ / Removal
13"
Mike Schulz Oak Tree Project 3-3-2020
Proposal 03-10-2020

Quercus garryana
Oregon White Oak
Height: 60+
Health: 80% - Good
ID# 18
DBH: 7"-12"

Quercus garryana
Oregon White Oak
Height: 60+
Health: 80% - Good
ID# 19
DBH: 13"-18"

Quercus garryana
Oregon White Oak
Height: 60+
Health: 80% - Good
ID# 19
DBH: 13"-18"
Mike Schultz Oak Tree Project 3-3-2020
Proposal 03-10-2020

Quercus garryana  ID# 20
Oregon White Oak  DBH: 13"-18"
Height: 60'+
Health: 80% - Good

March 9, 2020

Quercus garryana  ID# 20
Oregon White Oak  DBH: 13"-18"
Height: 60'+
Health: 80% - Good

March 9, 2020

Quercus garryana  ID# 21
Oregon White Oak  DBH: 13"-18"
Height: 60'+
Health: 80% - Good

March 9, 2020

heavy lean / In the CRZ / Removal
12"

March 9, 2020

heavy lean / In the CRZ / Removal
12"

March 9, 2020

heavy lean / In the CRZ / Removal
11"
Mike Schultz Oak Tree Project 3-3-2020
Proposal 03-10-2020

Quercus garryana  ID# 22
Oregon White Oak
Height: 60'+
Health: 80% - Good

Quercus garryana  ID# 23
Oregon White Oak
Height: 60'+
Health: 80% - Good

Quercus garryana  ID# 23
Oregon White Oak
Height: 60'+
Health: 80% - Good

Heavy lean / In the CRZ / Removal

15''

13''

13''
Mike Schultz Oak Tree Project 3-3-2020
Proposal 03-10-2020

Quercus garryana
Oregon White Oak
Height: 60'+
Health: 80% - Good

ID# 24
DBH: 13"-18"

March 9, 2020

Quercus garryana
Oregon White Oak
Height: 60'+
Health: 80% - Good

ID# 24
DBH: 13"-18"

March 9, 2020

Quercus garryana
Oregon White Oak
Height: 60'+
Health: 80% - Good

ID# 25
DBH: 13"-18"

March 9, 2020

16"
Mike Schultz Oak Tree Project 3-3-2020
Proposal 03-10-2020

Quercus garryana
Oregon White Oak
ID# 25
Height: 60+
Health: 80% - Good
DBH: 13"-18"

Quercus garryana
Oregon White Oak
ID# 26
Height: 60+
Health: 80% - Good
DBH: 13"-18"

Quercus garryana
Oregon White Oak
ID# 27
Height: 60+
Health: 80% - Good
DBH: 19"-24"

heavy lean / in the CRZ / Removal

16"

18"

20"
Mike Schultz Oak Tree Project 3-3-2020
Proposal 03-10-2020

**Quercus garryana**
Oregon White Oak
Height: 60'+
Health: 80% - Good

ID# 28
DBH: 19"-24"

**Quercus garryana**
Oregon White Oak
Height: 60'+
Health: 80% - Good

ID# 29
DBH: 19"-24"

**Quercus garryana**
Oregon White Oak
Height: 60'+
Health: 80% - Good

ID# 29
DBH: 19"-24"

Heavy lean / In the CRZ / Removal
23"
Mike Schultz Oak Tree Project 3-3-2020
Proposal 03-10-2020

<table>
<thead>
<tr>
<th>Tree Type</th>
<th>ID</th>
<th>Diameter</th>
<th>Height</th>
<th>Health</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quercus garryana</td>
<td>30</td>
<td>19-24&quot;</td>
<td>60+</td>
<td>80% - Good</td>
</tr>
<tr>
<td>Oregon White Oak</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>heavy lean / In the CRZ/ Removal</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12,14,22,23&quot;</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

At the bottom, there is a continuation of the table with similar entries for another tree.
Mike Schultz Oak Tree Project 3-3-2020

Proposal 03-10-2020

Quercus garryana  ID# 32  
Oregon White Oak  
Height: 60"+  
Health: 80% - Good  

Quercus garryana  ID# 32  
Oregon White Oak  
Height: 60"+  
Health: 80% - Good  

Quercus garryana  ID# 33  
Oregon White Oak  
Height: 60"+  
Health: 80% - Good  

In the CRZ / Removal  
6.12, 13, 15, 20"
Mike Schultz Oak Tree Project 3-3-2020
Proposal 03-10-2020

**March 9, 2020**

**Quercus garryana**
Oregon White Oak
Height: 60' +
Health: 80% - Good

**ID# 34**
**DBH: 19"-24"**
**Retain not in the CRZ**

---

**March 9, 2020**

**Quercus garryana**
Oregon White Oak
Height: 60'+
Health: 80% - Good

**ID# 35**
**DBH: 19"-24"**

---

**March 9, 2020**

**Quercus garryana**
Oregon White Oak
Height: 60'+
Health: 60% - Fair

**ID# 46**
**DBH: 19"-24"**

---

**March 9, 2020**

**9,13,14,16,18"**

---

**March 9, 2020**

**31"**

---

**March 9, 2020**

**22"**
Mike Schultz Oak Tree Project 3-3-2020

Proposal 03-10-2020

March 9, 2020

Quercus garryana ID# 47
Oregon White Oak
Height: 60'+
Health: 60% - Fair

March 9, 2020

Quercus garryana ID# 48
Oregon White Oak
Height: 60'+
Health: 60% - Fair

In the CRZ / Removal
16.18''

In the CRZ / Removal
21''
November 5, 2018

Well Built Homes
Attn: Mike Shults
P.O. Box 41
St. Paul, OR 97137

Re: WD #2018-0425 Wetland Delineation Report for Residential
Development; Linn County; T 11S R 3W S 9BB TL 2700 and 2701;

Dear Mr. Shults:

The Department of State Lands has reviewed the wetland delineation report prepared
by Turnstone Environmental for the site referenced above. Based upon the information
presented in the report, a site visit on May 8, 2018 we concur with the wetland
boundaries as mapped in revised Figure 6 of the report. Please replace all copies of
the preliminary wetland map with this final Department-approved map.

Within the study area, one wetland (Wetland 1 totaling approximately 1.759 acres), was
identified. Wetland 1 is subject to the permit requirements of the state Removal-Fill Law.
Under current regulations, a state permit is required for cumulative fill or annual
excavation of 50 cubic yards or more in the wetland or below the ordinary high-water
line (OHWL) of the waterway (or the 2-year recurrence interval flood elevation if OHWL
cannot be determined).

This concurrence is for purposes of the state Removal-Fill Law only. Federal or local
permit requirements may apply as well. The Army Corps of Engineers will determine
jurisdiction for purposes of the Clean Water Act. We recommend that you attach a copy
of this concurrence letter to both copies of any subsequent joint permit application to
speed application review.

Please be advised that state law establishes a preference for avoidance of wetland
impacts. Because measures to avoid and minimize wetland impacts may include
reconfiguring parcel layout and size or development design, we recommend that you
work with Department staff on appropriate site design before completing the city or
county land use approval process.

This concurrence is based on information provided to the agency. The jurisdictional
determination is valid for five years from the date of this letter unless new information
necessitates a revision. Circumstances under which the Department may change a
determination are found in OAR 141-090-0045 (available on our web site or upon
request). In addition, laws enacted by the legislature and/or rules adopted by the
Department may result in a change in jurisdiction; individuals and applicants are subject to the regulations that are in effect at the time of the removal-fill activity or complete permit application. The applicant, landowner, or agent may submit a request for reconsideration of this determination in writing within six months of the date of this letter.

Thank you for having the site evaluated. Please phone me at 503-986-5218 if you have any questions.

Sincerely,

[Signature]
Lauren Brown
Jurisdiction Coordinator

Approved by

[Signature]
Peter Ryan, PWS
Aquatic Resource Specialist

Enclosures

c: Joe Bettis, Turnstone Environmental
   Albany Planning Department (Maps enclosed for updating LWI)
   Andrea Wagner, Corps of Engineers
   Carrie Landrum, DSL
ONSITE WETLAND DETERMINATION REPORT
OREGON DEPARTMENT OF STATE LANDS
775 Summer Street NE, Suite 100, Salem OR 97301-1279 (503) 986-5200

An onsite wetland determination has been conducted on the property described below.

County: Linn  
Owner Name & Address: Mike Shults Well Built Homes  
City: Albany

Township: 11S  
Range: 03W  
Section: 09  
Q/Q: BB  
Tax Lot(s): 2700

Project Name: Duplex  
Date of Site Visit 05/08/2018

Site Address/Location: Vacant lot on the corner of Franklin and Airport Rd

☐ There are no jurisdictional wetlands or waterways on the property. Therefore, no state removal-fill permit is required.  
Notes: ______

☒ There are wetlands or waterways on the property that are subject to the state Removal-Fill Law.  
☒ A state permit is required for ≥ 50 cubic yards of fill, removal, or ground alteration in the wetlands or waterways.  
☐ A state permit may be required for any amount of fill, removal, or ground alteration in the Essential Salmonid Habitat and hydrologically associated wetlands.

☐ A wetland determination or delineation is needed. If site development is planned, the delineation report should be submitted to the Department for review and approval.

☒ Within the tax lot, a state permit will not be required for any work within the area marked upland. A wetland delineation is recommended for the remainder of the tax lot prior to development.

☐ A permit may be required by the Army Corps of Engineers: (503) 808-4373

Note: This report is for the state Removal-Fill Law only. City or County permits may be required for the proposed activity.

Comments: The enclosed map shows the area of upland. Please call Lauren Brown at 503-986-5218 if you have any questions.

Determination by:  
Lauren Brown  
Date 05/16/2018

☒ This jurisdictional determination is valid for five years from the above date, unless new information necessitates a revision. Circumstances under which the Department may change a determination and procedures for renewal of an expired determination are found in OAR 141-090-0045 (available on our web site or upon request). The applicant, landowner, or agent may submit a request for reconsideration of this determination in writing within six months from the above date.

☐ This is a preliminary jurisdictional determination and is advisory only

Copy To: ☒ Owner: wellbuilthomes@yahoo.com  ☒ Enclosures: MAP

Albany, Planning Department  
Andrea Wagner, USACE

FOR OFFICE USE ONLY

<table>
<thead>
<tr>
<th>Entire Lot(s) Checked? No</th>
<th>Waters Present? No</th>
<th>Maybe</th>
<th>Request Received: 04/25/2018</th>
<th>For ENF.</th>
</tr>
</thead>
</table>
| LWI Area: n/a  
LWI Code: n/a  
Latitude: 44.633193  
Longitude: -123.064916  
Related DSL File #: |
| Has Wetlands? Y ☐ N ☐ Unknown | ESH? Y ☒ N  
Wild & Scenic? Y ☒ N  
State Scenic? Y ☒ N  
Coast Zone? Y ☒ N |
| Adjacent Waterbody:  
NWI Quad:  
☐ Mailings Completed  
Data Entry Completed |

0:\\WWC\DRAFTS Temporary\Lauren Brown\Wetland Determinations\Mike.doc
http://www.oregonstatelands.us/
Wetland Delineation Report for
Tax Lots 2700 & 2701
Airport Road Southeast
Albany, Oregon

Prepared for:
Mike Shults
PO Box 41
Saint Paul, Oregon 97137

Prepared by:
Turnstone Environmental
PO Box 816
Philomath, Oregon 97370

July 17, 2018
PREFACE

Turnstone Environmental Consultants, Inc. (Turnstone) prepared this wetland delineation report for a 6.5-acre Study Area located in Albany, Linn County, Oregon. The findings of this report are based upon information gathered during the field investigation and upon state and federal laws regulating wetland areas. Turnstone staff utilized the Corps of Engineers Wetlands Delineation Manual (USACE 1987) along with the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region, Version 2 (USACE 2010) to conduct wetland delineations.

The wetland boundaries and classifications described in this document represent the best professional judgment of Turnstone staff. The decisions were based on the environmental circumstances and site conditions at the time of the field visit. Final verification of this wetland delineation is to be made by the appropriate federal, state, and local jurisdictions. Prior to final design or any construction activity on the site is to take place, all appropriate regulatory agencies should be contacted to verify the findings of this report and to obtain appropriate approvals and permits.

ACRONYMS

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSL</td>
<td>Department of State Lands</td>
</tr>
<tr>
<td>HGM</td>
<td>Hydrogeomorphic</td>
</tr>
<tr>
<td>LWI</td>
<td>Local Wetland Inventory</td>
</tr>
<tr>
<td>NWI</td>
<td>National Wetland Inventory</td>
</tr>
<tr>
<td>NOAA</td>
<td>National Oceanic and Atmospheric Administration</td>
</tr>
<tr>
<td>NRCS</td>
<td>Natural Resources Conservation Service</td>
</tr>
<tr>
<td>PEM</td>
<td>Palustrine Emergent</td>
</tr>
<tr>
<td>USACE</td>
<td>United States Army Corps of Engineers</td>
</tr>
<tr>
<td>USDA</td>
<td>United States Department of Agriculture</td>
</tr>
<tr>
<td>USFWS</td>
<td>United States Fish and Wildlife Service</td>
</tr>
<tr>
<td>USGS</td>
<td>United States Geologic Survey</td>
</tr>
</tbody>
</table>
TABLE OF CONTENTS

Preface ........................................................................................................................................... i
Acronyms ....................................................................................................................................... i
List of Tables ................................................................................................................................. ii
List of Appendices ......................................................................................................................... ii
A. Landscape Setting and Land use ............................................................................................. 1
B. Site Alterations .......................................................................................................................... 2
C. Precipitation Data ..................................................................................................................... 2
D. Methods ..................................................................................................................................... 4
  Preliminary Resource Review ................................................................................................... 4
  Site Specific Methods .............................................................................................................. 5
E. Description of Wetlands and Non-Wetland Waters ................................................................. 5
  Wetlands ................................................................................................................................... 5
  Non-wetland Waters ................................................................................................................. 6
F. Deviation from NWI or LWI ..................................................................................................... 6
G. Mapping Method ...................................................................................................................... 7
H. Results and Conclusions ........................................................................................................ 7
I. Disclaimer ................................................................................................................................. 7

LIST OF TABLES
Table 1-Percent of normal rainfall for the 2017 water year .......................................................... 2
Table 2-Percent of normal rainfall for the 2018 water year through the last full month prior to field investigation (10/1/17 to 4/30/18) ................................................................. 3
Table 3-Rainfall assessment for the preceding 3-month period .................................................. 3
Table 4-Study Area soil mapping ................................................................................................ 5
Table 5-Summary of wetland and non-wetland waters ............................................................... 7

LIST OF APPENDICES
Appendix A: Figures
  • Figure 1-Vicinity Map
  • Figure 2-Tax Lot Map
  • Figure 3A-LWI Map
  • Figure 3B-NWI Map
  • Figure 4-Soil Survey Map
  • Figure 5-Recent Aerial Photo Map
  • Figure 6-Wetland Delineation Map
Appendix B: WD2018-0282
Appendix C: Wetland Delineation Data Forms and Ground-Level Photographs
Appendix D: Literature Citations
A. LANDSCAPE SETTING AND LAND USE

The Study Area totals 6.5-acres and includes the entirety of tax lots 2700 & 2701 in Albany, Linn County, Oregon (Appendix A-Figures 1, 2 & 5). The Study Area is located approximately 2-miles east of downtown Albany, just west of Interstate 5. The eastern property line is about 75 feet from the southbound lanes of Interstate 5. The centroid coordinates for the Study Area are 44.6339665°, -123.0640257°. The legal description of the Study Area is Willamette Meridian, Township 11 South, Range 3 West, Section 9 NW 1/16 NW 1/4. The Study Area is within the Upper Willamette catchment area (HUC8: 17090003). Land use surrounding the Study Area is dedicated primarily to residential and commercial retail purposes. The Study Area is situated on a mostly flat, valley bottom terrace. Much of the northern and eastern portions of the Study Area host an upland woodland dominated by Oregon white oak (Quercus garryana). Woodland understories are shrubby and host common snowberry (Symphoricarpos albus), Himalayan blackberry (Rubus armeniacus) and poison oak (Toxicodendron diversilobum). Herbaceous species common to Study Area woodlands include soft brome (Bromus hordeaceus), quackgrass (Elymus repens), Siberian miner’s lettuce (Claytonia sibirica), nipplewort (Lapsana communis) and weedy geranium species (Geranium dissectum, G. lucidum). The southwest corner of the Study Area is an emergent wetland area dominated by meadow foxtail (Alopecurus pratensis).

Figure 1-Looking north from the center portion of the Study Area.
B. SITE ALTERATIONS
No recent alterations of the parcel were observed during field investigation. Evidence of an old home site is present in the eastern portion of the Study Area, along Airport Road Southeast. The old home site includes a disconnected utility pole, a driveway, rubble from an old concrete foundation as well as an apron of gravel fill surrounding the old home site. The total area of fill occupied by the old home site totals about 0.3 acres. A review of historic aerial photographs illustrates very little change in tree cover (Oregon white oak) over the succeeding decades. Drainage patterns in the vicinity of the Study Area have presumably been impacted by the construction of local roads, residential developments and the construction of Interstate 5, built during the mid-twentieth century.

C. PRECIPITATION DATA
The site was investigated on May 30, 2018. Precipitation data is derived from the weather station at Salem Airport (Mc Nary Field) (NOAA 2018, GHCND: USW00024232). The station is located approximately 19-miles north of the Study Area.

Table 1-Percent of normal rainfall for the 2017 water year

<table>
<thead>
<tr>
<th>Month</th>
<th>Actual</th>
<th>Average</th>
<th>Percent of Normal</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(in)</td>
<td>(in)</td>
<td></td>
</tr>
<tr>
<td>October (2016)</td>
<td>11.3</td>
<td>3.51</td>
<td>322%</td>
</tr>
<tr>
<td>November</td>
<td>6.9</td>
<td>5.89</td>
<td>117%</td>
</tr>
<tr>
<td>December</td>
<td>5.15</td>
<td>7.15</td>
<td>72%</td>
</tr>
<tr>
<td>January (2017)</td>
<td>5.4</td>
<td>5.81</td>
<td>93%</td>
</tr>
<tr>
<td>February</td>
<td>13.4</td>
<td>4.01</td>
<td>334%</td>
</tr>
<tr>
<td>March</td>
<td>7.69</td>
<td>4.58</td>
<td>168%</td>
</tr>
<tr>
<td>April</td>
<td>4.42</td>
<td>2.88</td>
<td>153%</td>
</tr>
<tr>
<td>May</td>
<td>1.64</td>
<td>2.02</td>
<td>81%</td>
</tr>
<tr>
<td>June</td>
<td>0.74</td>
<td>1.16</td>
<td>64%</td>
</tr>
<tr>
<td>July</td>
<td>0</td>
<td>0.20</td>
<td>0%</td>
</tr>
<tr>
<td>August</td>
<td>0.15</td>
<td>0.36</td>
<td>42%</td>
</tr>
<tr>
<td>September</td>
<td>2.36</td>
<td>1.57</td>
<td>150%</td>
</tr>
<tr>
<td><strong>TOTAL:</strong></td>
<td><strong>59.15</strong></td>
<td><strong>39.14</strong></td>
<td><strong>151%</strong></td>
</tr>
</tbody>
</table>

Source: National Climate Data Center, NOAA
**Table 2-Percent of normal rainfall for the 2018 water year through the last full month prior to field investigation (10/1/17 to 4/30/18)**

<table>
<thead>
<tr>
<th>Month</th>
<th>Actual (in)</th>
<th>Average (in)</th>
<th>Percent of Normal</th>
</tr>
</thead>
<tbody>
<tr>
<td>October (2017)</td>
<td>5.45</td>
<td>3.51</td>
<td>155%</td>
</tr>
<tr>
<td>November</td>
<td>6.57</td>
<td>5.89</td>
<td>112%</td>
</tr>
<tr>
<td>December</td>
<td>3.08</td>
<td>7.15</td>
<td>43%</td>
</tr>
<tr>
<td>January (2018)</td>
<td>7.33</td>
<td>5.81</td>
<td>126%</td>
</tr>
<tr>
<td>February</td>
<td>2.21</td>
<td>4.01</td>
<td>55%</td>
</tr>
<tr>
<td>March</td>
<td>3.21</td>
<td>4.58</td>
<td>70%</td>
</tr>
<tr>
<td>April</td>
<td>5.28</td>
<td>2.88</td>
<td>183%</td>
</tr>
<tr>
<td><strong>TOTAL:</strong></td>
<td><strong>33.13</strong></td>
<td><strong>33.83</strong></td>
<td><strong>98%</strong></td>
</tr>
</tbody>
</table>

Source: National Climate Data Center, NOAA

**Table 3-Rainfall assessment for the preceding 3-month period**

<table>
<thead>
<tr>
<th>Prior Month</th>
<th>WETS Rainfall Percentile (in)</th>
<th>Measured Rainfall (in)</th>
<th>Condition (Dry, Wet, Normal)</th>
<th>Condition Value (1=dry, 2=normal, or 3=wet)</th>
<th>Month Weight</th>
<th>Multiply (previous two columns)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st (most recent)</td>
<td>April 1.88 3.29 5.28 Wet 3 3 9</td>
<td>30th 70th</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2nd</td>
<td>March 3.02 4.92 3.21 Normal 2 2 4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3rd</td>
<td>February 3.35 6.11 2.21 Dry 1 1 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Sum</strong></td>
<td><strong>14</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Rainfall of prior period was: **Normal**

**WETS Station: Salem Airport (McNary Field) OR 357500 (1971-2000)**

**Measured Rainfall: NOAA GHCN:USW00024232**

Source: National Climate Data Center, NOAA
D. METHODS

Preliminary Resource Review
Prior to the field investigation, reference materials were compiled and reviewed to aid in the detection of wetlands and non-wetland waters. The materials reviewed included:
- 7.5 Minute Quadrangles United States Geologic Survey (USGS 2011)
- Custom Hydric Soils List: Study Area Shape file (NRCS 2018)
- Custom Soil Resource Report for Study Area (NRCS 2018)
- National Climate Data Center precipitation data (NOAA 2018)
- National Wetland Inventory United States Fish and Wildlife Service (USFWS 2018)
- Oregon 8 Digit Hydrologic Unit Code Map (USGS 2007)
- Western Regional Climate Center WETS tables 1971-2000 (NRCS 2018)

Precipitation Analysis
In order to inform field wetland delineation methods and procedures, climate data were analyzed to determine whether recent rainfall was sufficient to expect normal hydrology indicators be present at wetland sampling locations. Precipitation was analyzed by comparing rainfall amounts to historical averages for the complete 2017 water year and the 2018 water year to the last full month prior to field investigation. Recent precipitation was also analyzed using a weighted scoring that compares historical averages to rainfall measured the three months prior to field investigation (Sumner et. al 2009). The 2017 water year ended September 30, 2017 at 151% of normal (Table 1). Precipitation for the 2018 water year through April totaled 98% of normal (Error! Reference source not found.). Analysis of precipitation over the preceding three months (February-April) determined however that recent conditions were “normal” (Error! Reference source not found.). Given that May was nearly over on the date of field investigation, an analysis of recent precipitation was alternatively calculated for March-May, and recent precipitation was also determined to be "normal". Considering the late-May timing of the field investigation it is presumed that water tables would be at a seasonal low, and positive hydrology determinations would be assumed for plots lacking sufficient hydrology indicators in areas exhibiting hydric soils and hydrophytic vegetation. Wetland sample plots presented in this report were placed in locations where direct observation of hydrology was absent, however oxidized rhizospheres or algal mats served as positive primary hydrology indicators.

National Wetland Inventory (NWI) and Local Wetlands Inventory (LWI)
NWI data and LWIs for Albany were reviewed prior to field investigation. Although four LWI reports exist for Albany, none of the reports covers the Study Area. No NWI features are included in the Study Area. The nearest NWI features include the channel of Cox Creek and Swan Lake.

Previous Wetland Delineations
DSL Jurisdiction Coordinator Lauren Brown performed a wetland determination (WD2018-0282) in the northwest corner of the Study Area on May 8, 2018 (Appendix B). The area is highlighted in the wetland delineation figure (Appendix A-Figures 6) for this report and was determined by DSL to be upland. The conclusions of WD2018-0282 are consistent with alignment of upland areas determined by this report.

Soil Survey Analysis
NRCS soil map units contained in the Study Area are illustrated in Error! Reference source not found. (USDA NRCS 2018). A single maps unit occurs in the Study Area, Malabon Silty Clay Loam (Appendix A-
Malabon soils are formed on alluvial terraces and generally occupy convex surfaces. Malabon soils are considered to be well-drained and are not rated as hydric.

Table 4—Study Area soil mapping

<table>
<thead>
<tr>
<th>Map Unit Symbol</th>
<th>Map Unit Name</th>
<th>Major Component Hydric?</th>
<th>Acres in AOI</th>
<th>Percent of AOI</th>
</tr>
</thead>
<tbody>
<tr>
<td>63</td>
<td>Malabon silty clay loam</td>
<td>No</td>
<td>6.5</td>
<td>100.00%</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td></td>
<td></td>
<td><strong>6.5</strong></td>
<td><strong>100.00%</strong></td>
</tr>
</tbody>
</table>

Source: USDA NRCS, Web Soil Survey

**Site Specific Methods**

The field investigation utilized the “Routine Onsite” method from the Corps Wetland Delineation Manual (USACE 1987) as guidance. The Study Area was traversed by foot and a visual assessment was conducted of hydric vegetation, suspect topographical features and wetland hydrology indicators. 20 sample plots, including 10 plots paired along wetland boundaries, 8 stand-alone upland plots and 2 stand-alone wetland plots were established to characterize the extent of Study Area wetlands and uplands (Appendix A—Figure 6). Sample plot soil pits were dug to a depth of 20”. Absolute aerial cover of plant species was reported for tree, shrub and herb layers, utilizing 10-, 5-, 1-meter square plots respectively. Numerous, unrecorded soil pits and probes were utilized to preliminarily “rough-in” the wetland boundaries prior to mapping and recording formal plot data. Wetland data forms are included in Appendix C. Soil colors (moistened) were determined using Munsell Soil Color Charts (Gretag Macbeth 2000). Photo points were established near each sample point to document site conditions at the time of field investigation and are included with the wetland data forms in Appendix C. While no drainages are contained in the Study Area, searches for channels and ordinary high-water mark (OHWM) signatures were based upon the physical and biological characteristics outlined in Army Corps of Engineers Regulatory Guidance Letter 05-05 (USACE 2005).

**E. DESCRIPTION OF WETLANDS AND NON-WETLAND WATERS**

**Wetlands**

**Wetland 1 (1.76 acres /76,609 square feet)**

Wetland 1 is an HGM Flats, Cowardin Palustrine Emergent feature. The wetland is located in southwest corner of the Study Area. The wetland directly abuts the lot lines in the southwest and southern portions of the Study Area. The wetland appears to continue out of the Study Area in these areas but is likely impacted by fill. Vegetation of the wetland is a near monoculture of meadow foxtail. Adjacent uplands host a woodland of Oregon white oak with a shrubby understory. The northeast portion of the wetland contains an subtle swale that appears to host shallow surface water during the wet season, as evidenced by the presence of algal mats. Soils sampled just inside wetland boundaries were silty clay loams and generally very dark gray (10YR 3/1) to dark gray (10YR 4/1). Lower portions of the soil profile and interior portions of the wetland occasionally hosted clay soil textures. Wetland soils either met the Redox Dark Surface (F6) or Depleted Matrix (F3) soil indicators with qualifying redox features as pore linings or matrix concentrations. Oxidized root linings were present from near the soil surface to up to 11” deep.

An although the timing of the field investigation is assumed to have precluded direct observation of wetland hydrology, primary hydrology indicators were present including oxidized rhizospheres (C3) and algal mats (B4).
Non-wetland Waters
There are no non-wetland waters including natural drainages or created ditches contained in the Study Area.

F. DEVIATION FROM NWI OR LWI
Wetland areas identified in the Study Area are not contained in the NWI. No local wetland inventory covers the Study Area.
G. MAPPING METHOD
Sample Points and wetland boundaries were collected using a Trimble Pro 6H GPS receiver paired with a Trimble mobile computer equipped with ArcPad software. Points and wetland boundaries are accurate to within 1-meter. GPS data was collected in a WGS84 geographic coordinate system and later transformed into a local coordinate system, NAD 1983 State Plane Oregon North FIPS3601 Feet, to calculate areas and create associated figures.

H. RESULTS AND CONCLUSIONS
One wetland area totaling 1.76 acres was identified in the Study Area. No non-wetland waters are contained in the Study Area.

Table 5-Summary of wetland and non-wetland waters

<table>
<thead>
<tr>
<th>Wetland Name</th>
<th>HGM</th>
<th>Cowardin</th>
<th>Area Acres</th>
<th>Area Square Feet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wetland 1</td>
<td>Flats</td>
<td>PEM</td>
<td>1.76</td>
<td>76,609</td>
</tr>
</tbody>
</table>

I. DISCLAIMER
This report documents the investigation, best professional judgment and conclusions of the investigator. It is correct and complete to the best of our knowledge. It should be considered a Preliminary Jurisdictional Determination of wetlands and other waters and used at your own risk unless it has been reviewed and approved in writing by the Oregon Department of State Lands in accordance with OAR 141-090-005 through OAR 141-090-0055.
Appendix A

Figures

- Figure 1-Vicinity Map
- Figure 2-Tax Lot Map
- Figure 3A-LWI Map
- Figure 3B-NWI Map
- Figure 4-Soil Survey Map
- Figure 5-Recent Aerial Photo Map
- Figure 6-Wetland Delineation Map
Figure 1:
Vicinity Map

Legend
Study Area
(6.459 acres)

Notes:
1. Basemap provided by USGS
2. Study Area boundary created from Linn County parcel data, spatial accuracy is unknown but assumed to be 1 meter or less.
Figure 2:
Tax Lot Map

Legend
- Tax Lot Boundary
- Study Area (6.459 acres)

Shults Airport Road SE
Wetland Delineation

Linn County, Or.
6/7/2018

Notes:
1. Study Area boundary created from Linn County parcel data, spatial accuracy is unknown but assumed to be 1 meter or less.
2. Tax Lot Boundaries provided by Linn County, spatial accuracy is unknown but assumed to be 1 meter or less.
3. Aerial photo source: DigitalGlobe
Photo Date: 10/31/2017
Figure 3:
NWI/LWI Map

Legend
- Study Area (6.459 acres)
- LWI, PEM
- NWI, PUBHh
- NWI, R4SBCx

Shults Airport Road SE Wetland Delineation

Linn County, Or.

6/7/2018

Notes:
1. Study Area boundary created from Linn County parcel data, spatial accuracy is unknown but assumed to be 1 meter or less.
2. NWI data provided by USFWS.
3. LWI data provided by Oregon Department of State Lands.
4. No NWI or LWI features mapped within study area boundary.
Figure 4: Soil Survey Map

Legend
- Study Area (6.459 acres)
- Soil Survey Data
  - Clackamas gravelly silt loam
  - Malabon silty clay loam
  - Woodburn silt loam, 0 to 3% slopes

Notes:
1. Soil Survey data provided by NRCS.

Shults Airport Road SE Wetland Delineation

Linn County, Or. 6/7/2018
Figure 5: Recent Aerial Photo

Legend
- Study Area (6.459 acres)

Shults Airport Road SE
Wetland Delineation
Linn County, Or.

Notes:
1. Aerial photo source: DigitalGlobe
   Photo Date: 10/31/2017

6/7/2018
Wetland Delineation Map

Legend

- Wetland Extends Outside Study Area
- Photo Points
- Sample Points
  - UPL
  - WET
- Tax Lot Boundary
- Study Area (6.459 acres)
- WD# 2018-0282 Area (all upland)
- Wetland Area (1.759 acres)
- Fill Area (0.278 acres)

Notes:
1. Study Area boundary created from Linn County parcel data, spatial accuracy is unknown but assumed to be 1 meter or less.
2. Tax Lot Boundaries provided by Linn County, spatial accuracy is unknown but assumed to be 1 meter or less.
3. Aerial photo source: DigitalGlobe
   Photo Date: 10/31/2017
Appendix B

WD2018-0282
An onsite wetland determination has been conducted on the property described below.

County: Linn
City: Albany

Owner Name & Address: Mike Shults Well Built Homes

Township: 11S Range: 03W Section: 09 Q/Q: BB Tax Lot(s): 2700

Project Name: Duplex Date of Site Visit 05/08/2018

Site Address/Location: Vacant lot on the corner of Franklin and Airport Rd

☐ There are no jurisdictional wetlands or waterways on the property. Therefore, no state removal-fill permit is required.

☒ There are wetlands or waterways on the property that are subject to the state Removal-Fill Law.

☒ A state permit is required for ≥ 50 cubic yards of fill, removal, or ground alteration in the wetlands or waterways.

☐ A state permit may be required for any amount of fill, removal, or ground alteration in the Essential Salmonid Habitat and hydrologically associated wetlands.

☐ A wetland determination or delineation is needed. If site development is planned, the delineation report should be submitted to the Department for review and approval.

☒ Within the tax lot, a state permit will not be required for any work within the area marked upland. A wetland delineation is recommended for the remainder of the tax lot prior to development.

☒ A permit may be required by the Army Corps of Engineers: (503) 808-4373

Note: This report is for the state Removal-Fill Law only. City or County permits may be required for the proposed activity.

Comments: The enclosed map shows the area of upland. Please call Lauren Brown at 503-986-5218 if you have any questions.

Determination by: [Signature] Date 05/16/2018

☒ This jurisdictional determination is valid for five years from the above date, unless new information necessitates a revision. Circumstances under which the Department may change a determination and procedures for renewal of an expired determination are found in OAR 141-090-0045 (available on our web site or upon request). The applicant, landowner, or agent may submit a request for reconsideration of this determination in writing within six months from the above date.

☐ This is a preliminary jurisdictional determination and is advisory only

Copy To: ✒ Owner: wellbuilthomes@yahoo.com  ☒ Enclosures: MAP

☒ Albany, Planning Department
☒ Andrea Wagner, USACE

FOR OFFICE USE ONLY

<table>
<thead>
<tr>
<th>Entire Lot(s) Checked?</th>
<th>Yes ☐ No ☒</th>
<th>Waters Present?</th>
<th>Yes ☒ No ☐ Maybe ☐</th>
<th>Request Received: 04/25/2018</th>
<th>☐ For ENF.</th>
</tr>
</thead>
<tbody>
<tr>
<td>LWI Area: n/a</td>
<td>LWI Code: n/a</td>
<td>Latitude: 44.633193</td>
<td>Longitude: -123.064916</td>
<td>Related DSL File #:</td>
<td></td>
</tr>
<tr>
<td>Adjacent Waterbody:</td>
<td></td>
<td>NWI Quad:</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

http://www.oregonstatelands.us/
Appendix C

Wetland Delineation Data Forms & Ground-Level Photographs
**WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region**

**Project/Site:** Tax Lot 2700-Airport Road SE  
**City/County:** Albany  
**State:** OR  
**Sampling Date:** 30-May-18  
**Applicant/Owner:** Mike Shults  
**Investigator(s):** Joe Bettis & Justin Votos  
**Section, Township, Range:** S 09 T 11 S R 3 W  
**Landform (hillslope, terrace, etc.):** Terrace  
**Subregion (LRR):** MLRA 2  
**Soil Map Unit Name:** Malabon Silty Clay Loam  
**Lat.:** 44.633408  
**Long.:** -123.063047  
**Datum:** WGS 84  
**Collector:** Mike Shults  
**OR**  
**Sampling Point:** SP_01

### Are climatic/hydrologic conditions on the site typical for this time of year? (Yes or No)

Yes ☐ No ☐

### Are Vegetation, Soil, or Hydrology significantly disturbed? (Yes or No)

Yes ☐ No ☐

### Are Vegetation, Soil, or Hydrology naturally problematic? (Yes or No)

Yes ☐ No ☐

### Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

<table>
<thead>
<tr>
<th>Hydrophytic Vegetation Present?</th>
<th>Yes ☐ No ☐</th>
<th>Is the Sampled Area within a Wetland?</th>
<th>Yes ☐ No ☐</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydric Soil Present?</td>
<td>Yes ☐ No ☐</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wetland Hydrology Present?</td>
<td>Yes ☐ No ☐</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Remarks:**

### VEGETATION - Use scientific names of plants.

<table>
<thead>
<tr>
<th>Tree Stratum</th>
<th>Absolute % Cover</th>
<th>Dominant Species?</th>
<th>Indicator Status</th>
<th>Dominance Test worksheet:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Quercus garryana</td>
<td>0</td>
<td>0.0%</td>
<td>FACU</td>
<td>Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)</td>
</tr>
<tr>
<td>2.</td>
<td>0</td>
<td>0.0%</td>
<td>FACU</td>
<td>Total Number of Dominant Species Across All Strata: 2 (B)</td>
</tr>
<tr>
<td>3.</td>
<td>0</td>
<td>0.0%</td>
<td>FACU</td>
<td>Percent of dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)</td>
</tr>
</tbody>
</table>

**Prevalence Index worksheet:**

<table>
<thead>
<tr>
<th>Total % Cover of:</th>
<th>Multiply by:</th>
</tr>
</thead>
<tbody>
<tr>
<td>OBL species</td>
<td>0 x 1 = 0</td>
</tr>
<tr>
<td>FACW species</td>
<td>0 x 2 = 0</td>
</tr>
<tr>
<td>FAC species</td>
<td>60 x 3 = 180</td>
</tr>
<tr>
<td>FACU species</td>
<td>40 x 4 = 160</td>
</tr>
<tr>
<td>UPL species</td>
<td>3 x 5 = 15</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Column Totals:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>103 (A)</td>
<td>355 (B)</td>
</tr>
</tbody>
</table>

**Prevalence Index = B/A = 3.447**

**Hydrophytic Vegetation Indicators:**

1. Rapid Test for Hydrologic Vegetation  
2. Dominance Test is > 50%  
3. Prevalence Index is ≤3.0  
4. Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)  
5. Wetland Non-Vascular Plants  

**Problematic Hydrophytic Vegetation (Explain)**

**Remarks:**

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.*

**WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region**

**Project/Site:** Tax Lot 2700-Airport Road SE  
**City/County:** Albany  
**State:** OR  
**Sampling Date:** 30-May-18  
**Applicant/Owner:** Mike Shults  
**Investigator(s):** Joe Bettis & Justin Votos  
**Section, Township, Range:** S 09 T 11 S R 3 W  
**Landform (hillslope, terrace, etc.):** Terrace  
**Subregion (LRR):** MLRA 2  
**Soil Map Unit Name:** Malabon Silty Clay Loam  
**Lat.:** 44.633408  
**Long.:** -123.063047  
**Datum:** WGS 84  
**Collector:** Mike Shults  
**OR**  
**Sampling Point:** SP_01

### Are climatic/hydrologic conditions on the site typical for this time of year? (Yes or No)

Yes ☐ No ☐

### Are Vegetation, Soil, or Hydrology significantly disturbed? (Yes or No)

Yes ☐ No ☐

### Are Vegetation, Soil, or Hydrology naturally problematic? (Yes or No)

Yes ☐ No ☐

### Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

<table>
<thead>
<tr>
<th>Hydrophytic Vegetation Present?</th>
<th>Yes ☐ No ☐</th>
<th>Is the Sampled Area within a Wetland?</th>
<th>Yes ☐ No ☐</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydric Soil Present?</td>
<td>Yes ☐ No ☐</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wetland Hydrology Present?</td>
<td>Yes ☐ No ☐</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Remarks:**

### VEGETATION - Use scientific names of plants.

<table>
<thead>
<tr>
<th>Tree Stratum</th>
<th>Absolute % Cover</th>
<th>Dominant Species?</th>
<th>Indicator Status</th>
<th>Dominance Test worksheet:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Quercus garryana</td>
<td>0</td>
<td>0.0%</td>
<td>FACU</td>
<td>Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)</td>
</tr>
<tr>
<td>2.</td>
<td>0</td>
<td>0.0%</td>
<td>FACU</td>
<td>Total Number of Dominant Species Across All Strata: 2 (B)</td>
</tr>
<tr>
<td>3.</td>
<td>0</td>
<td>0.0%</td>
<td>FACU</td>
<td>Percent of dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)</td>
</tr>
</tbody>
</table>

**Prevalence Index worksheet:**

<table>
<thead>
<tr>
<th>Total % Cover of:</th>
<th>Multiply by:</th>
</tr>
</thead>
<tbody>
<tr>
<td>OBL species</td>
<td>0 x 1 = 0</td>
</tr>
<tr>
<td>FACW species</td>
<td>0 x 2 = 0</td>
</tr>
<tr>
<td>FAC species</td>
<td>60 x 3 = 180</td>
</tr>
<tr>
<td>FACU species</td>
<td>40 x 4 = 160</td>
</tr>
<tr>
<td>UPL species</td>
<td>3 x 5 = 15</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Column Totals:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>103 (A)</td>
<td>355 (B)</td>
</tr>
</tbody>
</table>

**Prevalence Index = B/A = 3.447**

**Hydrophytic Vegetation Indicators:**

1. Rapid Test for Hydrologic Vegetation  
2. Dominance Test is > 50%  
3. Prevalence Index is ≤3.0  
4. Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)  
5. Wetland Non-Vascular Plants  

**Problematic Hydrophytic Vegetation (Explain)**

**Remarks:**

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.*
# Soil Sampling Point: SP 01

## Profile Description:
(Describe to the depth needed to document the indicator or confirm the absence of indicators.)

<table>
<thead>
<tr>
<th>Depth (inches)</th>
<th>Matrix</th>
<th>Redox Features</th>
<th>Texture</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-5</td>
<td>10YR</td>
<td>10YR</td>
<td>Silty Clay Loam</td>
<td></td>
</tr>
<tr>
<td>5-14</td>
<td>10YR</td>
<td>7.5YR</td>
<td>Silty Clay Loam</td>
<td>[Faint Redox]</td>
</tr>
<tr>
<td>14-20</td>
<td>10YR</td>
<td>10YR</td>
<td>Silty Clay Loam</td>
<td></td>
</tr>
</tbody>
</table>

1Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains  
²Location: PL=Pore Lining. M=Matrix

### Hydric Soil Indicators:
(Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Muck Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1) (except in MLRA 1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox depressions (F8)

### Hydric Soil Present?
Yes ☐ No ☐

### Hydrology

#### Wetland Hydrology Indicators:

- Primary Indicators (minimum of one required; check all that apply)
- Secondary Indicators (minimum of two required)

#### Field Observations:

- Surface Water Present? Yes ☐ No ☐ Depth (inches): [ ]
- Water Table Present? Yes ☐ No ☐ Depth (inches): [ ]
- Saturation Present? Yes ☐ No ☐ Depth (inches): [ ]

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:
No Photo
**Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.**

<table>
<thead>
<tr>
<th>Hydrophytic Vegetation Present?</th>
<th>Yes ☑️ No ☐</th>
<th>Hydric Soil Present?</th>
<th>Yes ☑️ No ☐</th>
<th>Wetland Hydrology Present?</th>
<th>Yes ☑️ No ☐</th>
<th>Is the Sampled Area within a Wetland?</th>
<th>Yes ☑️ No ☐</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remarks:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Plot located on former home site.</td>
<td></td>
</tr>
</tbody>
</table>

**VEGETATION - Use scientific names of plants.**

<table>
<thead>
<tr>
<th>Tree Stratum (Plot size: 10 m)</th>
<th>Absolute % Cover</th>
<th>Dominant Species?</th>
<th>Indicator Status</th>
<th>Number of Dominant Species That are OBL, FACW, or FAC:</th>
<th>Prevalence Index = B/A =</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Quercus garryana</td>
<td>50</td>
<td>☑️ 100.0% FACU</td>
<td></td>
<td>1 (A)</td>
<td>4.009</td>
</tr>
<tr>
<td>2.</td>
<td>0</td>
<td>0.0%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>0</td>
<td>0.0%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>0</td>
<td>0.0%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sapling/Shrub Stratum (Plot size: 5 m)</th>
<th>Absolute % Cover</th>
<th>Dominant Species?</th>
<th>Indicator Status</th>
<th>Number of Dominant Species That are OBL, FACW, or FAC:</th>
<th>Prevalence Index = B/A =</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Prunus domestica</td>
<td>10</td>
<td>☑️ 100.0% FACU</td>
<td></td>
<td>1 (A)</td>
<td>4.009</td>
</tr>
<tr>
<td>2.</td>
<td>0</td>
<td>0.0%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>0</td>
<td>0.0%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>0</td>
<td>0.0%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>0</td>
<td>0.0%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Herb Stratum (Plot size: 1 m)</th>
<th>Absolute % Cover</th>
<th>Dominant Species?</th>
<th>Indicator Status</th>
<th>Number of Dominant Species That are OBL, FACW, or FAC:</th>
<th>Prevalence Index = B/A =</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Elymus repens</td>
<td>25</td>
<td>☑️ 44.6% FAC</td>
<td></td>
<td>1 (A)</td>
<td>4.009</td>
</tr>
<tr>
<td>2. Bromus diandrus</td>
<td>10</td>
<td>☑️ 17.9% UPL</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Vicia hirsuta</td>
<td>10</td>
<td>☑️ 17.9% UPL</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Bromus hordeaceus</td>
<td>5</td>
<td>☑️ 8.9% FACU</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Geranium dissectum</td>
<td>5</td>
<td>☑️ 8.9% UPL</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Geranium molle</td>
<td>1</td>
<td>☑️ 1.8% UPL</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>0</td>
<td>0.0%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>0</td>
<td>0.0%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>0</td>
<td>0.0%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>0</td>
<td>0.0%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td>0</td>
<td>0.0%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>56</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Woody Vine Stratum (Plot size: )</th>
<th>Absolute % Cover</th>
<th>Dominant Species?</th>
<th>Indicator Status</th>
<th>Number of Dominant Species That are OBL, FACW, or FAC:</th>
<th>Prevalence Index = B/A =</th>
</tr>
</thead>
</table>

| Remarks: |   |

---

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.*
### Profile Description:

(Describe to the depth needed to document the indicator or confirm the absence of indicators.)

<table>
<thead>
<tr>
<th>Depth (inches)</th>
<th>Color (moist)</th>
<th>Texture</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-3</td>
<td>10YR 3/2</td>
<td>Silt Loam</td>
<td>Refusal at 3&quot; on gravel fill</td>
</tr>
</tbody>
</table>

1Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains  ²Location: PL=Pore Lining, M=Matrix

### Hydric Soil Indicators:

(Adaptable to all LRRs, unless otherwise noted.)

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Histosol (A1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Histic Epipedon (A2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black Histic (A3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hydrogen Sulfide (A4)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Depleted Below Dark Surface (A11)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thick Dark Surface (A12)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sandy Muck Mineral (S1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sandy Gleyed Matrix (S4)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sandy Redox (S5)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stripped Matrix (S6)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Loamy Mucky Mineral (F1) (except in MLRA 1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Loamy Gleyed Matrix (F2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Depleted Matrix (F3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Redox Dark Surface (F6)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Depleted Dark Surface (F7)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Redox depressions (F8)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Restrictive Layer (if present):

<table>
<thead>
<tr>
<th>Depth (inches):</th>
<th>Hydric Soil Present?</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remarks: Refusal at 3&quot; on gravel fill</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Hydrology

#### Wetland Hydrology Indicators:

**Primary Indicators** (minimum of one required; check all that apply)

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surface Water (A1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High Water Table (A2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Saturation (A3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water Marks (B1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sediment Deposits (B2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drift deposits (B3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Algal Mat or Crust (B4)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Iron Deposits (B5)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Surface Soil Cracks (B6)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inundation Visible on Aerial Imagery (B7)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sparsely Vegetated Concave Surface (B8)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Salt Crust (B11)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aquatic Invertebrates (B13)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hydrogen Sulfide Odor (C1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oxidized Rhizospheres on Living Roots (C3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Presence of Reduced Iron (C4)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recent Iron Reduction in Tilled Soils (C6)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stunted or Stressed Plants (D1) (LRR A)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other (Explain in Remarks)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Secondary Indicators** (minimum of two required)

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drainage Patterns (B10)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dry Season Water Table (C2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Saturation Visible on Aerial Imagery (C9)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Geomorphic Position (D2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shallow Aquitard (D3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FAC-neutral Test (D5)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Raised Ant Mounds (D6) (LRR A)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frost Heave Hummocks (D7)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Field Observations:

**Surface Water Present?**

<table>
<thead>
<tr>
<th>Depth (inches):</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
</table>

**Water Table Present?**

<table>
<thead>
<tr>
<th>Depth (inches):</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
</table>

**Saturation Present?** (includes capillary fringe)

<table>
<thead>
<tr>
<th>Depth (inches):</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
</table>

**Wetland Hydrology Present?**

| Yes | No |

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:
No Photo
**WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region**

**Project/Site:** Tax Lot 2700-Airport Road SE  
**City/County:** Albany  
**State:** OR  
**Sampling Date:** 30-May-18

**Applicant/Owner:** Mike Shults  
**Investigator(s):** Joe Bettis & Justin Votos  
**Landform (hillslope, terrace, etc.):** Terrace

**Subregion (LRR):** MLRA 2  
**Lat.:** 44.634045  
**Long.:** -123.063143  
**Datum:** WGS 84

**Are climatic/hydrologic conditions on the site typical for this time of year?** Yes ☐ No ☐ (If no, explain in Remarks.)

**Are Vegetation ☐ Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present?** Yes ☐ No ☐ (If needed, explain any answers in Remarks.)

**Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.**

<table>
<thead>
<tr>
<th>Hydrophytic Vegetation Present?</th>
<th>Wetland Hydrology Present?</th>
<th>Is the Sampled Area within a Wetland?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes ☐ No ☐</td>
<td>Yes ☐ No ☐</td>
<td>Yes ☐ No ☐</td>
</tr>
</tbody>
</table>

**Remarks:**

**VEGETATION - Use scientific names of plants.**

<table>
<thead>
<tr>
<th>Tree Stratum (Plot size: 10 m)</th>
<th>Absolute % Cover</th>
<th>Dominant Species* Rel.Strat. Cover</th>
<th>Indicator Status</th>
<th>Dominance Test worksheet:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Quercus garryana</td>
<td>40</td>
<td>☑ 100.0% FACU</td>
<td></td>
<td>Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)</td>
</tr>
<tr>
<td>2.</td>
<td>0</td>
<td>0.0%</td>
<td></td>
<td>Total Number of Dominant Species Across All Strata: 4 (B)</td>
</tr>
<tr>
<td>3.</td>
<td>0</td>
<td>0.0%</td>
<td></td>
<td>Percent of dominant Species That Are OBL, FACW, or FAC: 25.0% (A/B)</td>
</tr>
<tr>
<td>4.</td>
<td>0</td>
<td>0.0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>0</td>
<td>0.0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>= Total Cover</td>
<td>40</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sapling/Shrub Stratum (Plot size: 5 m)</th>
<th>Absolute % Cover</th>
<th>Dominant Species* Rel.Strat. Cover</th>
<th>Indicator Status</th>
<th>Dominance Test worksheet:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Symphoricarpus albus</td>
<td>10</td>
<td>☑ 66.7% FACU</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Malus pumila</td>
<td>5</td>
<td>☑ 33.3% UPL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>0</td>
<td>0.0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>0</td>
<td>0.0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>0</td>
<td>0.0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>= Total Cover</td>
<td>40</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Herb Stratum (Plot size: 1 m)</th>
<th>Absolute % Cover</th>
<th>Dominant Species* Rel.Strat. Cover</th>
<th>Indicator Status</th>
<th>Dominance Test worksheet:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Alopecurus pratensis</td>
<td>60</td>
<td>☑ 61.9% FAC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Lamium purpureum</td>
<td>5</td>
<td>5.2% UPL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Bromus hordeaceus</td>
<td>5</td>
<td>5.2% FACU</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Galium aparine</td>
<td>5</td>
<td>5.2% FACU</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Vicia hirsuta</td>
<td>5</td>
<td>5.2% UPL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Camassia leichtlinii</td>
<td>5</td>
<td>5.2% FACW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Geranium lucidum</td>
<td>5</td>
<td>5.2% UPL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Geranium dissectum</td>
<td>3</td>
<td>3.1% UPL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Juncus patens</td>
<td>3</td>
<td>3.1% FACW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Geranium molle</td>
<td>1</td>
<td>1.0% UPL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td>0</td>
<td>0.0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>= Total Cover</td>
<td>97</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Woody Vine Stratum (Plot size: )</th>
<th>Absolute % Cover</th>
<th>Dominant Species* Rel.Strat. Cover</th>
<th>Indicator Status</th>
<th>Dominance Test worksheet:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>0</td>
<td>0.0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>0</td>
<td>0.0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>= Total Cover</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Remarks:**

% Bare Ground in Herb Stratum: 5

**Hydrophytic Vegetation Indicators:**

1. Rapid Test for Hydrologic Vegetation
2. Dominance Test is > 50%
3. Prevalence Index is ≤3.0
4. Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)
5. Wetland Non-Vascular Plants

**Hydrophytic Vegetation Present?** Yes ☐ No ☐

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.
Soil Sampling Point: SP 03

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

<table>
<thead>
<tr>
<th>Depth (inches)</th>
<th>Color (moist)</th>
<th>%</th>
<th>Redox Features Type</th>
<th>Loc</th>
<th>Texture</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-3</td>
<td>10YR</td>
<td>3/1</td>
<td>100</td>
<td></td>
<td>Silty Clay Loam</td>
<td></td>
</tr>
<tr>
<td>3-13</td>
<td>10YR</td>
<td>3/1</td>
<td>97</td>
<td></td>
<td>Silty Clay Loam</td>
<td></td>
</tr>
<tr>
<td>13-20</td>
<td>10YR</td>
<td>4/1</td>
<td>95</td>
<td></td>
<td>Silty Clay Loam</td>
<td></td>
</tr>
<tr>
<td>13-20</td>
<td>10YR</td>
<td>5/4</td>
<td>2</td>
<td></td>
<td>Silty Clay Loam</td>
<td></td>
</tr>
</tbody>
</table>

1Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains 2Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Muck Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1) (except in MLRA 1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox depressions (F8)

Indicators for Problematic Hydric Soils:

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Other (Explain in Remarks)

Hydric Soil Present? Yes ☐ No ☐

Restrictive Layer (If present):

- Type:
- Depth (inches): __________________________

Remarks:

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres on Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stressed Plants (D1) (LRR A)
- Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- Drainage Patterns (B10)
- Dry Season Water Table (C2)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- FAC-neutral Test (D5)
- Raised Ant Mounds (D6) (LRR A)
- Frost Heave Hummocks (D7)

Field Observations:

- Surface Water Present? Yes ☐ No ☐ Depth (inches): __________
- Water Table Present? Yes ☐ No ☐ Depth (inches): __________
- Saturation Present? Yes ☐ No ☐ Depth (inches): __________

Wetland Hydrology Present? Yes ☐ No ☐

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

US Army Corps of Engineers
Western Mountains, Valleys, and Coast - Version 2.0
No Photo
**WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region**

Project/Site: Tax Lot 2700-Airport Road SE  
Applicant/Owner: Mike Shults  
Investigator(s): Joe Bettis & Justin Votos  
Landform (hillslope, terrace, etc.): Terrace

---

**Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.**

<table>
<thead>
<tr>
<th>Hydrophytic Vegetation Present?</th>
<th>Yes ☐ No ☐</th>
<th>Is the Sampled Area within a Wetland?</th>
<th>Yes ☐ No ☐</th>
</tr>
</thead>
</table>

**Remarks:**

---

**VEGETATION - Use scientific names of plants.**

<table>
<thead>
<tr>
<th>Stratum</th>
<th>(Plot size: m)</th>
<th>Absolute % Cover</th>
<th>Dominant Species?</th>
<th>Indicator Status</th>
<th>Dominance Test worksheet:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tree Stratum</td>
<td>10</td>
<td>60</td>
<td>Yes ☐</td>
<td>FACU</td>
<td>Number of Dominant Species That are OBL, FACW, or FAC: 2 (A)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(Plot size: m)</td>
<td></td>
<td>Total Number of Dominant Species Across All Strata: 5 (B)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Percent of dominant Species That Are OBL, FACW, or FAC: 40.0% (A/B)</td>
</tr>
<tr>
<td>Sapling/Shrub Stratum</td>
<td>5</td>
<td>30</td>
<td>Yes ☐</td>
<td>FACU</td>
<td>Prevalence Index worksheet:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(Plot size: m)</td>
<td></td>
<td>Total % Cover of:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Multi</td>
</tr>
<tr>
<td>Herb Stratum</td>
<td>1</td>
<td>35</td>
<td>Yes ☐</td>
<td>FACU</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(Plot size: m)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Woody Vine Stratum</td>
<td>1</td>
<td>86</td>
<td>Yes ☐</td>
<td>FACU</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(Plot size: m)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Remarks:**

---

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.*

---

US Army Corps of Engineers  
Western Mountains, Valleys, and Coast - Version 2.0
### Profile Description:
(Describe to the depth needed to document the indicator or confirm the absence of indicators.)

<table>
<thead>
<tr>
<th>Depth (inches)</th>
<th>Matrix</th>
<th>Redox Features</th>
<th>Texture</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-7</td>
<td>10YR</td>
<td>3/1 100</td>
<td>Silty Clay Loam</td>
<td></td>
</tr>
<tr>
<td>7-9</td>
<td>10YR</td>
<td>3/1 97</td>
<td>Silty Clay Loam</td>
<td></td>
</tr>
<tr>
<td>9-20</td>
<td>10YR</td>
<td>4/1 97</td>
<td>Silty Clay Loam</td>
<td></td>
</tr>
</tbody>
</table>

1Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains  
2Location: PL=Pore Lining. M=Matrix

#### Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)
- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Muck Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1) (except in MLRA 1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox depressions (F8)

#### Restrictive Layer (if present):
- Type:_________________________
- Depth (inches):_______________

#### Hydric Soil Present? Yes ☐ No ☐

#### Remarks:

### Hydrology

#### Wetland Hydrology Indicators:
- Primary Indicators (minimum of one required; check all that apply)
  - Surface Water (A1)
  - High Water Table (A2)
  - Saturation (A3)
  - Water Marks (B1)
  - Sediment Deposits (B2)
  - Drift deposits (B3)
  - Algal Mat or Crust (B4)
  - Iron Deposits (B5)
  - Surface Soil Cracks (B6)
  - Inundation Visible on Aerial Imagery (B7)
  - Sparsely Vegetated Concave Surface (B8)
- Secondary Indicators (minimum of two required)
  - Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
  - Salt Crust (B11)
  - Aquatic Invertebrates (B13)
  - Hydrogen Sulfide Odor (C1)
  - Oxidized Rhizospheres on Living Roots (C3)
  - Presence of Reduced Iron (C4)
  - Recent Iron Reduction in Tilled Soils (C6)
  - Stunted or Stressed Plants (D1) (LRR A)
  - Other (Explain in Remarks)

#### Field Observations:
- Surface Water Present? Yes ☐ No ☐ Depth (inches):________
- Water Table Present? Yes ☐ No ☐ Depth (inches):________
- Saturation Present? Yes ☐ No ☐ Depth (inches):________

#### Wetland Hydrology Present? Yes ☐ No ☐

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

#### Remarks:
WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: Tax Lot 2700-Airport Road SE  
City/County: Albany  
State: OR  
Sampling Date: 30-May-18  
Applicant/Owner: Mike Shults  
Investigator(s): Joe Bettis & Justin Votos  
Section, Township, Range: S 09 T 11 S R 3 W  
Landform (hillslope, terrace, etc.): Terrace  
Subregion (LRR): MLRA 2  
Local relief (concave, convex, none): Flat  
Slope: 0.0% / 0.0°  
Lat.: Long.: 44.634333 -123.063538  
Datum: WGS 84  
Soil Map Unit Name: Malabon Silty Clay Loam  
NWI classification:  

Are climatic/hydrologic conditions on the site typical for this time of year?  
Yes ☐ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed?  
Are "Normal Circumstances" present? Yes ☐ No ☐

Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic?  
(If needed, explain any answers in Remarks.)

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ☐ No ☐  
Hydric Soil Present? Yes ☐ No ☐  
Wetland Hydrology Present? Yes ☐ No ☐  
Is the Sampled Area within a Wetland? Yes ☐ No ☐

Remarks:

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 10 m )

<table>
<thead>
<tr>
<th>Tree Stratum</th>
<th>Absolute % Cover</th>
<th>Dominant Species?</th>
<th>Indicator Status</th>
<th>Rel.Strat. Cover</th>
<th>Indicator Status</th>
<th>Dominance Test worksheet:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Quercus garyana</td>
<td>70</td>
<td>☑</td>
<td>FACU</td>
<td>100.0%</td>
<td>FACU</td>
<td>Number of Dominant Species That are OBL, FACW, or FAC: 2 (A)</td>
</tr>
<tr>
<td>2.</td>
<td>0</td>
<td>0.0%</td>
<td>FACU</td>
<td>0.0%</td>
<td>FACU</td>
<td>Total Number of Dominant Species Across All Strata: 4 (B)</td>
</tr>
<tr>
<td>3.</td>
<td>0</td>
<td>0.0%</td>
<td>FACU</td>
<td>0.0%</td>
<td>FACU</td>
<td>Percent of dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)</td>
</tr>
<tr>
<td>4.</td>
<td>0</td>
<td>0.0%</td>
<td>FACU</td>
<td>0.0%</td>
<td>FACU</td>
<td>Prevalence Index worksheet:</td>
</tr>
<tr>
<td>5.</td>
<td>0</td>
<td>0.0%</td>
<td>FACU</td>
<td>0.0%</td>
<td>FACU</td>
<td>Total % Cover of: Multi</td>
</tr>
<tr>
<td></td>
<td>70</td>
<td>= Total Cover</td>
<td>70</td>
<td>= Total Cover</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Sapling/Shrub Stratum (Plot size: 5 m )

<table>
<thead>
<tr>
<th>Sapling/Shrub Stratum</th>
<th>Absolute % Cover</th>
<th>Dominant Species?</th>
<th>Indicator Status</th>
<th>Rel.Strat. Cover</th>
<th>Indicator Status</th>
<th>Dominance Test worksheet:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Symphoricarpos albus</td>
<td>30</td>
<td>☑</td>
<td>FACU</td>
<td>100.0%</td>
<td>FACU</td>
<td>Number of Dominant Species That are OBL, FACW, or FAC: 2 (A)</td>
</tr>
<tr>
<td>2.</td>
<td>0</td>
<td>0.0%</td>
<td>FACU</td>
<td>0.0%</td>
<td>FACU</td>
<td>Total Number of Dominant Species Across All Strata: 4 (B)</td>
</tr>
<tr>
<td>3.</td>
<td>0</td>
<td>0.0%</td>
<td>FACU</td>
<td>0.0%</td>
<td>FACU</td>
<td>Percent of dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)</td>
</tr>
<tr>
<td>4.</td>
<td>0</td>
<td>0.0%</td>
<td>FACU</td>
<td>0.0%</td>
<td>FACU</td>
<td>Prevalence Index worksheet:</td>
</tr>
<tr>
<td>5.</td>
<td>0</td>
<td>0.0%</td>
<td>FACU</td>
<td>0.0%</td>
<td>FACU</td>
<td>Total % Cover of: Multi</td>
</tr>
<tr>
<td></td>
<td>70</td>
<td>= Total Cover</td>
<td>70</td>
<td>= Total Cover</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Herb Stratum (Plot size: 1 m )

<table>
<thead>
<tr>
<th>Herb Stratum</th>
<th>Absolute % Cover</th>
<th>Dominant Species?</th>
<th>Indicator Status</th>
<th>Rel.Strat. Cover</th>
<th>Indicator Status</th>
<th>Dominance Test worksheet:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Claytonia sibirica</td>
<td>25</td>
<td>☑</td>
<td>FACU</td>
<td>31.3%</td>
<td>FACU</td>
<td>Number of Dominant Species That are OBL, FACW, or FAC: 2 (A)</td>
</tr>
<tr>
<td>2. Alopecurus pratensis</td>
<td>25</td>
<td>☑</td>
<td>FACU</td>
<td>31.3%</td>
<td>FACU</td>
<td>Total Number of Dominant Species Across All Strata: 4 (B)</td>
</tr>
<tr>
<td>3. Galium aparine</td>
<td>10</td>
<td>☑</td>
<td>FACU</td>
<td>12.5%</td>
<td>FACU</td>
<td>Percent of dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)</td>
</tr>
<tr>
<td>4. Lapsana communis</td>
<td>5</td>
<td>☑</td>
<td>FACU</td>
<td>6.3%</td>
<td>FACU</td>
<td>Prevalence Index worksheet:</td>
</tr>
<tr>
<td>5. Elymus repens</td>
<td>5</td>
<td>☑</td>
<td>FACU</td>
<td>6.3%</td>
<td>FACU</td>
<td>Total % Cover of: Multi</td>
</tr>
<tr>
<td>6. Bromus hordeaceus</td>
<td>5</td>
<td>☑</td>
<td>FACU</td>
<td>6.3%</td>
<td>FACU</td>
<td>Column Totals: 180 (A)</td>
</tr>
<tr>
<td>7. Lamium purpureum</td>
<td>5</td>
<td>☑</td>
<td>UPL</td>
<td>6.3%</td>
<td>UPL</td>
<td>670 (B)</td>
</tr>
<tr>
<td>8. Geranium dissectum</td>
<td>0</td>
<td>☑</td>
<td>UPL</td>
<td>0.0%</td>
<td>UPL</td>
<td>Prevalence Index = B/A = 3.722</td>
</tr>
<tr>
<td>9.</td>
<td>0</td>
<td>0.0%</td>
<td>UPL</td>
<td>0.0%</td>
<td>UPL</td>
<td>Hydrophytic Vegetation Indicators:</td>
</tr>
<tr>
<td>10.</td>
<td>0</td>
<td>0.0%</td>
<td>UPL</td>
<td>0.0%</td>
<td>UPL</td>
<td>☐ 1 - Rapid Test for Hydrologic Vegetation</td>
</tr>
<tr>
<td>11.</td>
<td>0</td>
<td>0.0%</td>
<td>UPL</td>
<td>0.0%</td>
<td>UPL</td>
<td>☐ 2 - Dominance Test is &gt; 50%</td>
</tr>
<tr>
<td></td>
<td>80</td>
<td>= Total Cover</td>
<td>80</td>
<td>= Total Cover</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Woody Vine Stratum (Plot size:__________)

<table>
<thead>
<tr>
<th>Woody Vine Stratum</th>
<th>Absolute % Cover</th>
<th>Dominant Species?</th>
<th>Indicator Status</th>
<th>Rel.Strat. Cover</th>
<th>Indicator Status</th>
<th>Dominance Test worksheet:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>0</td>
<td>☑</td>
<td>FACU</td>
<td>0.0%</td>
<td>FACU</td>
<td>Number of Dominant Species That are OBL, FACW, or FAC: 2 (A)</td>
</tr>
<tr>
<td>2.</td>
<td>0</td>
<td>0.0%</td>
<td>FACU</td>
<td>0.0%</td>
<td>FACU</td>
<td>Total Number of Dominant Species Across All Strata: 4 (B)</td>
</tr>
<tr>
<td>3.</td>
<td>0</td>
<td>0.0%</td>
<td>FACU</td>
<td>0.0%</td>
<td>FACU</td>
<td>Percent of dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)</td>
</tr>
<tr>
<td>4.</td>
<td>0</td>
<td>0.0%</td>
<td>FACU</td>
<td>0.0%</td>
<td>FACU</td>
<td>Prevalence Index worksheet:</td>
</tr>
<tr>
<td>5.</td>
<td>0</td>
<td>0.0%</td>
<td>FACU</td>
<td>0.0%</td>
<td>FACU</td>
<td>Total % Cover of: Multi</td>
</tr>
<tr>
<td></td>
<td>80</td>
<td>= Total Cover</td>
<td>80</td>
<td>= Total Cover</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Remarks:

% Bare Ground in Herb Stratum: 20

Remarks:

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

US Army Corps of Engineers

Western Mountains, Valleys, and Coast - Version 2.0
### Profile Description:
(Describe to the depth needed to document the indicator or confirm the absence of indicators.)

<table>
<thead>
<tr>
<th>Depth (inches)</th>
<th>Matrix</th>
<th>Color (moist)</th>
<th>%</th>
<th>Redox Features</th>
<th>Color (moist)</th>
<th>%</th>
<th>Type</th>
<th>Loc²</th>
<th>Texture</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-14</td>
<td>10YR</td>
<td>4/1</td>
<td>95</td>
<td></td>
<td>7.5YR</td>
<td>2.5/2</td>
<td>3</td>
<td>C</td>
<td>M</td>
<td>Silty Clay Loam</td>
</tr>
<tr>
<td>0-14</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>10YR</td>
<td>5/4</td>
<td>2</td>
<td>C</td>
<td>M</td>
<td></td>
</tr>
<tr>
<td>14-20</td>
<td>10YR</td>
<td>5/1</td>
<td>95</td>
<td></td>
<td>7.5YR</td>
<td>2.5/2</td>
<td>3</td>
<td>C</td>
<td>M</td>
<td>Silty Clay Loam</td>
</tr>
<tr>
<td>14-20</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>10YR</td>
<td>5/4</td>
<td>2</td>
<td>C</td>
<td>M</td>
<td></td>
</tr>
</tbody>
</table>

³Location: PL=Pore Lining. M=Matrix

### Hydric Soil Indicators:
(Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Muck Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1) (except in MLRA 1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox depressions (F8)

### Indicators for Problematic Hydric Soils³:
- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

### Restrictive Layer (if present):

- Type: [ ]
- Depth (inches): [ ]

### Hydric Soil Present?
- Yes [ ]
- No [ ]

### Remarks:

### Hydrology

#### Wetland Hydrology Indicators:

**Primary Indicators (minimum of one required; check all that apply)**

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres on Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stressed Plants (D1) (LRR A)
- Other (Explain in Remarks)

**Secondary Indicators (minimum of two required)**

- Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- Drainage Patterns (B10)
- Dry Season Water Table (C2)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- FAC-neutral Test (D5)
- Raised Ant Mounds (D6) (LRR A)
- Frost Heave Hummocks (D7)

### Field Observations:

- Surface Water Present? [ ] Yes [ ]
- Water Table Present? [ ] Yes [ ]
- Saturation Present? [ ] Yes [ ]
- Depth (inches): [ ]
- Wetland Hydrology Present? [ ] Yes [ ]
- Depth (inches): [ ]

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

### Remarks:

US Army Corps of Engineers

Western Mountains, Valleys, and Coast - Version 2.0
## WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

**Project/Site:** Tax Lot 2700-Airport Road SE  
**City/County:** Albany  
**State:** OR  
**Sampling Date:** 30-May-18

**Applicant/Owner:** Mike Shults  
**Investigator(s):** Joe Bettis & Justin Votos  
**Landform (hillslope, terrace, etc.):** Terrace  
**Subregion (LRR):** MLRA 2  
**Soil Map Unit Name:** Malabon Silty Clay Loam  
**Datum:** WGS 84

### Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

<table>
<thead>
<tr>
<th>Hydrophytic Vegetation Present?</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydric Soil Present?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Wetland Hydrolology Present?</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

### Remarks:

#### VEGETATION - Use scientific names of plants.

<table>
<thead>
<tr>
<th>Tree Stratum</th>
<th>Absolute % Cover</th>
<th>Dominant Species</th>
<th>Indicator Status</th>
<th>Dominance Test worksheet:</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Plot size: 10 m)</td>
<td></td>
<td></td>
<td></td>
<td>Number of Dominant Species That are OBL, FACW, or FAC:</td>
</tr>
<tr>
<td>1. Quercus garryana</td>
<td>75</td>
<td>100.0%</td>
<td>FACU</td>
<td><strong>2</strong> (A)</td>
</tr>
<tr>
<td>2.</td>
<td>0</td>
<td>0.0%</td>
<td>FACU</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>0</td>
<td>0.0%</td>
<td>FACU</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>0</td>
<td>0.0%</td>
<td>FACU</td>
<td></td>
</tr>
<tr>
<td>Sapling/Shrub Stratum (Plot size: 5 m)</td>
<td></td>
<td></td>
<td></td>
<td>Total Number of Dominant Species Across All Strata:</td>
</tr>
<tr>
<td>1. Symphoricarpos albus</td>
<td>5</td>
<td>16.7%</td>
<td>FACU</td>
<td><strong>6</strong> (B)</td>
</tr>
<tr>
<td>2. Prunus domestica</td>
<td>15</td>
<td>50.0%</td>
<td>FACU</td>
<td></td>
</tr>
<tr>
<td>3. Toxicodendron diversilobum</td>
<td>10</td>
<td>33.3%</td>
<td>FAC</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>0</td>
<td>0.0%</td>
<td>FAC</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>0</td>
<td>0.0%</td>
<td>FAC</td>
<td></td>
</tr>
<tr>
<td>(Total Cover)</td>
<td>75</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Herb Stratum</th>
<th>Absolute % Cover</th>
<th>Dominant Species</th>
<th>Indicator Status</th>
<th>Prevalence Index worksheet:</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Plot size: 1 m)</td>
<td></td>
<td></td>
<td></td>
<td>Total % Cover of: Multiply by:</td>
</tr>
<tr>
<td>1. Lapsana communis</td>
<td>30</td>
<td>30.6%</td>
<td>FACU</td>
<td><strong>OBL species</strong> 0 x 1 = <strong>0</strong></td>
</tr>
<tr>
<td>2. Galium aparine</td>
<td>20</td>
<td>20.4%</td>
<td>FACU</td>
<td></td>
</tr>
<tr>
<td>3. Claytonia sibirica</td>
<td>20</td>
<td>20.4%</td>
<td>FACU</td>
<td></td>
</tr>
<tr>
<td>4. Elymus repens</td>
<td>15</td>
<td>15.3%</td>
<td>FACU</td>
<td></td>
</tr>
<tr>
<td>5. Bromus diandrus</td>
<td>5</td>
<td>5.1%</td>
<td>UPL</td>
<td></td>
</tr>
<tr>
<td>6. Vicia sativa</td>
<td>5</td>
<td>5.1%</td>
<td>UPL</td>
<td></td>
</tr>
<tr>
<td>7. Torilis arvensis</td>
<td>3</td>
<td>3.1%</td>
<td>UPL</td>
<td></td>
</tr>
<tr>
<td>8. Sanicula crassicaulis</td>
<td>0</td>
<td>0.0%</td>
<td>UPL</td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>0</td>
<td>0.0%</td>
<td>UPL</td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>0</td>
<td>0.0%</td>
<td>UPL</td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td>0</td>
<td>0.0%</td>
<td>UPL</td>
<td></td>
</tr>
<tr>
<td>(Total Cover)</td>
<td>30</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Woody Vine Stratum</th>
<th>Absolute % Cover</th>
<th>Dominant Species</th>
<th>Indicator Status</th>
<th>Prevalence Index worksheet:</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Plot size: )</td>
<td></td>
<td></td>
<td></td>
<td>Total % Cover of: Multiply by:</td>
</tr>
<tr>
<td>1.</td>
<td>0</td>
<td>0.0%</td>
<td>FACU</td>
<td><strong>OBL species</strong> 0 x 1 = <strong>0</strong></td>
</tr>
<tr>
<td>2.</td>
<td>0</td>
<td>0.0%</td>
<td>FACU</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>0</td>
<td>0.0%</td>
<td>FACU</td>
<td></td>
</tr>
<tr>
<td>(Total Cover)</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Remarks:

- Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☐ No ☐ (If no, explain in Remarks.)
- Are Vegetation ☐ Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☐ No ☐ (If needed, explain any answers in Remarks.)
- Are Vegetation ☐ Soil ☐, or Hydrology ☐ naturally problematic?

### Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)

#### Problematic Hydrophytic Vegetation (Explain)

- Indicators of hydric soil and wetland hydrolology must be present, unless disturbed or problematic.

#### Hydrophytic Vegetation Indicators:

- Rapid Test for Hydrologic Vegetation
- Dominance Test is > 50%
- Prevalence Index is ≤3.0
- Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)
- Wetland Non-Vascular Plants

### Prevalence Index = B/A = 3.842

### Soil Map Unit Name:

- Malabon Silty Clay Loam

### NWI classification:

-列入美国联邦保护名录的国家或专业机构决定，由于区域状态尚未定义。

### Remarks:

- % Bare Ground in Herb Stratum: ___________

### Are Vegetation ☐, Soil ☐, or Hydrology ☐ within a Wetland? Yes ☐ No ☐
Soil Sampling Point: SP 06

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

<table>
<thead>
<tr>
<th>Depth (inches)</th>
<th>Matrix</th>
<th>Redox Features</th>
<th>Texture</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-4</td>
<td>10YR</td>
<td>100%</td>
<td>Silty Clay Loam</td>
<td></td>
</tr>
<tr>
<td>4-7</td>
<td>10YR</td>
<td>97%</td>
<td>Silty Clay Loam</td>
<td></td>
</tr>
<tr>
<td>7-20</td>
<td>10YR</td>
<td>97%</td>
<td>Silty Clay Loam</td>
<td></td>
</tr>
</tbody>
</table>

1 Type: C=Concentration. D=Depletion. RM=Reduced Matrix. CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Muck Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1) (except in MLRA 1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox depressions (F8)

Indicators for Problematic Hydric Soils:

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Other (Explain in Remarks)

Restrictive Layer (if present):

Type:__________________________

Hydric Soil Present? Yes ☐ No ☐

Remarks:

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)
- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algai Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres on Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stressed Plants (D1) (LRR A)
- Other (Explain in Remarks)
- Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- Drainage Patterns (B10)
- Dry Season Water Table (C2)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- FAC-neutral Test (D5)
- Raised Ant Mounds (D6) (LRR A)
- Frost Heavm Hummocks (D7)

Secondary Indicators (minimum of two required)

- Field Observations:
  - Surface Water Present? Yes ☐ No ☐ Depth (inches): ________
  - Water Table Present? Yes ☐ No ☐ Depth (inches): ________
  - Saturation Present? Yes ☐ No ☐ (includes capillary fringe) Depth (inches): ________

Wetland Hydrology Present? Yes ☐ No ☐

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:
No Photo
**WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region**

**Project/Site:** Tax Lot 2700-Airport Road SE  
**City/County:** Albany  
**Applicant/Owner:** Mike Shults  
**Investigator(s):** Joe Bettis & Justin Votos  
**State:** OR  
**Section, Township, Range:** S 09 T 11 S R 3 W  
**Landform (hillslope, terrace, etc.):** Terrace  
**Local relief (concave, convex, none):** Flat  
**Subregion (LRR):** MLRA 2  
**Datum:** WGS 84  
**Soil Map Unit Name:** Malaban Silty Clay Loam

---

**Are climatic/hydrologic conditions on the site typical for this time of year?**  
Yes ☐ No ☐

**Are Vegetation □, Soil □, or Hydrology □ significantly disturbed?**

**Are “Normal Circumstances” present?**  
Yes ☐ No ☐

---

**Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.**

**Hydrophytic Vegetation Present?**  
Yes ☐ No ☐

**Hydric Soil Present?**  
Yes ☐ No ☐

**Wetland Hydrology Present?**  
Yes ☐ No ☐

---

**VEGETATION - Use scientific names of plants.**

<table>
<thead>
<tr>
<th>Tree Stratum (Plot size: 10 m)</th>
<th>Absolute % Cover</th>
<th>Dominant Species?</th>
<th>Indicator Status</th>
<th>Rel.Strat. Cover</th>
<th>Ind. Status</th>
<th>Dominance Test worksheet:</th>
<th>Prevalence Index worksheet:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Quercus garryana</td>
<td>75</td>
<td>☑ 100.0% FACU</td>
<td></td>
<td>0.0%</td>
<td>FACU</td>
<td>Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)</td>
<td>Total % Cover of: OBL species 0 x 1 = 0</td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td></td>
<td></td>
<td>0.0%</td>
<td>FACU</td>
<td>Total Number of Dominant Species Across All Strata: 5 (B)</td>
<td>FACW species 0 x 2 = 0</td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td></td>
<td></td>
<td>0.0%</td>
<td>FACU</td>
<td>Percent of dominant Species That Are OBL, FACW, or FAC: 20.0% (A/B)</td>
<td>FAC species 40 x 3 = 120</td>
</tr>
<tr>
<td>4.</td>
<td></td>
<td></td>
<td></td>
<td>0.0%</td>
<td>FACU</td>
<td>Column Totals: 201 (A) 765 (B)</td>
<td>FACU species 160 x 4 = 640</td>
</tr>
<tr>
<td>5.</td>
<td></td>
<td></td>
<td></td>
<td>0.0%</td>
<td>FACU</td>
<td>Prevalence Index = B/A = 3.806</td>
<td>UPL species 1 x 5 = 5</td>
</tr>
</tbody>
</table>

**Sapling/Shrub Stratum (Plot size: 5 m)  
Total Cover 75**

<table>
<thead>
<tr>
<th>Herb Stratum (Plot size: 1 m)</th>
<th>Absolute % Cover</th>
<th>Dominant Species?</th>
<th>Indicator Status</th>
<th>Rel.Strat. Cover</th>
<th>Ind. Status</th>
<th>Dominance Test worksheet:</th>
<th>Prevalence Index worksheet:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Lapsana communis</td>
<td>25</td>
<td>☑ 37.9% FACU</td>
<td></td>
<td>1.5%</td>
<td>UPL</td>
<td>Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)</td>
<td>Total % Cover of: OBL species 0 x 1 = 0</td>
</tr>
<tr>
<td>2. Bromus hordeaceus</td>
<td>25</td>
<td>☑ 37.9% FACU</td>
<td></td>
<td>1.5%</td>
<td>FACU</td>
<td>Total Number of Dominant Species Across All Strata: 5 (B)</td>
<td>FACW species 0 x 2 = 0</td>
</tr>
<tr>
<td>3. Galium aparine</td>
<td>10</td>
<td></td>
<td></td>
<td>15.2%</td>
<td>FACU</td>
<td>Percent of dominant Species That Are OBL, FACW, or FAC: 20.0% (A/B)</td>
<td>FAC species 40 x 3 = 120</td>
</tr>
<tr>
<td>4. Hedera helix</td>
<td>5</td>
<td></td>
<td></td>
<td>7.6%</td>
<td>FACU</td>
<td>Column Totals: 201 (A) 765 (B)</td>
<td>FACU species 160 x 4 = 640</td>
</tr>
<tr>
<td>5. Torilis arvensis</td>
<td>1</td>
<td></td>
<td></td>
<td>1.5%</td>
<td>UPL</td>
<td>Prevalence Index = B/A = 3.806</td>
<td>UPL species 1 x 5 = 5</td>
</tr>
</tbody>
</table>

**Woody Vine Stratum (Plot size: )  
Total Cover 66**

**Remarks:**

1. *Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.*

US Army Corps of Engineers  
Western Mountains, Valleys, and Coast - Version 2.0
### Profile Description:
(Describe to the depth needed to document the indicator or confirm the absence of indicators.)

<table>
<thead>
<tr>
<th>Depth (inches)</th>
<th>Matrix Color (moist)</th>
<th>%</th>
<th>Redox Features Color (moist)</th>
<th>%</th>
<th>Type</th>
<th>Loc²</th>
<th>Texture</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-3</td>
<td>10YR 3/1 100</td>
<td></td>
<td>7.5YR 2.5/2 3 C</td>
<td></td>
<td>C</td>
<td>M</td>
<td>Silty Clay Loam</td>
<td></td>
</tr>
<tr>
<td>3-7</td>
<td>10YR 3/1 97</td>
<td></td>
<td>10YR 4/4 5 C</td>
<td></td>
<td>C</td>
<td>M</td>
<td>Silty Clay Loam</td>
<td></td>
</tr>
</tbody>
</table>

¹Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains ²Location: PL=Pore Lining. M=Matrix

### Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Muck Mineral (S1)
- Sandy Gleyed Matrix (S4)

### Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

### Restrictive Layer (if present):

<table>
<thead>
<tr>
<th>Type:</th>
<th>Depth (inches):</th>
<th>Hydric Soil Present?</th>
<th>Yes ☑ No ○</th>
</tr>
</thead>
</table>

### Remarks:

### Hydrology

#### Wetland Hydrology Indicators:

**Primary Indicators (minimum of one required; check all that apply)**

- Surface Water (A1)
- Water Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- High Water Table (A2)
- Salt Crust (B11)
- Saturation (A3)
- Aquatic Invertebrates (B13)
- Water Marks (B1)
- Hydrogen Sulfide Odor (C1)
- Sediment Deposits (B2)
- Oxidized Rhizospheres on Living Roots (C3)
- Drift Deposits (B3)
- Presence of Reduced Iron (C4)
- Algal Mat or Crust (B4)
- Recent Iron Reduction in Tilled Soils (C6)
- Iron Deposits (B5)
- Stunted or Stressed Plants (D1) (LRR A)
- Surface Soil Cracks (B6)
- Other (Explain in Remarks)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)

**Secondary Indicators (minimum of two required)**

- Water Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- Drainage Patterns (B10)
- Dry Season Water Table (C2)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- FAC-neutral Test (D5)
- Raised Ant Mounds (D6) (LRR A)
- Frost Heave Hummocks (D7)

### Field Observations:

<table>
<thead>
<tr>
<th>Surface Water Present?</th>
<th>Yes ☑ No ○</th>
<th>Depth (inches):</th>
<th>Wetland Hydrology Present?</th>
<th>Yes ☑ No ○</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Table Present?</td>
<td>Yes ☑</td>
<td>No ○</td>
<td>Depth (inches):</td>
<td></td>
</tr>
<tr>
<td>Saturation Present?</td>
<td>Yes ☑</td>
<td>No ○</td>
<td>Depth (inches):</td>
<td></td>
</tr>
</tbody>
</table>

### Remarks:

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:
### Plot ID: SP_07

**Photo Path:** C:\Users\Sedge\Documents\Projects\Shults_SE Airport Road Alb

<table>
<thead>
<tr>
<th>Photo File</th>
<th>Orientation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><a href="#">IMG_6911.JPG</a></td>
<td>East-facing</td>
<td>PP_07</td>
</tr>
</tbody>
</table>

**Lat/Long or UTM:**
- **Long/Easting:** 44.634547
- **Lat/Northing:** -123.064324

---

**No Photo**

<table>
<thead>
<tr>
<th>Photo File</th>
<th>Orientation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>None.bmp</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Lat/Long or UTM:**
- **Long/Easting:** 0
- **Lat/Northing:** 0
**WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region**

Project/Site: Tax Lot 2700-Airport Road SE  
City/County: Albany  
State: OR  
Sampling Date: 30-May-18

Applicant/Owner: Mike Shults  
Investigator(s): Joe Bettis & Justin Votos  
Landform (hillslope, terrace, etc.): Terrace  
Subregion (LRR): MLRA 2

<table>
<thead>
<tr>
<th>Soil Map Unit Name: Malabon Silty Clay Loam</th>
<th>Landform (hillslope, terrace, etc.): Terrace</th>
<th>Local relief (concave, convex, none): flat</th>
<th>Slope: 0.0% / 0.0°</th>
</tr>
</thead>
</table>

**Are climatic/hydrologic conditions on the site typical for this time of year?**  
Yes ☐ No ☐  
(If no, explain in Remarks.)

**Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed?**  
(If needed, explain any answers in Remarks.)

**Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic?**  
(If needed, explain any answers in Remarks.)

**Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.**

<table>
<thead>
<tr>
<th>Hydrophytic Vegetation Present?</th>
<th>Yes ☐ No ☐</th>
<th>Is the Sampled Area within a Wetland?</th>
<th>Yes ☐ No ☐</th>
</tr>
</thead>
</table>

**Remarks:**

**VEGETATION - Use scientific names of plants.**

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.*

<table>
<thead>
<tr>
<th>Tree Stratum (Plot size: 10 m)</th>
<th>Absolute % Cover</th>
<th>Dominant Species?</th>
<th>Indicator Status</th>
<th>Dominance Test worksheet:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Fraxinus latifolia</td>
<td>15</td>
<td>☑ 100.0% FACW</td>
<td></td>
<td>Number of Dominant Species That are OBL, FACW, or FAC: 3 (A)</td>
</tr>
<tr>
<td>2.</td>
<td>0</td>
<td>0.0%</td>
<td></td>
<td>Total Number of Dominant Species Across All Strata: 3 (B)</td>
</tr>
<tr>
<td>3.</td>
<td>0</td>
<td>0.0%</td>
<td></td>
<td>Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)</td>
</tr>
<tr>
<td>4.</td>
<td>0</td>
<td>0.0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>0</td>
<td>0.0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total Cover</strong></td>
<td>15</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sapling/Shrub Stratum (Plot size: 5 m)</th>
<th>Absolute % Cover</th>
<th>Dominant Species?</th>
<th>Indicator Status</th>
<th>Dominance Test worksheet:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Rubus armeniacus</td>
<td>65</td>
<td>☑ 100.0% FACU</td>
<td></td>
<td>Number of Dominant Species That are OBL, FACW, or FAC: 3 (A)</td>
</tr>
<tr>
<td>2.</td>
<td>0</td>
<td>0.0%</td>
<td></td>
<td>Total Number of Dominant Species Across All Strata: 3 (B)</td>
</tr>
<tr>
<td>3.</td>
<td>0</td>
<td>0.0%</td>
<td></td>
<td>Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)</td>
</tr>
<tr>
<td>4.</td>
<td>0</td>
<td>0.0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>0</td>
<td>0.0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total Cover</strong></td>
<td>65</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Herb Stratum (Plot size: 1 m)</th>
<th>Absolute % Cover</th>
<th>Dominant Species?</th>
<th>Indicator Status</th>
<th>Dominance Test worksheet:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Alopecurus pratensis</td>
<td>50</td>
<td>☑ 83.3% FAC</td>
<td></td>
<td>Number of Dominant Species That are OBL, FACW, or FAC: 3 (A)</td>
</tr>
<tr>
<td>2. Cirsium arvense</td>
<td>10</td>
<td>16.7% FAC</td>
<td></td>
<td>Total Number of Dominant Species Across All Strata: 3 (B)</td>
</tr>
<tr>
<td>3.</td>
<td>0</td>
<td>0.0%</td>
<td></td>
<td>Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)</td>
</tr>
<tr>
<td>4.</td>
<td>0</td>
<td>0.0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>0</td>
<td>0.0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>0</td>
<td>0.0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>0</td>
<td>0.0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>0</td>
<td>0.0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>0</td>
<td>0.0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>0</td>
<td>0.0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td>0</td>
<td>0.0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total Cover</strong></td>
<td>60</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Woody Vine Stratum (Plot size: )</th>
<th>Absolute % Cover</th>
<th>Dominant Species?</th>
<th>Indicator Status</th>
<th>Dominance Test worksheet:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>0</td>
<td>0.0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>0</td>
<td>0.0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total Cover</strong></td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Remarks:**

**Hydrophytic Vegetation Indicators:**

☐ 1 - Rapid Test for Hydrologic Vegetation  
☐ 2 - Dominance Test is > 50%  
☐ 3 - Prevalence Index is ≤3.0  
☐ 4 - Morphological Adaptations  
☐ 5 - Wetland Non-Vascular Plants  
☐ Problematic Hydrophytic Vegetation  

1 Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Prevalence Index worksheet:**

<table>
<thead>
<tr>
<th>Total % Cover of:</th>
<th>Multiply by:</th>
</tr>
</thead>
<tbody>
<tr>
<td>OBL species</td>
<td>0 x 1 = 0</td>
</tr>
<tr>
<td>FACW species</td>
<td>15 x 2 = 30</td>
</tr>
<tr>
<td>FAC species</td>
<td>125 x 3 = 375</td>
</tr>
<tr>
<td>FACU species</td>
<td>0 x 4 = 0</td>
</tr>
<tr>
<td>UPL species</td>
<td>0 x 5 = 0</td>
</tr>
<tr>
<td>Column Totals:</td>
<td>140 (A) 405 (B)</td>
</tr>
</tbody>
</table>

Prevalence Index = B/A = 2.893

**Hydrophytic Vegetation Present?**  
Yes ☐ No ☐
# Soil

**Profile Description:** (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

<table>
<thead>
<tr>
<th>Depth (inches)</th>
<th>Matrix</th>
<th>Redox Features</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Color (moist)</td>
<td>%</td>
</tr>
<tr>
<td>0-11</td>
<td>10YR</td>
<td>3/1</td>
</tr>
<tr>
<td>11-20</td>
<td>10YR</td>
<td>3/1</td>
</tr>
</tbody>
</table>


## Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Muck Mineral (S1)
- Sandy Gleyed Matrix (S4)

## Indicators for Problematic Hydric Soils:

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Other (Explain in Details)

## Restrictive Layer (if present):

- Type:
  - Depth (inches): ________________
- Hydric Soil Present? Yes ☐ No ☒

## Remarks:

## Hydrology

### Wetland Hydrology Indicators:

**Primary Indicators** (minimum of one required; check all that apply)
- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)

**Secondary Indicators** (minimum of two required)
- Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres on Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stressed Plants (D1) (LRR A)
- FAC-neutral Test (D5)
- Drainage Patterns (B10)
- Dry Season Water Table (C2)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- Raised Ant Mounds (D6) (LRR A)
- Frost Heave Hummocks (D7)

### Field Observations:

- Surface Water Present? Yes ☐ No ☒ Depth (inches): __________
- Water Table Present? Yes ☐ No ☒ Depth (inches): __________
- Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): __________

**Wetland Hydrology Present?** Yes ☐ No ☒

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

## Remarks:

US Army Corps of Engineers Western Mountains, Valleys, and Coast - Version 2.0
No Photo
## WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

**Project/Site:** Tax Lot 2700-Airport Road SE  
**City/County:** Albany  
**State:** OR  
**Sampling Date:** 30-May-18  
**Investigator(s):** Joe Bettis & Justin Votos  
**Landform (hillslope, terrace, etc.):** Terrace  
**Subregion (LRR):** MLRA 2  
**Soil Map Unit Name:** Malabon Silty Clay Loam  
**Datum:** WGS 84

### Are climatic/hydrologic conditions on the site typical for this time of year? (Yes or No)  
If no, explain in Remarks.

### Are Vegetation, Soil, or Hydrology significantly disturbed? (Yes or No)  
Are "Normal Circumstances" present? (Yes or No)  
If needed, explain any answers in Remarks.

### Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

#### Hydrophytic Vegetation Present? (Yes or No)
#### Hydric Soil Present? (Yes or No)
#### Wetland Hydrology Present? (Yes or No)
#### Is the Sampled Area within a Wetland? (Yes or No)

### Remarks:

#### VEGETATION - Use scientific names of plants.

<table>
<thead>
<tr>
<th>Tree Stratum (Plot size: 10 m)</th>
<th>Absolute % Cover</th>
<th>Dominant Species* Rel.Strat. Cover</th>
<th>Indicator Status</th>
<th>Domination Test worksheet:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Fraxinus latifolia</td>
<td>15</td>
<td>✓ 100.0% FACW</td>
<td></td>
<td>Number of Dominant Species</td>
</tr>
<tr>
<td>2.</td>
<td>0</td>
<td>0.0%</td>
<td></td>
<td>That are OBL, FACW, or FAC:</td>
</tr>
<tr>
<td>3.</td>
<td>0</td>
<td>0.0%</td>
<td></td>
<td>Total Number of Dominant</td>
</tr>
<tr>
<td>4.</td>
<td>0</td>
<td>0.0%</td>
<td></td>
<td>Species Across All Strata:</td>
</tr>
<tr>
<td>5.</td>
<td>0</td>
<td>0.0%</td>
<td></td>
<td>Percent of dominant Species</td>
</tr>
<tr>
<td>Total Cover</td>
<td>15</td>
<td></td>
<td></td>
<td>That Are OBL, FACW, or FAC:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sapling/Shrub Stratum (Plot size: 5 m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Rubus armeniacus</td>
</tr>
<tr>
<td>2.</td>
</tr>
<tr>
<td>3.</td>
</tr>
<tr>
<td>4.</td>
</tr>
<tr>
<td>5.</td>
</tr>
<tr>
<td>Total Cover</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Herb Stratum (Plot size: 1 m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Alopecurus pratensis</td>
</tr>
<tr>
<td>2. Geranium dissectum</td>
</tr>
<tr>
<td>3. Sonchus asper</td>
</tr>
<tr>
<td>4.</td>
</tr>
<tr>
<td>5.</td>
</tr>
<tr>
<td>6.</td>
</tr>
<tr>
<td>7.</td>
</tr>
<tr>
<td>8.</td>
</tr>
<tr>
<td>9.</td>
</tr>
<tr>
<td>10.</td>
</tr>
<tr>
<td>11.</td>
</tr>
<tr>
<td>Total Cover</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Woody Vine Stratum (Plot size: )</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
</tr>
<tr>
<td>2.</td>
</tr>
<tr>
<td>Total Cover</td>
</tr>
</tbody>
</table>

% Bare Ground in Herb Stratum: 30

**Remarks:**

---

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

---

**US Army Corps of Engineers**

**Western Mountains, Valleys, and Coast - Version 2.0**
### Soil Sampling Point: SP 09

**Profile Description:** (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

<table>
<thead>
<tr>
<th>Depth (inches)</th>
<th>Matrix</th>
<th>Redox Features</th>
<th>Texture</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-6</td>
<td>10YR 3/1</td>
<td>92</td>
<td>7.5YR 2.5/2</td>
<td>5 C M</td>
</tr>
<tr>
<td>0-6</td>
<td>10YR 4/6</td>
<td>2</td>
<td>10YR 4/4</td>
<td>1 C M</td>
</tr>
<tr>
<td>6-10</td>
<td>10YR 3/1</td>
<td>95</td>
<td>7.5YR 2.5/2</td>
<td>3 C M</td>
</tr>
<tr>
<td>10-20</td>
<td>10YR 4/1</td>
<td>95</td>
<td>10YR 5/4</td>
<td>5 C M</td>
</tr>
</tbody>
</table>

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains ²Location: PL=Pore Lining, M=Matrix*

**Hydric Soil Indicators:** (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Muck Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Loamy Mucky Mineral (F1) (except in MLRA 1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox depressions (F8)
- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Other (Explain in Remarks)

**Restrictive Layer (if present):**

- Hydric Soil Present? Yes ☐ No ☐

**Hydrology**

**Wetland Hydrology Indicators:**

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres on Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stressed Plants (D1) (LRR A)
- Other (Explain in Remarks)
- Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- Drainage Patterns (B10)
- Dry Season Water Table (C2)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- FAC-neutral Test (D5)
- Raised Ant Mounds (D6) (LRR A)
- Frost Heave Hummocks (D7)

**Field Observations:**

- Surface Water Present? Yes ☐ No ☐ Depth (inches): ___________  Wetland Hydrology Present? Yes ☐ No ☐
- Water Table Present? Yes ☐ No ☐ Depth (inches): ___________
- Saturation Present? Yes ☐ No ☐ Depth (inches): ___________

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:
<table>
<thead>
<tr>
<th>Plot ID</th>
<th>SP_09</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photo Path</td>
<td>C:\Users\Sedge\Documents\Projects\Shults_SE Airport Road Alb</td>
</tr>
<tr>
<td>Photo File</td>
<td>IMG_6913.JPG</td>
</tr>
<tr>
<td>Orientation</td>
<td>South-facing</td>
</tr>
<tr>
<td>Lat/Long or UTM</td>
<td>Long/Easting: 44.633983</td>
</tr>
<tr>
<td>Description</td>
<td>PP_09</td>
</tr>
</tbody>
</table>

No Photo
**VEGETATION** - Use scientific names of plants.

<table>
<thead>
<tr>
<th>Tree Stratum (Plot size: 10 m)</th>
<th>Absolute % Cover</th>
<th>Dominant Species?</th>
<th>Indicator Status</th>
<th>Dominance Test worksheet:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Quercus garryana</td>
<td>25</td>
<td>100.0% FAC</td>
<td>Mow 4</td>
<td>Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)</td>
</tr>
<tr>
<td>2.</td>
<td>0</td>
<td>0.0% FACU</td>
<td>Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>0</td>
<td>0.0%</td>
<td></td>
<td>Total Number of Dominant Species Across All Strata: 2 (B)</td>
</tr>
<tr>
<td>4.</td>
<td>0</td>
<td>0.0%</td>
<td></td>
<td>Percent of dominant Species That Are OBL, FACW, or FAC: 50.0% (%/A/B)</td>
</tr>
<tr>
<td><strong>Total Cover</strong></td>
<td>100</td>
<td></td>
<td></td>
<td>Prevalence Index worksheet:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Total % Cover of:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>OBL species x 1 = 0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>FACW species x 2 = 0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>FAC species x 3 = 270</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>FACU species x 4 = 140</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>UPL species x 5 = 0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>Column Totals:</strong> 125 (A) 410 (B)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Prevalence Index = B/A = 3.280</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sapling/Shrub Stratum (Plot size: 5 m)</th>
<th>Absolute % Cover</th>
<th>Dominant Species?</th>
<th>Indicator Status</th>
<th>Dominance Test worksheet:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Alopecurus pratensis</td>
<td>75</td>
<td>75.0% FAC</td>
<td>Mow 4</td>
<td>Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)</td>
</tr>
<tr>
<td>2. Cirsium arvense</td>
<td>10</td>
<td>10.0% FACU</td>
<td>Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.</td>
<td></td>
</tr>
<tr>
<td>3. Stipa secundata</td>
<td>10</td>
<td>10.0% FAC</td>
<td>Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.</td>
<td></td>
</tr>
<tr>
<td>4. Quercus garryana</td>
<td>5</td>
<td>5.0% FACU</td>
<td>Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.</td>
<td></td>
</tr>
<tr>
<td>5. Poa pratensis</td>
<td>0</td>
<td>0.0%</td>
<td>Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.</td>
<td></td>
</tr>
<tr>
<td><strong>Total Cover</strong></td>
<td>100</td>
<td></td>
<td></td>
<td>Prevalence Index worksheet:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Total % Cover of:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>OBL species x 1 = 0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>FACW species x 2 = 0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>FAC species x 3 = 270</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>FACU species x 4 = 140</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>UPL species x 5 = 0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>Column Totals:</strong> 125 (A) 410 (B)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Prevalence Index = B/A = 3.280</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Herb Stratum (Plot size: 1 m)</th>
<th>Absolute % Cover</th>
<th>Dominant Species?</th>
<th>Indicator Status</th>
<th>Dominance Test worksheet:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Quercus garryana</td>
<td>0</td>
<td>0.0%</td>
<td>Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.</td>
<td></td>
</tr>
<tr>
<td>2. Alopecurus pratensis</td>
<td>0</td>
<td>0.0%</td>
<td>Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.</td>
<td></td>
</tr>
<tr>
<td>3. Cirsium arvense</td>
<td>0</td>
<td>0.0%</td>
<td>Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.</td>
<td></td>
</tr>
<tr>
<td>4. Quercus garryana</td>
<td>0</td>
<td>0.0%</td>
<td>Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.</td>
<td></td>
</tr>
<tr>
<td>5. Poa pratensis</td>
<td>0</td>
<td>0.0%</td>
<td>Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.</td>
<td></td>
</tr>
<tr>
<td><strong>Total Cover</strong></td>
<td>100</td>
<td></td>
<td></td>
<td>Prevalence Index worksheet:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Total % Cover of:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>OBL species x 1 = 0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>FACW species x 2 = 0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>FAC species x 3 = 270</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>FACU species x 4 = 140</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>UPL species x 5 = 0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>Column Totals:</strong> 125 (A) 410 (B)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Prevalence Index = B/A = 3.280</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Woody Vine Stratum (Plot size: 1 m)</th>
<th>Absolute % Cover</th>
<th>Dominant Species?</th>
<th>Indicator Status</th>
<th>Dominance Test worksheet:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Quercus garryana</td>
<td>0</td>
<td>0.0%</td>
<td>Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.</td>
<td></td>
</tr>
<tr>
<td>2. Alopecurus pratensis</td>
<td>0</td>
<td>0.0%</td>
<td>Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.</td>
<td></td>
</tr>
<tr>
<td>3. Cirsium arvense</td>
<td>0</td>
<td>0.0%</td>
<td>Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.</td>
<td></td>
</tr>
<tr>
<td>4. Quercus garryana</td>
<td>0</td>
<td>0.0%</td>
<td>Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.</td>
<td></td>
</tr>
<tr>
<td>5. Poa pratensis</td>
<td>0</td>
<td>0.0%</td>
<td>Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.</td>
<td></td>
</tr>
<tr>
<td><strong>Total Cover</strong></td>
<td>100</td>
<td></td>
<td></td>
<td>Prevalence Index worksheet:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Total % Cover of:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>OBL species x 1 = 0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>FACW species x 2 = 0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>FAC species x 3 = 270</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>FACU species x 4 = 140</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>UPL species x 5 = 0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>Column Totals:</strong> 125 (A) 410 (B)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Prevalence Index = B/A = 3.280</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Remarks:</th>
<th></th>
<th></th>
<th></th>
<th>Prevalence Index worksheet:</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Bare Ground in Herb Stratum:</td>
<td>0</td>
<td></td>
<td></td>
<td>Prevalence Index worksheet:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Total % Cover of:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>OBL species x 1 = 0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>FACW species x 2 = 0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>FAC species x 3 = 270</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>FACU species x 4 = 140</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>UPL species x 5 = 0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>Column Totals:</strong> 125 (A) 410 (B)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Prevalence Index = B/A = 3.280</td>
</tr>
</tbody>
</table>

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

**ATTACHMENT K.53**
Soil Sampling Point: SP 10

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

<table>
<thead>
<tr>
<th>Depth (inches)</th>
<th>Matrix</th>
<th>Redox Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-10</td>
<td>10YR</td>
<td>Redox Features</td>
</tr>
<tr>
<td></td>
<td>3/1</td>
<td>%</td>
</tr>
<tr>
<td></td>
<td>100</td>
<td>%</td>
</tr>
<tr>
<td>10-17</td>
<td>10YR</td>
<td>Redox Features</td>
</tr>
<tr>
<td></td>
<td>3/1</td>
<td>%</td>
</tr>
<tr>
<td></td>
<td>99</td>
<td>%</td>
</tr>
<tr>
<td>17-20</td>
<td>10YR</td>
<td>Redox Features</td>
</tr>
<tr>
<td></td>
<td>4/1</td>
<td>%</td>
</tr>
<tr>
<td></td>
<td>97</td>
<td>%</td>
</tr>
</tbody>
</table>

Texture: Silty Clay Loam
Remarks:

1Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Muck Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1) (except in MLRA 1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox depressions (F8)

Indicators for Problematic Hydric Soils:

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Other (Explain in Remarks)

Hydric Soil Present? Yes ☐ No ☐

Restrictive Layer (if present):
Type: __________________________

Depth (inches): __________________________

Hydric Soil Present? Yes ☐ No ☐

Remarks:

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)
- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres on Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stressed Plants (D1) (LRR A)
- Other (Explain in Remarks)

Secondary Indicators (minimum of two required)
- Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- Drainage Patterns (B10)
- Dry Season Water Table (C2)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- FAC-neutral Test (D5)
- Raised Ant Mounds (D6) (LRR A)
- Frost Heave Hummocks (D7)

Field Observations:
- Surface Water Present? Yes ☐ No ☐ Depth (inches): __________________________
- Water Table Present? Yes ☐ No ☐ Depth (inches): __________________________
- Saturation Present? (includes capillary fringe) Yes ☐ No ☐ Depth (inches): __________________________

Wetland Hydrology Present? Yes ☐ No ☐

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:
No Photo
WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: Tax Lot 2700-Airport Road SE
City/County: Albany
State: OR
Sampling Date: 30-May-18
Applicant/Owner: Mike Shults
Section, Township, Range: S 09 T 11 S R 3 W
Investigator(s): Joe Bettis & Justin Votos
Landform (hillslope, terrace, etc.): Terrace
Subregion (LRR): MLRA 2
Subregion (LRR): MLRA 2
Lat.: Long.: 44.633684 -123.064555
Datum: WGS 84
Soil Map Unit Name: Malabon Silty Clay Loam
NWI classification:

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☐ No ☐
(If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☐ No ☐
(If needed, explain any answers in Remarks.)

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

<table>
<thead>
<tr>
<th>Hydrophytic Vegetation Present?</th>
<th>Yes ☐ No ☐</th>
<th>Is the Sampled Area within a Wetland?</th>
<th>Yes ☐ No ☐</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydric Soil Present?</td>
<td>Yes ☐ No ☐</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wetland Hydrology Present?</td>
<td>Yes ☐ No ☐</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Remarks:
Wetland 1

VEGETATION - Use scientific names of plants.

<table>
<thead>
<tr>
<th>Tree Stratum (Plot size: 10 m)</th>
<th>Absolute % Cover</th>
<th>Dominant Species?</th>
<th>Indicator Status</th>
<th>Dominance Test worksheet:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>0</td>
<td>0</td>
<td>0.0%</td>
<td>1 (A)</td>
</tr>
<tr>
<td>2.</td>
<td>0</td>
<td>0</td>
<td>0.0%</td>
<td>1 (B)</td>
</tr>
<tr>
<td>3.</td>
<td>0</td>
<td>0</td>
<td>0.0%</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>0</td>
<td>0</td>
<td>0.0%</td>
<td></td>
</tr>
</tbody>
</table>

= Total Cover

<table>
<thead>
<tr>
<th>Sapling/Shrub Stratum (Plot size: 5 m)</th>
<th>Absolute % Cover</th>
<th>Dominant Species?</th>
<th>Indicator Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>0</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>2.</td>
<td>0</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>3.</td>
<td>0</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>4.</td>
<td>0</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>5.</td>
<td>0</td>
<td>0</td>
<td>0.0%</td>
</tr>
</tbody>
</table>

= Total Cover

<table>
<thead>
<tr>
<th>Herb Stratum (Plot size: 1 m)</th>
<th>Absolute % Cover</th>
<th>Dominant Species?</th>
<th>Indicator Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Alopecurus pratensis</td>
<td>80</td>
<td>✓ 93.0%</td>
<td>FAC</td>
</tr>
<tr>
<td>2. Geranium dissectum</td>
<td>5</td>
<td>5.8%</td>
<td>UPL</td>
</tr>
<tr>
<td>3. Vicia hirsuta</td>
<td>1</td>
<td>1.2%</td>
<td>UPL</td>
</tr>
<tr>
<td>4.</td>
<td>0</td>
<td>0</td>
<td>UPL</td>
</tr>
<tr>
<td>5.</td>
<td>0</td>
<td>0</td>
<td>UPL</td>
</tr>
<tr>
<td>6.</td>
<td>0</td>
<td>0</td>
<td>UPL</td>
</tr>
<tr>
<td>7.</td>
<td>0</td>
<td>0</td>
<td>UPL</td>
</tr>
<tr>
<td>8.</td>
<td>0</td>
<td>0</td>
<td>UPL</td>
</tr>
<tr>
<td>9.</td>
<td>0</td>
<td>0</td>
<td>UPL</td>
</tr>
<tr>
<td>10.</td>
<td>0</td>
<td>0</td>
<td>UPL</td>
</tr>
<tr>
<td>11.</td>
<td>0</td>
<td>0</td>
<td>UPL</td>
</tr>
</tbody>
</table>

= Total Cover

<table>
<thead>
<tr>
<th>Woody Vine Stratum (Plot size: )</th>
<th>Absolute % Cover</th>
<th>Dominant Species?</th>
<th>Indicator Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>0</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>2.</td>
<td>0</td>
<td>0</td>
<td>0.0%</td>
</tr>
</tbody>
</table>

= Total Cover

% Bare Ground in Herb Stratum: 15

Remarks:

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.
### Soil Sampling Point: SP 11

#### Profile Description:
(Describe to the depth needed to document the indicator or confirm the absence of indicators.)

<table>
<thead>
<tr>
<th>Depth (inches)</th>
<th>Matrix</th>
<th>Redox Features</th>
<th>Texture</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-6</td>
<td>10YR 3/1 91</td>
<td>10YR 5/4 3 C PL</td>
<td>Silty Clay Loam</td>
<td>Taint (redox)</td>
</tr>
<tr>
<td>0-6</td>
<td>10YR 4/4 3 C M</td>
<td>7.5YR 2.5/2 3 C M</td>
<td>Silty Clay Loam</td>
<td>Clay</td>
</tr>
<tr>
<td>6-15</td>
<td>10YR 3/1 97</td>
<td>10YR 4/4 3 C M</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15-20</td>
<td>10YR 2/1 97</td>
<td>10YR 3/4 3 C M</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1\(^\text{Type}:\ C=\text{Concentration.}\ D=\text{Depletion.}\ \text{RM}=\text{Reduced Matrix.}\ \text{CS}=\text{Covered or Coated Sand Grains}\ \text{Loc}=\text{Location: PL=Pore Lining. M=Matrix}\n
#### Hydric Soil Indicators:
(Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Muck Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1) (except in MLRA 1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Redox depressions (F8)

#### Indicators for Problematic Hydric Soils:

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Other (Explain in Remarks)

#### Restrictive Layer (if present):

<table>
<thead>
<tr>
<th>Type:</th>
<th>Depth (inches):</th>
<th>Hydric Soil Present?</th>
<th>Yes ☐ No ☘</th>
</tr>
</thead>
</table>

#### Hydrology

##### Wetland Hydrology Indicators:

- Primary Indicators (minimum of one required; check all that apply)
  - Surface Water (A1)
  - High Water Table (A2)
  - Saturation (A3)
  - Water Marks (B1)
  - Sediment Deposits (B2)
  - Drift deposits (B3)
  - Algal Mat or Crust (B4)
  - Iron Deposits (B5)
  - Surface Soil Cracks (B6)
  - Inundation Visible on Aerial Imagery (B7)
  - Sparsely Vegetated Concave Surface (B8)

- Secondary Indicators (minimum of two required)
  - Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
  - Salt Crust (B11)
  - Aquatic Invertebrates (B13)
  - Hydrogen Sulfide Odor (C1)
  - Oxidized Rhizospheres on Living Roots (C3)
  - Presence of Reduced Iron (C4)
  - Recent Iron Reduction in Tilled Soils (C6)
  - Stunted or Stressed Plants (D1) (LRR A)

##### Field Observations:

- Surface Water Present? Yes ☐ No ☘ Depth (inches):
- Water Table Present? Yes ☐ No ☘ Depth (inches):
- Saturation Present? (includes capillary fringe) Yes ☐ No ☘ Depth (inches):
- Wetland Hydrology Present? Yes ☐ No ☘

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:
<table>
<thead>
<tr>
<th>Description</th>
<th>Long/Easting</th>
<th>Lat/Nothing</th>
</tr>
</thead>
<tbody>
<tr>
<td>West-facing</td>
<td>44.633684</td>
<td>-123.064555</td>
</tr>
</tbody>
</table>

**Plot ID:** SP_11

**Photo Path:** C:\Users\Sedge\Documents\Projects\Shults_SE Airport Road Alb

**Photo File:** [IMG_6915.JPG](C:\Users\Sedge\Documents\Projects\Shults_SE Airport Road Alb)/IMG_6915.JPG

**Orientation:** West-facing

**Description:** PP_11

**Lat/Long or UTM:**

<table>
<thead>
<tr>
<th>Orientation</th>
<th>Long/Easting</th>
<th>Lat/Nothing</th>
</tr>
</thead>
<tbody>
<tr>
<td>-facing</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

**Description:** None.bmp

**Lat/Long or UTM:**

<table>
<thead>
<tr>
<th>Orientation</th>
<th>Long/Easting</th>
<th>Lat/Nothing</th>
</tr>
</thead>
<tbody>
<tr>
<td>-facing</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
**WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region**

**Project/Site:** Tax Lot 2700-Airport Road SE  
**City/County:** Albany  
**State:** OR  
**Sampling Date:** 30-May-18

**Applicant/Owner:** Mike Shults  
**Section, Township, Range:** S 09 T 11 S R 3 W  
**Investigator(s):** Joe Bettis & Justin Votos  
**Landform (hillslope, terrace, etc.):** Terrace  
**Subregion (LRR):** MLRA 2  
**Soil Map Unit Name:** Malabon Silty Clay Loam  
**Datum:** WGS 84

---

**Are climatic/hydrologic conditions on the site typical for this time of year?**  
Yes [ ] No [ ]  
(If no, explain in Remarks.)

**Are Vegetation [ ] Soil [ ] Hydrology [ ] significantly disturbed?**  
Are "Normal Circumstances" present?  
Yes [ ] No [ ]  
(If needed, explain any answers in Remarks.)

---

**Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.**

<table>
<thead>
<tr>
<th>Hydrophytic Vegetation Present?</th>
<th>Yes [ ] No [ ]</th>
<th>Is the Sampled Area within a Wetland?</th>
<th>Yes [ ] No [ ]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydric Soil Present?</td>
<td>Yes [ ] No [ ]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wetland Hydrology Present?</td>
<td>Yes [ ] No [ ]</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Remarks:** Wetland 1 (unpaired plot)

---

**VEGETATION - Use scientific names of plants.**

<table>
<thead>
<tr>
<th>Tree Stratum (Plot size: 10 m)</th>
<th>Absolute % Cover</th>
<th>Dominant Species Rel. Strat. Cover</th>
<th>Indicator Status</th>
<th>Dominance Test worksheet:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>0.0%</td>
<td>0.0%</td>
<td>N/A</td>
<td>Number of Dominant Species That are OBL, FACW, or FAC: 2 (A)</td>
</tr>
<tr>
<td>2.</td>
<td>0.0%</td>
<td>0.0%</td>
<td>N/A</td>
<td>Total Number of Dominant Species Across All Strata: 2 (B)</td>
</tr>
<tr>
<td>3.</td>
<td>0.0%</td>
<td>0.0%</td>
<td>N/A</td>
<td>Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)</td>
</tr>
<tr>
<td>4.</td>
<td>0.0%</td>
<td>0.0%</td>
<td>N/A</td>
<td>Prevalence Index worksheet:</td>
</tr>
<tr>
<td>5.</td>
<td>0.0%</td>
<td>0.0%</td>
<td>N/A</td>
<td>Total % Cover of:         Multi</td>
</tr>
<tr>
<td>6.</td>
<td>0.0%</td>
<td>0.0%</td>
<td>N/A</td>
<td>OBL species 0 x 1 = 0</td>
</tr>
<tr>
<td>7.</td>
<td>0.0%</td>
<td>0.0%</td>
<td>N/A</td>
<td>FACW species 0 x 2 = 0</td>
</tr>
<tr>
<td>8.</td>
<td>0.0%</td>
<td>0.0%</td>
<td>N/A</td>
<td>FAC species 100 x 3 = 300</td>
</tr>
<tr>
<td>9.</td>
<td>0.0%</td>
<td>0.0%</td>
<td>N/A</td>
<td>FACU species 0 x 4 = 0</td>
</tr>
<tr>
<td>10.</td>
<td>0.0%</td>
<td>0.0%</td>
<td>N/A</td>
<td>UPL species 6 x 5 = 30</td>
</tr>
<tr>
<td>11.</td>
<td>0.0%</td>
<td>0.0%</td>
<td>N/A</td>
<td>Column Totals: 106 (A) 330 (B)</td>
</tr>
<tr>
<td></td>
<td>Total % Cover</td>
<td>Total Cover</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Hydrophytic Vegetation Indicators:**

- [ ] 1 - Rapid Test for Hydrologic Vegetation
  - [ ] 2 - Dominance Test is > 50%
  - [ ] 3 - Prevalence Index is ≤3.0 1
  - [ ] 4 - Morphological Adaptations 2 (Provide supporting data in Remarks or on a separate sheet)
  - [ ] 5 - Wetland Non-Vascular Plants 2

1. Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Woody Vine Stratum (Plot size: )**

<table>
<thead>
<tr>
<th>Woody Vine Stratum (Plot size: )</th>
<th>Absolute % Cover</th>
<th>Dominant Species Rel. Strat. Cover</th>
<th>Indicator Status</th>
<th>Dominance Test worksheet:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>0.0%</td>
<td>0.0%</td>
<td>N/A</td>
<td>Number of Dominant Species That are OBL, FACW, or FAC: 2 (A)</td>
</tr>
<tr>
<td>2.</td>
<td>0.0%</td>
<td>0.0%</td>
<td>N/A</td>
<td>Total Number of Dominant Species Across All Strata: 2 (B)</td>
</tr>
<tr>
<td></td>
<td>Total % Cover</td>
<td>Total Cover</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Remarks:**

---

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.
### Soil Sampling Point: SP 12

#### Profile Description:
(Describe to the depth needed to document the indicator or confirm the absence of indicators.)

<table>
<thead>
<tr>
<th>Depth (inches)</th>
<th>Matrix</th>
<th>Redox Features</th>
<th>Texture</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-8</td>
<td>10YR 3/1 95</td>
<td>10YR 4/6 3 C PL</td>
<td>Silty Clay Loam</td>
<td>10% cobbles by volume</td>
</tr>
<tr>
<td>0-8</td>
<td>7.5YR 2.5/1 2 C M</td>
<td>Silty Clay Loam</td>
<td>10% cobbles by volume</td>
<td></td>
</tr>
<tr>
<td>8-16</td>
<td>10YR 3/1 95</td>
<td>10YR 4/4 3 C M</td>
<td>Silty Clay Loam</td>
<td>10% cobbles by volume</td>
</tr>
<tr>
<td>8-16</td>
<td>7.5YR 2.5/2 2 C M</td>
<td>Silty Clay Loam</td>
<td>10% cobbles by volume</td>
<td></td>
</tr>
<tr>
<td>16-20</td>
<td>10YR 4/1 95</td>
<td>10YR 4/4 5 C M</td>
<td>Silty Clay Loam</td>
<td>10% cobbles by volume</td>
</tr>
</tbody>
</table>

1Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains  
2Location: PL=Pore Lining, M=Matrix

#### Hydric Soil Indicators:
(Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Muck Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1) (except in MLRA 1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Gleyed Surface (F6)
- Depleted Dark Surface (F7)
- Redox depressions (F8)

#### Restrictive Layer (if present):
Type: 
Depth (inches): __________

#### Hydric Soil Present?
Yes ☑ No ☐

#### Remarks:

### Hydrology

#### Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)

Secondary Indicators (minimum of two required)

- Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres on Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stressed Plants (D1) (LRR A)
- Other (Explain in Remarks)

#### Field Observations:

- Surface Water Present? Yes ☑ No ☐ Depth (inches): __________
- Water Table Present? Yes ☑ No ☐ Depth (inches): __________
- Saturation Present? (includes capillary fringe) Yes ☑ No ☐ Depth (inches): __________

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:
Plot ID: SP_12

Photo Path: C:\Users\Sedge\Documents\Projects\Shults_SE Airport Road Alb

Photo File: IMG_6918.JPG
Orientation: South-facing

Lat/Long or UTM: Long/Easting: 44.633353 Lat/Northing: -123.064963

Description: PP_12

No Photo
ATTACHMENT K.62

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: Tax Lot 2700-Airport Road SE
City/County: Albany
State: OR
Sampling Date: 30-May-18
Applicant/Owner: Mike Shults
Investigator(s): Joe Betts & Justin Votos
Section, Township, Range: S 09 T 11 S R 3 W
Landform (hillslope, terrace, etc.): Terrace
Subregion (LRR): MLRA 2
Lat.: 44.63328
Long.: -123.064307
Datum: WGS 84
Soil Map Unit Name: Malabon Silty Clay Loam

Are climatic/hydrologic conditions on the site typical for this time of year? Yes □ No □ (If no, explain in Remarks.)
Are Vegetation □ Soil □ , or Hydrology □ significantly disturbed? Are "Normal Circumstances" present? Yes □ No □
Are Vegetation □ Soil □ , or Hydrology □ naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes □ No □
Hydric Soil Present? Yes □ No □
Wetland Hydrology Present? Yes □ No □
Is the Sampled Area within a Wetland? Yes □ No □
Remarks:
Wetland 1 (unpaired plot)

VEGETATION - Use scientific names of plants.

<table>
<thead>
<tr>
<th>Tree Stratum</th>
<th>(Plot size: 10 m)</th>
<th>Absolute % Cover</th>
<th>Dominant Species?</th>
<th>Rel.Strat. Cover</th>
<th>Indicator Status</th>
<th>Dominance Test worksheet:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
<td>0</td>
<td>□ 0.0%</td>
<td></td>
<td>1 (A)</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td>0</td>
<td>□ 0.0%</td>
<td></td>
<td>1 (B)</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td>0</td>
<td>□ 0.0%</td>
<td></td>
<td>100.0% (A/B)</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td></td>
<td>0</td>
<td>□ 0.0%</td>
<td></td>
<td>2.951</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sapling/Shrub Stratum</th>
<th>(Plot size: 5 m)</th>
<th>Absolute % Cover</th>
<th>Dominant Species?</th>
<th>Rel.Strat. Cover</th>
<th>Indicator Status</th>
<th>Dominance Test worksheet:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
<td>0</td>
<td>□ 0.0%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td>0</td>
<td>□ 0.0%</td>
<td></td>
<td>100.0%</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td>0</td>
<td>□ 0.0%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td></td>
<td>0</td>
<td>□ 0.0%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td></td>
<td>0</td>
<td>□ 0.0%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Herb Stratum</th>
<th>(Plot size: 1 m)</th>
<th>Absolute % Cover</th>
<th>Dominant Species?</th>
<th>Rel.Strat. Cover</th>
<th>Indicator Status</th>
<th>Dominance Test worksheet:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Alopecurus pratensis</td>
<td>75</td>
<td>92.6%</td>
<td>FAC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Epilobium ciliatum</td>
<td>5</td>
<td>6.2%</td>
<td>FACW</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Galium aparine</td>
<td>1</td>
<td>1.2%</td>
<td>FACU</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>0</td>
<td>0.0%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>0</td>
<td>0.0%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>0</td>
<td>0.0%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>0</td>
<td>0.0%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>0</td>
<td>0.0%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>0</td>
<td>0.0%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>0</td>
<td>0.0%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td>0</td>
<td>0.0%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Woody Vine Stratum</th>
<th>(Plot size: )</th>
<th>Absolute % Cover</th>
<th>Dominant Species?</th>
<th>Rel.Strat. Cover</th>
<th>Indicator Status</th>
<th>Dominance Test worksheet:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>0</td>
<td>0.0%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>0</td>
<td>0.0%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

% Bare Ground in Herb Stratum: 20

Remarks:

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

US Army Corps of Engineers
Western Mountains, Valleys, and Coast - Version 2.0
### Soil Sampling Point: SP 13

#### Profile Description:
(Describe to the depth needed to document the indicator or confirm the absence of indicators.)

<table>
<thead>
<tr>
<th>Depth (inches)</th>
<th>Matrix</th>
<th>Redox Features</th>
<th>Texture</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-5</td>
<td>10YR 4/1</td>
<td>94</td>
<td>7.5YR 2.5/2</td>
<td>3 C M</td>
</tr>
<tr>
<td>0-5</td>
<td>10YR 5/4</td>
<td>2 C PL</td>
<td>Silty Clay Loam</td>
<td></td>
</tr>
<tr>
<td>0-5</td>
<td>10YR 5/4</td>
<td>1 C M</td>
<td>Silty Clay Loam</td>
<td></td>
</tr>
<tr>
<td>0-5</td>
<td>10YR 5/4</td>
<td>3 C M</td>
<td>Silty Clay Loam</td>
<td></td>
</tr>
<tr>
<td>13-20</td>
<td>10YR 4/1</td>
<td>97</td>
<td>7.5YR 2.5/2</td>
<td>2 C M</td>
</tr>
</tbody>
</table>

1 Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
2 Location: PL=Pore Lining, M=Matrix

#### Hydric Soil Indicators:
(Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Muck Mineral (S1)
- Sandy Gleyed Matrix (S4)

- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1) (except in MLRA 1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox depressions (F8)

#### Restrictive Layer (if present):

- Type: ______________________
- Depth (inches): ____________

Hydric Soil Present? **Yes**  **No**

#### Hydrology

##### Wetland Hydrology Indicators:

- Primary Indicators (minimum of one required; check all that apply)
  - Surface Water (A1)
  - High Water Table (A2)
  - Saturation (A3)
  - Water Marks (B1)
  - Sediment Deposits (B2)
  - Drift deposits (B3)
  - Algal Mat or Crust (B4)
  - Iron Deposits (B5)
  - Surface Soil Cracks (B6)
  - Inundation Visible on Aerial Imagery (B7)
  - Sparsely Vegetated Concave Surface (B8)

- Secondary Indicators (minimum of two required)
  - Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
  - Drainage Patterns (B10)
  - Dry Season Water Table (C2)
  - Saturation Visible on Aerial Imagery (C9)
  - Geomorphic Position (D2)
  - Shallow Aquitard (D3)
  - FAC-neutral Test (D5)
  - Raised Ant Mounds (D6) (LRR A)
  - Frost Heave Hummocks (D7)

##### Field Observations:

- Surface Water Present? **Yes**  **No**
- Water Table Present? **Yes**  **No**
- Saturation Present? **Yes**  **No**

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:
WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: Tax Lot 2700-Airport Road SE  
City/County: Albany  
State: OR  
Sampling Date: 30-May-18

Applicant/Owner: Mike Shults  
Section, Township, Range: S 09 T 11 S R 3 W

Investigator(s): Joe Betts & Justin Votos

Landform (hillslope, terrace, etc.): Terrace

Subregion (LRR): MLRA 2

Soil Map Unit Name: Malabon Silty Clay Loam

Lat.: Long.: 44.633333  -123.063769  
Datum: WGS 84

Soil Map Unit Name: Malabon Silty Clay Loam

Are climatic/hydrologic conditions on the site typical for this time of year?  Yes ☐ No ☐  (If no, explain in Remarks.)

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☐ No ☐  (If needed, explain any answers in Remarks.)

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

### Hydrophytic Vegetation Present?  Yes ☐ No ☐

### Hydric Soil Present?  Yes ☐ No ☐

### Wetland Hydrology Present?  Yes ☐ No ☐

**Remarks:**

Wetland 1

---

### VEGETATION - Use scientific names of plants.

<table>
<thead>
<tr>
<th>Tree Stratum (Plot size: 10 m)</th>
<th>Absolute % Cover</th>
<th>Dominant Species?</th>
<th>Indicator Status</th>
<th>Prevalence Index worksheet:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Quercus garryana</td>
<td>60.0%</td>
<td>100.0% FACU</td>
<td>indicator status</td>
<td>Number of Dominant Species</td>
</tr>
<tr>
<td>2.</td>
<td>0.0%</td>
<td>0.0%</td>
<td></td>
<td>That are OBL, FACW, or FAC:</td>
</tr>
<tr>
<td>3.</td>
<td>0.0%</td>
<td>0.0%</td>
<td></td>
<td>2 (A)</td>
</tr>
<tr>
<td>4.</td>
<td>0.0%</td>
<td>0.0%</td>
<td></td>
<td>Total Number of Dominant</td>
</tr>
<tr>
<td>5.</td>
<td>0.0%</td>
<td>0.0%</td>
<td></td>
<td>Species Across All Strata:</td>
</tr>
<tr>
<td>6.</td>
<td>0.0%</td>
<td>0.0%</td>
<td></td>
<td>3 (B)</td>
</tr>
<tr>
<td>7.</td>
<td>0.0%</td>
<td>0.0%</td>
<td></td>
<td>Percent of dominant Species</td>
</tr>
<tr>
<td>8.</td>
<td>0.0%</td>
<td>0.0%</td>
<td></td>
<td>That Are OBL, FACW, or FAC:</td>
</tr>
<tr>
<td>9.</td>
<td>0.0%</td>
<td>0.0%</td>
<td></td>
<td>66.7% (A/B)</td>
</tr>
<tr>
<td>10.</td>
<td>0.0%</td>
<td>0.0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td>0.0%</td>
<td>0.0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total Cover</strong></td>
<td>60.0%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Sapling/Shrub Stratum (Plot size: 5 m)

<table>
<thead>
<tr>
<th>Tree Stratum (Plot size: 5 m)</th>
<th>Absolute % Cover</th>
<th>Dominant Species?</th>
<th>Indicator Status</th>
<th>Prevalence Index worksheet:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Alopecurus pratensis</td>
<td>75.0%</td>
<td>72.1% FAC</td>
<td>indicator status</td>
<td>Number of Dominant Species</td>
</tr>
<tr>
<td>2. Poa trivialis</td>
<td>25.0%</td>
<td>24.0% FAC</td>
<td>indicator status</td>
<td>That are OBL, FACW, or FAC:</td>
</tr>
<tr>
<td>3. Bromus hordeaceus</td>
<td>3.0%</td>
<td>2.9% FACU</td>
<td>indicator status</td>
<td>2 (A)</td>
</tr>
<tr>
<td>4. Galium aparine</td>
<td>1.0%</td>
<td>1.0% FACU</td>
<td>indicator status</td>
<td>Total Number of Dominant</td>
</tr>
<tr>
<td>5.</td>
<td>0.0%</td>
<td>0.0%</td>
<td></td>
<td>Species Across All Strata:</td>
</tr>
<tr>
<td>6.</td>
<td>0.0%</td>
<td>0.0%</td>
<td></td>
<td>3 (B)</td>
</tr>
<tr>
<td>7.</td>
<td>0.0%</td>
<td>0.0%</td>
<td></td>
<td>Percent of dominant Species</td>
</tr>
<tr>
<td>8.</td>
<td>0.0%</td>
<td>0.0%</td>
<td></td>
<td>That Are OBL, FACW, or FAC:</td>
</tr>
<tr>
<td>9.</td>
<td>0.0%</td>
<td>0.0%</td>
<td></td>
<td>66.7% (A/B)</td>
</tr>
<tr>
<td>10.</td>
<td>0.0%</td>
<td>0.0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td>0.0%</td>
<td>0.0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total Cover</strong></td>
<td>60.0%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Herb Stratum (Plot size: 1 m)

<table>
<thead>
<tr>
<th>Tree Stratum (Plot size: 1 m)</th>
<th>Absolute % Cover</th>
<th>Dominant Species?</th>
<th>Indicator Status</th>
<th>Prevalence Index worksheet:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Alopecurus pratensis</td>
<td>75.0%</td>
<td>72.1% FAC</td>
<td>indicator status</td>
<td>Number of Dominant Species</td>
</tr>
<tr>
<td>2. Poa trivialis</td>
<td>25.0%</td>
<td>24.0% FAC</td>
<td>indicator status</td>
<td>That are OBL, FACW, or FAC:</td>
</tr>
<tr>
<td>3. Bromus hordeaceus</td>
<td>3.0%</td>
<td>2.9% FACU</td>
<td>indicator status</td>
<td>2 (A)</td>
</tr>
<tr>
<td>4. Galium aparine</td>
<td>1.0%</td>
<td>1.0% FACU</td>
<td>indicator status</td>
<td>Total Number of Dominant</td>
</tr>
<tr>
<td>5.</td>
<td>0.0%</td>
<td>0.0%</td>
<td></td>
<td>Species Across All Strata:</td>
</tr>
<tr>
<td>6.</td>
<td>0.0%</td>
<td>0.0%</td>
<td></td>
<td>3 (B)</td>
</tr>
<tr>
<td>7.</td>
<td>0.0%</td>
<td>0.0%</td>
<td></td>
<td>Percent of dominant Species</td>
</tr>
<tr>
<td>8.</td>
<td>0.0%</td>
<td>0.0%</td>
<td></td>
<td>That Are OBL, FACW, or FAC:</td>
</tr>
<tr>
<td>9.</td>
<td>0.0%</td>
<td>0.0%</td>
<td></td>
<td>66.7% (A/B)</td>
</tr>
<tr>
<td>10.</td>
<td>0.0%</td>
<td>0.0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td>0.0%</td>
<td>0.0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total Cover</strong></td>
<td>60.0%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Woody Vine Stratum (Plot size: _________)

<table>
<thead>
<tr>
<th>Woody Vine Stratum (Plot size: _________)</th>
<th>Absolute % Cover</th>
<th>Dominant Species?</th>
<th>Indicator Status</th>
<th>Prevalence Index worksheet:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Quercus garryana</td>
<td>60.0%</td>
<td>100.0% FACU</td>
<td>indicator status</td>
<td>Number of Dominant Species</td>
</tr>
<tr>
<td>2.</td>
<td>0.0%</td>
<td>0.0%</td>
<td></td>
<td>That are OBL, FACW, or FAC:</td>
</tr>
<tr>
<td>3.</td>
<td>0.0%</td>
<td>0.0%</td>
<td></td>
<td>2 (A)</td>
</tr>
<tr>
<td>4.</td>
<td>0.0%</td>
<td>0.0%</td>
<td></td>
<td>Total Number of Dominant</td>
</tr>
<tr>
<td>5.</td>
<td>0.0%</td>
<td>0.0%</td>
<td></td>
<td>Species Across All Strata:</td>
</tr>
<tr>
<td>6.</td>
<td>0.0%</td>
<td>0.0%</td>
<td></td>
<td>3 (B)</td>
</tr>
<tr>
<td>7.</td>
<td>0.0%</td>
<td>0.0%</td>
<td></td>
<td>Percent of dominant Species</td>
</tr>
<tr>
<td>8.</td>
<td>0.0%</td>
<td>0.0%</td>
<td></td>
<td>That Are OBL, FACW, or FAC:</td>
</tr>
<tr>
<td>9.</td>
<td>0.0%</td>
<td>0.0%</td>
<td></td>
<td>66.7% (A/B)</td>
</tr>
<tr>
<td>10.</td>
<td>0.0%</td>
<td>0.0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td>0.0%</td>
<td>0.0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total Cover</strong></td>
<td>104.0%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Remarks:**

% Bare Ground in Herb Stratum: 0.0%
**Profile Description:** (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

<table>
<thead>
<tr>
<th>Depth (inches)</th>
<th>Matrix Color (moist)</th>
<th>Redox Features Color (moist)</th>
<th>% Type</th>
<th>Loc</th>
<th>Texture</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-2</td>
<td>10YR 3/1 100</td>
<td>7.5R 2.5/2 3 C</td>
<td>M</td>
<td></td>
<td>Silty Clay Loam</td>
<td>Taint redox</td>
</tr>
<tr>
<td>2-7</td>
<td>10YR 3/1 95</td>
<td>7.5R 2.5/2 3 C</td>
<td>M</td>
<td></td>
<td>Silty Clay Loam</td>
<td>Taint redox</td>
</tr>
<tr>
<td>7-15</td>
<td>10YR 3/1 95</td>
<td>7.5R 2.5/2 3 C</td>
<td>M</td>
<td></td>
<td>Silty Clay Loam</td>
<td>Taint redox</td>
</tr>
<tr>
<td>15-20</td>
<td>10YR 4/1 90</td>
<td>10YR 5/4 2 C M</td>
<td>PL</td>
<td></td>
<td>Silty Clay Loam</td>
<td>Taint redox</td>
</tr>
</tbody>
</table>

Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains

Location: PL=Pore Lining. M=Matrix

**Hydric Soil Indicators:** (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Muck Mineral (S1)
- Sandy Gleyed Matrix (S4)

**Indicators for Problematic Hydric Soils:**

- Sandy Redox (SS)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1) (except in MLRA 1)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox depressions (F8)

**Restrictive Layer (if present):**

- Type:
- Depth (inches):

**Hydric Soil Present?** Yes ☐ No ☑

**Remarks:**

**Hydrology**

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one required; check all that apply)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)

Secondary Indicators (minimum of two required)

- Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres on Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stressed Plants (D1) (LRR A)
- Other (Explain in Remarks)

**Field Observations:**

- Surface Water Present? Yes ☐ No ☑
- Water Table Present? Yes ☐ No ☑
- Saturation Present? Yes ☐ No ☑

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

**Remarks:**
Plot ID: SP_14

Photo File: IMG_6920.JPG
Orientation: Southeast-facing
Long/Easting: 44.633333
Lat/Northing: -123.063769
Description: PP_14

No Photo

Photo File: None.bmp
Orientation: -facing
Lat/Long or UTM: Long/Easting: 0 Lat/Northing: 0
Description: 
## WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

**Project/Site:** Tax Lot 2700-Airport Road SE  
**City/County:** Albany  
**State:** OR  
**Sampling Date:** 30-May-18  
**Applicant/Owner:** Mike Shults  
**Sampling Point:** SP_15  
**Section, Township, Range:** S 09 T 11 S R 3 W  
**Landform (hillslope, terrace, etc.):** Terrace  
**Subregion (LRR):** MLRA 2  
**Landform (hillslope, terrace, etc.):** Terrace  
**Depth:** 0.0%  
**Local relief (concave, convex, none):** Flat  
**Slope:** 0.0% / 0.0*  
**Datum:** WGS 84  
**Lat.:** 44.633363  
**Long.:** -123.063729  
**Soil Map Unit Name:** Malaban Silty Clay Loam

### Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

<table>
<thead>
<tr>
<th>Hydrophytic Vegetation Present?</th>
<th>Yes</th>
<th>No</th>
<th>Is the Sampled Area within a Wetland?</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydric Soil Present?</td>
<td>Yes</td>
<td>No</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wetland Hydrology Present?</td>
<td>Yes</td>
<td>No</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Remarks:**

### VEGETATION - Use scientific names of plants.

<table>
<thead>
<tr>
<th>Tree Stratum</th>
<th>(Plot size: 10 m)</th>
<th>Absolute % Cover</th>
<th>Dominant Species?</th>
<th>Rel.Strat. Cover</th>
<th>Indicator Status</th>
<th>Dominance Test worksheet:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Quercus garryana</td>
<td>75</td>
<td>100.0%</td>
<td>FACU</td>
<td>Number of Dominant Species That are OBL, FACW, or FAC:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>0</td>
<td>0.0%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>0</td>
<td>0.0%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>0</td>
<td>0.0%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Total Cover:** 75

<table>
<thead>
<tr>
<th>Sapling/Shrub Stratum</th>
<th>(Plot size: 5 m)</th>
<th>Absolute % Cover</th>
<th>Dominant Species?</th>
<th>Rel.Strat. Cover</th>
<th>Indicator Status</th>
<th>Dominance Test worksheet:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Symphoricarpos albus</td>
<td>20</td>
<td>66.7%</td>
<td>FACU</td>
<td>Number of Dominant Species That are OBL, FACW, or FAC:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Rubus armeniacus</td>
<td>10</td>
<td>33.3%</td>
<td>FACU</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>0</td>
<td>0.0%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>0</td>
<td>0.0%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>0</td>
<td>0.0%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Total Cover:** 75

<table>
<thead>
<tr>
<th>Herb Stratum</th>
<th>(Plot size: 1 m)</th>
<th>Absolute % Cover</th>
<th>Dominant Species?</th>
<th>Rel.Strat. Cover</th>
<th>Indicator Status</th>
<th>Dominance Test worksheet:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Alopecurus pratensis</td>
<td>30</td>
<td>42.9%</td>
<td>FAC</td>
<td>Number of Dominant Species That are OBL, FACW, or FAC:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Poa trivialis</td>
<td>20</td>
<td>26.6%</td>
<td>FAC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Galium aparine</td>
<td>10</td>
<td>14.3%</td>
<td>FACU</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Bromus hordeaceus</td>
<td>10</td>
<td>14.3%</td>
<td>FACU</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>0</td>
<td>0.0%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>0</td>
<td>0.0%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>0</td>
<td>0.0%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>0</td>
<td>0.0%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>0</td>
<td>0.0%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>0</td>
<td>0.0%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td>0</td>
<td>0.0%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Total Cover:** 30

<table>
<thead>
<tr>
<th>Woody Vine Stratum</th>
<th>(Plot size: 3 m)</th>
<th>Absolute % Cover</th>
<th>Dominant Species?</th>
<th>Rel.Strat. Cover</th>
<th>Indicator Status</th>
<th>Dominance Test worksheet:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>0</td>
<td>0.0%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>0</td>
<td>0.0%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>0</td>
<td>0.0%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Total Cover:** 0

**Remarks:**

---

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

---

**US Army Corps of Engineers**

Western Mountains, Valleys, and Coast - Version 2.0
### Profile Description:

(Describe to the depth needed to document the indicator or confirm the absence of indicators.)

<table>
<thead>
<tr>
<th>Depth (inches)</th>
<th>Matrix</th>
<th>Color (moist)</th>
<th>%</th>
<th>Redox Features</th>
<th>Color (moist)</th>
<th>%</th>
<th>Type</th>
<th>Loc²</th>
<th>Texture</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-16</td>
<td></td>
<td>10YR</td>
<td>3/1</td>
<td>100</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Silty Clay Loam</td>
<td></td>
</tr>
<tr>
<td>16-20</td>
<td></td>
<td>10YR</td>
<td>3/1</td>
<td>97</td>
<td>7.5YR</td>
<td>2.5/2</td>
<td>2</td>
<td>C</td>
<td>Silty Clay Loam</td>
<td></td>
</tr>
<tr>
<td>16-20</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>10YR</td>
<td>3/4</td>
<td>1</td>
<td>C</td>
<td>M</td>
<td></td>
</tr>
</tbody>
</table>

³Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains ²Location: PL=Pore Lining, M=Matrix

### Hydric Soil Indicators:

(Alllicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Muck Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1) (except in MLRA 1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox depressions (F8)

### Restrictive Layer (if present):

Type: ________________

Depth (inches): ________________

Hydric Soil Present? Yes ☐ No ☐

Remarks: ________________

### Hydrology

#### Wetland Hydrology Indicators:

- Primary Indicators (minimum of one required; check all that apply)
- Secondary Indicators (minimum of two required)

<table>
<thead>
<tr>
<th>Surface Water (A1)</th>
<th>High Water Table (A2)</th>
<th>Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)</th>
<th>Salt Crust (B11)</th>
<th>Aquatic Invertebrates (B13)</th>
<th>Hydrogen Sulfide Odor (C1)</th>
<th>Presence of Reduced Iron (C4)</th>
<th>Recent Iron Reduction in Tilled Soils (C6)</th>
<th>Stunted or Stressed Plants (D1) (LRR A)</th>
<th>Other (Explain in Remarks)</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

#### Field Observations:

<table>
<thead>
<tr>
<th>Surface Water Present?</th>
<th>Yes ☐ No ☐</th>
<th>Depth (inches): ________________</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Table Present?</td>
<td>Yes ☐ No ☐</td>
<td>Depth (inches): ________________</td>
</tr>
<tr>
<td>Saturation Present?</td>
<td>Yes ☐ No ☐</td>
<td>Depth (inches): ________________</td>
</tr>
</tbody>
</table>

Wetland Hydrology Present? Yes ☐ No ☐

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks: ________________

---

US Army Corps of Engineers

Western Mountains, Valleys, and Coast - Version 2.0
No Photo
### WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

**Project/Site:** Tax Lot 2700-Airport Road SE  
**City/County:** Albany  
**State:** OR  
**Sampling Date:** 30-May-18

**Applicant/Owner:** Mike Shults  
**Investigator(s):** Joe Bettis & Justin Votos  
**Landform (hillslope, terrace, etc.):** Terrace

**Subregion (LRR):** MLRA 2  
**Soil Map Unit Name:** Malabon Silty Clay Loam

**Local relief (concave, convex, none):** Flat  
**Slope:** 0.0 % / 0.0°

**Latitude:** 44.633652  
**Longitude:** -123.063888  
**Datum:** WGS 84

---

**Are climatic/hydrologic conditions on the site typical for this time of year?**  
Yes ☐ No ☒

**Are Vegetation, Soil, or Hydrology significantly disturbed?**  
Yes ☐ No ☒

**Are Vegetation, Soil, or Hydrology naturally problematic?**  
Yes ☐ No ☒

---

**Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.**

<table>
<thead>
<tr>
<th>Hydrophytic Vegetation Present?</th>
<th>Yes ☐ No ☒</th>
<th>Hydric Soil Present?</th>
<th>Yes ☐ No ☒</th>
<th>Wetland Hydrology Present?</th>
<th>Yes ☐ No ☒</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is the Sampled Area within a Wetland?</td>
<td>Yes ☐ No ☒</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Remarks:**

---

**VEGETATION - Use scientific names of plants.**

<table>
<thead>
<tr>
<th>Tree Stratum (Plot size: 10 m)</th>
<th>Absolute % Cover</th>
<th>Dominant Species*</th>
<th>Indicator Status</th>
<th>Dominance Test worksheet:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. <em>Quercus garryana</em></td>
<td>75</td>
<td>☑ 100.0%</td>
<td>FACU</td>
<td>Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)</td>
</tr>
<tr>
<td>2.</td>
<td>0</td>
<td>0.0%</td>
<td>FACU</td>
<td>Total Number of Dominant Species Across All Strata: 4 (B)</td>
</tr>
<tr>
<td>3.</td>
<td>0</td>
<td>0.0%</td>
<td>FACU</td>
<td>Percent of dominant Species That Are OBL, FACW, or FAC: 25.0% (A/B)</td>
</tr>
<tr>
<td>4.</td>
<td>0</td>
<td>0.0%</td>
<td>FACU</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>0</td>
<td>0.0%</td>
<td>FACU</td>
<td></td>
</tr>
</tbody>
</table>

**Sapling/Shrub Stratum (Plot size: 5 m) | Absolute % Cover | Dominant Species* | Indicator Status | Dominance Test worksheet: |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. <em>Rubius armeniacus</em></td>
<td>35</td>
<td>☑ 87.5%</td>
<td>FACU</td>
<td>Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)</td>
</tr>
<tr>
<td>2. <em>Crataegus douglassii</em></td>
<td>5</td>
<td>☑ 12.5%</td>
<td>FACU</td>
<td>Total Number of Dominant Species Across All Strata: 4 (B)</td>
</tr>
<tr>
<td>3.</td>
<td>0</td>
<td>0.0%</td>
<td>FACU</td>
<td>Percent of dominant Species That Are OBL, FACW, or FAC: 25.0% (A/B)</td>
</tr>
<tr>
<td>4.</td>
<td>0</td>
<td>0.0%</td>
<td>FACU</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>0</td>
<td>0.0%</td>
<td>FACU</td>
<td></td>
</tr>
</tbody>
</table>

**Herb Stratum (Plot size: 1 m) | Absolute % Cover | Dominant Species* | Indicator Status | Dominance Test worksheet: |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. <em>Bromus hordeaceus</em></td>
<td>30</td>
<td>☑ 42.9%</td>
<td>FACU</td>
<td>Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)</td>
</tr>
<tr>
<td>2. <em>Galium aparine</em></td>
<td>20</td>
<td>☑ 26.6%</td>
<td>FACU</td>
<td>Total Number of Dominant Species Across All Strata: 4 (B)</td>
</tr>
<tr>
<td>3. <em>Geranium dissectum</em></td>
<td>10</td>
<td>☑ 14.3%</td>
<td>UPL</td>
<td>Percent of dominant Species That Are OBL, FACW, or FAC: 25.0% (A/B)</td>
</tr>
<tr>
<td>4. <em>Avena sativa</em></td>
<td>5</td>
<td>☑ 7.1%</td>
<td>UPL</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>5</td>
<td>☑ 7.1%</td>
<td>UPL</td>
<td></td>
</tr>
</tbody>
</table>

**Woody Vine Stratum (Plot size: ) | Absolute % Cover | Dominant Species* | Indicator Status | Dominance Test worksheet: |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>0</td>
<td>0.0%</td>
<td>FACU</td>
<td>Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)</td>
</tr>
<tr>
<td>2.</td>
<td>0</td>
<td>0.0%</td>
<td>FACU</td>
<td>Total Number of Dominant Species Across All Strata: 4 (B)</td>
</tr>
<tr>
<td>3.</td>
<td>0</td>
<td>0.0%</td>
<td>FACU</td>
<td>Percent of dominant Species That Are OBL, FACW, or FAC: 25.0% (A/B)</td>
</tr>
</tbody>
</table>

**Remarks:**

---

**% Bare Ground in Herb Stratum: 30%**

---

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

---

**US Army Corps of Engineers**

Western Mountains, Valleys, and Coast - Version 2.0
**Soil Sampling Point:** SP_16

**Profile Description:** (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

<table>
<thead>
<tr>
<th>Depth (inches)</th>
<th>Matrix</th>
<th>Redox Features</th>
<th>Texture</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-15</td>
<td>10YR</td>
<td>3/1 100%</td>
<td>Silty Clay Loam</td>
<td></td>
</tr>
<tr>
<td>15-20</td>
<td>10YR</td>
<td>3/1 98%</td>
<td>Silty Clay Loam</td>
<td></td>
</tr>
</tbody>
</table>

1 Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains  
2 Location: PL=Pore Lining, M=Matrix

---

**Hydric Soil Indicators:** (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Muck Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1) (except in MLRA 1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depressed Dark Surface (F7)
- Redox depressions (F8)

**Restrictive Layer (if present):**

- **Type:**
  - Depth (inches): __________________________

  **Hydric Soil Present?**   Yes ☐   No ☑

  **Remarks:**

---

**Hydrology**

---

**Wetland Hydrology Indicators:**

**Primary Indicators (minimum of one required; check all that apply)**

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)

**Secondary Indicators (minimum of two required)**

- Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulphide Odor (C1)
- Oxidized Rhizospheres on Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stressed Plants (D1) (LRR A)
- Other (Explains in Remarks)

**Field Observations:**

- Surface Water Present?   Yes ☐   No ☑   Depth (inches): _____________
- Water Table Present?    Yes ☐   No ☑   Depth (inches): _____________
- Saturation Present?     Yes ☐   No ☑   Depth (inches): _____________

**Wetland Hydrology Present?**   Yes ☐   No ☑

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

**Remarks:**

---

US Army Corps of Engineers Western Mountains, Valleys, and Coast - Version 2.0
No Photo
ATTACHMENT K.74

**WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region**

<table>
<thead>
<tr>
<th>Project/Site:</th>
<th>Tax Lot 2700-Airport Road SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>City/County:</td>
<td>Albany</td>
</tr>
<tr>
<td>State:</td>
<td>OR</td>
</tr>
<tr>
<td>Sampling Date:</td>
<td>30-May-18</td>
</tr>
<tr>
<td>Investigator(s):</td>
<td>Joe Betts &amp; Justin Votos</td>
</tr>
<tr>
<td>Landform (hillslope,</td>
<td>Terrace</td>
</tr>
<tr>
<td>terrace, etc.):</td>
<td></td>
</tr>
<tr>
<td>Section, Township,</td>
<td>S 09 T 11 S R 3 W</td>
</tr>
<tr>
<td>Subregion (LRR):</td>
<td>MLRA 2</td>
</tr>
<tr>
<td>Soil Map Unit Name:</td>
<td>Malaban Silty Clay Loam</td>
</tr>
<tr>
<td>Lat.:</td>
<td>44.633658</td>
</tr>
<tr>
<td>Long.:</td>
<td>-123.064002</td>
</tr>
<tr>
<td>Datum:</td>
<td>WGS 84</td>
</tr>
</tbody>
</table>

**Are climatic/hydrologic conditions on the site typical for this time of year?**
- Yes ◐ No ○

**Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed?**
- Are "Normal Circumstances" present? Yes ◐ No ○

**Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic?**
- If needed, explain any answers in Remarks.

### Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

<table>
<thead>
<tr>
<th>Hydrophytic Vegetation Present?</th>
<th>Yes ◐ No ○</th>
<th>Hydric Soil Present?</th>
<th>Yes ◐ No ○</th>
<th>Wetland Hydrology Present?</th>
<th>Yes ◐ No ○</th>
<th>Is the Sampled Area within a Wetland?</th>
<th>Yes ◐ No ○</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Remarks:</strong></td>
<td></td>
<td></td>
<td></td>
<td>Wetland 1</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### VEGETATION - Use scientific names of plants.

#### Tree Stratum
- (Plot size: 10 m)

<table>
<thead>
<tr>
<th>Tree Species</th>
<th>% Cover</th>
<th>Dominant Species</th>
<th>Indicator Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Quercus garyana</td>
<td>30</td>
<td>✓ 100.0% FACU</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>0</td>
<td>0.0% FACU</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>0</td>
<td>0.0% FACU</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>0</td>
<td>0.0% FACU</td>
<td></td>
</tr>
<tr>
<td>Total Cover</td>
<td>30</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Sapling/Shrub Stratum
- (Plot size: 5 m)

<table>
<thead>
<tr>
<th>Sapling/Shrub Species</th>
<th>% Cover</th>
<th>Dominant Species</th>
<th>Indicator Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Fraxinus latifolia</td>
<td>5</td>
<td>✓ 100.0% FACW</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>0</td>
<td>0.0% FACW</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>0</td>
<td>0.0% FACW</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>0</td>
<td>0.0% FACW</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>0</td>
<td>0.0% FACW</td>
<td></td>
</tr>
<tr>
<td>Total Cover</td>
<td>30</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Herb Stratum
- (Plot size: 1 m)

<table>
<thead>
<tr>
<th>Herb Species</th>
<th>% Cover</th>
<th>Dominant Species</th>
<th>Indicator Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Alopecurus pratensis</td>
<td>80</td>
<td>✓ 93.0% FAC</td>
<td></td>
</tr>
<tr>
<td>2. Epilobium ciliatum</td>
<td>5</td>
<td>5.8% FACW</td>
<td></td>
</tr>
<tr>
<td>3. Geranium dissectum</td>
<td>1</td>
<td>1.2% UPL</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>0</td>
<td>0.0% UPL</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>0</td>
<td>0.0% UPL</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>0</td>
<td>0.0% UPL</td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>0</td>
<td>0.0% UPL</td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>0</td>
<td>0.0% UPL</td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>0</td>
<td>0.0% UPL</td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>0</td>
<td>0.0% UPL</td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td>0</td>
<td>0.0% UPL</td>
<td></td>
</tr>
<tr>
<td>Total Cover</td>
<td>86</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Woody Vine Stratum
- (Plot size: )

<table>
<thead>
<tr>
<th>Woody Vine Species</th>
<th>% Cover</th>
<th>Dominant Species</th>
<th>Indicator Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>0</td>
<td>0.0%</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>0</td>
<td>0.0%</td>
<td></td>
</tr>
<tr>
<td>Total Cover</td>
<td>0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Remarks:**

- % Bare Ground in Herb Stratum: 15

---

*Indication suffix = National status or professional decision assigned because Regional status not defined by FWS.*
Soil Sampling Point: SP 17

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

<table>
<thead>
<tr>
<th>Depth (inches)</th>
<th>Color (moist)</th>
<th>%</th>
<th>Color (moist)</th>
<th>%</th>
<th>Type¹</th>
<th>Loc²</th>
<th>Texture</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-3</td>
<td>10YR</td>
<td>3/1</td>
<td>100</td>
<td></td>
<td></td>
<td></td>
<td>Silty Clay Loam</td>
<td></td>
</tr>
<tr>
<td>3-10</td>
<td>10YR</td>
<td>3/1</td>
<td>97</td>
<td></td>
<td></td>
<td></td>
<td>Silty Clay Loam</td>
<td></td>
</tr>
<tr>
<td>10-17</td>
<td>10YR</td>
<td>3/1</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td>Silty Clay Loam</td>
<td></td>
</tr>
<tr>
<td>10-17</td>
<td>10YR</td>
<td>3/1</td>
<td>95</td>
<td></td>
<td></td>
<td></td>
<td>Silty Clay Loam</td>
<td></td>
</tr>
<tr>
<td>17-20</td>
<td>10YR</td>
<td>4/1</td>
<td>97</td>
<td></td>
<td></td>
<td></td>
<td>Clay</td>
<td></td>
</tr>
</tbody>
</table>

¹Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains ²Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Muck Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1) (except in MLRA 1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox depressions (F8)

Restrictive Layer (if present):

- Type: 
- Depth (inches): __________________________

Hydric Soil Present? Yes  No

Remarks:

Hydroylogy

Wetland Hydrology Indicators:

- Primary Indicators (minimum of one required; check all that apply)
  - Surface Water (A1)
  - High Water Table (A2)
  - Saturation (A3)
  - Water Marks (B1)
  - Sediment Deposits (B2)
  - Drift deposits (B3)
  - Algal Mat or Crust (B4)
  - Iron Deposits (B5)
  - Surface Soil Cracks (B6)
  - Inundation Visible on Aerial Imagery (B7)
  - Sparsely Vegetated Concave Surface (B8)
  - Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
  - Salt Crust (B11)
  - Aquatic Invertebrates (B13)
  - Hydrogen Sulfide Odor (C1)
  - Oxidized Rhizospheres on Living Roots (C3)
  - Presence of Reduced Iron (C4)
  - Recent Iron Reduction in Tilled Soils (C6)
  - Stunted or Stressed Plants (D1) (LRR A)
  - Other (Explain in Remarks)

- Secondary Indicators (minimum of two required)
  - Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
  - Drainage Patterns (B10)
  - Dry Season Water Table (C2)
  - Saturation Visible on Aerial Imagery (C9)
  - Geomorphic Position (D2)
  - Shallow Aquitard (D3)
  - FAC-neutral Test (D5)
  - Raised Ant Mounds (D6) (LRR A)
  - Frost Heave Hummocks (D7)

Field Observations:

- Surface Water Present? Yes  No
- Water Table Present? Yes  No
- Saturation Present? (includes capillary fringe) Yes  No

Wetland Hydrology Present? Yes  No

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:
No Photo
### Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

<table>
<thead>
<tr>
<th>Hydrophytic Vegetation Present?</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydric Soil Present?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Wetland Hydrology Present?</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

### Hydrophytic Vegetation Present?

- Yes
- No

### Are climatic/hydrologic conditions on the site typical for this time of year?

- Yes
- No

(If no, explain in Remarks.)

### Are Vegetation, Soil, or Hydrology significantly disturbed?

- Yes
- No

(If needed, explain any answers in Remarks.)

### Are Vegetation, Soil, or Hydrology naturally problematic?

- Yes
- No

### Remarks:

**VEGETATION** - Use scientific names of plants.

#### Tree Stratum (Plot size: 10 m)

<table>
<thead>
<tr>
<th>Species</th>
<th>Absolute % Cover</th>
<th>Dominant Species?</th>
<th>Rel.Strat. Cover</th>
<th>Indicator Status</th>
<th>Dominance Test worksheet:</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Quercus garryana</em></td>
<td>70</td>
<td>Yes</td>
<td>87.5% FACU</td>
<td></td>
<td>Number of Dominant Species That are OBL, FACW, or FAC: 2 (A)</td>
</tr>
<tr>
<td><em>Fraxinus latifolia</em></td>
<td>10</td>
<td>No</td>
<td>12.5% FACW</td>
<td></td>
<td>Total Number of Dominant Species Across All Strata: 6 (B)</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td></td>
<td>0.0%</td>
<td></td>
<td>Percent of dominant Species That Are OBL, FACW, or FAC: 33.3% (A/B)</td>
</tr>
</tbody>
</table>

### Prevalence Index worksheet:

- Total % Cover of:
  - OBL species: 0 x 1 = 0
  - FACW species: 10 x 2 = 20
  - FAC species: 60 x 3 = 180
  - FACU species: 145 x 4 = 580
  - UPL species: 10 x 5 = 50

- Column Totals: 225 (A) 830 (B)

- Prevalence Index = B/A = 3.689

### Woody Vine Stratum (Plot size: _________)

<table>
<thead>
<tr>
<th>Species</th>
<th>Absolute % Cover</th>
<th>Dominant Species?</th>
<th>Rel.Strat. Cover</th>
<th>Indicator Status</th>
<th>Dominance Test worksheet:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>No</td>
<td>0.0%</td>
<td></td>
<td>Number of Dominant Species That are OBL, FACW, or FAC: 2 (A)</td>
</tr>
</tbody>
</table>

### Remarks:

**WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region**

**Project/Site:** Tax Lot 2700-Airport Road SE  
**City/County:** Albany  
**State:** OR  
**Sampling Date:** 30-May-18

**Applicant/Owner:** Mike Shults  
**Investigator(s):** Joe Bettis & Justin Votos

**Landform (hillslope, terrace, etc.):** Terrace  
**Local relief (concave, convex, none):** Flat  
**Slope:** 0.0% / 0.0°

**Subregion (LRR):** MLRA 2  
**Lat.: Long.:** 44.633913 / -123.063932  
**Datum:** WGS 84

**Soil Map Unit Name:** Malabon Silty Clay Loam  
**NWI classification:**

**Are climatic/hydrologic conditions on the site typical for this time of year?**

- Yes
- No

(If no, explain in Remarks.)

**Are Vegetation, Soil, or Hydrology significantly disturbed?**

- Yes
- No

(If needed, explain any answers in Remarks.)

**Are Vegetation, Soil, or Hydrology naturally problematic?**

- Yes
- No

(If needed, explain any answers in Remarks.)

**Remarks:**

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.*

**US Army Corps of Engineers**

**Western Mountains, Valleys, and Coast - Version 2.0**
Soil Sampling Point: SP 18

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

<table>
<thead>
<tr>
<th>Depth (inches)</th>
<th>Matrix Color (moist)</th>
<th>%</th>
<th>Redox Features Color (moist)</th>
<th>%</th>
<th>Type</th>
<th>Loc²</th>
<th>Texture</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-13</td>
<td>10YR 3/1</td>
<td>100</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Silty Clay Loam</td>
<td></td>
</tr>
<tr>
<td>13-17</td>
<td>10YR 3/1</td>
<td>97</td>
<td>10YR 3/4</td>
<td>3</td>
<td>C</td>
<td></td>
<td>Silty Clay Loam</td>
<td></td>
</tr>
<tr>
<td>17-20</td>
<td>10YR 3/1</td>
<td>97</td>
<td>7.5YR 2.5/2</td>
<td>3</td>
<td>C</td>
<td></td>
<td>Silty Clay Loam</td>
<td>faint redox</td>
</tr>
</tbody>
</table>

¹Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains ²Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Muck Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1) (except in MLRA 1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

- Type: ___________________________
- Depth (inches): ____________________

Hydric Soil Present? Yes ☐ No ☐

Remarks:

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)

Secondary Indicators (minimum of two required)

- Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres on Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stressed Plants (D1) (LRR A)
- Other (Explain in Remarks)
- Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- Drainage Patterns (B10)
- Dry Season Water Table (C2)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- FAC-neutral Test (D5)
- Raised Ant Mounds (D6) (LRR A)
- Frost Heave Hummocks (D7)

Field Observations:

- Surface Water Present? Yes ☐ No ☐ Depth (inches): _______________
- Water Table Present? Yes ☐ No ☐ Depth (inches): _______________
- Saturation Present? (includes capillary fringe) Yes ☐ No ☐ Depth (inches): _______________

Wetland Hydrology Present? Yes ☐ No ☐

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:
<table>
<thead>
<tr>
<th>Plot ID:</th>
<th>SP_18</th>
</tr>
</thead>
</table>

| Photo Path: | C:\Users\Sedge\Documents\Projects\Shults_SE Airport Road Alb |

<table>
<thead>
<tr>
<th>Photo File:</th>
<th>IMG_6924.JPG</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Orientation:</th>
<th>South-facing</th>
</tr>
</thead>
</table>

| Lat/Lon or UTM: | Long/Easting: 44.633913 | Lat/Northing: -123.063932 |

<table>
<thead>
<tr>
<th>Description:</th>
<th>PP_18</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Photo File:</th>
<th>None.bmp</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Orientation:</th>
<th>-facing</th>
</tr>
</thead>
</table>

| Lat/Lon or UTM: | Long/Easting: 0 | Lat/Northing: 0 |

<table>
<thead>
<tr>
<th>Description:</th>
<th></th>
</tr>
</thead>
</table>
WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: Tax Lot 2700-Airport Road SE  City/County: Albany  State: OR
Applicant/Owner: Mike Shults  Investigator(s): Joe Bettis & Justin Votos
Section, Township, Range: S 09 T 11 S R 3 W
Landform (hillslope, terrace, etc.): Terrace  Local relief (concave, convex, none): Flat
Subregion (LRR): MLRA 2  Lat.: 44.633902  Long.: -123.064081  Sampling Point: SP_19
State LR: OR  Datum: WGS 84
Soil Map Unit Name: Malabon Silty Clay Loam  NWI classification: N

Are climatic/hydrologic conditions on the site typical for this time of year?  Yes ☐  No ☐  (If no, explain in Remarks.)

Are Vegetation ☐ Soil ☐, or Hydrology ☐ significantly disturbed?  Are “Normal Circumstances” present?  Yes ☐  No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic?  (If needed, explain any answers in Remarks.)

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

<table>
<thead>
<tr>
<th>Hydrophytic Vegetation Present?</th>
<th>Yes ☐  No ☐</th>
<th>Is the Sampled Area within a Wetland?</th>
<th>Yes ☐  No ☐</th>
</tr>
</thead>
</table>

Remarks:
Wetland 1; plot located in shallow swale with dried algal mat

VEGETATION - Use scientific names of plants.

<table>
<thead>
<tr>
<th>Tree Stratum (Plot size: 10 m)</th>
<th>Absolute % Cover</th>
<th>Dominant Species?</th>
<th>Indicator Status</th>
<th>Dominance Test worksheet:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>0</td>
<td>0.0%</td>
<td>OBL</td>
<td>Number of Dominant Species That are OBL, FACW, or FAC: 2 (A)</td>
</tr>
<tr>
<td>2.</td>
<td>0</td>
<td>0.0%</td>
<td>FACW</td>
<td>Total Number of Dominant Species Across All Strata: 2 (B)</td>
</tr>
<tr>
<td>3.</td>
<td>0</td>
<td>0.0%</td>
<td>FAC</td>
<td>Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)</td>
</tr>
<tr>
<td>4.</td>
<td>0</td>
<td>0.0%</td>
<td>FACW</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>0</td>
<td>0.0%</td>
<td>FAC</td>
<td></td>
</tr>
</tbody>
</table>

= Total Cover

<table>
<thead>
<tr>
<th>Sapling/Shrub Stratum (Plot size: 5 m)</th>
<th>Absolute % Cover</th>
<th>Dominant Species?</th>
<th>Indicator Status</th>
<th>Dominance Test worksheet:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fraxinus latifolia</td>
<td>100.0% FACW</td>
<td></td>
<td></td>
<td>1 - Rapid Test for Hydrologic Vegetation</td>
</tr>
<tr>
<td>Epilobium ciliatum</td>
<td>5.9% FACW</td>
<td></td>
<td></td>
<td>2 - Dominance Test is &gt; 50%</td>
</tr>
</tbody>
</table>

= Total Cover

<table>
<thead>
<tr>
<th>Herb Stratum (Plot size: 1 m)</th>
<th>Absolute % Cover</th>
<th>Dominant Species?</th>
<th>Indicator Status</th>
<th>Dominance Test worksheet:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alopecurus pratensis</td>
<td>94.1% FAC</td>
<td></td>
<td></td>
<td>3 - Prevalence Index is ≤3.0</td>
</tr>
<tr>
<td>Epilobium ciliatum</td>
<td>0.0% FACW</td>
<td></td>
<td></td>
<td>4 - Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)</td>
</tr>
<tr>
<td>Fraxinus latifolia</td>
<td>0.0% FACW</td>
<td></td>
<td></td>
<td>5 - Wetland Non-Vascular Plants (Explain)</td>
</tr>
<tr>
<td></td>
<td>0.0% FACW</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

= Total Cover

<table>
<thead>
<tr>
<th>Woody Vine Stratum (Plot size: )</th>
<th>Absolute % Cover</th>
<th>Dominant Species?</th>
<th>Indicator Status</th>
<th>Dominance Test worksheet:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.0% FACW</td>
<td></td>
<td></td>
<td>Hydrophytic Vegetation Indicators:</td>
</tr>
</tbody>
</table>

= Total Cover

% Bare Ground in Herb Stratum: 15

Remarks:

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

US Army Corps of Engineers  Western Mountains, Valleys, and Coast - Version 2.0
# Soil

## Profile Description:
(Describe to the depth needed to document the indicator or confirm the absence of indicators.)

<table>
<thead>
<tr>
<th>Depth (inches)</th>
<th>Matrix Type</th>
<th>Color (moist)</th>
<th>%</th>
<th>Redox Features</th>
<th>Color (moist)</th>
<th>%</th>
<th>Texture</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-3</td>
<td>C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains</td>
<td>10YR 3/1 100</td>
<td></td>
<td></td>
<td>7.5YR 2.5/2 3</td>
<td>C</td>
<td>Silty Clay Loam</td>
<td></td>
</tr>
<tr>
<td>3-11</td>
<td>10YR 3/1 95</td>
<td>10YR 4/6 2</td>
<td>C</td>
<td>PL</td>
<td></td>
<td></td>
<td>Silty Clay Loam</td>
<td></td>
</tr>
<tr>
<td>11-20</td>
<td>10YR 3/1 95</td>
<td>10YR 4/4 3</td>
<td>C</td>
<td>M</td>
<td></td>
<td></td>
<td>Silty Clay Loam</td>
<td></td>
</tr>
<tr>
<td>11-20</td>
<td>7.5YR 2.5/2 2</td>
<td></td>
<td>C</td>
<td>M</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1^Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains 2^Location: PL=Pore Lining. M=Matrix

## Hydric Soil Indicators:
(Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Muck Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sand (A10)
- Other (Explain in Remarks)

## Restrictive Layer (if present):

- Type: ____________________________
- Depth (inches): ____________________
- Hydric Soil Present? Yes ☐ No ☐

## Remarks:

## Hydrology

### Wetland Hydrology Indicators:

**Primary Indicators** (minimum of one required; check all that apply)
- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)

**Secondary Indicators** (minimum of two required)
- Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres on Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stressed Plants (D1) (LRR A)
- Other (Explain in Remarks)

### Field Observations:

- Surface Water Present? Yes ☐ No ☐ Depth (inches): __________
- Water Table Present? Yes ☐ No ☐ Depth (inches): __________
- Saturation Present? Yes ☐ No ☐ Depth (inches): __________

**Wetland Hydrology Present?** Yes ☐ No ☐

**Describe Recorded Data** (stream gauge, monitor well, aerial photos, previous inspections), if available:

**Remarks:**
**WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region**

**Project/Site:** Tax Lot 2700-Airport Road SE  
**City/County:** Albany  
**State:** OR  
**Sampling Date:** 30-May-18

**Applicant/Owner:** Mike Shults  
**Section, Township, Range:** S 09 T 11 S R 3 W  
**Landform (hillslope, terrace, etc.):** Terrace  
**Subregion (LRR):** MLRA 2  
**Soil Map Unit Name:** Malabon Silty Clay Loam

Are climatic/hydrologic conditions on the site typical for this time of year?  Yes ☐  No ☐  
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed?  Are "Normal Circumstances" present?  Yes ☐  No ☐

### Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

<table>
<thead>
<tr>
<th>Hydrophytic Vegetation Present?</th>
<th>Yes ☐  No ☐</th>
<th>Is the Sampled Area within a Wetland?</th>
<th>Yes ☐  No ☐</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydric Soil Present?</td>
<td>Yes ☐  No ☐</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wetland Hydrology Present?</td>
<td>Yes ☐  No ☐</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### VEGETATION - Use scientific names of plants.

<table>
<thead>
<tr>
<th>Tree Stratum (Plot size: 10 m)</th>
<th>Absolute % Cover</th>
<th>Dominant Species?</th>
<th>Rel.Strat. Cover</th>
<th>Indicator Status</th>
<th>Dominance Test worksheet:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Quercus garryana</td>
<td>70</td>
<td>☑ 100.0%</td>
<td>FACU</td>
<td>Number of Dominant Species</td>
<td>That are OBL, FACW, or FAC:</td>
</tr>
<tr>
<td>2.</td>
<td>0</td>
<td>0.0%</td>
<td></td>
<td>Total Number of Dominant</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>0</td>
<td>0.0%</td>
<td></td>
<td>Species Across All Strata:</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>0</td>
<td>0.0%</td>
<td></td>
<td>Percent of dominant Species</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>0</td>
<td>0.0%</td>
<td></td>
<td>That Are OBL, FACW, or FAC:</td>
<td></td>
</tr>
<tr>
<td>Total Cover</td>
<td>70</td>
<td></td>
<td></td>
<td>20.0% (A/B)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sapling/Shrub Stratum (Plot size: 5 m)</th>
<th>Absolute % Cover</th>
<th>Dominant Species?</th>
<th>Rel.Strat. Cover</th>
<th>Indicator Status</th>
<th>Dominance Test worksheet:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Symphoricarpus albus</td>
<td>40</td>
<td>☑ 61.5%</td>
<td>FACU</td>
<td>Number of Dominant Species</td>
<td></td>
</tr>
<tr>
<td>2. Prunus domestica</td>
<td>25</td>
<td>☑ 38.5%</td>
<td>FACU</td>
<td>Total Number of Dominant</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>0</td>
<td>0.0%</td>
<td></td>
<td>Species Across All Strata:</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>0</td>
<td>0.0%</td>
<td></td>
<td>Percent of dominant Species</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>0</td>
<td>0.0%</td>
<td></td>
<td>That Are OBL, FACW, or FAC:</td>
<td></td>
</tr>
<tr>
<td>Total Cover</td>
<td>70</td>
<td></td>
<td></td>
<td>20.0% (A/B)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Herb Stratum (Plot size: 1 m)</th>
<th>Absolute % Cover</th>
<th>Dominant Species?</th>
<th>Rel.Strat. Cover</th>
<th>Indicator Status</th>
<th>Dominance Test worksheet:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Claytonia sibirica</td>
<td>20</td>
<td>☑ 29.4%</td>
<td>FAC</td>
<td>Number of Dominant</td>
<td></td>
</tr>
<tr>
<td>2. Galium aparine</td>
<td>20</td>
<td>☑ 29.4%</td>
<td>FAC</td>
<td>Total Number of Dominant</td>
<td></td>
</tr>
<tr>
<td>3. Bromus diandrus</td>
<td>5</td>
<td>7.4%</td>
<td>UPL</td>
<td>Species Across All Strata:</td>
<td></td>
</tr>
<tr>
<td>4. Elymus repens</td>
<td>5</td>
<td>7.4%</td>
<td>FAC</td>
<td>Percent of dominant Species</td>
<td></td>
</tr>
<tr>
<td>5. Torilis arvensis</td>
<td>5</td>
<td>7.4%</td>
<td>UPL</td>
<td>That Are OBL, FACW, or FAC:</td>
<td></td>
</tr>
<tr>
<td>6. Vicia hirsuta</td>
<td>5</td>
<td>7.4%</td>
<td>UPL</td>
<td>20.0% (A/B)</td>
<td></td>
</tr>
<tr>
<td>7. Lapsana communis</td>
<td>3</td>
<td>4.4%</td>
<td>FACW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Camassia leichtlinii</td>
<td>5</td>
<td>7.4%</td>
<td>UPL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>5</td>
<td>7.4%</td>
<td>UPL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>0</td>
<td>0.0%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td>0</td>
<td>0.0%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Cover</td>
<td>65</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Woody Vine Stratum (Plot size: )</th>
<th>Absolute % Cover</th>
<th>Dominant Species?</th>
<th>Rel.Strat. Cover</th>
<th>Indicator Status</th>
<th>Dominance Test worksheet:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>0</td>
<td>0.0%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>0</td>
<td>0.0%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Cover</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

% Bare Ground in Herb Stratum: 35

### Remarks:

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.*
### Soil Sampling Point: SP 20

#### Profile Description:
(Describe to the depth needed to document the indicator or confirm the absence of indicators.)

<table>
<thead>
<tr>
<th>Depth (inches)</th>
<th>Matrix</th>
<th>Redox Features</th>
<th>Texture</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-14</td>
<td>10YR</td>
<td>3/1 100</td>
<td>Silty Clay Loam</td>
<td></td>
</tr>
<tr>
<td>14-20</td>
<td>10YR</td>
<td>4/1 95</td>
<td>Silty Clay Loam</td>
<td></td>
</tr>
</tbody>
</table>

1 Type: C=Concentration. D=Depletion. RM=Reduced Matrix. CS=Covered or Coated Sand Grains. Location: PL=Pore Lining. M=Matrix

#### Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)
- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Muck Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1) (except in MLRA 1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox depressions (F8)

#### Restrictive Layer (if present):
- Type: ____________________________
- Depth (inches): ____________________
- Hydric Soil Present? Yes [ ] No [x]

Remarks:

#### Hydrology

#### Wetland Hydrology Indicators:
- Primary Indicators (minimum of one required; check all that apply)
  - Surface Water (A1)
  - High Water Table (A2)
  - Saturation (A3)
  - Water Marks (B1)
  - Sediment Deposits (B2)
  - Drift deposits (B3)
  - Algal Mat or Crust (B4)
  - Iron Deposits (B5)
  - Surface Soil Cracks (B6)
  - Inundation Visible on Aerial Imagery (B7)
  - Sparsely Vegetated Concave Surface (B8)
  - Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
  - Salt Crust (B11)
  - Aquatic Invertebrates (B13)
  - Hydrogen Sulfide Odor (C1)
  - Oxidized Rhizospheres on Living Roots (C3)
  - Presence of Reduced Iron (C4)
  - Recent Iron Reduction in Tilled Soils (C6)
  - Stunted or Stressed Plants (D1) (LRR A)
  - Other (Explain in Remarks)

- Secondary Indicators (minimum of two required)
  - Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
  - Drainage Patterns (B10)
  - Dry Season Water Table (C2)
  - Saturation Visible on Aerial Imagery (C9)
  - Geomorphic Position (D2)
  - Shallow Aquitard (D3)
  - FAC-neutral Test (D5)
  - Raised Ant Mounds (D6) (LRR A)
  - Frost Heave Hummocks (D7)

#### Field Observations:
- Surface Water Present? Yes [x] No [ ]
- Water Table Present? Yes [x] No [ ]
- Saturation Present? (includes capillary fringe) Yes [x] No [ ]

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:
No Photo
Appendix D

Literature Citations


USGS. 2011. Oregon 7.5 minute Quadrangles.

Overview

The proposed project is located southwest of the intersection of Franklin Avenue SE & Airport Road SE on Tax Lots 2700 & 2701. The improvements involve a ¾ street improvement along the frontage of Franklin Avenue SE and a planned development of the tax lots that incorporates multi-story residential housing, single family housing lots, several private streets, a wetland, and a white oak grove. The size and nature of this development triggers the need for onsite quality and quantity treatment as well as quality treatment in the public ROW. Two water quality planters were selected to handle quality treatment in the ROW of Franklin Avenue and three extended dry basins were selected to handle quality and quantity treatment for the development. Analyses were performed using HydroCAD software to model the proposed development (See Attachments A & B).

The development will take place in five phases (See Attachment C): Phases 1 & 2 will entail the development of the single-family residential lots, as well as majority of the ¾ street frontage improvements for Franklin Avenue SE. Water Quality Facility 1 (Catchment 2P) and Water Quality/Detention Facility 1 (Catchment 4P) will be constructed during Phase 1 and Water Quality Facility 2 (Catchment 3P) will be constructed during Phase 2 (See Attachment D). Phase 3 includes the developing first part of the multi-story residential units, a recreational building, and the remainder of the ¾ street frontage improvements along Franklin Avenue SE. Stormwater from this part will be handled by construction of Water Quality/Detention Facility 2 (Catchment 5P) on the private side and by the already constructed Water Quality Facility 2 (Catchment 3P). Phases 4 & 5 involves the development of two additional multi-family, multi-story residential units as well a series of garage units. Stormwater from this portion of construction will be handled by Water Quality/Detention Facility 3 (Catchment 6P).

Stormwater is collected and held in the facilities, allowing pollutants to filter out and settle into vegetated bottom of the basins. Runoff from the proposed development does not exceed pre-developed conditions. Peak flow rates will be reduced as result of this project.

Applicable Rules and Standards

The City of Albany requires any pipe/ditch that serves a single private development or subdivision equal to or greater than 5 acres with the same drainage sub-basin to be designed to convey the 25-year storm event. City of Albany is requiring quality treatment in the ROW and in the private development. City of Albany also requires that new developments do not contribute peak runoff rates to the existing storm system that exceed pre-developed peak runoff rates for the 2, 5, 10, and 25-year events. The City of Albany allows for overflowing of facilities at the 50-year event.

The SCS TR-20 was used to analyze stormwater runoff for the site per City of Albany design standards. This method utilizes the SCS Type 1A 24-hour design storm. HydroCAD 10 computer software was used
in the analysis. The HydroCAD model utilized the 24-hour storm rainfall intensities listed in the City of Albany design standards, shown in Table 1 below:

<table>
<thead>
<tr>
<th>Recurrence Interval (years)</th>
<th>Total Precipitation Depth (inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Quality</td>
<td>1.00</td>
</tr>
<tr>
<td>2</td>
<td>2.47</td>
</tr>
<tr>
<td>5</td>
<td>2.86</td>
</tr>
<tr>
<td>10</td>
<td>3.37</td>
</tr>
<tr>
<td>25</td>
<td>3.94</td>
</tr>
<tr>
<td>50</td>
<td>4.38</td>
</tr>
</tbody>
</table>

**Existing Conditions**

Catchment (1S) represents the existing site (See Attachment D). Per USDA NRCS WSS records, the soil underlying the project site is 100% Malabon Silty Clay Loam (Hydrological Soil Group (HSG) C). Based on areas interpreted from survey and USDA NRCS WSS records: the existing catchment consists of approximately 68% HSG C Paved Roads with Open Ditches (CN=92), 25% HSG C Brush (CN=70), and 7% HSG C Woods/Grass Combination (CN=76). This corresponds to a weighted CN of 76. The site gently slopes around the existing oak grove (2-4%) into the wetland and the south side of the property. A simplified infiltration rate of 0.20 in/hr, typical for Silty Clay Loams, was used in this design.

**Proposed Conditions**

Fill will retain the same soil characteristics as what is currently on site. The proposed site (Attachment D) will be constructed in five phases. Each phase is planned to have stormwater facilities constructed to handle the improvements and associated water quality/detention standards for that portion of the development. Once completed, the facilities will work in unison to provide quality treatment for the development while reducing peak-runoff rates to below pre-developed conditions. The post developed condition will consist of impervious areas, brush for the wetland, and grass cover for landscaping. The 1/8 acre lots were modeled as 80% impervious. Table 2 below summarizes the conditions for the post-developed site.

<table>
<thead>
<tr>
<th>Area Type</th>
<th>Area (SF)</th>
<th>CN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impervious (Paved Roads, Roofs, Pond Surface, etc.)</td>
<td>96,095</td>
<td>98</td>
</tr>
<tr>
<td>Grass Cover</td>
<td>66,807</td>
<td>74</td>
</tr>
<tr>
<td>Brush</td>
<td>76,610</td>
<td>65</td>
</tr>
<tr>
<td>1/8 Acre Lots</td>
<td>61,755</td>
<td>90</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>301,267</strong></td>
<td><strong>83</strong></td>
</tr>
</tbody>
</table>

These conditions correspond to a weighted CN of 83.

**Hydrology**

Analyses were performed using HydroCAD software (Attachment A and B) to show the proposed system is meeting water quantity and quality requirements. Table 3 below shows a comparison between the peak runoff rates for pre-developed and post-developed storm events.
Table 3: Comparison of Storm Events

<table>
<thead>
<tr>
<th>Event</th>
<th>Pre-Developed (1S)</th>
<th>Franklin Ave 1 (2S)</th>
<th>Franklin Avenue 2 (3S)</th>
<th>Phase 1 &amp; 2 (4S)</th>
<th>Phase 3 (5S)</th>
<th>Phase 4 &amp; 5 (6S)</th>
<th>Wetland (7s)</th>
<th>Total (2S-7S)</th>
</tr>
</thead>
<tbody>
<tr>
<td>WQ</td>
<td>0.03 cfs</td>
<td>0.00 cfs</td>
<td>0.12 cfs</td>
<td>0.04 cfs</td>
<td>0.02 cfs</td>
<td>0.00 cfs</td>
<td>0.16 cfs</td>
<td></td>
</tr>
<tr>
<td>2-year</td>
<td>0.59 cfs</td>
<td>0.06 cfs</td>
<td>0.27 cfs</td>
<td>0.05 cfs</td>
<td>0.14 cfs</td>
<td>0.04 cfs</td>
<td>0.58 cfs</td>
<td></td>
</tr>
<tr>
<td>5-year</td>
<td>0.94 cfs</td>
<td>0.14 cfs</td>
<td>0.44 cfs</td>
<td>0.07 cfs</td>
<td>0.26 cfs</td>
<td>0.05 cfs</td>
<td>0.81 cfs</td>
<td></td>
</tr>
<tr>
<td>10-year</td>
<td>1.46 cfs</td>
<td>0.17 cfs</td>
<td>0.66 cfs</td>
<td>0.08 cfs</td>
<td>0.41 cfs</td>
<td>0.10 cfs</td>
<td>1.39 cfs</td>
<td></td>
</tr>
<tr>
<td>25-year</td>
<td>2.11 cfs</td>
<td>0.21 cfs</td>
<td>0.82 cfs</td>
<td>0.09 cfs</td>
<td>0.55 cfs</td>
<td>0.21 cfs</td>
<td>1.90 cfs</td>
<td></td>
</tr>
<tr>
<td>50-year</td>
<td>2.64 cfs</td>
<td>0.23 cfs</td>
<td>0.93 cfs</td>
<td>0.14 cfs</td>
<td>1.04 cfs</td>
<td>0.31 cfs</td>
<td>2.63 cfs</td>
<td></td>
</tr>
</tbody>
</table>

As seen in the above table and attached storm report, peak flows leaving the site post-development are less than peak flows for the pre-developed condition. Water quality is provided via full infiltration of the water quality event for Water Quality Facilities 1 & 2. Treatment will occur onsite via the permanent pools of the extended dry basins that are Water Quality/Detention Facilities 1-3. This pool collects the water quality event and allows for pollutants to filter out and settle into the vegetated floor of the basin.

Construction of this system will reduce peak flows leaving the site and provide quality treatment previously nonexistent for the area.
ATTACHMENT A

Pre-Developed Site

EX SE Shore Drive
Franklin Reserve Pre-Developed

Prepared by HBH Consulting Engineers

HydroCAD® 10.00-22  s/n 01354  © 2018 HydroCAD Software Solutions LLC

Type IA 24-hr  2-Year Rainfall=2.47”

Printed 3/15/2020

Page 2

Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Pre-Developed Site
Runoff Area=301,267 sf   3.43% Impervious   Runoff Depth=0.68”
Flow Length=565'   Slope=0.0200 '/'   Tc=32.6 min   CN=76   Runoff=0.59 cfs  0.390 af

Reach 1R: EX SE Shore Drive
Avg. Flow Depth=0.35’  Max Vel=2.40 fps  Inflow=0.59 cfs  0.390 af
12.0” Round Pipe   n=0.012   L=161.8’  S=0.0033 '/'  Capacity=2.23 cfs  Outflow=0.59 cfs  0.390 af
Summary for Subcatchment 1S: Pre-Developed Site

Runoff = 0.59 cfs @ 8.37 hrs, Volume= 0.390 af, Depth= 0.68"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type IA 24-hr 2-Year Rainfall=2.47"

<table>
<thead>
<tr>
<th>Area (sf)</th>
<th>CN</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>20,655</td>
<td>92</td>
<td>Paved roads w/open ditches, 50% imp, HSG C</td>
</tr>
<tr>
<td>76,610</td>
<td>70</td>
<td>Brush, Fair, HSG C</td>
</tr>
<tr>
<td>204,002</td>
<td>76</td>
<td>Woods/grass comb., Fair, HSG C</td>
</tr>
<tr>
<td>301,267</td>
<td>76</td>
<td>Weighted Average</td>
</tr>
<tr>
<td>290,940</td>
<td>75</td>
<td>96.57% Pervious Area</td>
</tr>
<tr>
<td>10,328</td>
<td>98</td>
<td>3.43% Impervious Area</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tc (min)</th>
<th>Length (feet)</th>
<th>Slope (ft/ft)</th>
<th>Velocity (ft/sec)</th>
<th>Capacity (cfs)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>22.8</td>
<td>150</td>
<td>0.0200</td>
<td>0.11</td>
<td></td>
<td>Sheet Flow, Sheet</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Grass: Dense n= 0.240 P2= 2.40&quot;</td>
</tr>
<tr>
<td>9.8</td>
<td>415</td>
<td>0.0200</td>
<td>0.71</td>
<td></td>
<td>Shallow Concentrated Flow, SCF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Woodland Kv= 5.0 fps</td>
</tr>
</tbody>
</table>

32.6  565  Total

Subcatchment 1S: Pre-Developed Site

Hydrograph

Type IA 24-hr 2-Year Rainfall=2.47"
Runoff Area=301,267 sf
Runoff Volume=0.390 af
Runoff Depth=0.68"
Flow Length=565'
Slope=0.0200 '/'
Tc=32.6 min
CN=76
Summary for Reach 1R: EX SE Shore Drive

Inflow Area = 6.916 ac, 3.43% Impervious, Inflow Depth = 0.68" for 2-Year event
Inflow = 0.59 cfs @ 8.37 hrs, Volume = 0.390 af
Outflow = 0.59 cfs @ 8.40 hrs, Volume = 0.390 af, Atten= 0%, Lag= 1.8 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.40 fps, Min. Travel Time= 1.1 min
Avg. Velocity = 1.76 fps, Avg. Travel Time= 1.5 min

Peak Storage= 40 cf @ 8.38 hrs
Average Depth at Peak Storage= 0.35'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.23 cfs

12.0" Round Pipe
n= 0.012 PVC, smooth interior
Length= 161.8' Slope= 0.0033 '
Inlet Invert= 210.64', Outlet Invert= 210.10'

Reach 1R: EX SE Shore Drive

Inflow Area=6.916 ac
Avg. Flow Depth=0.35'
Max Vel=2.40 fps
12.0" Round Pipe
n= 0.012
L=161.8'
S=0.0033 '/'
Capacity=2.23 cfs
Type IA 24-hr  5-Year Rainfall=2.86”

Franklin Reserve Pre-Developed
Prepared by HBH Consulting Engineers
Printed 3/15/2020

Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Pre-Developed Site
Runoff Area=301,267 sf   3.43% Impervious   Runoff Depth=0.92”
Flow Length=565’   Slope=0.0200 ’/’   Tc=32.6 min   CN=76   Runoff=0.94 cfs  0.531 af

Reach 1R: EX SE Shore Drive
Avg. Flow Depth=0.45’   Max Vel=2.72 fps   Inflow=0.94 cfs  0.531 af
12.0” Round Pipe   n=0.012   L=161.8’   S=0.0033 ’/’   Capacity=2.23 cfs   Outflow=0.94 cfs  0.531 af
Summary for Subcatchment 1S: Pre-Developed Site

Runoff = 0.94 cfs @ 8.33 hrs, Volume= 0.531 af, Depth= 0.92"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type IA 24-hr 5-Year Rainfall=2.86"

<table>
<thead>
<tr>
<th>Area (sf)</th>
<th>CN</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>20,655</td>
<td>92</td>
<td>Paved roads w/open ditches, 50% imp, HSG C</td>
</tr>
<tr>
<td>76,610</td>
<td>70</td>
<td>Brush, Fair, HSG C</td>
</tr>
<tr>
<td>204,002</td>
<td>76</td>
<td>Woods/grass comb., Fair, HSG C</td>
</tr>
<tr>
<td>301,267</td>
<td>76</td>
<td>Weighted Average</td>
</tr>
<tr>
<td>290,940</td>
<td>75</td>
<td>96.57% Pervious Area</td>
</tr>
<tr>
<td>10,328</td>
<td>98</td>
<td>3.43% Impervious Area</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tc (min)</th>
<th>Length (feet)</th>
<th>Slope (ft/ft)</th>
<th>Velocity (ft/sec)</th>
<th>Capacity (cfs)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>22.8</td>
<td>150</td>
<td>0.0200</td>
<td>0.11</td>
<td></td>
<td>Sheet Flow, Sheet</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Grass: Dense n= 0.240 P2= 2.40&quot;</td>
</tr>
<tr>
<td>9.8</td>
<td>415</td>
<td>0.0200</td>
<td>0.71</td>
<td></td>
<td>Shallow Concentrated Flow, SCF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Woodland Kv= 5.0 fps</td>
</tr>
</tbody>
</table>

32.6 565 Total

Subcatchment 1S: Pre-Developed Site

Type IA 24-hr 5-Year Rainfall=2.86"
Runoff Area=301,267 sf
Runoff Volume=0.531 af
Runoff Depth=0.92"
Flow Length=565'
Slope=0.0200 '/'
Tc=32.6 min
CN=76
Summary for Reach 1R: EX SE Shore Drive

Inflow Area = 6.916 ac, 3.43% Impervious, Inflow Depth = 0.92" for 5-Year event
Inflow = 0.94 cfs @ 8.33 hrs, Volume= 0.531 af
Outflow = 0.94 cfs @ 8.36 hrs, Volume= 0.531 af, Atten= 0%, Lag= 1.7 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.72 fps, Min. Travel Time= 1.0 min
Avg. Velocity = 1.89 fps, Avg. Travel Time= 1.4 min

Peak Storage= 56 cf @ 8.34 hrs
Average Depth at Peak Storage= 0.45'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.23 cfs

12.0" Round Pipe
n= 0.012 PVC, smooth interior
Length= 161.8' Slope= 0.0033 '/'
Inlet Invert= 210.64', Outlet Invert= 210.10'

Reach 1R: EX SE Shore Drive

Hydrograph

Inflow Area=6.916 ac
Avg. Flow Depth=0.45'
Max Vel=2.72 fps
12.0" Round Pipe
n=0.012
L=161.8'
S=0.0033 '/'
Capacity=2.23 cfs
Franklin Reserve Pre-Developed

Prepared by HBH Consulting Engineers

Type IA 24-hr 10-Year Rainfall=3.37”

Printed 3/15/2020

HydroCAD® 10.00-22 s/n 01354 © 2018 HydroCAD Software Solutions LLC

Page 8

Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Pre-Developed Site
Runoff Area=301,267 sf  3.43% Impervious  Runoff Depth=1.27”
Flow Length=565’  Slope=0.0200 '/'  Tc=32.6 min  CN=76  Runoff=1.46 cfs  0.733 af

Reach 1R: EX SE Shore Drive
Avg. Flow Depth=0.59”  Max Vel=3.03 fps  Inflow=1.46 cfs  0.733 af
12.0” Round Pipe  n=0.012  L=161.8’  S=0.0033 '/'  Capacity=2.23 cfs  Outflow=1.46 cfs  0.733 af
Summary for Subcatchment 1S: Pre-Developed Site

Runoff = 1.46 cfs @ 8.30 hrs, Volume= 0.733 af, Depth= 1.27"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type IA 24-hr 10-Year Rainfall=3.37"

<table>
<thead>
<tr>
<th>Area (sf)</th>
<th>CN</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>20,655</td>
<td>92</td>
<td>Paved roads w/open ditches, 50% imp, HSG C</td>
</tr>
<tr>
<td>76,610</td>
<td>70</td>
<td>Brush, Fair, HSG C</td>
</tr>
<tr>
<td>204,002</td>
<td>76</td>
<td>Woods/grass comb., Fair, HSG C</td>
</tr>
<tr>
<td>301,267</td>
<td>76</td>
<td>Weighted Average</td>
</tr>
<tr>
<td>290,940</td>
<td>75</td>
<td>96.57% Pervious Area</td>
</tr>
<tr>
<td>10,328</td>
<td>98</td>
<td>3.43% Impervious Area</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tc (min)</th>
<th>Length (feet)</th>
<th>Slope (ft/ft)</th>
<th>Velocity (ft/sec)</th>
<th>Capacity (cfs)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>22.8</td>
<td>150</td>
<td>0.0200</td>
<td>0.11</td>
<td></td>
<td>Sheet Flow, Sheet</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Grass: Dense n= 0.240 P2= 2.40&quot;</td>
</tr>
<tr>
<td>9.8</td>
<td>415</td>
<td>0.0200</td>
<td>0.71</td>
<td></td>
<td>Shallow Concentrated Flow, SCF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Woodland Kv= 5.0 fps</td>
</tr>
</tbody>
</table>

32.6 565 Total

Subcatchment 1S: Pre-Developed Site

Type IA 24-hr 10-Year Rainfall=3.37"
Runoff Area=301,267 sf
Runoff Volume=0.733 af
Runoff Depth=1.27"
Flow Length=565'
Slope=0.0200'/'
Tc=32.6 min
CN=76
Summary for Reach 1R: EX SE Shore Drive

Inflow Area = 6.916 ac, 3.43% Impervious, Inflow Depth = 1.27" for 10-Year event
Inflow = 1.46 cfs @ 8.30 hrs, Volume= 0.733 af
Outflow = 1.46 cfs @ 8.33 hrs, Volume= 0.733 af, Atten= 0%, Lag= 1.7 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.03 fps, Min. Travel Time= 0.9 min
Avg. Velocity = 2.05 fps, Avg. Travel Time= 1.3 min

Peak Storage= 78 cf @ 8.31 hrs
Average Depth at Peak Storage= 0.59'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.23 cfs

12.0" Round Pipe
n= 0.012 PVC, smooth interior
Length= 161.8' Slope= 0.0033 '/
Inlet Invert= 210.64', Outlet Invert= 210.10'

Reach 1R: EX SE Shore Drive

Hydrograph

Inflow Area=6.916 ac
Avg. Flow Depth=0.59'
Max Vel=3.03 fps
12.0"
Round Pipe
n=0.012
L=161.8'
S=0.0033 '/
Capacity=2.23 cfs
Franklin Reserve Pre-Developed
Prepared by HBH Consulting Engineers
Printed 3/15/2020
HydroCAD® 10.00-22  s/n 01354  © 2018 HydroCAD Software Solutions LLC

Type IA 24-hr  25-Year Rainfall = 3.94”

Time span = 0.00-36.00 hrs, dt = 0.01 hrs, 3601 points
Runoff by SCS TR-20 method, UH = SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Pre-Developed Site
Runoff Area = 301,267 sf  3.43% Impervious  Runoff Depth = 1.69”
Flow Length = 565’  Slope = 0.0200 ’/’  Tc = 32.6 min  CN = 76  Runoff = 2.11 cfs  0.976 af

Reach 1R: EX SE Shore Drive
Avg. Flow Depth = 0.77’  Max Vel = 3.23 fps  Inflow = 2.11 cfs  0.976 af
12.0” Round Pipe  n = 0.012  L = 161.8’  S = 0.0033 ’/’  Capacity = 2.23 cfs  Outflow = 2.10 cfs  0.976 af
Summary for Subcatchment 1S: Pre-Developed Site

Runoff = 2.11 cfs @ 8.29 hrs, Volume = 0.976 af, Depth = 1.69"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span = 0.00-36.00 hrs, dt = 0.01 hrs
Type IA 24-hr 25-Year Rainfall = 3.94"

<table>
<thead>
<tr>
<th>Area (sf)</th>
<th>CN</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>20,655</td>
<td>92</td>
<td>Paved roads w/open ditches, 50% imp, HSG C</td>
</tr>
<tr>
<td>76,610</td>
<td>70</td>
<td>Brush, Fair, HSG C</td>
</tr>
<tr>
<td>204,002</td>
<td>76</td>
<td>Woods/grass comb., Fair, HSG C</td>
</tr>
<tr>
<td>301,267</td>
<td>76</td>
<td>Weighted Average</td>
</tr>
<tr>
<td>290,940</td>
<td>75</td>
<td>96.57% Pervious Area</td>
</tr>
<tr>
<td>10,328</td>
<td>98</td>
<td>3.43% Impervious Area</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tc (min)</th>
<th>Length (feet)</th>
<th>Slope (ft/ft)</th>
<th>Velocity (ft/sec)</th>
<th>Capacity (cfs)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>22.8</td>
<td>150</td>
<td>0.0200</td>
<td>0.11</td>
<td></td>
<td>Sheet Flow, Sheet Grass: Dense n = 0.240 P2 = 2.40&quot;</td>
</tr>
<tr>
<td>9.8</td>
<td>415</td>
<td>0.0200</td>
<td>0.71</td>
<td></td>
<td>Shallow Concentrated Flow, SCF Woodland Kv = 5.0 fps</td>
</tr>
</tbody>
</table>

Total Tc = 32.6 min, Total Flow Length = 565' Slope = 0.0200 '/'

Subcatchment 1S: Pre-Developed Site

Hydrograph

Type IA 24-hr 25-Year Rainfall = 3.94"
Runoff Area = 301,267 sf
Runoff Volume = 0.976 af
Runoff Depth = 1.69"
Flow Length = 565'
Slope = 0.0200 '/'
Tc = 32.6 min
CN = 76
Summary for Reach 1R: EX SE Shore Drive

Inflow Area = 6.916 ac, 3.43% Impervious, Inflow Depth = 1.69" for 25-Year event
Inflow = 2.11 cfs @ 8.29 hrs, Volume= 0.976 af
Outflow = 2.10 cfs @ 8.32 hrs, Volume= 0.976 af, Atten= 0%, Lag= 1.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.23 fps, Min. Travel Time= 0.8 min
Avg. Velocity = 2.18 fps, Avg. Travel Time= 1.2 min

Peak Storage= 105 cf @ 8.30 hrs
Average Depth at Peak Storage= 0.77'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.23 cfs

12.0" Round Pipe
n= 0.012 PVC, smooth interior
Length= 161.8' Slope= 0.0033 '
Inlet Invert= 210.64', Outlet Invert= 210.10'

Reach 1R: EX SE Shore Drive
Franklin Reserve Pre-Developed

Type IA 24-hr  50-Year Rainfall=4.38"

Prepared by HBH Consulting Engineers
Printed 3/15/2020
HydroCAD® 10.00-22  s/n 01354  © 2018 HydroCAD Software Solutions LLC

Page 14

Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Pre-Developed Site
Runoff Area=301,267 sf  3.43% Impervious  Runoff Depth=2.03"
Flow Length=565'  Slope=0.0200 '/'  Tc=32.6 min  CN=76  Runoff=2.64 cfs  1.173 af

Reach 1R: EX SE Shore Drive
Avg. Flow Depth=1.00’  Max Vel=3.24 fps  Inflow=2.64 cfs  1.173 af
12.0” Round Pipe  n=0.012  L=161.8’  S=0.0033 '/'  Capacity=2.23 cfs  Outflow=2.40 cfs  1.173 af
Summary for Subcatchment 1S: Pre-Developed Site

Runoff = 2.64 cfs @ 8.29 hrs, Volume= 1.173 af, Depth= 2.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type IA 24-hr 50-Year Rainfall=4.38"

<table>
<thead>
<tr>
<th>Area (sf)</th>
<th>CN</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>20,655</td>
<td>92</td>
<td>Paved roads w/open ditches, 50% imp, HSG C</td>
</tr>
<tr>
<td>76,610</td>
<td>70</td>
<td>Brush, Fair, HSG C</td>
</tr>
<tr>
<td>204,002</td>
<td>76</td>
<td>Woods/grass comb., Fair, HSG C</td>
</tr>
<tr>
<td>301,267</td>
<td>76</td>
<td>Weighted Average</td>
</tr>
<tr>
<td>299,940</td>
<td>75</td>
<td>96.57% Pervious Area</td>
</tr>
<tr>
<td>10,328</td>
<td>98</td>
<td>3.43% Impervious Area</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tc (min)</th>
<th>Length (feet)</th>
<th>Slope (ft/ft)</th>
<th>Velocity (ft/sec)</th>
<th>Capacity (cfs)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>22.8</td>
<td>150</td>
<td>0.0200</td>
<td>0.11</td>
<td></td>
<td>Sheet Flow, Sheet</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Grass: Dense n= 0.240 P2= 2.40&quot;</td>
</tr>
<tr>
<td>9.8</td>
<td>415</td>
<td>0.0200</td>
<td>0.71</td>
<td></td>
<td>Shallow Concentrated Flow, SCF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Woodland Kv= 5.0 fps</td>
</tr>
</tbody>
</table>

Tc=32.6 min  CN=76

Subcatchment 1S: Pre-Developed Site

Hydrograph

Type IA 24-hr 50-Year Rainfall=4.38"
Runoff Area=301,267 sf
Runoff Volume=1.173 af
Runoff Depth=2.03"
Flow Length=565'
Slope=0.0200 '/'
Tc=32.6 min
CN=76
Summary for Reach 1R: EX SE Shore Drive

Inflow Area = 6.916 ac, 3.43% Impervious, Inflow Depth = 2.03" for 50-Year event
Inflow = 2.64 cfs @ 8.29 hrs, Volume= 1.173 af
Outflow = 2.40 cfs @ 8.17 hrs, Volume= 1.173 af, Atten= 9%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.24 fps, Min. Travel Time= 0.8 min
Avg. Velocity = 2.26 fps, Avg. Travel Time= 1.2 min

Peak Storage= 127 cf @ 8.17 hrs
Average Depth at Peak Storage= 1.00'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.23 cfs

12.0" Round Pipe
n= 0.012  PVC, smooth interior
Length= 161.8'  Slope= 0.0033 '/'
Inlet Invert= 210.64', Outlet Invert= 210.10'

Reach 1R: EX SE Shore Drive

Hydrograph

Inflow Area=6.916 ac
Avg. Flow Depth=1.00'
Max Vel=3.24 fps
12.0"
Round Pipe
n=0.012
L=161.8'
S=0.0033 '/'
Capacity=2.23 cfs
Franklin Reserve Pre-Developed

Prepared by HBH Consulting Engineers

HydroCAD® 10.00-22  s/n 01354  © 2018 HydroCAD Software Solutions LLC

Type IA 24-hr  WQ Rainfall=1.00"

Printed 3/15/2020

Printed 3/15/2020

Prepared by HBH Consulting Engineers

HydroCAD® 10.00-22  s/n 01354  © 2018 HydroCAD Software Solutions LLC

Page 17

ATTACHMENT L.20

Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Pre-Developed Site
Runoff Area=301,267 sf  3.43% Impervious  Runoff Depth=0.04"
Flow Length=565'  Slope=0.0200 '/'  Tc=32.6 min  CN=76  Runoff=0.03 cfs  0.022 af

Reach 1R: EX SE Shore Drive
Avg. Flow Depth=0.08’  Max Vel=0.97 fps  Inflow=0.03 cfs  0.022 af
12.0” Round Pipe  n=0.012  L=161.8’  S=0.0033 '/'  Capacity=2.23 cfs  Outflow=0.03 cfs  0.022 af
Summary for Subcatchment 1S: Pre-Developed Site

Runoff = 0.03 cfs @ 21.55 hrs, Volume= 0.022 af, Depth= 0.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type IA 24-hr WQ Rainfall=1.00"

<table>
<thead>
<tr>
<th>Area (sf)</th>
<th>CN</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>20,655</td>
<td>92</td>
<td>Paved roads w/open ditches, 50% imp, HSG C</td>
</tr>
<tr>
<td>76,610</td>
<td>70</td>
<td>Brush, Fair, HSG C</td>
</tr>
<tr>
<td>204,002</td>
<td>76</td>
<td>Woods/grass comb., Fair, HSG C</td>
</tr>
<tr>
<td>301,267</td>
<td>76</td>
<td>Weighted Average</td>
</tr>
<tr>
<td>290,940</td>
<td>75</td>
<td>96.57% Pervious Area</td>
</tr>
<tr>
<td>10,328</td>
<td>98</td>
<td>3.43% Impervious Area</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tc (min)</th>
<th>Length (feet)</th>
<th>Slope (ft/ft)</th>
<th>Velocity (ft/sec)</th>
<th>Capacity (cfs)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>22.8</td>
<td>150</td>
<td>0.0200</td>
<td>0.11</td>
<td></td>
<td><strong>Sheet Flow, Sheet</strong></td>
</tr>
<tr>
<td>9.8</td>
<td>415</td>
<td>0.0200</td>
<td>0.71</td>
<td></td>
<td><strong>Shallow Concentrated Flow, SCF</strong></td>
</tr>
</tbody>
</table>

32.6 565 Total

Subcatchment 1S: Pre-Developed Site

Hydrograph

Type IA 24-hr
WQ Rainfall=1.00"
Runoff Area=301,267 sf
Runoff Volume=0.022 af
Runoff Depth=0.04"
Flow Length=565'
Slope=0.0200 '/'
Tc=32.6 min
CN=76
Summary for Reach 1R: EX SE Shore Drive

Inflow Area = 6.916 ac, 3.43% Impervious, Inflow Depth = 0.04" for WQ event
Inflow = 0.03 cfs @ 21.55 hrs, Volume= 0.022 af
Outflow = 0.03 cfs @ 21.69 hrs, Volume= 0.022 af, Atten= 0%, Lag= 8.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.97 fps, Min. Travel Time= 2.8 min
Avg. Velocity = 0.81 fps, Avg. Travel Time= 3.3 min

Peak Storage= 5 cf @ 21.64 hrs
Average Depth at Peak Storage= 0.08'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.23 cfs

12.0" Round Pipe
n= 0.012 PVC, smooth interior
Length= 161.8' Slope= 0.0033 '/'
Inlet Invert= 210.64', Outlet Invert= 210.10'

Reach 1R: EX SE Shore Drive

Hydrograph

Inflow Area=6.916 ac
Avg. Flow Depth=0.08'
Max Vel=0.97 fps
12.0"
Round Pipe
n=0.012
L=161.8'
S=0.0033 '/'
Capacity=2.23 cfs
Franklin Reserve Post-Developed Type IA 24-hr 2-Year Rainfall=2.47”
Prepared by HBH Consulting Engineers Printed 3/15/2020
HydroCAD® 10.00-22 s/n 01354 © 2018 HydroCAD Software Solutions LLC

Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 2S: Franklin Ave 1
Runoff Area=10,733 sf  84.20% Impervious  Runoff Depth=1.84”
Flow Length=242’  Slope=0.0200 '/'  Tc=10.0 min  CN=94  Runoff=0.12 cfs  0.038 af

Subcatchment 3S: Franklin Ave 2
Runoff Area=10,498 sf  81.80% Impervious  Runoff Depth=1.84”
Flow Length=274’  Slope=0.0200 '/'  Tc=10.0 min  CN=94  Runoff=0.12 cfs  0.037 af

Subcatchment 4S: Phase 1 & 2
Runoff Area=73,511 sf  65.62% Impervious  Runoff Depth=1.84”
Flow Length=500’  Tc=10.2 min  CN=91  Runoff=0.67 cfs  0.223 af

Subcatchment 5S: Phase 3
Runoff Area=31,101 sf  71.57% Impervious  Runoff Depth=1.75”
Flow Length=360’  Tc=10.0 min  CN=93  Runoff=0.32 cfs  0.104 af

Subcatchment 6S: Phase 4 & 5
Runoff Area=98,814 sf  42.16% Impervious  Runoff Depth=1.58”
Flow Length=422’  Tc=10.0 min  CN=83  Runoff=0.51 cfs  0.195 af

Subcatchment 7S: Wetland
Runoff Area=76,610 sf  0.00% Impervious  Runoff Depth=0.29”
Flow Length=365’  Slope=0.0200 '/'  Tc=27.9 min  CN=65  Runoff=0.04 cfs  0.042 af

Reach 1R: EX SE Shore Drive
12.0” Round Pipe  n=0.012  L=161.8’  S=0.0033 '/'  Capacity=2.23 cfs  Outflow=0.58 cfs  0.603 af

Reach 2R: Franklin Avenue 3
12.0” Round Pipe  n=0.012  L=147.0’  S=0.0050 '/'  Capacity=2.74 cfs  Outflow=0.57 cfs  0.561 af

Reach 4R: Franklin Avenue 2
12.0” Round Pipe  n=0.012  L=98.9’  S=0.0050 '/'  Capacity=2.72 cfs  Outflow=0.51 cfs  0.534 af

Reach 5R: Franklin Avenue 1
12.0” Round Pipe  n=0.012  L=157.1’  S=0.0050 '/'  Capacity=2.74 cfs  Outflow=0.06 cfs  0.026 af

Reach 7R: Private Road A 2
12.0” Round Pipe  n=0.012  L=132.9’  S=0.0050 '/'  Capacity=2.72 cfs  Outflow=0.46 cfs  0.508 af

Reach 8R: Pond 1 Lateral
12.0” Round Pipe  n=0.012  L=26.1’  S=0.0050 '/'  Capacity=2.72 cfs  Outflow=0.27 cfs  0.221 af

Reach 10R: Private Road A 1
12.0” Round Pipe  n=0.012  L=38.5’  S=0.0049 '/'  Capacity=2.71 cfs  Outflow=0.19 cfs  0.287 af

Reach 11R: Pond 2 Lateral
12.0” Round Pipe  n=0.012  L=98.2’  S=0.0050 '/'  Capacity=2.73 cfs  Outflow=0.14 cfs  0.190 af

Reach 13R: Pond 3 Lateral
12.0” Round Pipe  n=0.012  L=297.0’  S=0.0050 '/'  Capacity=2.73 cfs  Outflow=0.14 cfs  0.190 af

Pond 2P: WQ Facility 1
Peak Elev=214.88’ Storage=0.009 af  Inflow=0.12 cfs  0.038 af
Discarded=0.00 cfs  0.007 af  Primary=0.06 cfs  0.027 af  Outflow=0.07 cfs  0.034 af
Franklin Reserve Post-Developed
Prepared by HBH Consulting Engineers
Type IA 24-hr 2-Year Rainfall=2.47"
Printed 3/15/2020

HydroCAD® 10.00-22 s/n 01354 © 2018 HydroCAD Software Solutions LLC
Page 3

Pond 3P: WQ Facility 2
Peak Elev=216.35'  Storage=0.009 af  Inflow=0.12 cfs  0.037 af
Discarded=0.00 cfs  0.007 af  Primary=0.06 cfs  0.026 af  Outflow=0.06 cfs  0.033 af

Pond 4P: WQ/Det Facility 1
Peak Elev=217.13'  Storage=875 cf  Inflow=0.67 cfs  0.223 af
Discarded=0.00 cfs  0.001 af  Primary=0.27 cfs  0.221 af  Outflow=0.27 cfs  0.223 af

Pond 5P: WQ/Det Facility 2
Peak Elev=218.00'  Storage=1,190 cf  Inflow=0.32 cfs  0.104 af
Discarded=0.00 cfs  0.007 af  Primary=0.05 cfs  0.097 af  Outflow=0.06 cfs  0.104 af

Pond 6P: WQ/Det Facility 3
Peak Elev=218.55'  Storage=1,176 cf  Inflow=0.51 cfs  0.195 af
Discarded=0.00 cfs  0.005 af  Primary=0.14 cfs  0.190 af  Outflow=0.15 cfs  0.195 af
Summary for Subcatchment 2S: Franklin Ave 1

Runoff = 0.12 cfs @ 7.97 hrs, Volume= 0.038 af, Depth= 1.84"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type IA 24-hr 2-Year Rainfall=2.47"

<table>
<thead>
<tr>
<th>Area (sf)</th>
<th>CN</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>9,037</td>
<td>98</td>
<td>Paved roads w/curbs &amp; sewers, HSG C</td>
</tr>
<tr>
<td>1,696</td>
<td>74</td>
<td>&gt;75% Grass cover, Good, HSG C</td>
</tr>
<tr>
<td>10,733</td>
<td>94</td>
<td>Weighted Average</td>
</tr>
<tr>
<td>1,696</td>
<td>74</td>
<td>15.80% Pervious Area</td>
</tr>
<tr>
<td>9,037</td>
<td>98</td>
<td>84.20% Impervious Area</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tc (min)</th>
<th>Length (feet)</th>
<th>Slope (ft/ft)</th>
<th>Velocity (ft/sec)</th>
<th>Capacity (cfs)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.7</td>
<td>40</td>
<td>0.0200</td>
<td>0.99</td>
<td></td>
<td><strong>Sheet Flow, Sheet</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Smooth surfaces n= 0.011 P2= 2.40&quot;</td>
</tr>
<tr>
<td>1.2</td>
<td>202</td>
<td>0.0200</td>
<td>2.87</td>
<td></td>
<td><strong>Shallow Concentrated Flow, SCF</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Paved Kv= 20.3 fps</td>
</tr>
<tr>
<td>1.9</td>
<td>242</td>
<td></td>
<td></td>
<td></td>
<td><strong>Total, Increased to minimum Tc = 10.0 min</strong></td>
</tr>
</tbody>
</table>

Subcatchment 2S: Franklin Ave 1

- **Type IA 24-hr 2-Year Rainfall=2.47"**
- **Runoff Area=10,733 sf**
- **Runoff Volume=0.038 af**
- **Runoff Depth=1.84"**
- **Flow Length=242'**
- **Slope=0.0200 '/'**
- **Tc=10.0 min**
- **CN=94**
Summary for Subcatchment 3S: Franklin Ave 2

Runoff $= 0.12 \text{ cfs} @ 7.97 \text{ hrs}$, Volume $= 0.037 \text{ af}$, Depth $= 1.84"$

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span $= 0.00-36.00 \text{ hrs}$, dt $= 0.01 \text{ hrs}$

Type IA 24-hr  2-Year Rainfall=$2.47"$

<table>
<thead>
<tr>
<th>Area (sf)</th>
<th>CN</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>8,587</td>
<td>98</td>
<td>Paved roads w/curbs &amp; sewers, HSG C</td>
</tr>
<tr>
<td>1,911</td>
<td>74</td>
<td>&gt;75% Grass cover, Good, HSG C</td>
</tr>
<tr>
<td>10,498</td>
<td>94</td>
<td>Weighted Average</td>
</tr>
<tr>
<td>1,911</td>
<td>74</td>
<td>18.20% Pervious Area</td>
</tr>
<tr>
<td>8,587</td>
<td>98</td>
<td>81.80% Impervious Area</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tc (min)</th>
<th>Length (feet)</th>
<th>Slope (ft/ft)</th>
<th>Velocity (ft/sec)</th>
<th>Capacity (cfs)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.7</td>
<td>40</td>
<td>0.0200</td>
<td>0.99</td>
<td></td>
<td>Sheet Flow, Sheet</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Smooth surfaces n= 0.011 P2= 2.40&quot;</td>
</tr>
<tr>
<td>1.4</td>
<td>234</td>
<td>0.0200</td>
<td>2.87</td>
<td></td>
<td>Shallow Concentrated Flow, SCF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Paved Kv= 20.3 fps</td>
</tr>
</tbody>
</table>

2.1  274  Total, Increased to minimum Tc = 10.0 min

Subcatchment 3S: Franklin Ave 2

Hydrograph

Type IA 24-hr  2-Year Rainfall=$2.47"$
Runoff Area=$10,498 \text{ sf}$
Runoff Volume=$0.037 \text{ af}$
Runoff Depth=$1.84"$
Flow Length=$274'$
Slope=$0.0200 '\/'$
Tc=$10.0 \text{ min}$
CN=$94$
Summary for Subcatchment 4S: Phase 1 & 2

Runoff = 0.67 cfs @ 8.01 hrs, Volume= 0.223 af, Depth= 1.58"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type IA 24-hr 2-Year Rainfall=2.47"

<table>
<thead>
<tr>
<th>Area (sf)</th>
<th>CN</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>8,098</td>
<td>98</td>
<td>Paved parking, HSG C</td>
</tr>
<tr>
<td>1,945</td>
<td>98</td>
<td>Water Surface, 0% imp, HSG C</td>
</tr>
<tr>
<td>61,755</td>
<td>90</td>
<td>1/8 acre lots, 65% imp, HSG C</td>
</tr>
<tr>
<td>1,713</td>
<td>74</td>
<td>&gt;75% Grass cover, Good, HSG C</td>
</tr>
<tr>
<td>73,511</td>
<td>91</td>
<td>Weighted Average</td>
</tr>
<tr>
<td>25,272</td>
<td>77</td>
<td>34.38% Pervious Area</td>
</tr>
<tr>
<td>48,239</td>
<td>98</td>
<td>65.62% Impervious Area</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tc (min)</th>
<th>Length (feet)</th>
<th>Slope (ft/ft)</th>
<th>Velocity (ft/sec)</th>
<th>Capacity (cfs)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.0</td>
<td>20</td>
<td>0.0200</td>
<td>0.05</td>
<td></td>
<td>Sheet Flow, Sheet</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Grass: Bermuda</td>
<td>n = 0.410</td>
<td>P2 = 2.40&quot;</td>
</tr>
<tr>
<td>1.3</td>
<td>80</td>
<td>0.0200</td>
<td>0.99</td>
<td></td>
<td>Shallow Concentrated Flow, SCF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Short Grass Pasture</td>
<td>Kv = 7.0 fps</td>
<td></td>
</tr>
<tr>
<td>1.9</td>
<td>400</td>
<td>0.0050</td>
<td>3.47</td>
<td>2.73</td>
<td>Pipe Channel, To Pond</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>12.0&quot; Round</td>
<td>Area = 0.8 sf</td>
<td>Perim = 3.1' r = 0.25' n = 0.012</td>
</tr>
<tr>
<td>10.2</td>
<td>500</td>
<td>Total</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Subcatchment 4S: Phase 1 & 2

Type IA 24-hr 2-Year Rainfall=2.47"
Runoff Area=73,511 sf
Runoff Volume=0.223 af
Runoff Depth=1.58"
Flow Length=500'
Tc=10.2 min
CN=91
Summary for Subcatchment 5S: Phase 3

Runoff = 0.32 cfs @ 7.99 hrs, Volume= 0.104 af, Depth= 1.75"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type IA 24-hr 2-Year Rainfall=2.47"

<table>
<thead>
<tr>
<th>Area (sf)</th>
<th>CN</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>11,947</td>
<td>98</td>
<td>Paved parking, HSG C</td>
</tr>
<tr>
<td>2,490</td>
<td>98</td>
<td>Water Surface, 0% imp, HSG C</td>
</tr>
<tr>
<td>2,227</td>
<td>98</td>
<td>Unconnected pavement, HSG C</td>
</tr>
<tr>
<td>8,084</td>
<td>98</td>
<td>Roofs, HSG C</td>
</tr>
<tr>
<td>6,353</td>
<td>74</td>
<td>&gt;75% Grass cover, Good, HSG C</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Area (sf)</th>
<th>CN</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>31,101</td>
<td>93</td>
<td>Weighted Average</td>
</tr>
<tr>
<td>8,843</td>
<td>81</td>
<td>28.43% Pervious Area</td>
</tr>
<tr>
<td>22,258</td>
<td>98</td>
<td>71.57% Impervious Area</td>
</tr>
<tr>
<td>2,227</td>
<td>10.01% Unconnected</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tc (min)</th>
<th>Length (feet)</th>
<th>Slope (ft/ft)</th>
<th>Velocity (ft/sec)</th>
<th>Capacity (cfs)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.4</td>
<td>20</td>
<td>0.0200</td>
<td>0.86</td>
<td></td>
<td>Sheet Flow, Sheet</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Smooth surfaces n= 0.011 P2= 2.40&quot;</td>
</tr>
<tr>
<td>0.3</td>
<td>60</td>
<td>0.0200</td>
<td>2.87</td>
<td></td>
<td>Shallow Concentrated Flow, Paved Kv= 20.3 fps</td>
</tr>
<tr>
<td>1.3</td>
<td>280</td>
<td>0.0050</td>
<td>3.47</td>
<td>2.73</td>
<td>Pipe Channel, Pipe</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>12.0&quot; Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012</td>
</tr>
<tr>
<td>2.0</td>
<td>360</td>
<td>Total, Increased to minimum Tc = 10.0 min</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Subcatchment 5S: Phase 3

Type IA 24-hr 2-Year Rainfall=2.47”
Runoff Area=31,101 sf
Runoff Volume=0.104 af
Runoff Depth=1.75”
Flow Length=360’
Tc=10.0 min
CN=93
Summary for Subcatchment 6S: Phase 4 & 5

Runoff = 0.51 cfs @ 8.03 hrs, Volume= 0.195 af, Depth= 1.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type IA 24-hr 2-Year Rainfall=2.47"

<table>
<thead>
<tr>
<th>Area (sf)</th>
<th>CN</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2,019</td>
<td>98</td>
<td>Water Surface, 0% imp, HSG C</td>
</tr>
<tr>
<td>11,637</td>
<td>98</td>
<td>Roofs, HSG C</td>
</tr>
<tr>
<td>* 30,024</td>
<td>98</td>
<td>Parking Lot, Sidewalk, Unconnected Roofs</td>
</tr>
<tr>
<td>55,134</td>
<td>72</td>
<td>Woods/grass comb., Good, HSG C</td>
</tr>
<tr>
<td>98,814</td>
<td>83</td>
<td>Weighted Average</td>
</tr>
<tr>
<td>57,153</td>
<td>73</td>
<td>57.84% Pervious Area</td>
</tr>
<tr>
<td>41,661</td>
<td>98</td>
<td>42.16% Impervious Area</td>
</tr>
<tr>
<td>30,024</td>
<td></td>
<td>72.07% Unconnected</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tc Length</th>
<th>Slope</th>
<th>Velocity</th>
<th>Capacity</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>(min)</td>
<td>(feet)</td>
<td>(ft/ft)</td>
<td>(ft/sec)</td>
<td>(cfs)</td>
</tr>
<tr>
<td>7.0</td>
<td>20</td>
<td>0.0200</td>
<td>0.05</td>
<td>Sheet Flow, Sheet</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Grass: Bermuda n= 0.410 P2= 2.40&quot;</td>
</tr>
<tr>
<td>1.3</td>
<td>80</td>
<td>0.0200</td>
<td>0.99</td>
<td>Shallow Concentrated Flow, SCF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Short Grass Pasture Kv= 7.0 fps</td>
</tr>
<tr>
<td>1.5</td>
<td>322</td>
<td>0.0050</td>
<td>3.47</td>
<td>Pipe Channel, To Pond</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>12.0&quot; Round Area= 0.8 sf Perim= 3.1' r= 0.25'</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>n= 0.012</td>
</tr>
<tr>
<td>9.8</td>
<td>422</td>
<td>Total, Increased to minimum Tc = 10.0 min</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Subcatchment 6S: Phase 4 & 5

Type IA 24-hr 2-Year Rainfall=2.47"

Runoff Area=98,814 sf
Runoff Volume=0.195 af
Runoff Depth=1.03"
Flow Length=422'
Tc=10.0 min
CN=83
Summary for Subcatchment 7S: Wetland

Runoff = 0.04 cfs @ 18.01 hrs, Volume= 0.042 af, Depth= 0.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type IA 24-hr 2-Year Rainfall=2.47"

<table>
<thead>
<tr>
<th>Area (sf)</th>
<th>CN</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>76,610</td>
<td>65</td>
<td>Brush, Good, HSG C</td>
</tr>
<tr>
<td>76,610</td>
<td>65</td>
<td>100.00% Pervious Area</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tc (min)</th>
<th>Length (feet)</th>
<th>Slope (ft/ft)</th>
<th>Velocity (ft/sec)</th>
<th>Capacity (cfs)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>22.8</td>
<td>150</td>
<td>0.0200</td>
<td>0.11</td>
<td></td>
<td>Sheet Flow, Sheet Grass: Dense n= 0.240 P2= 2.40&quot;</td>
</tr>
<tr>
<td>5.1</td>
<td>215</td>
<td>0.0200</td>
<td>0.71</td>
<td></td>
<td>Shallow Concentrated Flow, SCF Woodland Kv= 5.0 fps</td>
</tr>
</tbody>
</table>

27.9 365 Total

Hydrograph

Type IA 24-hr 2-Year Rainfall=2.47"
Runoff Area=76,610 sf
Runoff Volume=0.042 af
Runoff Depth=0.29"
Flow Length=365'
Slope=0.0200 '/'
Tc=27.9 min
CN=65
Summary for Reach 1R: EX SE Shore Drive

Inflow Area = 6.916 ac, 43.08% Impervious, Inflow Depth = 1.05" for 2-Year event
Inflow = 0.58 cfs @ 8.89 hrs, Volume= 0.603 af
Outflow = 0.58 cfs @ 8.91 hrs, Volume= 0.603 af, Atten= 0%, Lag= 1.7 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.38 fps, Min. Travel Time= 1.1 min
Avg. Velocity = 1.73 fps, Avg. Travel Time= 1.6 min

Peak Storage= 39 cf @ 8.90 hrs
Average Depth at Peak Storage= 0.35'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.23 cfs

12.0" Round Pipe
n= 0.012 PVC, smooth interior
Length= 161.8' Slope= 0.0033 '/'
Inlet Invert= 210.64', Outlet Invert= 210.10'

Reach 1R: EX SE Shore Drive

Inflow Area=6.916 ac
Avg. Flow Depth=0.35'
Max Vel=2.38 fps

12.0"
Round Pipe
n=0.012
L=161.8'
S=0.0033 '/'
Capacity=2.23 cfs
Summary for Reach 2R: Franklin Avenue 3

Inflow Area = 5.157 ac, 57.77% Impervious, Inflow Depth = 1.30" for 2-Year event
Inflow = 0.57 cfs @ 8.49 hrs, Volume = 0.561 af
Outflow = 0.57 cfs @ 8.51 hrs, Volume = 0.561 af, Atten = 0%, Lag = 1.5 min

Routing by Stor-Ind+Trans method, Time Span = 0.00-36.00 hrs, dt = 0.01 hrs
Max. Velocity = 2.75 fps, Min. Travel Time = 0.9 min
Avg. Velocity = 1.98 fps, Avg. Travel Time = 1.2 min

Peak Storage = 30 cf @ 8.50 hrs
Average Depth at Peak Storage = 0.31'
Bank-Full Depth = 1.00' Flow Area = 0.8 sf, Capacity = 2.74 cfs

12.0" Round Pipe
n = 0.012 PVC, smooth interior
Length = 147.0' Slope = 0.0050 '/'
Inlet Invert = 211.38', Outlet Invert = 210.64'

Reach 2R: Franklin Avenue 3

Hydrograph

Inflow Area = 5.157 ac
Avg. Flow Depth = 0.31'
Max Vel = 2.75 fps
12.0"
Round Pipe
n = 0.012
L = 147.0'
S = 0.0050 '/'
Capacity = 2.74 cfs
Summary for Reach 4R: Franklin Avenue 2

Inflow Area = 4.911 ac, 56.44% Impervious, Inflow Depth = 1.31" for 2-Year event
Inflow = 0.51 cfs @ 8.59 hrs, Volume= 0.534 af
Outflow = 0.51 cfs @ 8.61 hrs, Volume= 0.534 af, Atten= 0%, Lag= 1.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.65 fps, Min. Travel Time= 0.6 min
Avg. Velocity = 1.96 fps, Avg. Travel Time= 0.8 min

Peak Storage= 19 cf @ 8.59 hrs
Average Depth at Peak Storage= 0.29'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.72 cfs

12.0" Round Pipe
n= 0.012 PVC, smooth interior
Length= 98.9' Slope= 0.0050 '/'
Inlet Invert= 211.87', Outlet Invert= 211.38'

Reach 4R: Franklin Avenue 2

Hydrograph

Inflow Area=4.911 ac
Avg. Flow Depth=0.29'
Max Vel=2.65 fps
12.0"
Round Pipe
n=0.012
L=98.9'
S=0.0050 '/'
Capacity=2.72 cfs
Summary for Reach 5R: Franklin Avenue 1

Inflow Area = 0.241 ac, 81.80% Impervious, Inflow Depth = 1.29" for 2-Year event
Inflow = 0.06 cfs @ 8.33 hrs, Volume = 0.026 af
Outflow = 0.06 cfs @ 8.38 hrs, Volume = 0.026 af, Atten = 0%, Lag = 3.2 min

Routing by Stor-Ind+Trans method, Time Span = 0.00-36.00 hrs, dt = 0.01 hrs
Max. Velocity = 1.41 fps, Min. Travel Time = 1.9 min
Avg. Velocity = 0.94 fps, Avg. Travel Time = 2.8 min

Peak Storage = 7 cf @ 8.35 hrs
Average Depth at Peak Storage = 0.10'
Bank-Full Depth = 1.00' Flow Area = 0.8 sf, Capacity = 2.74 cfs

12.0" Round Pipe
n = 0.012 PVC, smooth interior
Length = 157.1' Slope = 0.0050 '/'
Inlet Invert = 212.86', Outlet Invert = 212.07'

Reach 5R: Franklin Avenue 1

Hydrograph

Inflow Area = 0.241 ac
Avg. Flow Depth = 0.10'
Max Vel = 1.41 fps
12.0"
Round Pipe
n = 0.012
L = 157.1'
S = 0.0050 '/'
Capacity = 2.74 cfs
Summary for Reach 7R: Private Road A 2

Inflow Area = 4.670 ac, 55.13% Impervious, Inflow Depth = 1.31" for 2-Year event
Inflow = 0.46 cfs @ 9.11 hrs, Volume= 0.508 af
Outflow = 0.46 cfs @ 9.13 hrs, Volume= 0.508 af, Atten= 0%, Lag= 1.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.57 fps, Min. Travel Time= 0.9 min
Avg. Velocity = 1.94 fps, Avg. Travel Time= 1.1 min

Peak Storage= 24 cf @ 9.12 hrs
Average Depth at Peak Storage= 0.28'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.72 cfs

12.0" Round Pipe
n= 0.012 PVC, smooth interior
Length= 132.9' Slope= 0.0050 '/'
Inlet Invert= 212.73', Outlet Invert= 212.07'

Reach 7R: Private Road A 2

Hydrograph
Summary for Reach 8R: Pond 1 Lateral

Inflow Area = 1.688 ac, 65.62% Impervious, Inflow Depth = 1.57" for 2-Year event
Inflow = 0.27 cfs @ 8.76 hrs, Volume= 0.221 af
Outflow = 0.27 cfs @ 8.77 hrs, Volume= 0.221 af, Attenuation= 0%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.21 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 1.68 fps, Avg. Travel Time= 0.3 min

Peak Storage= 3 cf @ 8.77 hrs
Average Depth at Peak Storage= 0.21'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.72 cfs

12.0" Round Pipe
n= 0.012 PVC, smooth interior
Length= 26.1' Slope= 0.0050 '/
Inlet Invert= 213.06', Outlet Invert= 212.93'

Reach 8R: Pond 1 Lateral

Hydrograph

Inflow Area=1.688 ac
Avg. Flow Depth=0.21'
Max Vel=2.21 fps
12.0"
Round Pipe
n=0.012
L=26.1'
S=0.0050 '/
capacity=2.72 cfs
Summary for Reach 10R: Private Road A 1

Inflow Area = 2.982 ac, 49.20% Impervious, Inflow Depth = 1.16" for 2-Year event
Inflow = 0.19 cfs @ 11.36 hrs, Volume= 0.287 af
Outflow = 0.19 cfs @ 11.37 hrs, Volume= 0.287 af, Atten= 0%, Lag= 0.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.00 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 1.67 fps, Avg. Travel Time= 0.4 min

Peak Storage= 4 cf @ 11.37 hrs
Average Depth at Peak Storage= 0.18'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.71 cfs

12.0" Round Pipe
n= 0.012 PVC, smooth interior
Length= 38.5’ Slope= 0.0049 '/'
Inlet Invert= 213.12', Outlet Invert= 212.93'

Reach 10R: Private Road A 1

Hydrograph

Inflow Area=2.982 ac
Flow Depth=0.18'
Max Vel=2.00 fps
12.0"
Round Pipe
n=0.012
L=38.5'
S=0.0049 '/'
y=2.71 cfs
Summary for Reach 11R: Pond 2 Lateral

Inflow Area = 0.714 ac, 71.57% Impervious, Inflow Depth = 1.63" for 2-Year event

Inflow = 0.05 cfs @ 13.45 hrs, Volume= 0.097 af
Outflow = 0.05 cfs @ 13.49 hrs, Volume= 0.097 af, Atten= 0%, Lag= 2.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 1.36 fps, Min. Travel Time= 1.2 min
Avg. Velocity = 1.26 fps, Avg. Travel Time= 1.3 min

Peak Storage= 4 cf @ 13.47 hrs
Average Depth at Peak Storage= 0.10'
Bank-Full Depth= 1.00’ Flow Area= 0.8 sf, Capacity= 2.73 cfs

12.0” Round Pipe
n= 0.012 PVC, smooth interior
Length= 98.2’ Slope= 0.0050 '/'
Inlet Invert= 213.81’, Outlet Invert= 213.32’

Reach 11R: Pond 2 Lateral

Hydrograph

Flow Area=0.714 ac
Avg. Flow Depth=0.10'
Max Vel=1.36 fps
12.0”
Round Pipe
n=0.012
L=98.2'
S=0.0050 '/'
Capacity=2.73 cfs
Summary for Reach 13R: Pond 3 Lateral

Inflow Area = 2.268 ac, 42.16% Impervious, Inflow Depth = 1.01" for 2-Year event
Inflow = 0.14 cfs @ 11.13 hrs, Volume= 0.190 af
Outflow = 0.14 cfs @ 11.21 hrs, Volume= 0.190 af, Atten= 0%, Lag= 4.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 1.83 fps, Min. Travel Time= 2.7 min
Avg. Velocity = 1.64 fps, Avg. Travel Time= 3.0 min

Peak Storage= 23 cf @ 11.16 hrs
Average Depth at Peak Storage= 0.15'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.73 cfs

12.0" Round Pipe
n= 0.012 PVC, smooth interior
Length= 297.0' Slope= 0.0050 '/'
Inlet Invert= 214.81', Outlet Invert= 213.32'

Reach 13R: Pond 3 Lateral

Hydrograph

Inflow Area=2.268 ac
Avg. Flow Depth=0.15'
Max Vel=1.83 fps
12.0"
Round Pipe
n=0.012
L=297.0'
S=0.0050 '/'
Capacity=2.73 cfs
Summary for Pond 2P: WQ Facility 1

Inflow Area = 0.246 ac, 84.20% Impervious, Inflow Depth = 1.84" for 2-Year event
Inflow = 0.12 cfs @ 7.97 hrs, Volume= 0.038 af
Outflow = 0.07 cfs @ 8.29 hrs, Volume= 0.034 af, Atten= 43%, Lag= 19.2 min
Discarded = 0.00 cfs @ 5.86 hrs, Volume= 0.007 af
Primary = 0.06 cfs @ 8.29 hrs, Volume= 0.027 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 214.88' @ 8.29 hrs  Surf.Area= 0.014 ac  Storage= 0.009 af

Plug-Flow detention time= 243.3 min calculated for 0.034 af (89% of inflow)
Center-of-Mass det. time= 171.0 min (901.8 - 730.8)

<table>
<thead>
<tr>
<th>Volume</th>
<th>Invert</th>
<th>Avail.Storage</th>
<th>Storage Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1</td>
<td>210.88'</td>
<td>0.002 af</td>
<td><strong>4.00</strong>W x <strong>50.00</strong>L x <strong>1.00</strong>H Gravel Storage</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0.005 af Overall x 40.0% Voids</td>
</tr>
<tr>
<td>#2</td>
<td>211.88'</td>
<td>0.000 af</td>
<td><strong>4.00</strong>W x <strong>50.00</strong>L x <strong>1.50</strong>H Growing Medium</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0.007 af Overall x 5.0% Voids</td>
</tr>
<tr>
<td>#3</td>
<td>213.38'</td>
<td>0.009 af</td>
<td><strong>4.00</strong>W x <strong>50.00</strong>L x <strong>2.00</strong>H Open Storage</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0.011 af Total Available Storage</td>
</tr>
</tbody>
</table>

Device Routing Invert Outlet Devices
#1 Primary 214.88' **12.0**" Horiz. Orifice/Grate C= 0.600
#2 Discarded 210.88' 0.200 in/hr Exfiltration over Surface area
#3 Primary 214.35' **1.9**" Vert. Orifice/Grate C= 0.600

**Discarded OutFlow** Max=0.00 cfs @ 5.86 hrs HW=213.38' (Free Discharge)
**2=Exfiltration** (Exfiltration Controls 0.00 cfs)

**Primary OutFlow** Max=0.06 cfs @ 8.29 hrs HW=214.88' (Free Discharge)
**1=Orifice/Grate** (Weir Controls 0.00 cfs @ 0.08 fps)
**3=Orifice/Grate** (Orifice Controls 0.06 cfs @ 3.24 fps)
Pond 2P: WQ Facility 1

Hydrograph

Inflow Area = 0.246 ac
Peak Elev = 214.88'
Storage = 0.009 af
Summary for Pond 3P: WQ Facility 2

Inflow Area = 0.241 ac, 81.80% Impervious, Inflow Depth = 1.84" for 2-Year event
Inflow = 0.12 cfs @ 7.97 hrs, Volume = 0.037 af
Outflow = 0.06 cfs @ 8.33 hrs, Volume = 0.033 af, Atten= 47%, Lag= 21.5 min
Discarded = 0.00 cfs @ 5.90 hrs, Volume = 0.007 af
Primary = 0.06 cfs @ 8.33 hrs, Volume = 0.026 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 216.35' @ 8.33 hrs  Surf.Area= 0.014 ac  Storage= 0.009 af

Plug-Flow detention time= 245.5 min calculated for 0.033 af (89% of inflow)
Center-of-Mass det. time= 173.8 min ( 904.5 - 730.8 )

<table>
<thead>
<tr>
<th>Volume</th>
<th>Invert</th>
<th>Avail.Storage</th>
<th>Storage Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1</td>
<td>212.36'</td>
<td>0.002 af</td>
<td>4.00'W x 50.00'L x 1.00'H Gravel Storage</td>
</tr>
<tr>
<td>#2</td>
<td>213.36'</td>
<td>0.000 af</td>
<td>4.00'W x 50.00'L x 1.50'H Growing Medium</td>
</tr>
<tr>
<td>#3</td>
<td>214.86'</td>
<td>0.009 af</td>
<td>4.00'W x 50.00'L x 2.00'H Open Storage</td>
</tr>
</tbody>
</table>

Device Routing Invert Outlet Devices

<table>
<thead>
<tr>
<th>#1</th>
<th>Primary</th>
<th>216.36'</th>
<th>12.0&quot; Horiz. Orifice/Grate</th>
<th>C= 0.600</th>
</tr>
</thead>
<tbody>
<tr>
<td>#2</td>
<td>Discarded</td>
<td>212.36'</td>
<td>0.200 in/hr Exfiltration over Surface area</td>
<td></td>
</tr>
<tr>
<td>#3</td>
<td>Primary</td>
<td>215.80'</td>
<td>1.8&quot; Vert. Orifice/Grate</td>
<td>C= 0.600</td>
</tr>
</tbody>
</table>

Discarded OutFlow Max=0.00 cfs @ 5.90 hrs  HW=214.86' (Free Discharge)
Primary OutFlow Max=0.06 cfs @ 8.33 hrs  HW=216.35' (Free Discharge)
Pond 3P: WQ Facility 2

Inflow Area = 0.241 ac
Peak Elev = 216.35'
Storage = 0.009 af
Summary for Pond 4P: WQ/Det Facility 1

Inflow Area = 1.688 ac, 65.62% Impervious, Inflow Depth = 1.58" for 2-Year event
Inflow = 0.67 cfs @ 8.01 hrs, Volume= 0.223 af
Outflow = 0.27 cfs @ 8.76 hrs, Volume= 0.223 af, Atten= 59%, Lag= 45.3 min
Discarded = 0.00 cfs @ 8.76 hrs, Volume= 0.001 af
Primary = 0.27 cfs @ 8.76 hrs, Volume= 0.221 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 217.13' @ 8.76 hrs Surf.Area= 812 sf Storage= 875 cf

Plug-Flow detention time= 14.5 min calculated for 0.223 af (100% of inflow)
Center-of-Mass det. time= 14.5 min (776.6 - 762.1)

<table>
<thead>
<tr>
<th>Volume</th>
<th>Invert</th>
<th>Avail.Storage</th>
<th>Storage Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1</td>
<td>215.00'</td>
<td>3,375 cf</td>
<td>Custom Stage Data (Pyramidal) Listed below (Recalc)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>215.00</td>
<td>115</td>
<td>0</td>
<td>0</td>
<td>115</td>
</tr>
<tr>
<td>216.00</td>
<td>363</td>
<td>227</td>
<td>227</td>
<td>370</td>
</tr>
<tr>
<td>217.00</td>
<td>751</td>
<td>545</td>
<td>773</td>
<td>769</td>
</tr>
<tr>
<td>218.00</td>
<td>1,278</td>
<td>1,003</td>
<td>1,776</td>
<td>1,311</td>
</tr>
<tr>
<td>219.00</td>
<td>1,944</td>
<td>1,599</td>
<td>3,375</td>
<td>1,996</td>
</tr>
</tbody>
</table>

Device Routing Invert Outlet Devices

<table>
<thead>
<tr>
<th>Device</th>
<th>Routing</th>
<th>Invert</th>
<th>Outlet Devices</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1</td>
<td>Primary</td>
<td>213.26'</td>
<td>2.3&quot; Vert. Orifice/Grate C= 0.600</td>
</tr>
<tr>
<td>#2</td>
<td>Primary</td>
<td>218.25'</td>
<td>24.0&quot; x 24.0&quot; Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads</td>
</tr>
<tr>
<td>#3</td>
<td>Discarded</td>
<td>215.00'</td>
<td>0.200 in/hr Exfiltration over Surface area</td>
</tr>
<tr>
<td>#4</td>
<td>Primary</td>
<td>217.15'</td>
<td>5.0&quot; Vert. Orifice/Grate C= 0.600</td>
</tr>
</tbody>
</table>

Discarded OutFlow Max=0.00 cfs @ 8.76 hrs HW=217.13’ (Free Discharge)

Primary OutFlow Max=0.27 cfs @ 8.76 hrs HW=217.13’ (Free Discharge)

1=Orifice/Grate (Orifice Controls 0.27 cfs @ 9.36 fps)
2=Orifice/Grate (Controls 0.00 cfs)
3=Exfiltration (Exfiltration Controls 0.00 cfs)
4=Orifice/Grate (Controls 0.00 cfs)
Pond 4P: WQ/Det Facility 1

Inflow Area = 1.688 ac
Peak Elev = 217.13'
Storage = 875 cf
Summary for Pond 5P: WQ/Det Facility 2

Inflow Area = 0.714 ac, 71.57% Impervious, Inflow Depth = 1.75" for 2-Year event
Inflow = 0.32 cfs @ 7.99 hrs, Volume= 0.104 af
Outflow = 0.06 cfs @ 13.45 hrs, Volume= 0.104 af, Atten= 82%, Lag= 327.8 min
Discarded = 0.00 cfs @ 13.45 hrs, Volume= 0.007 af
Primary = 0.05 cfs @ 13.45 hrs, Volume= 0.097 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 218.00' @ 13.45 hrs Surf.Area= 1,031 sf Storage= 1,190 cf

Plug-Flow detention time= 249.6 min calculated for 0.104 af (100% of inflow)
Center-of-Mass det. time= 249.7 min (991.4 - 741.7)

Volume Invert Avail.Storage Storage Description
--- --- ---- ---------------
#1 216.00'  4,610 cf Custom Stage Data (Pyramidal) Listed below (Recalc)

--- (feet) (sq-ft) (cubic-feet) (cubic-feet) (sq-ft)
216.00 268 0 0 268
217.00 561 406 406 572
218.00 1,031 784 1,190 1,055
219.00 1,686 1,345 2,535 1,726
220.00 2,491 2,075 4,610 2,551

Device Routing Invert Outlet Devices
--- --- --- ----------------------
#1 Primary 214.01' 1.0" Vert. Orifice/Grate C= 0.600
#2 Primary 219.25' 24.0" x 24.0" Horiz. Orifice/Grate C= 0.600
#3 Discarded 216.00' 0.200 in/hr Exfiltration over Surface area
#4 Primary 218.05' 1.0" Vert. Orifice/Grate C= 0.600

Discarded OutFlow Max=0.00 cfs @ 13.45 hrs HW=218.00' (Free Discharge)
uestra 3=Exfiltration (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.05 cfs @ 13.45 hrs HW=218.00' (Free Discharge)
缴纳 1=Orifice/Grate (Orifice Controls 0.05 cfs @ 9.57 fps)
缴纳 2=Orifice/Grate (Controls 0.00 cfs)
缴纳 4=Orifice/Grate (Controls 0.00 cfs)
Pond 5P: WQ/Det Facility 2

Hydrograph

Inflow Area = 0.714 ac
Peak Elev = 218.00'
Storage = 1,190 cf

Flow (cfs)

Time (hours)

0.36
0.34
0.32
0.30
0.28
0.26
0.24
0.22
0.20
0.18
0.16
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36

Inflow
Outflow
Discarded
Primary
Summary for Pond 6P: WQ/Det Facility 3

Inflow Area = 2.268 ac, 42.16% Impervious, Inflow Depth = 1.03" for 2-Year event

Inflow = 0.51 cfs @ 8.03 hrs, Volume= 0.195 af

Outflow = 0.15 cfs @ 11.13 hrs, Volume= 0.195 af, Atten= 71%, Lag= 186.0 min

Discarded = 0.00 cfs @ 11.13 hrs, Volume= 0.005 af

Primary = 0.14 cfs @ 11.13 hrs, Volume= 0.190 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Peak Elev= 218.55' @ 11.13 hrs  Surf.Area= 964 sf  Storage= 1,176 cf

Plug-Flow detention time= 92.1 min calculated for 0.195 af (100% of inflow)

Center-of-Mass det. time= 92.1 min (923.6 - 831.5)

<table>
<thead>
<tr>
<th>Volume</th>
<th>Invert</th>
<th>Avail.Storage</th>
<th>Storage Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1</td>
<td>216.50'</td>
<td>4,035 cf</td>
<td><strong>Custom Stage Data (Pyramidal)</strong> Listed below (Recalc)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>216.50</td>
<td>244</td>
<td>0</td>
<td>0</td>
<td>244</td>
</tr>
<tr>
<td>217.50</td>
<td>554</td>
<td>389</td>
<td>389</td>
<td>564</td>
</tr>
<tr>
<td>218.50</td>
<td>941</td>
<td>739</td>
<td>1,128</td>
<td>966</td>
</tr>
<tr>
<td>219.50</td>
<td>1,444</td>
<td>1,184</td>
<td>2,311</td>
<td>1,487</td>
</tr>
<tr>
<td>220.50</td>
<td>2,019</td>
<td>1,723</td>
<td>4,035</td>
<td>2,086</td>
</tr>
</tbody>
</table>

Device Routing Invert Outlet Devices

<table>
<thead>
<tr>
<th>#1</th>
<th>Primary</th>
<th>215.01'</th>
<th><strong>1.7&quot; Vert. Orifice/Grate</strong> C= 0.600</th>
</tr>
</thead>
<tbody>
<tr>
<td>#2</td>
<td>Primary</td>
<td>219.75'</td>
<td><strong>24.0&quot; x 24.0&quot; Horiz. Orifice/Grate</strong> C= 0.600</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Limited to weir flow at low heads</td>
</tr>
<tr>
<td>#3</td>
<td>Discarded</td>
<td>216.50'</td>
<td><strong>0.200 in/hr Exfiltration over Surface area</strong></td>
</tr>
<tr>
<td>#4</td>
<td>Primary</td>
<td>218.60'</td>
<td><strong>4.0&quot; Vert. Orifice/Grate</strong> C= 0.600</td>
</tr>
</tbody>
</table>

Discarded OutFlow Max=0.00 cfs @ 11.13 hrs  HW=218.55' (Free Discharge)

**Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.14 cfs @ 11.13 hrs  HW=218.55' (Free Discharge)

1=Orifice/Grate (Orifice Controls 0.14 cfs @ 8.97 fps)
2=Orifice/Grate (Controls 0.00 cfs)
4=Orifice/Grate (Controls 0.00 cfs)
Pond 6P: WQ/Det Facility 3

Hydrograph

Inflow Area = 2.268 ac
Peak Elev = 218.55'
Storage = 1,176 cf
Franklin Reserve Post-Developed
Prepared by HBH Consulting Engineers

Type IA 24-hr  5-Year Rainfall=2.86"

Printed 3/15/2020
Page 31

Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 2S: Franklin Ave 1
Runoff Area=10,733 sf  84.20% Impervious  Runoff Depth=2.21"
Flow Length=242'  Slope=0.0200 '/'  Tc=10.0 min  CN=94  Runoff=0.14 cfs  0.045 af

Subcatchment 3S: Franklin Ave 2
Runoff Area=10,498 sf  81.80% Impervious  Runoff Depth=2.21"
Flow Length=274'  Slope=0.0200 '/'  Tc=10.0 min  CN=94  Runoff=0.14 cfs  0.044 af

Subcatchment 4S: Phase 1 & 2
Runoff Area=73,511 sf  65.62% Impervious  Runoff Depth=1.94"
Flow Length=500'  Tc=10.2 min  CN=91  Runoff=0.84 cfs  0.273 af

Subcatchment 5S: Phase 3
Runoff Area=31,101 sf  71.57% Impervious  Runoff Depth=2.12"
Flow Length=360'  Tc=10.0 min  CN=93  Runoff=0.39 cfs  0.126 af

Subcatchment 6S: Phase 4 & 5
Runoff Area=98,814 sf  42.16% Impervious  Runoff Depth=1.33"
Flow Length=422'  Tc=10.0 min  CN=83  Runoff=0.69 cfs  0.252 af

Subcatchment 7S: Wetland
Runoff Area=76,610 sf  0.00% Impervious  Runoff Depth=0.44"
Flow Length=365'  Slope=0.0200 '/'  Tc=27.9 min  CN=65  Runoff=0.05 cfs  0.065 af

Reach 1R: EX SE Shore Drive
Avg. Flow Depth=0.42’  Max Vel=2.61 fps  Inflow=0.81 cfs  0.766 af
12.0” Round Pipe  n=0.012  L=161.8’  S=0.0033 '/'  Capacity=2.23 cfs  Outflow=0.81 cfs  0.766 af

Reach 2R: Franklin Avenue 3
Avg. Flow Depth=0.37’  Max Vel=3.00 fps  Inflow=0.78 cfs  0.701 af
12.0” Round Pipe  n=0.012  L=147.0’  S=0.0050 '/'  Capacity=2.74 cfs  Outflow=0.78 cfs  0.701 af

Reach 4R: Franklin Avenue 2
Avg. Flow Depth=0.35’  Max Vel=2.91 fps  Inflow=0.71 cfs  0.667 af
12.0” Round Pipe  n=0.012  L=98.9’  S=0.0050 '/'  Capacity=2.72 cfs  Outflow=0.71 cfs  0.667 af

Reach 5R: Franklin Avenue 1
Avg. Flow Depth=0.15’  Max Vel=1.80 fps  Inflow=0.13 cfs  0.033 af
12.0” Round Pipe  n=0.012  L=157.1’  S=0.0050 '/'  Capacity=2.74 cfs  Outflow=0.13 cfs  0.033 af

Reach 7R: Private Road A 2
Avg. Flow Depth=0.33’  Max Vel=2.84 fps  Inflow=0.65 cfs  0.634 af
12.0” Round Pipe  n=0.012  L=132.9’  S=0.0050 '/'  Capacity=2.72 cfs  Outflow=0.65 cfs  0.634 af

Reach 8R: Pond 1 Lateral
Avg. Flow Depth=0.27’  Max Vel=2.54 fps  Inflow=0.44 cfs  0.271 af
12.0” Round Pipe  n=0.012  L=26.1’  S=0.0050 '/'  Capacity=2.72 cfs  Outflow=0.44 cfs  0.271 af

Reach 10R: Private Road A 1
Avg. Flow Depth=0.23’  Max Vel=2.31 fps  Inflow=0.32 cfs  0.363 af
12.0” Round Pipe  n=0.012  L=38.5’  S=0.0049 '/'  Capacity=2.71 cfs  Outflow=0.32 cfs  0.363 af

Reach 11R: Pond 2 Lateral
Avg. Flow Depth=0.11’  Max Vel=1.46 fps  Inflow=0.07 cfs  0.117 af
12.0” Round Pipe  n=0.012  L=98.2’  S=0.0050 '/'  Capacity=2.73 cfs  Outflow=0.07 cfs  0.117 af

Reach 13R: Pond 3 Lateral
Avg. Flow Depth=0.21’  Max Vel=2.19 fps  Inflow=0.26 cfs  0.246 af
12.0” Round Pipe  n=0.012  L=297.0’  S=0.0050 '/'  Capacity=2.73 cfs  Outflow=0.26 cfs  0.246 af

Pond 2P: WQ Facility 1
Peak Elev=214.91’  Storage=0.009 af  Inflow=0.14 cfs  0.045 af
Discarded=0.00 cfs  0.007 af  Primary=0.14 cfs  0.034 af  Outflow=0.14 cfs  0.041 af
<table>
<thead>
<tr>
<th>Pond 3P: WQ Facility 2</th>
<th>Peak Elev=216.39'</th>
<th>Storage=0.009 af</th>
<th>Inflow=0.14 cfs</th>
<th>0.044 af</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Discarded=0.00 cfs</td>
<td>0.007 af</td>
<td>Primary=0.13 cfs</td>
<td>0.033 af</td>
</tr>
<tr>
<td></td>
<td>Outflow=0.14 cfs</td>
<td>0.041 af</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pond 4P: WQ/Det Facility 1</th>
<th>Peak Elev=217.41'</th>
<th>Storage=1,123 cf</th>
<th>Inflow=0.84 cfs</th>
<th>0.273 af</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Discarded=0.00 cfs</td>
<td>0.002 af</td>
<td>Primary=0.44 cfs</td>
<td>0.271 af</td>
</tr>
<tr>
<td></td>
<td>Outflow=0.44 cfs</td>
<td>0.273 af</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pond 5P: WQ/Det Facility 2</th>
<th>Peak Elev=218.31'</th>
<th>Storage=1,535 cf</th>
<th>Inflow=0.39 cfs</th>
<th>0.126 af</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Discarded=0.01 cfs</td>
<td>0.009 af</td>
<td>Primary=0.07 cfs</td>
<td>0.117 af</td>
</tr>
<tr>
<td></td>
<td>Outflow=0.07 cfs</td>
<td>0.126 af</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pond 6P: WQ/Det Facility 3</th>
<th>Peak Elev=218.84'</th>
<th>Storage=1,475 cf</th>
<th>Inflow=0.69 cfs</th>
<th>0.252 af</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Discarded=0.01 cfs</td>
<td>0.007 af</td>
<td>Primary=0.26 cfs</td>
<td>0.246 af</td>
</tr>
<tr>
<td></td>
<td>Outflow=0.26 cfs</td>
<td>0.252 af</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Summary for Subcatchment 2S: Franklin Ave 1

Runoff = 0.14 cfs @ 7.97 hrs, Volume= 0.045 af, Depth= 2.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type IA 24-hr 5-Year Rainfall=2.86"

<table>
<thead>
<tr>
<th>Area (sf)</th>
<th>CN</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>9,037</td>
<td>98</td>
<td>Paved roads w/curbs &amp; sewers, HSG C</td>
</tr>
<tr>
<td>1,696</td>
<td>74</td>
<td>&gt;75% Grass cover, Good, HSG C</td>
</tr>
<tr>
<td>10,733</td>
<td>94</td>
<td>Weighted Average</td>
</tr>
<tr>
<td>1,696</td>
<td>74</td>
<td>15.80% Pervious Area</td>
</tr>
<tr>
<td>9,037</td>
<td>98</td>
<td>84.20% Impervious Area</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tc (min)</th>
<th>Length (feet)</th>
<th>Slope (ft/ft)</th>
<th>Velocity (ft/sec)</th>
<th>Capacity (cfs)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.7</td>
<td>40</td>
<td>0.0200</td>
<td>0.99</td>
<td></td>
<td>Sheet Flow, Sheet</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Smooth surfaces n= 0.011 P2= 2.40&quot;</td>
</tr>
<tr>
<td>1.2</td>
<td>202</td>
<td>0.0200</td>
<td>2.87</td>
<td></td>
<td>Shallow Concentrated Flow, SCF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Paved Kv= 20.3 fps</td>
</tr>
<tr>
<td>1.9</td>
<td>242</td>
<td></td>
<td></td>
<td></td>
<td>Total, Increased to minimum Tc = 10.0 min</td>
</tr>
</tbody>
</table>

Subcatchment 2S: Franklin Ave 1

Hydrograph

Type IA 24-hr 5-Year Rainfall=2.86"
Runoff Area=10,733 sf
Runoff Volume=0.045 af
Runoff Depth=2.21"
Flow Length=242'
Slope=0.0200 '/'
Tc=10.0 min
CN=94
Summary for Subcatchment 3S: Franklin Ave 2

Runoff = 0.14 cfs @ 7.97 hrs, Volume= 0.044 af, Depth= 2.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type IA 24-hr 5-Year Rainfall=2.86"

<table>
<thead>
<tr>
<th>Area (sf)</th>
<th>CN</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>8,587</td>
<td>98</td>
<td>Paved roads w/curbs &amp; sewers, HSG C</td>
</tr>
<tr>
<td>1,911</td>
<td>74</td>
<td>&gt;75% Grass cover, Good, HSG C</td>
</tr>
<tr>
<td>10,498</td>
<td>94</td>
<td>Weighted Average</td>
</tr>
<tr>
<td>1,911</td>
<td>74</td>
<td>18.20% Pervious Area</td>
</tr>
<tr>
<td>8,587</td>
<td>98</td>
<td>81.80% Impervious Area</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tc (min)</th>
<th>Length (feet)</th>
<th>Slope (ft/ft)</th>
<th>Velocity (ft/sec)</th>
<th>Capacity (cfs)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.7</td>
<td>40</td>
<td>0.0200</td>
<td>0.99</td>
<td></td>
<td>Sheet Flow, Sheet, Smooth surfaces n= 0.011 P2= 2.40&quot;</td>
</tr>
<tr>
<td>1.4</td>
<td>234</td>
<td>0.0200</td>
<td>2.87</td>
<td></td>
<td>Shallow Concentrated Flow, SCF, Paved Kv= 20.3 fps</td>
</tr>
<tr>
<td>2.1</td>
<td>274</td>
<td></td>
<td></td>
<td></td>
<td>Total, Increased to minimum Tc = 10.0 min</td>
</tr>
</tbody>
</table>

Subcatchment 3S: Franklin Ave 2

Type IA 24-hr 5-Year Rainfall=2.86"
Runoff Area=10,498 sf
Runoff Volume=0.044 af
Runoff Depth=2.21"
Flow Length=274'
Slope=0.0200 '/'
Tc=10.0 min
CN=94
Summary for Subcatchment 4S: Phase 1 & 2

Runoff = 0.84 cfs @ 7.99 hrs, Volume= 0.273 af, Depth= 1.94"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type IA 24-hr 5-Year Rainfall=2.86"

<table>
<thead>
<tr>
<th>Area (sf)</th>
<th>CN</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>8,098</td>
<td>98</td>
<td>Paved parking, HSG C</td>
</tr>
<tr>
<td>1,945</td>
<td>98</td>
<td>Water Surface, 0% imp, HSG C</td>
</tr>
<tr>
<td>61,755</td>
<td>90</td>
<td>1/8 acre lots, 65% imp, HSG C</td>
</tr>
<tr>
<td>1,713</td>
<td>74</td>
<td>&gt;75% Grass cover, Good, HSG C</td>
</tr>
<tr>
<td>73,511</td>
<td>91</td>
<td>Weighted Average</td>
</tr>
<tr>
<td>25,272</td>
<td>77</td>
<td>34.38% Pervious Area</td>
</tr>
<tr>
<td>48,239</td>
<td>98</td>
<td>65.62% Impervious Area</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tc (min)</th>
<th>Length (feet)</th>
<th>Slope (ft/ft)</th>
<th>Velocity (ft/sec)</th>
<th>Capacity (cfs)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.0</td>
<td>20</td>
<td>0.0200</td>
<td>0.05</td>
<td></td>
<td>Sheet Flow, Sheet</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Grass: Bermuda n= 0.410 P2= 2.40&quot;</td>
</tr>
<tr>
<td>1.3</td>
<td>80</td>
<td>0.0200</td>
<td>0.99</td>
<td></td>
<td>Shallow Concentrated Flow, SCF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Short Grass Pasture Kv= 7.0 fps</td>
</tr>
<tr>
<td>1.9</td>
<td>400</td>
<td>0.0050</td>
<td>3.47</td>
<td>2.73</td>
<td>Pipe Channel, To Pond</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>12.0&quot; Round Area= 0.8 sf Perim= 3.1' r= 0.25'</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>n= 0.012</td>
</tr>
</tbody>
</table>

10.2 500 Total

Subcatchment 4S: Phase 1 & 2

Type IA 24-hr 5-Year Rainfall=2.86"
Runoff Area=73,511 sf
Runoff Volume=0.273 af
Runoff Depth=1.94"
Flow Length=500'
Tc=10.2 min
CN=91
Summary for Subcatchment 5S: Phase 3

Runoff = 0.39 cfs @ 7.97 hrs, Volume= 0.126 af, Depth= 2.12"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type IA 24-hr 5-Year Rainfall=2.86"

<table>
<thead>
<tr>
<th>Area (sf)</th>
<th>CN</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>11,947</td>
<td>98</td>
<td>Paved parking, HSG C</td>
</tr>
<tr>
<td>2,490</td>
<td>98</td>
<td>Water Surface, 0% imp, HSG C</td>
</tr>
<tr>
<td>2,227</td>
<td>98</td>
<td>Unconnected pavement, HSG C</td>
</tr>
<tr>
<td>8,084</td>
<td>98</td>
<td>Roofs, HSG C</td>
</tr>
<tr>
<td>6,353</td>
<td>74</td>
<td>&gt;75% Grass cover, Good, HSG C</td>
</tr>
</tbody>
</table>

| 31,101    | 93 | Weighted Average                     |
| 8,843     | 81 | 28.43% Pervious Area                 |
| 22,258    | 98 | 71.57% Impervious Area               |
| 2,227     | 10.01% Unconnected                   |

<table>
<thead>
<tr>
<th>Tc (min)</th>
<th>Length (feet)</th>
<th>Slope (ft/ft)</th>
<th>Velocity (ft/sec)</th>
<th>Capacity (cfs)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.4</td>
<td>20</td>
<td>0.0200</td>
<td>0.86</td>
<td></td>
<td><strong>Sheet Flow, Sheet</strong> Smooth surfaces n= 0.011 P2= 2.40&quot;</td>
</tr>
<tr>
<td>0.3</td>
<td>60</td>
<td>0.0200</td>
<td>2.87</td>
<td></td>
<td><strong>Shallow Concentrated Flow,</strong> Paved Kv= 20.3 fps</td>
</tr>
<tr>
<td>1.3</td>
<td>280</td>
<td>0.0050</td>
<td>3.47</td>
<td>2.73</td>
<td><strong>Pipe Channel, Pipe</strong> 12.0&quot; Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012</td>
</tr>
<tr>
<td>2.0</td>
<td>360</td>
<td></td>
<td></td>
<td></td>
<td>Total, Increased to minimum Tc = 10.0 min</td>
</tr>
</tbody>
</table>
Subcatchment 5S: Phase 3

Type IA 24-hr 5-Year Rainfall=2.86"
Runoff Area=31,101 sf
Runoff Volume=0.126 af
Runoff Depth=2.12"
Flow Length=360'
Tc=10.0 min
CN=93
Summary for Subcatchment 6S: Phase 4 & 5

Runoff = 0.69 cfs @ 8.03 hrs, Volume= 0.252 af, Depth= 1.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type IA 24-hr 5-Year Rainfall=2.86"

<table>
<thead>
<tr>
<th>Area (sf)</th>
<th>CN</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2,019</td>
<td>98</td>
<td>Water Surface, 0% imp, HSG C</td>
</tr>
<tr>
<td>11,637</td>
<td>98</td>
<td>Roofs, HSG C</td>
</tr>
<tr>
<td>*</td>
<td>98</td>
<td>Parking Lot, Sidewalk, Unconnected Roofs</td>
</tr>
<tr>
<td>55,134</td>
<td>72</td>
<td>Woods/grass comb., Good, HSG C</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Area (sf)</th>
<th>CN</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>98,814</td>
<td>83</td>
<td>Weighted Average</td>
</tr>
<tr>
<td>57,153</td>
<td>73</td>
<td>57.84% Pervious Area</td>
</tr>
<tr>
<td>41,661</td>
<td>98</td>
<td>42.16% Impervious Area</td>
</tr>
<tr>
<td>30,024</td>
<td>72</td>
<td>72.07% Unconnected</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tc (min)</th>
<th>Length (feet)</th>
<th>Slope (ft/ft)</th>
<th>Velocity (ft/sec)</th>
<th>Capacity (cfs)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.0</td>
<td>20</td>
<td>0.0200</td>
<td>0.05</td>
<td></td>
<td>Sheet Flow, Sheet</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Grass: Bermuda n= 0.410 P2= 2.40&quot;</td>
</tr>
<tr>
<td>1.3</td>
<td>80</td>
<td>0.0200</td>
<td>0.99</td>
<td></td>
<td>Shallow Concentrated Flow, SCF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Short Grass Pasture Kv= 7.0 fps</td>
</tr>
<tr>
<td>1.5</td>
<td>322</td>
<td>0.0050</td>
<td>3.47</td>
<td>2.73</td>
<td>Pipe Channel, To Pond</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>12.0&quot; Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012</td>
</tr>
</tbody>
</table>

9.8 422 Total, Increased to minimum Tc = 10.0 min
Subcatchment 6S: Phase 4 & 5

Type IA 24-hr 5-Year Rainfall=2.86"
Runoff Area=98,814 sf
Runoff Volume=0.252 af
Runoff Depth=1.33"
Flow Length=422'
Tc=10.0 min
CN=83
Summary for Subcatchment 7S: Wetland

Runoff = 0.05 cfs @ 16.83 hrs, Volume = 0.065 af, Depth = 0.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span = 0.00-36.00 hrs, dt = 0.01 hrs
Type IA 24-hr 5-Year Rainfall = 2.86"

<table>
<thead>
<tr>
<th>Area (sf)</th>
<th>CN</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>76,610</td>
<td>65</td>
<td>Brush, Good, HSG C</td>
</tr>
<tr>
<td>76,610</td>
<td>65</td>
<td>100.00% Pervious Area</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tc (min)</th>
<th>Length (feet)</th>
<th>Slope (ft/ft)</th>
<th>Velocity (ft/sec)</th>
<th>Capacity (cfs)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>22.8</td>
<td>150</td>
<td>0.0200</td>
<td>0.11</td>
<td></td>
<td>Sheet Flow, Sheet</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Grass: Dense n = 0.240 P2 = 2.40&quot;</td>
</tr>
<tr>
<td>5.1</td>
<td>215</td>
<td>0.0200</td>
<td>0.71</td>
<td></td>
<td>Shallow Concentrated Flow, SCF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Woodland Kv = 5.0 fps</td>
</tr>
</tbody>
</table>

| Tc = 27.9 min | CN = 65 | Total |

Subcatchment 7S: Wetland

Hydrograph

Type IA 24-hr 5-Year Rainfall = 2.86"
Runoff Area = 76,610 sf
Runoff Volume = 0.065 af
Runoff Depth = 0.44"
Flow Length = 365'
Slope = 0.0200 '/'
Tc = 27.9 min
CN = 65
Summary for Reach 1R: EX SE Shore Drive

Inflow Area = 6.916 ac, 43.08% Impervious, Inflow Depth = 1.33" for 5-Year event
Inflow = 0.81 cfs @ 8.94 hrs, Volume= 0.766 af
Outflow = 0.81 cfs @ 8.97 hrs, Volume= 0.766 af, Atten= 0%, Lag= 1.8 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.61 fps, Min. Travel Time= 1.0 min
Avg. Velocity = 1.81 fps, Avg. Travel Time= 1.5 min

Peak Storage= 50 cf @ 8.95 hrs
Average Depth at Peak Storage= 0.42'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.23 cfs

12.0" Round Pipe
n= 0.012 PVC, smooth interior
Length= 161.8' Slope= 0.0033 '/'
Inlet Invert= 210.64', Outlet Invert= 210.10'

Reach 1R: EX SE Shore Drive

Hydrograph

Inflow Area=6.916 ac
Avg. Flow Depth=0.42'
Max Vel=2.61 fps
12.0"
Round Pipe
n=0.012
L=161.8'
S=0.0033 '/'
Capacity=2.23 cfs
Summary for Reach 2R: Franklin Avenue 3

Inflow Area = 5.157 ac, 57.77% Impervious, Inflow Depth = 1.63" for 5-Year event
Inflow = 0.78 cfs @ 8.31 hrs, Volume= 0.701 af
Outflow = 0.78 cfs @ 8.34 hrs, Volume= 0.701 af, Atten= 0%, Lag= 1.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.00 fps, Min. Travel Time= 0.8 min
Avg. Velocity = 2.07 fps, Avg. Travel Time= 1.2 min

Peak Storage= 38 cf @ 8.32 hrs
Average Depth at Peak Storage= 0.37'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.74 cfs

12.0" Round Pipe
n= 0.012 PVC, smooth interior
Length= 147.0' Slope= 0.0050 '/'
Inlet Invert= 211.38', Outlet Invert= 210.64'

Reach 2R: Franklin Avenue 3
Summary for Reach 4R: Franklin Avenue 2

Inflow Area = 4.911 ac, 56.44% Impervious, Inflow Depth = 1.63" for 5-Year event
Inflow = 0.71 cfs @ 8.89 hrs, Volume = 0.667 af
Outflow = 0.71 cfs @ 8.91 hrs, Volume = 0.667 af, Atten= 0%, Lag= 1.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.91 fps, Min. Travel Time= 0.6 min
Avg. Velocity = 2.04 fps, Avg. Travel Time= 0.8 min

Peak Storage= 24 cf @ 8.90 hrs
Average Depth at Peak Storage= 0.35'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.72 cfs

12.0" Round Pipe
n= 0.012 PVC, smooth interior
Length= 98.9’ Slope= 0.0050 '/'
Inlet Invert= 211.87’, Outlet Invert= 211.38'

Reach 4R: Franklin Avenue 2

Inflow Area=4.911 ac
Avg. Flow Depth=0.35'
Max Vel=2.91 fps
12.0''
Round Pipe
n=0.012
L=98.9'
S=0.0050 '/'
Capacity=2.72 cfs
Summary for Reach 5R: Franklin Avenue 1

Inflow Area = 0.241 ac, 81.80% Impervious, Inflow Depth = 1.65" for 5-Year event  
Inflow = 0.13 cfs @ 8.03 hrs, Volume= 0.033 af  
Outflow = 0.13 cfs @ 8.08 hrs, Volume= 0.033 af, Atten= 1%, Lag= 2.8 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Max. Velocity= 1.80 fps, Min. Travel Time= 1.5 min  
Avg. Velocity = 1.00 fps, Avg. Travel Time= 2.6 min

Peak Storage= 12 cf @ 8.05 hrs  
Average Depth at Peak Storage= 0.15'  
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.74 cfs

12.0" Round Pipe  
n= 0.012 PVC, smooth interior  
Length= 157.1' Slope= 0.0050 '/'  
Inlet Invert= 212.86', Outlet Invert= 212.07'

Reach 5R: Franklin Avenue 1

Hydrograph

Inflow Area=0.241 ac  
Avg. Flow Depth=0.15'  
Max Vel=1.80 fps  
12.0"

Round Pipe  
n=0.012  
L=157.1'  
S=0.0050 '/'  
Capacity=2.74 cfs
Summary for Reach 7R: Private Road A 2

Inflow Area = 4.670 ac, 55.13% Impervious, Inflow Depth = 1.63" for 5-Year event
Inflow = 0.65 cfs @ 8.88 hrs, Volume = 0.634 af
Outflow = 0.65 cfs @ 8.92 hrs, Volume = 0.634 af, Atten= 0%, Lag= 2.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.84 fps, Min. Travel Time= 0.8 min
Avg. Velocity = 2.02 fps, Avg. Travel Time= 1.1 min

Peak Storage= 30 cf @ 8.91 hrs
Average Depth at Peak Storage= 0.33'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.72 cfs

12.0" Round Pipe
n= 0.012 PVC, smooth interior
Length= 132.9' Slope= 0.0050 '/'
Inlet Invert= 212.73', Outlet Invert= 212.07'

Reach 7R: Private Road A 2

Inflow Area=4.670 ac
Avg. Flow Depth=0.33'
Max Vel=2.84 fps
12.0" Round Pipe
n=0.012
L=132.9'
S=0.0050 '/'
Capacity=2.72 cfs
Summary for Reach 8R: Pond 1 Lateral

Inflow Area = 1.688 ac, 65.62% Impervious, Inflow Depth = 1.93" for 5-Year event
Inflow = 0.44 cfs @ 8.35 hrs, Volume= 0.271 af
Outflow = 0.44 cfs @ 8.36 hrs, Volume= 0.271 af, Atten= 0%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.54 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 1.77 fps, Avg. Travel Time= 0.2 min

Peak Storage= 4 cf @ 8.35 hrs
Average Depth at Peak Storage= 0.27'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.72 cfs

12.0" Round Pipe
n= 0.012 PVC, smooth interior
Length= 26.1' Slope= 0.0050 '/'
Inlet Invert= 213.06', Outlet Invert= 212.93'

Reach 8R: Pond 1 Lateral

Hydrograph

Inflow Area=1.688 ac
Avg. Flow Depth=0.27'
Max Vel=2.54 fps
12.0" Round Pipe
n=0.012
L=26.1'
S=0.0050 '/'
Capacity=2.72 cfs
Summary for Reach 10R: Private Road A 1

Inflow Area = 2.982 ac, 49.20% Impervious, Inflow Depth = 1.46" for 5-Year event
Inflow = 0.32 cfs @ 9.18 hrs, Volume= 0.363 af
Outflow = 0.32 cfs @ 9.19 hrs, Volume= 0.363 af, Atten= 0%, Lag= 0.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.31 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 1.74 fps, Avg. Travel Time= 0.4 min

Peak Storage= 5 cf @ 9.18 hrs
Average Depth at Peak Storage= 0.23'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.71 cfs

12.0" Round Pipe
n= 0.012 PVC, smooth interior
Length= 38.5’ Slope= 0.0049 '/'
Inlet Invert= 213.12', Outlet Invert= 212.93'

Reach 10R: Private Road A 1

Inflow Area=2.982 ac
Avg. Flow Depth=0.23'
Max Vel=2.31 fps

12.0"
Round Pipe
n=0.012
L=38.5'
S=0.0049 '/'
Capacity=2.71 cfs
Summary for Reach 11R: Pond 2 Lateral

Inflow Area = 0.714 ac, 71.57% Impervious, Inflow Depth = 1.97" for 5-Year event
Inflow = 0.07 cfs @ 11.77 hrs, Volume= 0.117 af
Outflow = 0.07 cfs @ 11.81 hrs, Volume= 0.117 af, Atten= 0%, Lag= 2.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 1.46 fps, Min. Travel Time= 1.1 min
Avg. Velocity = 1.30 fps, Avg. Travel Time= 1.3 min

Peak Storage= 4 cf @ 11.79 hrs
Average Depth at Peak Storage= 0.11'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.73 cfs

12.0" Round Pipe
n= 0.012 PVC, smooth interior
Length= 98.2’ Slope= 0.0050 '/'
Inlet Invert= 213.81’, Outlet Invert= 213.32’
Summary for Reach 13R: Pond 3 Lateral

Inflow Area = 2.268 ac, 42.16% Impervious, Inflow Depth = 1.30" for 5-Year event
Inflow = 0.26 cfs @ 9.08 hrs, Volume= 0.246 af
Outflow = 0.26 cfs @ 9.14 hrs, Volume= 0.246 af, Atten= 0%, Lag= 3.9 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.19 fps, Min. Travel Time= 2.3 min
Avg. Velocity = 1.72 fps, Avg. Travel Time= 2.9 min

Peak Storage= 35 cf @ 9.11 hrs
Average Depth at Peak Storage= 0.21'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.73 cfs

12.0" Round Pipe
n= 0.012 PVC, smooth interior
Length= 297.0' Slope= 0.0050 '/'
Inlet Invert= 214.81', Outlet Invert= 213.32'

Reach 13R: Pond 3 Lateral
Summary for Pond 2P: WQ Facility 1

Inflow Area = 0.246 ac, 84.20% Impervious, Inflow Depth = 2.21" for 5-Year event
Inflow = 0.14 cfs @ 7.97 hrs, Volume= 0.045 af
Outflow = 0.14 cfs @ 8.02 hrs, Volume= 0.041 af, Atten= 1%, Lag= 3.1 min
Discarded = 0.00 cfs @ 5.32 hrs, Volume= 0.007 af
Primary = 0.14 cfs @ 8.02 hrs, Volume= 0.034 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 214.91' @ 8.02 hrs Surf.Area= 0.014 ac Storage= 0.009 af

Plug-Flow detention time = 207.7 min calculated for 0.041 af (91% of inflow)
Center-of-Mass det. time = 146.2 min (868.0 - 721.8)

<table>
<thead>
<tr>
<th>Volume</th>
<th>Invert</th>
<th>Avail.Storage</th>
<th>Storage Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1</td>
<td>210.88'</td>
<td>0.002 af</td>
<td>4.00'W x 50.00'L x 1.00'H Gravel Storage 0.005 af Overall x 40.0% Voids</td>
</tr>
<tr>
<td>#2</td>
<td>211.88'</td>
<td>0.000 af</td>
<td>4.00'W x 50.00'L x 1.50'H Growing Medium 0.007 af Overall x 5.0% Voids</td>
</tr>
<tr>
<td>#3</td>
<td>213.38'</td>
<td>0.009 af</td>
<td>4.00'W x 50.00'L x 2.00'H Open Storage 0.011 af Total Available Storage</td>
</tr>
</tbody>
</table>

Device Routing Invert Outlet Devices
#1 Primary 214.88' 12.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2 Discarded 210.88' 0.200 in/hr Exfiltration over Surface area
#3 Primary 214.35' 1.9" Vert. Orifice/Grate C= 0.600

Discarded OutFlow Max=0.00 cfs @ 5.32 hrs HW=213.38' (Free Discharge)
Primary OutFlow Max=0.13 cfs @ 8.02 hrs HW=214.91' (Free Discharge)

ATTACHMENT L.72
Pond 2P: WQ Facility 1

Inflow Area = 0.246 ac
Peak Elev = 214.91'
Storage = 0.009 af
Summary for Pond 3P: WQ Facility 2

Inflow Area = 0.241 ac, 81.80% Impervious, Inflow Depth = 2.21" for 5-Year event
Inflow = 0.14 cfs @ 7.97 hrs, Volume= 0.044 af
Outflow = 0.14 cfs @ 8.03 hrs, Volume= 0.041 af, Atten= 1%, Lag= 3.7 min
Discarded = 0.00 cfs @ 5.36 hrs, Volume= 0.007 af
Primary = 0.13 cfs @ 8.03 hrs, Volume= 0.033 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 216.39' @ 8.03 hrs  Surf.Area= 0.014 ac  Storage= 0.009 af

Plug-Flow detention time= 210.0 min calculated for 0.040 af (91% of inflow)
Center-of-Mass det. time= 149.0 min (870.8 - 721.8)

Volume | Invert | Avail.Storage | Storage Description                      |
--------|--------|---------------|------------------------------------------|
#1 212.36' | 0.002 af | 4.00'W x 50.00'L x 1.00'H Gravel Storage 0.005 af Overall x 40.0% Voids |
#2 213.36' | 0.000 af | 4.00'W x 50.00'L x 1.50'H Growing Medium 0.007 af Overall x 5.0% Voids |
#3 214.86' | 0.009 af | 4.00'W x 50.00'L x 2.00'H Open Storage |

0.011 af Total Available Storage

Device | Routing | Invert | Outlet Devices
--------|---------|--------|-----------------|
#1 Primary 216.36' | 12.0" Horiz. Orifice/Grate C= 0.600
#2 Discarded 212.36' | 0.200 in/hr Exfiltration over Surface area
#3 Primary 215.80' | 1.8" Vert. Orifice/Grate C= 0.600

Discarded OutFlow Max=0.00 cfs @ 5.36 hrs HW=214.86' (Free Discharge)
Exfiltration (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.12 cfs @ 8.03 hrs HW=216.39' (Free Discharge)
Orifice/Grate (Weir Controls 0.06 cfs @ 0.60 fps)
Orifice/Grate (Orifice Controls 0.06 cfs @ 3.47 fps)
Pond 3P: WQ Facility 2

Inflow Area: 0.241 ac
Peak Elev: 216.39'
Storage: 0.009 af
### Summary for Pond 4P: WQ/Det Facility 1

Inflow Area = 1.688 ac, 65.62% Impervious, Inflow Depth = 1.94” for 5-Year event  
Inflow = 0.84 cfs @ 7.99 hrs, Volume= 0.273 af  
Outflow = 0.44 cfs @ 8.35 hrs, Volume= 0.273 af, Atten= 47%, Lag= 21.7 min  
Discarded = 0.00 cfs @ 8.35 hrs, Volume= 0.002 af  
Primary = 0.44 cfs @ 8.35 hrs, Volume= 0.271 af  

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Peak Elev= 217.41’ @ 8.35 hrs  
Surf.Area= 951 sf  
Storage= 1,123 cf  

Plug-Flow detention time= 18.1 min calculated for 0.273 af (100% of inflow)  
Center-of-Mass det. time= 18.1 min (769.0 - 750.9)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>215.00</td>
<td>115</td>
<td>0</td>
<td>0</td>
<td>115</td>
</tr>
<tr>
<td>216.00</td>
<td>363</td>
<td>227</td>
<td>227</td>
<td>370</td>
</tr>
<tr>
<td>217.00</td>
<td>751</td>
<td>545</td>
<td>773</td>
<td>769</td>
</tr>
<tr>
<td>218.00</td>
<td>1,278</td>
<td>1,003</td>
<td>1,776</td>
<td>1,311</td>
</tr>
<tr>
<td>219.00</td>
<td>1,944</td>
<td>1,599</td>
<td>3,375</td>
<td>1,996</td>
</tr>
</tbody>
</table>

**Device Routing**  

<table>
<thead>
<tr>
<th>Device</th>
<th>Routing</th>
<th>Invert</th>
<th>Outlet Devices</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1</td>
<td>Primary</td>
<td>213.26'</td>
<td>2.3” Vert. Orifice/Grate C= 0.600</td>
</tr>
<tr>
<td>#2</td>
<td>Primary</td>
<td>218.25'</td>
<td>24.0” x 24.0” Horiz. Orifice/Grate C= 0.600</td>
</tr>
<tr>
<td>#3</td>
<td>Discarded</td>
<td>215.00’</td>
<td>0.200 in/hr Exfiltration over Surface area</td>
</tr>
<tr>
<td>#4</td>
<td>Primary</td>
<td>217.15’</td>
<td>5.0” Vert. Orifice/Grate C= 0.600</td>
</tr>
</tbody>
</table>

Discarded OutFlow Max=0.00 cfs @ 8.35 hrs HW=217.41’ (Free Discharge)  
3=Exfiltration (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.44 cfs @ 8.35 hrs HW=217.41’ (Free Discharge)  
1=Orifice/Grate (Orifice Controls 0.28 cfs @ 9.70 fps)  
2=Orifice/Grate (Controls 0.00 cfs)  
4=Orifice/Grate (Orifice Controls 0.16 cfs @ 1.74 fps)
Pond 4P: WQ/Det Facility 1

Hydrograph

Inflow Area = 1.688 ac
Peak Elev = 217.41'
Storage = 1,123 cf
Summary for Pond 5P: WQ/Det Facility 2

Inflow Area = 0.714 ac, 71.57% Impervious, Inflow Depth = 2.12" for 5-Year event
Inflow = 0.39 cfs @ 7.97 hrs, Volume= 0.126 af
Outflow = 0.07 cfs @ 11.77 hrs, Volume= 0.126 af, Atten= 82%, Lag= 228.1 min
Discarded = 0.01 cfs @ 11.77 hrs, Volume= 0.009 af
Primary = 0.07 cfs @ 11.77 hrs, Volume= 0.117 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 218.31' @ 11.77 hrs  Surf.Area= 1,215 sf  Storage= 1,535 cf

Plug-Flow detention time= 280.2 min calculated for 0.126 af (100% of inflow)
Center-of-Mass det. time= 280.2 min ( 1,012.1 - 731.9 )

Volume Invert Avail.Storage Storage Description
--- ---- ---- ---------------
#1 216.00' 4,610 cf Custom Stage Data (Pyramidal) Listed below (Recalc)

  (feet) (sq-ft) (cubic-feet) (cubic-feet) (sq-ft)
216.00  268  0    0     268
217.00  561  406  406  572
218.00 1,031  784  1,190 1,055
219.00 1,686 1,345 2,535 1,726
220.00 2,491 2,075 4,610 2,551

Device Routing Invert Outlet Devices
--- ---- ---- ---------------
#1 Primary 214.01' 1.0" Vert. Orifice/Grate C= 0.600
#2 Primary 219.25' 24.0" x 24.0" Horiz. Orifice/Grate C= 0.600
#3 Discarded 216.00' Limited to weir flow at low heads
#4 Primary 218.05' 1.0" Vert. Orifice/Grate C= 0.600

Discarded OutFlow Max=0.01 cfs @ 11.77 hrs HW=218.31’ (Free Discharge)
Primary OutFlow Max=0.07 cfs @ 11.77 hrs HW=218.31’ (Free Discharge)
Franklin Reserve Post-Developed
Prepared by HBH Consulting Engineers

Type IA 24-hr  5-Year Rainfall=2.86”

Hydrograph

Pond 5P: WQ/Det Facility 2

Inflow Area=0.714 ac
Peak Elev=218.31’
Storage=1,535 cf
Summary for Pond 6P: WQ/Det Facility 3

Inflow Area = 2.268 ac, 42.16% Impervious, Inflow Depth = 1.33" for 5-Year event
Inflow = 0.69 cfs @ 8.03 hrs, Volume= 0.252 af
Outflow = 0.26 cfs @ 9.08 hrs, Volume= 0.252 af, Atten= 62%, Lag= 62.9 min
Discarded = 0.01 cfs @ 9.08 hrs, Volume= 0.007 af
Primary = 0.26 cfs @ 9.08 hrs, Volume= 0.246 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 218.84' @ 9.08 hrs  Surf.Area= 1,100 sf  Storage= 1,475 cf

Plug-Flow detention time= 109.9 min calculated for 0.252 af (100% of inflow)
Center-of-Mass det. time= 109.9 min ( 925.2 - 815.3 )

<table>
<thead>
<tr>
<th>Volume</th>
<th>Invert</th>
<th>Avail.Storage</th>
<th>Storage Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1</td>
<td>216.50’</td>
<td>4,035 cf</td>
<td>Custom Stage Data (Pyramidal) Listed below (Recalc)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>216.50</td>
<td>244</td>
<td>0</td>
<td>0</td>
<td>244</td>
</tr>
<tr>
<td>217.50</td>
<td>554</td>
<td>389</td>
<td>389</td>
<td>564</td>
</tr>
<tr>
<td>218.50</td>
<td>941</td>
<td>739</td>
<td>1,128</td>
<td>966</td>
</tr>
<tr>
<td>219.50</td>
<td>1,444</td>
<td>1,184</td>
<td>2,311</td>
<td>1,487</td>
</tr>
<tr>
<td>220.50</td>
<td>2,019</td>
<td>1,723</td>
<td>4,035</td>
<td>2,086</td>
</tr>
</tbody>
</table>

Device Routing Invert Outlet Devices

<table>
<thead>
<tr>
<th>#1</th>
<th>Primary</th>
<th>215.01'</th>
<th>1.7&quot; Vert. Orifice/Grate</th>
<th>C= 0.600</th>
</tr>
</thead>
<tbody>
<tr>
<td>#2</td>
<td>Primary</td>
<td>219.75'</td>
<td>24.0&quot; x 24.0&quot; Horiz. Orifice/Grate</td>
<td>C= 0.600</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Limited to weir flow at low heads</td>
<td></td>
</tr>
<tr>
<td>#3</td>
<td>Discarded</td>
<td>216.50’</td>
<td>0.200 in/hr Exfiltration over Surface area</td>
<td></td>
</tr>
<tr>
<td>#4</td>
<td>Primary</td>
<td>218.60’</td>
<td>4.0&quot; Vert. Orifice/Grate</td>
<td>C= 0.600</td>
</tr>
</tbody>
</table>

Discarded OutFlow Max=0.01 cfs @ 9.08 hrs HW=218.84’ (Free Discharge)

Primary OutFlow Max=0.26 cfs @ 9.08 hrs HW=218.84’ (Free Discharge)

1=Orifice/Grate (Orifice Controls 0.15 cfs @ 9.34 fps)
2=Orifice/Grate (Controls 0.00 cfs)
3=Exfiltration (Exfiltration Controls 0.01 cfs)
4=Orifice/Grate (Orifice Controls 0.11 cfs @ 1.67 fps)
Pond 6P: WQ/Det Facility 3

Inflow Area=2.268 ac
Peak Elev=218.84'
Storage=1,475 cf
Franklin Reserve Post-Developed

Prepared by HBH Consulting Engineers

Type IA 24-hr 10-Year Rainfall=3.37”

Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 2S: Franklin Ave 1
  Runoff Area=10,733 sf  84.20% Impervious  Runoff Depth=2.71”
  Flow Length=242’  Slope=0.0200 '/'  Tc=10.0 min  CN=94  Runoff=0.17 cfs  0.056 af

Subcatchment 3S: Franklin Ave 2
  Runoff Area=10,498 sf  81.80% Impervious  Runoff Depth=2.71”
  Flow Length=274’  Slope=0.0200 '/'  Tc=10.0 min  CN=94  Runoff=0.17 cfs  0.054 af

Subcatchment 4S: Phase 1 & 2
  Runoff Area=73,511 sf  65.62% Impervious  Runoff Depth=2.71”
  Flow Length=500’  Tc=10.2 min  CN=91  Runoff=1.05 cfs  0.340 af

Subcatchment 5S: Phase 3
  Runoff Area=31,101 sf  71.57% Impervious  Runoff Depth=2.61”
  Flow Length=360’  Tc=10.0 min  CN=93  Runoff=0.48 cfs  0.155 af

Subcatchment 6S: Phase 4 & 5
  Runoff Area=98,814 sf  42.16% Impervious  Runoff Depth=2.42”
  Flow Length=422’  Tc=10.0 min  CN=83  Runoff=0.94 cfs  0.331 af

Subcatchment 7S: Wetland
  Runoff Area=76,610 sf  0.00% Impervious  Runoff Depth=0.68”
  Flow Length=365’  Slope=0.0200 '/'  Tc=27.9 min  CN=65  Runoff=0.10 cfs  0.100 af

Reach 1R: EX SE Shore Drive
  Avg. Flow Depth=0.57”  Max Vel=2.99 fps  Inflow=1.39 cfs  0.992 af
  12.0” Round Pipe  n=0.012  L=161.8’  S=0.0033 '/'  Capacity=2.23 cfs  Outflow=1.39 cfs  0.992 af

Reach 2R: Franklin Avenue 3
  Avg. Flow Depth=0.48”  Max Vel=3.43 fps  Inflow=1.28 cfs  0.892 af
  12.0” Round Pipe  n=0.012  L=147.0’  S=0.0050 '/'  Capacity=2.74 cfs  Outflow=1.28 cfs  0.892 af

Reach 4R: Franklin Avenue 2
  Avg. Flow Depth=0.46”  Max Vel=3.34 fps  Inflow=1.19 cfs  0.848 af
  12.0” Round Pipe  n=0.012  L=98.9’  S=0.0050 '/'  Capacity=2.72 cfs  Outflow=1.19 cfs  0.848 af

Reach 5R: Franklin Avenue 1
  Avg. Flow Depth=0.17”  Max Vel=1.93 fps  Inflow=0.17 cfs  0.043 af
  12.0” Round Pipe  n=0.012  L=157.1’  S=0.0050 '/'  Capacity=2.74 cfs  Outflow=0.17 cfs  0.043 af

Reach 7R: Private Road A 2
  Avg. Flow Depth=0.44”  Max Vel=3.28 fps  Inflow=1.10 cfs  0.805 af
  12.0” Round Pipe  n=0.012  L=132.9’  S=0.0050 '/'  Capacity=2.72 cfs  Outflow=1.10 cfs  0.805 af

Reach 8R: Pond 1 Lateral
  Avg. Flow Depth=0.33”  Max Vel=2.86 fps  Inflow=0.66 cfs  0.338 af
  12.0” Round Pipe  n=0.012  L=26.1’  S=0.0050 '/'  Capacity=2.72 cfs  Outflow=0.66 cfs  0.338 af

Reach 10R: Private Road A 1
  Avg. Flow Depth=0.28”  Max Vel=2.60 fps  Inflow=0.48 cfs  0.467 af
  12.0” Round Pipe  n=0.012  L=38.5’  S=0.0049 '/'  Capacity=2.71 cfs  Outflow=0.48 cfs  0.467 af

Reach 11R: Pond 2 Lateral
  Avg. Flow Depth=0.12”  Max Vel=1.53 fps  Inflow=0.08 cfs  0.144 af
  12.0” Round Pipe  n=0.012  L=98.2’  S=0.0050 '/'  Capacity=2.73 cfs  Outflow=0.08 cfs  0.144 af

Reach 13R: Pond 3 Lateral
  Avg. Flow Depth=0.26”  Max Vel=2.50 fps  Inflow=0.41 cfs  0.323 af
  12.0” Round Pipe  n=0.012  L=297.0’  S=0.0050 '/'  Capacity=2.73 cfs  Outflow=0.41 cfs  0.323 af

Pond 2P: WQ Facility 1
  Peak Elev=214.93’  Storage=0.009 af  Inflow=0.17 cfs  0.056 af
  Discarded=0.00 cfs  0.007 af  Primary=0.17 cfs  0.044 af  Outflow=0.17 cfs  0.052 af
<table>
<thead>
<tr>
<th>Pond</th>
<th>Facility</th>
<th>Peak Elev</th>
<th>Storage</th>
<th>Inflow</th>
<th>Primary</th>
<th>Outflow</th>
</tr>
</thead>
<tbody>
<tr>
<td>3P:</td>
<td>WQ Facility 2</td>
<td>216.41'</td>
<td>0.009 af</td>
<td>0.17 cfs 0.054 af</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4P:</td>
<td>WQ/Det Facility 1</td>
<td>217.68'</td>
<td>1,393 cf</td>
<td>1.05 cfs 0.340 af</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5P:</td>
<td>WQ/Det Facility 2</td>
<td>218.69'</td>
<td>2,052 cf</td>
<td>0.48 cfs 0.155 af</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6P:</td>
<td>WQ/Det Facility 3</td>
<td>219.14'</td>
<td>1,824 cf</td>
<td>0.94 cfs 0.331 af</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Discarded: 0.00 cfs 0.007 af Primary: 0.17 cfs 0.043 af Outflow: 0.17 cfs 0.050 af

Discarded: 0.01 cfs 0.002 af Primary: 0.66 cfs 0.338 af Outflow: 0.66 cfs 0.340 af

Discarded: 0.01 cfs 0.011 af Primary: 0.08 cfs 0.144 af Outflow: 0.08 cfs 0.155 af

Discarded: 0.01 cfs 0.008 af Primary: 0.41 cfs 0.323 af Outflow: 0.41 cfs 0.331 af
Summary for Subcatchment 2S: Franklin Ave 1

Runoff = 0.17 cfs @ 7.97 hrs, Volume= 0.056 af, Depth= 2.71"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type IA 24-hr 10-Year Rainfall=3.37"

<table>
<thead>
<tr>
<th>Area (sf)</th>
<th>CN</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>9,037</td>
<td>98</td>
<td>Paved roads w/curbs &amp; sewers, HSG C</td>
</tr>
<tr>
<td>1,696</td>
<td>74</td>
<td>&gt;75% Grass cover, Good, HSG C</td>
</tr>
<tr>
<td>10,733</td>
<td>94</td>
<td>Weighted Average</td>
</tr>
<tr>
<td>1,696</td>
<td>74</td>
<td>15.80% Pervious Area</td>
</tr>
<tr>
<td>9,037</td>
<td>98</td>
<td>84.20% Impervious Area</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tc (min)</th>
<th>Length (feet)</th>
<th>Slope (ft/ft)</th>
<th>Velocity (ft/sec)</th>
<th>Capacity (cfs)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.7</td>
<td>40</td>
<td>0.0200</td>
<td>0.99</td>
<td></td>
<td>Sheet Flow, Sheet</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Smooth surfaces n= 0.011 P2= 2.40&quot;</td>
</tr>
<tr>
<td>1.2</td>
<td>202</td>
<td>0.0200</td>
<td>2.87</td>
<td></td>
<td>Shallow Concentrated Flow, SCF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Paved Kv= 20.3 fps</td>
</tr>
<tr>
<td>1.9</td>
<td>242</td>
<td></td>
<td></td>
<td></td>
<td>Total, Increased to minimum Tc = 10.0 min</td>
</tr>
</tbody>
</table>

Subcatchment 2S: Franklin Ave 1

Hydrograph

Type IA 24-hr 10-Year Rainfall=3.37"
Runoff Area=10,733 sf
Runoff Volume=0.056 af
Runoff Depth=2.71"
Flow Length=242'
Slope=0.0200 '/'
Tc=10.0 min
CN=94
Summary for Subcatchment 3S: Franklin Ave 2

Runoff = 0.17 cfs @ 7.97 hrs, Volume = 0.054 af, Depth = 2.71"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type IA 24-hr 10-Year Rainfall= 3.37"

<table>
<thead>
<tr>
<th>Area (sf)</th>
<th>CN</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>8,587</td>
<td>98</td>
<td>Paved roads w/curbs &amp; sewers, HSG C</td>
</tr>
<tr>
<td>1,911</td>
<td>74</td>
<td>&gt;75% Grass cover, Good, HSG C</td>
</tr>
<tr>
<td>10,498</td>
<td>94</td>
<td>Weighted Average</td>
</tr>
<tr>
<td>1,911</td>
<td>74</td>
<td>18.20% Pervious Area</td>
</tr>
<tr>
<td>8,587</td>
<td>98</td>
<td>81.80% Impervious Area</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tc</th>
<th>Length</th>
<th>Slope</th>
<th>Velocity</th>
<th>Capacity</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.7</td>
<td>40</td>
<td>0.0200</td>
<td>0.99</td>
<td></td>
<td>Sheet Flow, Sheet Smooth surfaces</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>n= 0.011 P2= 2.40&quot;</td>
</tr>
<tr>
<td>1.4</td>
<td>234</td>
<td>0.0200</td>
<td>2.87</td>
<td></td>
<td>Shallow Concentrated Flow, SCF Paved</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Kv= 20.3 fps</td>
</tr>
</tbody>
</table>

2.1 274 Total, Increased to minimum Tc = 10.0 min

Hydrograph

Type IA 24-hr 10-Year Rainfall= 3.37"
Runoff Area= 10,498 sf
Runoff Volume= 0.054 af
Runoff Depth= 2.71"
Flow Length= 274'
Slope= 0.0200 '/'
Tc= 10.0 min
CN= 94
Summary for Subcatchment 4S: Phase 1 & 2

Runoff = 1.05 cfs @ 7.99 hrs, Volume = 0.340 af, Depth = 2.42"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span = 0.00-36.00 hrs, dt = 0.01 hrs
Type IA 24-hr 10-Year Rainfall = 3.37"

<table>
<thead>
<tr>
<th>Area (sf)</th>
<th>CN</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>8,098</td>
<td>98</td>
<td>Paved parking, HSG C</td>
</tr>
<tr>
<td>1,945</td>
<td>98</td>
<td>Water Surface, 0% imp, HSG C</td>
</tr>
<tr>
<td>61,755</td>
<td>90</td>
<td>1/8 acre lots, 65% imp, HSG C</td>
</tr>
<tr>
<td>1,713</td>
<td>74</td>
<td>&gt;75% Grass cover, Good, HSG C</td>
</tr>
<tr>
<td>73,511</td>
<td>91</td>
<td>Weighted Average</td>
</tr>
<tr>
<td>25,272</td>
<td>77</td>
<td>34.38% Pervious Area</td>
</tr>
<tr>
<td>48,239</td>
<td>98</td>
<td>65.62% Impervious Area</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tc (min)</th>
<th>Length (feet)</th>
<th>Slope (ft/ft)</th>
<th>Velocity (ft/sec)</th>
<th>Capacity (cfs)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.0</td>
<td>20</td>
<td>0.0200</td>
<td>0.05</td>
<td></td>
<td>Sheet Flow, Sheet Grass: Bermuda n= 0.410 P2= 2.40&quot;</td>
</tr>
<tr>
<td>1.3</td>
<td>80</td>
<td>0.0200</td>
<td>0.99</td>
<td></td>
<td>Shallow Concentrated Flow, SCF   Short Grass Pasture Kv= 7.0 fps</td>
</tr>
<tr>
<td>1.9</td>
<td>400</td>
<td>0.0050</td>
<td>3.47</td>
<td>2.73</td>
<td>Pipe Channel, To Pond 12.0&quot; Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012</td>
</tr>
</tbody>
</table>

10.2 500 Total

Subcatchment 4S: Phase 1 & 2

Hydrograph

Type IA 24-hr
10-Year Rainfall = 3.37"
Runoff Area = 73,511 sf
Runoff Volume = 0.340 af
Runoff Depth = 2.42"
Flow Length = 500'
Tc = 10.2 min
CN = 91
Summary for Subcatchment 5S: Phase 3

Runoff = 0.48 cfs @ 7.97 hrs, Volume = 0.155 af, Depth = 2.61"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span = 0.00-36.00 hrs, dt= 0.01 hrs
Type IA 24-hr 10-Year Rainfall = 3.37"

<table>
<thead>
<tr>
<th>Area (sf)</th>
<th>CN</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>11,947</td>
<td>98</td>
<td>Paved parking, HSG C</td>
</tr>
<tr>
<td>2,490</td>
<td>98</td>
<td>Water Surface, 0% imp, HSG C</td>
</tr>
<tr>
<td>2,227</td>
<td>98</td>
<td>Unconnected pavement, HSG C</td>
</tr>
<tr>
<td>8,084</td>
<td>98</td>
<td>Roofs, HSG C</td>
</tr>
<tr>
<td>6,353</td>
<td>74</td>
<td>&gt;75% Grass cover, Good, HSG C</td>
</tr>
</tbody>
</table>

Area (sf) = 31,101, 28.43% Pervious Area
Area (sf) = 22,258, 71.57% Impervious Area
Area (sf) = 2,227, 10.01% Unconnected

<table>
<thead>
<tr>
<th>Tc (min)</th>
<th>Length (feet)</th>
<th>Slope (ft/ft)</th>
<th>Velocity (ft/sec)</th>
<th>Capacity (cfs)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.4</td>
<td>20</td>
<td>0.0200</td>
<td>0.86</td>
<td></td>
<td><strong>Sheet Flow, Sheet</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Smooth surfaces  n= 0.011  P2= 2.40&quot;</td>
</tr>
<tr>
<td>0.3</td>
<td>60</td>
<td>0.0200</td>
<td>2.87</td>
<td></td>
<td><strong>Shallow Concentrated Flow,</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Paved   Kv= 20.3 fps</td>
</tr>
<tr>
<td>1.3</td>
<td>280</td>
<td>0.0050</td>
<td>3.47</td>
<td>2.73</td>
<td><strong>Pipe Channel, Pipe</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>12.0&quot; Round  Area= 0.8 sf  Perim= 3.1'  r= 0.25'</td>
</tr>
<tr>
<td>2.0</td>
<td>360</td>
<td></td>
<td></td>
<td></td>
<td>Total, Increased to minimum Tc = 10.0 min</td>
</tr>
</tbody>
</table>
Subcatchment 5S: Phase 3

Type IA 24-hr 10-Year Rainfall=3.37"

Runoff Area=31,101 sf
Runoff Volume=0.155 af
Runoff Depth=2.61"
Flow Length=360'
Tc=10.0 min
CN=93
Summary for Subcatchment 6S: Phase 4 & 5

Runoff = 0.94 cfs @ 8.03 hrs, Volume= 0.331 af, Depth= 1.75"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type IA 24-hr 10-Year Rainfall=3.37"

<table>
<thead>
<tr>
<th>Area (sf)</th>
<th>CN</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2,019</td>
<td>98</td>
<td>Water Surface, 0% imp, HSG C</td>
</tr>
<tr>
<td>11,637</td>
<td>98</td>
<td>Roofs, HSG C</td>
</tr>
<tr>
<td>*</td>
<td>98</td>
<td>Parking Lot, Sidewalk, Unconnected Roofs</td>
</tr>
<tr>
<td>55,134</td>
<td>72</td>
<td>Woods/grass comb., Good, HSG C</td>
</tr>
<tr>
<td>98,814</td>
<td>83</td>
<td>Weighted Average</td>
</tr>
<tr>
<td>57,153</td>
<td>73</td>
<td>57.84% Pervious Area</td>
</tr>
<tr>
<td>41,661</td>
<td>98</td>
<td>42.16% Impervious Area</td>
</tr>
<tr>
<td>30,024</td>
<td>72</td>
<td>72.07% Unconnected</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tc (min)</th>
<th>Length (feet)</th>
<th>Slope (ft/ft)</th>
<th>Velocity (ft/sec)</th>
<th>Capacity (cfs)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.0</td>
<td>20</td>
<td>0.0200</td>
<td>0.05</td>
<td></td>
<td><strong>Sheet Flow, Sheet</strong> Grass: Bermuda n= 0.410 P2= 2.40&quot;</td>
</tr>
<tr>
<td>1.3</td>
<td>80</td>
<td>0.0200</td>
<td>0.99</td>
<td></td>
<td><strong>Shallow Concentrated Flow, SCF</strong> Short Grass Pasture Kv= 7.0 fps</td>
</tr>
<tr>
<td>1.5</td>
<td>322</td>
<td>0.0050</td>
<td>3.47</td>
<td>2.73</td>
<td><strong>Pipe Channel, To Pond</strong> 12.0&quot; Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012</td>
</tr>
<tr>
<td>9.8</td>
<td>422</td>
<td>Total</td>
<td>Increased to minimum Tc = 10.0 min</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

ATTACHMENT L.89
Subcatchment 6S: Phase 4 & 5

Type IA 24-hr 10-Year Rainfall=3.37"
Runoff Area=98,814 sf
Runoff Volume=0.331 af
Runoff Depth=1.75"
Flow Length=422'
Tc=10.0 min
CN=83
Summary for Subcatchment 7S: Wetland

Runoff = 0.10 cfs @ 8.40 hrs, Volume= 0.100 af, Depth= 0.68"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type IA 24-hr 10-Year Rainfall=3.37"

<table>
<thead>
<tr>
<th>Area (sf)</th>
<th>CN</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>76,610</td>
<td>65</td>
<td>Brush, Good, HSG C</td>
</tr>
<tr>
<td>76,610</td>
<td>65</td>
<td>100.00% Pervious Area</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tc</th>
<th>Length</th>
<th>Slope</th>
<th>Velocity</th>
<th>Capacity</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>22.8</td>
<td>150</td>
<td>0.0200</td>
<td>0.11</td>
<td></td>
<td>Sheet Flow, Sheet Grass: Dense n= 0.240 P2= 2.40&quot;</td>
</tr>
<tr>
<td>5.1</td>
<td>215</td>
<td>0.0200</td>
<td>0.71</td>
<td></td>
<td>Shallow Concentrated Flow, SCF Woodland Kv= 5.0 fps</td>
</tr>
</tbody>
</table>

27.9  365  Total

Subcatchment 7S: Wetland

Hydrograph

Type IA 24-hr 10-Year Rainfall=3.37"
Runoff Area=76,610 sf
Runoff Volume=0.100 af
Runoff Depth=0.68"
Flow Length=365'
Slope=0.0200 '/
Tc=27.9 min
CN=65
Summary for Reach 1R: EX SE Shore Drive

Inflow Area = 6.916 ac, 43.08% Impervious, Inflow Depth = 1.72" for 10-Year event
Inflow = 1.39 cfs @ 8.34 hrs, Volume= 0.992 af
Outflow = 1.39 cfs @ 8.36 hrs, Volume= 0.992 af, Atten= 0%, Lag= 1.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.99 fps, Min. Travel Time= 0.9 min
Avg. Velocity = 1.89 fps, Avg. Travel Time= 1.4 min

Peak Storage= 75 cf @ 8.35 hrs
Average Depth at Peak Storage= 0.57'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.23 cfs

12.0" Round Pipe
n= 0.012 PVC, smooth interior
Length= 161.8' Slope= 0.0033 '/'
Inlet Invert= 210.64', Outlet Invert= 210.10'

Reach 1R: EX SE Shore Drive

Hydrograph

Inflow Area=6.916 ac
Avg. Flow Depth=0.57'
Max Vel=2.99 fps

12.0"
Round Pipe
n=0.012
L=161.8'
S=0.0033 '/'
Capacity=2.23 cfs
Summary for Reach 2R: Franklin Avenue 3

Inflow Area = 5.157 ac, 57.77% Impervious, Inflow Depth = 2.08" for 10-Year event
Inflow = 1.28 cfs @ 8.30 hrs, Volume= 0.892 af
Outflow = 1.28 cfs @ 8.32 hrs, Volume= 0.892 af, Atten= 0%, Lag= 1.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.43 fps, Min. Travel Time= 0.7 min
Avg. Velocity = 2.15 fps, Avg. Travel Time= 1.1 min

Peak Storage= 55 cf @ 8.31 hrs
Average Depth at Peak Storage= 0.48'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.74 cfs

12.0" Round Pipe
n= 0.012 PVC, smooth interior
Length= 147.0' Slope= 0.0050 '/'
Inlet Invert= 211.38', Outlet Invert= 210.64'
Summary for Reach 4R: Franklin Avenue 2

Inflow Area = 4.911 ac, 56.44% Impervious, Inflow Depth = 2.07" for 10-Year event
Inflow = 1.19 cfs @ 8.33 hrs, Volume= 0.848 af
Outflow = 1.19 cfs @ 8.34 hrs, Volume= 0.848 af, Atten= 0%, Lag= 0.9 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.34 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 2.12 fps, Avg. Travel Time= 0.8 min

Peak Storage= 35 cf @ 8.34 hrs
Average Depth at Peak Storage= 0.46'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.72 cfs

12.0" Round Pipe
n= 0.012 PVC, smooth interior
Length= 98.9' Slope= 0.0050 '/'
Inlet Invert= 211.87', Outlet Invert= 211.38'

Reach 4R: Franklin Avenue 2

Inflow Area=4.911 ac
Avg. Flow Depth=0.46'
Max Vel=3.34 fps
12.0"
Round Pipe
n=0.012
L=98.9'
S=0.0050 '/'
Capacity=2.72 cfs
Summary for Reach 5R: Franklin Avenue 1

Inflow Area = 0.241 ac, 81.80% Impervious, Inflow Depth = 2.14" for 10-Year event
Inflow = 0.17 cfs @ 7.99 hrs, Volume = 0.043 af
Outflow = 0.17 cfs @ 8.02 hrs, Volume = 0.043 af, Atten = 0%, Lag = 2.3 min

Routing by Stor-Ind+Trans method, Time Span = 0.00-36.00 hrs, dt = 0.01 hrs
Max. Velocity = 1.93 fps, Min. Travel Time = 1.4 min
Avg. Velocity = 1.06 fps, Avg. Travel Time = 2.5 min

Peak Storage = 14 cf @ 8.00 hrs
Average Depth at Peak Storage = 0.17'
Bank-Full Depth = 1.00' Flow Area = 0.8 sf, Capacity = 2.74 cfs

12.0" Round Pipe
n = 0.012 PVC, smooth interior
Length = 157.1' Slope = 0.0050 '/'
Inlet Invert = 212.86', Outlet Invert = 212.07'

Reach 5R: Franklin Avenue 1

Hydrograph

Inflow Area = 0.241 ac
Avg. Flow Depth = 0.17'
Max Vel = 1.93 fps
12.0" Round Pipe
n = 0.012
L = 157.1'
S = 0.0050 '/'
Capacity = 2.74 cfs
Summary for Reach 7R: Private Road A 2

Inflow Area = 4.670 ac, 55.13% Impervious, Inflow Depth = 2.07" for 10-Year event
Inflow = 1.10 cfs @ 8.36 hrs, Volume= 0.805 af
Outflow = 1.10 cfs @ 8.38 hrs, Volume= 0.805 af, Atten= 0%, Lag= 1.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.28 fps, Min. Travel Time= 0.7 min
Avg. Velocity = 2.11 fps, Avg. Travel Time= 1.1 min

Peak Storage= 45 cf @ 8.37 hrs
Average Depth at Peak Storage= 0.44'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.72 cfs

12.0" Round Pipe
n= 0.012 PVC, smooth interior
Length= 132.9' Slope= 0.0050 '/'
Inlet Invert= 212.73', Outlet Invert= 212.07'

Reach 7R: Private Road A 2

Inflow Area=4.670 ac
Avg. Flow Depth=0.44'
Max Vel=3.28 fps
12.0"
Round Pipe
n=0.012
L=132.9'
S=0.0050 '/'
Capacity=2.72 cfs
Summary for Reach 8R: Pond 1 Lateral

Inflow Area = 1.688 ac, 65.62% Impervious, Inflow Depth = 2.40" for 10-Year event
Inflow = 0.66 cfs @ 8.24 hrs, Volume= 0.338 af
Outflow = 0.66 cfs @ 8.25 hrs, Volume= 0.338 af, Atten= 0%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.86 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 1.88 fps, Avg. Travel Time= 0.2 min

Peak Storage= 6 cf @ 8.24 hrs
Average Depth at Peak Storage= 0.33'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.72 cfs

12.0" Round Pipe
n= 0.012 PVC, smooth interior
Length= 26.1' Slope= 0.0050 '/'
Inlet Invert= 213.06', Outlet Invert= 212.93'

Reach 8R: Pond 1 Lateral

Hydrograph
Summary for Reach 10R: Private Road A 1

Inflow Area = 2.982 ac, 49.20% Impervious, Inflow Depth = 1.88" for 10-Year event
Inflow = 0.48 cfs @ 8.82 hrs, Volume= 0.467 af
Outflow = 0.48 cfs @ 8.83 hrs, Volume= 0.467 af, Atten= 0%, Lag= 0.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.60 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 1.83 fps, Avg. Travel Time= 0.4 min

Peak Storage= 7 cf @ 8.83 hrs
Average Depth at Peak Storage= 0.28'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.71 cfs

12.0" Round Pipe
n= 0.012  PVC, smooth interior
Length= 38.5’ Slope= 0.0049 '/'
Inlet Invert= 213.12', Outlet Invert= 212.93'

Reach 10R: Private Road A 1

Inflow Area=2.982 ac
Avg. Flow Depth=0.28'
Max Vel=2.60 fps
12.0"
Round Pipe
n=0.012
L=38.5'
S=0.0049 '/'
Capacity=2.71 cfs
Summary for Reach 11R: Pond 2 Lateral

Inflow Area = 0.714 ac, 71.57% Impervious, Inflow Depth = 2.42" for 10-Year event
Inflow = 0.08 cfs @ 12.70 hrs, Volume= 0.144 af
Outflow = 0.08 cfs @ 12.73 hrs, Volume= 0.144 af, Atten= 0%, Lag= 1.9 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 1.53 fps, Min. Travel Time= 1.1 min
Avg. Velocity = 1.36 fps, Avg. Travel Time= 1.2 min

Peak Storage= 5 cf @ 12.71 hrs
Average Depth at Peak Storage= 0.12'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.73 cfs

12.0" Round Pipe
n= 0.012 PVC, smooth interior
Length= 98.2’ Slope= 0.0050 '/'
Inlet Invert= 213.81', Outlet Invert= 213.32'

Reach 11R: Pond 2 Lateral

Hydrograph

Inflow Area=0.714 ac
Flow Depth=0.12'
Max Vel=1.53 fps
12.0"
Round Pipe
n=0.012
98.2'
S=0.0050 '/'
Capacity=2.73 cfs
Summary for Reach 13R: Pond 3 Lateral

Inflow Area = 2.268 ac, 42.16% Impervious, Inflow Depth = 1.71" for 10-Year event
Inflow = 0.41 cfs @ 8.54 hrs, Volume= 0.323 af
Outflow = 0.41 cfs @ 8.60 hrs, Volume= 0.323 af, Atten= 0%, Lag= 3.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.50 fps, Min. Travel Time= 2.0 min
Avg. Velocity = 1.82 fps, Avg. Travel Time= 2.7 min

Peak Storage= 49 cf @ 8.57 hrs
Average Depth at Peak Storage= 0.26'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.73 cfs

12.0" Round Pipe
n= 0.012 PVC, smooth interior
Length= 297.0' Slope= 0.0050 '/
Inlet Invert= 214.81', Outlet Invert= 213.32'

Reach 13R: Pond 3 Lateral

Hydrograph

Inflow Area= 2.268 ac
Avg. Flow Depth= 0.26'
Max Vel= 2.50 fps

12.0"
Round Pipe
n= 0.012
L= 297.0'
S= 0.0050 '/
Capacity= 2.73 cfs
Summary for Pond 2P: WQ Facility 1

Inflow Area = 0.246 ac, 84.20% Impervious, Inflow Depth = 2.71" for 10-Year event
Inflow = 0.17 cfs @ 7.97 hrs, Volume= 0.056 af
Outflow = 0.17 cfs @ 7.99 hrs, Volume= 0.052 af, Attenuation= 0%, Lag= 1.1 min
Discarded = 0.00 cfs @ 4.74 hrs, Volume= 0.007 af
Primary = 0.17 cfs @ 7.99 hrs, Volume= 0.044 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 214.93' @ 7.99 hrs  Surf.Area= 0.014 ac  Storage= 0.009 af

Plug-Flow detention time= 175.8 min calculated for 0.051 af (93% of inflow)
Center-of-Mass det. time= 124.4 min (836.9 - 712.5)

<table>
<thead>
<tr>
<th>Volume</th>
<th>Invert</th>
<th>Avail.Storage</th>
<th>Storage Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1</td>
<td>210.88'</td>
<td>0.002 af</td>
<td>4.00'W x 50.00'L x 1.00'H Gravel Storage</td>
</tr>
<tr>
<td>#2</td>
<td>211.88'</td>
<td>0.000 af</td>
<td>4.00'W x 50.00'L x 1.50'H Growing Medium</td>
</tr>
<tr>
<td>#3</td>
<td>213.38'</td>
<td>0.009 af</td>
<td>4.00'W x 50.00'L x 2.00'H Open Storage</td>
</tr>
</tbody>
</table>

Device Routing Invert Outlet Devices
#1 Primary 214.88' 12.0" Horiz. Orifice/Grate C= 0.600
#2 Discarded 210.88' 0.200 in/hr Exfiltration over Surface area
#3 Primary 214.35' 1.9" Vert. Orifice/Grate C= 0.600

Discarded Outflow Max=0.00 cfs @ 4.74 hrs HW=213.38' (Free Discharge)
Primary Outflow Max=0.17 cfs @ 7.99 hrs HW=214.93' (Free Discharge)
Inflow Area = 0.246 ac
Peak Elev = 214.93'
Storage = 0.009 af
Summary for Pond 3P: WQ Facility 2

Inflow Area = 0.241 ac, 81.80% Impervious, Inflow Depth = 2.71” for 10-Year event
Inflow = 0.17 cfs @ 7.97 hrs, Volume= 0.054 af
Outflow = 0.17 cfs @ 7.99 hrs, Volume= 0.050 af, Atten= 0%, Lag= 1.1 min
Discarded = 0.00 cfs @ 4.77 hrs, Volume= 0.007 af
Primary = 0.17 cfs @ 7.99 hrs, Volume= 0.043 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 216.41’ @ 7.99 hrs  Surf.Area= 0.014 ac  Storage= 0.009 af

Plug-Flow detention time= 178.0 min calculated for 0.050 af (93% of inflow)
Center-of-Mass det. time= 127.0 min (839.5 - 712.5)

<table>
<thead>
<tr>
<th>Volume</th>
<th>Invert</th>
<th>Avail.Storage</th>
<th>Storage Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1</td>
<td>212.36’</td>
<td>0.002 af</td>
<td>4.00’W x 50.00’L x 1.00’H Gravel Storage</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0.005 af Overall x 40.0% Voids</td>
</tr>
<tr>
<td>#2</td>
<td>213.36’</td>
<td>0.000 af</td>
<td>4.00’W x 50.00’L x 1.50’H Growing Medium</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0.007 af Overall x 5.0% Voids</td>
</tr>
<tr>
<td>#3</td>
<td>214.86’</td>
<td>0.009 af</td>
<td>4.00’W x 50.00’L x 2.00’H Open Storage</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0.011 af Total Available Storage</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Device</th>
<th>Routing</th>
<th>Invert</th>
<th>Outlet Devices</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1</td>
<td>Primary</td>
<td>216.36’</td>
<td>12.0” Horiz. Orifice/Grate C= 0.600</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Limited to weir flow at low heads</td>
</tr>
<tr>
<td>#2</td>
<td>Discarded</td>
<td>212.36’</td>
<td>0.200 in/hr Exfiltration over Surface area</td>
</tr>
<tr>
<td>#3</td>
<td>Primary</td>
<td>215.80’</td>
<td>1.8” Vert. Orifice/Grate C= 0.600</td>
</tr>
</tbody>
</table>

Discarded OutFlow Max=0.00 cfs @ 4.77 hrs HW=214.86’ (Free Discharge)
Primary OutFlow Max=0.16 cfs @ 7.99 hrs HW=216.41’ (Free Discharge)
Pond 3P: WQ Facility 2

Inflow Area = 0.241 ac
Peak Elev = 216.41'
Storage = 0.009 af
Summary for Pond 4P: WQ/Det Facility 1

Inflow Area = 1.688 ac, 65.62% Impervious, Inflow Depth = 2.42" for 10-Year event
Inflow = 1.05 cfs @ 7.99 hrs, Volume= 0.340 af
Outflow = 0.66 cfs @ 8.24 hrs, Volume= 0.340 af, Atten= 37%, Lag= 15.2 min
Discarded = 0.01 cfs @ 8.24 hrs, Volume= 0.002 af
Primary = 0.66 cfs @ 8.24 hrs, Volume= 0.338 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 217.68' @ 8.24 hrs  Surf.Area= 1,092 sf  Storage= 1,393 cf

Plug-Flow detention time= 21.4 min calculated for 0.340 af (100% of inflow)
Center-of-Mass det. time= 21.4 min (760.7 - 739.3)

<table>
<thead>
<tr>
<th>Volume</th>
<th>Invert</th>
<th>Avail.Storage</th>
<th>Storage Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1</td>
<td>215.00</td>
<td>3,375 cf</td>
<td>Custom Stage Data (Pyramidal) Listed below (Recalc)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>215.00</td>
<td>115</td>
<td>0</td>
<td>0</td>
<td>115</td>
</tr>
<tr>
<td>216.00</td>
<td>363</td>
<td>227</td>
<td>227</td>
<td>370</td>
</tr>
<tr>
<td>217.00</td>
<td>751</td>
<td>545</td>
<td>773</td>
<td>769</td>
</tr>
<tr>
<td>218.00</td>
<td>1,278</td>
<td>1,003</td>
<td>1,776</td>
<td>1,311</td>
</tr>
<tr>
<td>219.00</td>
<td>1,944</td>
<td>1,599</td>
<td>3,375</td>
<td>1,996</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Device</th>
<th>Routing</th>
<th>Invert</th>
<th>Outlet Devices</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1</td>
<td>Primary</td>
<td>213.26'</td>
<td>2.3&quot; Vert. Orifice/Grate C= 0.600</td>
</tr>
<tr>
<td>#2</td>
<td>Primary</td>
<td>218.25'</td>
<td>24.0&quot; x 24.0&quot; Horiz. Orifice/Grate C= 0.600</td>
</tr>
<tr>
<td>#3</td>
<td>Discarded</td>
<td>215.00'</td>
<td>0.200 in/hr Exfiltration over Surface area</td>
</tr>
<tr>
<td>#4</td>
<td>Primary</td>
<td>217.15'</td>
<td>5.0&quot; Vert. Orifice/Grate C= 0.600</td>
</tr>
</tbody>
</table>

Discarded OutFlow Max=0.01 cfs @ 8.24 hrs HW=217.68' (Free Discharge)

Primary OutFlow Max=0.66 cfs @ 8.24 hrs HW=217.68' (Free Discharge)

1=Orifice/Grate (Orifice Controls 0.29 cfs @ 10.01 fps)
2=Orifice/Grate (Controls 0.00 cfs)
3=Exfiltration (Exfiltration Controls 0.01 cfs)
4=Orifice/Grate (Orifice Controls 0.37 cfs @ 2.72 fps)
Pond 4P: WQ/Det Facility 1

Inflow Area = 1.688 ac
Peak Elev = 217.68'
Storage = 1,393 cf

Hydrograph
Summary for Pond 5P: WQ/Det Facility 2

Inflow Area = 0.714 ac, 71.57% Impervious, Inflow Depth = 2.61” for 10-Year event
Inflow  = 0.48 cfs @ 7.97 hrs, Volume= 0.155 af
Outflow = 0.08 cfs @ 12.70 hrs, Volume= 0.155 af, Atten= 83%, Lag= 283.6 min
Discarded = 0.01 cfs @ 12.70 hrs, Volume= 0.011 af
Primary = 0.08 cfs @ 12.70 hrs, Volume= 0.144 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 218.69’ @ 12.70 hrs  Surf.Area= 1,468 sf  Storage= 2,052 cf

Plug-Flow detention time= 316.7 min calculated for 0.155 af (100% of inflow)
Center-of-Mass det. time= 316.7 min (1,038.5 - 721.8)

<table>
<thead>
<tr>
<th>Volume</th>
<th>Invert</th>
<th>Avail.Storage</th>
<th>Storage Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1</td>
<td>216.00’</td>
<td>4,610 cf</td>
<td>Custom Stage Data (Pyramidal) Listed below (Recalc)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>216.00</td>
<td>268</td>
<td>0</td>
<td>0</td>
<td>268</td>
</tr>
<tr>
<td>217.00</td>
<td>561</td>
<td>406</td>
<td>406</td>
<td>572</td>
</tr>
<tr>
<td>218.00</td>
<td>1,031</td>
<td>784</td>
<td>1,190</td>
<td>1,055</td>
</tr>
<tr>
<td>219.00</td>
<td>1,686</td>
<td>1,345</td>
<td>2,535</td>
<td>1,726</td>
</tr>
<tr>
<td>220.00</td>
<td>2,491</td>
<td>2,075</td>
<td>4,610</td>
<td>2,551</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Device</th>
<th>Routing</th>
<th>Invert</th>
<th>Outlet Devices</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1</td>
<td>Primary</td>
<td>214.01’</td>
<td>1.0” Vert. Orifice/Grate C= 0.600</td>
</tr>
<tr>
<td>#2</td>
<td>Primary</td>
<td>219.25’</td>
<td>24.0” x 24.0” Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads</td>
</tr>
<tr>
<td>#3</td>
<td>Discarded</td>
<td>216.00’</td>
<td>0.200 in/hr Exfiltration over Surface area</td>
</tr>
<tr>
<td>#4</td>
<td>Primary</td>
<td>218.05’</td>
<td>1.0” Vert. Orifice/Grate C= 0.600</td>
</tr>
</tbody>
</table>

Discarded OutFlow Max=0.01 cfs @ 12.70 hrs HW=218.69’ (Free Discharge)

Exfiltration (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.08 cfs @ 12.70 hrs HW=218.69’ (Free Discharge)

Orifice/Grate (Orifice Controls 0.06 cfs @ 10.37 fps)
Orifice/Grate (Controls 0.00 cfs)
Orifice/Grate (Orifice Controls 0.02 cfs @ 3.73 fps)
Pond 5P: WQ/Det Facility 2

Inflow Area = 0.714 ac
Peak Elev = 218.69'
Storage = 2,052 cf
Summary for Pond 6P: WQ/Det Facility 3

Inflow Area = 2.268 ac, 42.16% Impervious, Inflow Depth = 1.75" for 10-Year event
Inflow = 0.94 cfs @ 8.03 hrs, Volume= 0.331 af
Outflow = 0.41 cfs @ 8.54 hrs, Volume= 0.331 af, Atten= 56%, Lag= 30.9 min
Discarded = 0.01 cfs @ 8.54 hrs, Volume= 0.008 af
Primary = 0.41 cfs @ 8.54 hrs, Volume= 0.323 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 219.14' @ 8.54 hrs  Surf.Area= 1,250 sf  Storage= 1,824 cf

Plug-Flow detention time= 100.5 min calculated for 0.331 af (100% of inflow)
Center-of-Mass det. time= 100.5 min ( 899.1 - 798.6 )

<table>
<thead>
<tr>
<th>Volume</th>
<th>Invert</th>
<th>Avail.Storage</th>
<th>Storage Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>216.50'</td>
<td>4,035 cf</td>
<td>Custom Stage Data (Pyramidal) Listed below (Recalc)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>216.50</td>
<td>244</td>
<td>0</td>
<td>0</td>
<td>244</td>
</tr>
<tr>
<td>217.50</td>
<td>554</td>
<td>389</td>
<td>389</td>
<td>564</td>
</tr>
<tr>
<td>218.50</td>
<td>941</td>
<td>739</td>
<td>1,128</td>
<td>966</td>
</tr>
<tr>
<td>219.50</td>
<td>1,444</td>
<td>1,184</td>
<td>2,311</td>
<td>1,487</td>
</tr>
<tr>
<td>220.50</td>
<td>2,019</td>
<td>1,723</td>
<td>4,035</td>
<td>2,086</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Device</th>
<th>Routing</th>
<th>Invert</th>
<th>Outlet Devices</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1</td>
<td>Primary</td>
<td>215.01'</td>
<td>1.7&quot; Vert. Orifice/Grate  C= 0.600</td>
</tr>
<tr>
<td>#2</td>
<td>Primary</td>
<td>219.75'</td>
<td>24.0&quot; x 24.0&quot; Horiz. Orifice/Grate  C= 0.600</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Limited to weir flow at low heads</td>
</tr>
<tr>
<td>#3</td>
<td>Discarded</td>
<td>216.50'</td>
<td>0.200 in/hr Exfiltration over Surface area</td>
</tr>
<tr>
<td>#4</td>
<td>Primary</td>
<td>218.60'</td>
<td>4.0&quot; Vert. Orifice/Grate  C= 0.600</td>
</tr>
</tbody>
</table>

Discarded OutFlow Max=0.01 cfs @ 8.54 hrs HW=219.14’ (Free Discharge)
Exfiltration (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.41 cfs @ 8.54 hrs HW=219.14’ (Free Discharge)
(Orifice Controls 0.15 cfs @ 9.70 fps)
(Controls 0.00 cfs)
(Orifice Controls 0.26 cfs @ 2.93 fps)
Inflow Area=2.268 ac
Peak Elev=219.14'
Storage=1,824 cf
Franklin Reserve Post-Developed

Prepared by HBH Consulting Engineers

Type IA 24-hr 25-Year Rainfall=3.94"

Printed 3/15/2020

HydroCAD® 10.00-22 s/n 01354 © 2018 HydroCAD Software Solutions LLC

Page 89

<table>
<thead>
<tr>
<th>Subcatchment</th>
<th>Description</th>
<th>Runoff Area</th>
<th>Impervious %</th>
<th>Runoff Depth</th>
<th>Flow Length</th>
<th>Slope</th>
<th>Tc (min)</th>
<th>CN</th>
<th>Runoff</th>
<th>Inflow</th>
</tr>
</thead>
<tbody>
<tr>
<td>2S: Franklin Ave 1</td>
<td>Runoff Area=10,733 sf 84.20% Impervious</td>
<td>Runoff Depth=3.27&quot;</td>
<td>Flow Length=242'</td>
<td>Slope=0.0200 '/'</td>
<td>Tc=10.0 min</td>
<td>CN=94</td>
<td>Runoff=0.21 cfs 0.067 af</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3S: Franklin Ave 2</td>
<td>Runoff Area=10,498 sf 81.80% Impervious</td>
<td>Runoff Depth=3.27&quot;</td>
<td>Flow Length=274'</td>
<td>Slope=0.0200 '/'</td>
<td>Tc=10.0 min</td>
<td>CN=94</td>
<td>Runoff=0.20 cfs 0.066 af</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4S: Phase 1 &amp; 2</td>
<td>Runoff Area=73,511 sf 65.62% Impervious</td>
<td>Runoff Depth=2.96&quot;</td>
<td>Flow Length=500'</td>
<td>Slope=0.0200 '/'</td>
<td>Tc=10.2 min</td>
<td>CN=91</td>
<td>Runoff=1.30 cfs 0.416 af</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5S: Phase 3</td>
<td>Runoff Area=31,101 sf 71.57% Impervious</td>
<td>Runoff Depth=3.16&quot;</td>
<td>Flow Length=360'</td>
<td>Slope=0.0200 '/'</td>
<td>Tc=10.0 min</td>
<td>CN=93</td>
<td>Runoff=0.59 cfs 0.188 af</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6S: Phase 4 &amp; 5</td>
<td>Runoff Area=98,814 sf 42.16% Impervious</td>
<td>Runoff Depth=2.23&quot;</td>
<td>Flow Length=422'</td>
<td>Slope=0.0200 '/'</td>
<td>Tc=10.0 min</td>
<td>CN=83</td>
<td>Runoff=1.24 cfs 0.422 af</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7S: Wetland</td>
<td>Runoff Area=76,610 sf 0.00% Impervious</td>
<td>Runoff Depth=0.99&quot;</td>
<td>Flow Length=365'</td>
<td>Slope=0.0200 '/'</td>
<td>Tc=27.9 min</td>
<td>CN=65</td>
<td>Runoff=0.21 cfs 0.146 af</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Reach 1R: EX SE Shore Drive
- Avg. Flow Depth=0.71' Max Vel=3.19 fps Inflow=1.90 cfs 1.256 af
  - 12.0" Round Pipe n=0.012 L=161.8' S=0.0033 '/' Capacity=2.23 cfs Outflow=1.90 cfs 1.256 af

Reach 2R: Franklin Avenue 3
- Avg. Flow Depth=0.57' Max Vel=3.67 fps Inflow=1.69 cfs 1.110 af
  - 12.0" Round Pipe n=0.012 L=147.0' S=0.0050 '/' Capacity=2.74 cfs Outflow=1.69 cfs 1.110 af

Reach 4R: Franklin Avenue 2
- Avg. Flow Depth=0.54' Max Vel=3.57 fps Inflow=1.55 cfs 1.055 af
  - 12.0" Round Pipe n=0.012 L=98.9' S=0.0050 '/' Capacity=2.72 cfs Outflow=1.55 cfs 1.055 af

Reach 5R: Franklin Avenue 1
- Avg. Flow Depth=0.18' Max Vel=2.04 fps Inflow=0.20 cfs 0.054 af
  - 12.0" Round Pipe n=0.012 L=157.1' S=0.0050 '/' Capacity=2.74 cfs Outflow=0.20 cfs 0.054 af

Reach 7R: Private Road A 2
- Avg. Flow Depth=0.51' Max Vel=3.50 fps Inflow=1.43 cfs 1.001 af
  - 12.0" Round Pipe n=0.012 L=132.9' S=0.0050 '/' Capacity=2.72 cfs Outflow=1.43 cfs 1.001 af

Reach 8R: Pond 1 Lateral
- Avg. Flow Depth=0.38' Max Vel=3.04 fps Inflow=0.82 cfs 0.413 af
  - 12.0" Round Pipe n=0.012 L=26.1' S=0.0050 '/' Capacity=2.72 cfs Outflow=0.82 cfs 0.413 af

Reach 10R: Private Road A 1
- Avg. Flow Depth=0.33' Max Vel=2.81 fps Inflow=0.63 cfs 0.588 af
  - 12.0" Round Pipe n=0.012 L=38.5' S=0.0049 '/' Capacity=2.71 cfs Outflow=0.63 cfs 0.588 af

Reach 11R: Pond 2 Lateral
- Avg. Flow Depth=0.12' Max Vel=1.58 fps Inflow=0.09 cfs 0.174 af
  - 12.0" Round Pipe n=0.012 L=98.2' S=0.0050 '/' Capacity=2.73 cfs Outflow=0.09 cfs 0.174 af

Reach 13R: Pond 3 Lateral
- Avg. Flow Depth=0.30' Max Vel=2.72 fps Inflow=0.55 cfs 0.414 af
  - 12.0" Round Pipe n=0.012 L=297.0' S=0.0050 '/' Capacity=2.73 cfs Outflow=0.55 cfs 0.414 af

Pond 2P: WQ Facility 1
- Peak Elev=214.94' Storage=0.009 af Inflow=0.21 cfs 0.067 af
  - Discarded=0.00 cfs 0.007 af Primary=0.21 cfs 0.055 af Outflow=0.21 cfs 0.063 af
Franklin Reserve Post-Developed

Pond 3P: WQ Facility 2
Peak Elev=216.42' Storage=0.009 af  Inflow=0.20 cfs 0.066 af
Discard=0.00 cfs 0.007 af  Primary=0.20 cfs 0.054 af  Outflow=0.20 cfs 0.062 af

Pond 4P: WQ/Det Facility 1
Peak Elev=218.00' Storage=1,774 cf  Inflow=1.30 cfs 0.416 af
Discard=0.01 cfs 0.003 af  Primary=0.82 cfs 0.413 af  Outflow=0.83 cfs 0.416 af

Pond 5P: WQ/Det Facility 2
Peak Elev=219.12' Storage=2,739 cf  Inflow=0.59 cfs 0.188 af
Discard=0.01 cfs 0.015 af  Primary=0.09 cfs 0.174 af  Outflow=0.09 cfs 0.188 af

Pond 6P: WQ/Det Facility 3
Peak Elev=219.62' Storage=2,483 cf  Inflow=1.24 cfs 0.422 af
Discard=0.01 cfs 0.008 af  Primary=0.55 cfs 0.414 af  Outflow=0.56 cfs 0.422 af
Summary for Subcatchment 2S: Franklin Ave 1

Runoff = 0.21 cfs @ 7.97 hrs, Volume= 0.067 af, Depth= 3.27"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type IA 24-hr 25-Year Rainfall=3.94"

<table>
<thead>
<tr>
<th>Area (sf)</th>
<th>CN</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>9,037</td>
<td>98</td>
<td>Paved roads w/curbs &amp; sewers, HSG C</td>
</tr>
<tr>
<td>1,696</td>
<td>74</td>
<td>&gt;75% Grass cover, Good, HSG C</td>
</tr>
<tr>
<td>10,733</td>
<td>94</td>
<td>Weighted Average</td>
</tr>
<tr>
<td>1,696</td>
<td>74</td>
<td>15.80% Pervious Area</td>
</tr>
<tr>
<td>9,037</td>
<td>98</td>
<td>84.20% Impervious Area</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tc (min)</th>
<th>Length (feet)</th>
<th>Slope (ft/ft)</th>
<th>Velocity (ft/sec)</th>
<th>Capacity (cfs)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.7</td>
<td>40</td>
<td>0.0200</td>
<td>0.99</td>
<td></td>
<td>Sheet Flow, Sheet</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Smooth surfaces  n= 0.011  P2= 2.40&quot;</td>
</tr>
<tr>
<td>1.2</td>
<td>202</td>
<td>0.0200</td>
<td>2.87</td>
<td></td>
<td>Shallow Concentrated Flow, SCF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Paved  Kv= 20.3 fps</td>
</tr>
<tr>
<td>1.9</td>
<td>242</td>
<td></td>
<td></td>
<td></td>
<td>Total, Increased to minimum Tc = 10.0 min</td>
</tr>
</tbody>
</table>

Subcatchment 2S: Franklin Ave 1

Hydrograph

Type IA 24-hr 25-Year Rainfall=3.94"
Runoff Area=10,733 sf
Runoff Volume=0.067 af
Runoff Depth=3.27"
Flow Length=242'
Slope=0.0200 '/'
Tc=10.0 min
CN=94
Summary for Subcatchment 3S: Franklin Ave 2

Runoff = 0.20 cfs @ 7.97 hrs, Volume= 0.066 af, Depth= 3.27"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type IA 24-hr  25-Year Rainfall=3.94"

<table>
<thead>
<tr>
<th>Area (sf)</th>
<th>CN</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>8,587</td>
<td>98</td>
<td>Paved roads w/curbs &amp; sewers, HSG C</td>
</tr>
<tr>
<td>1,911</td>
<td>74</td>
<td>&gt;75% Grass cover, Good, HSG C</td>
</tr>
</tbody>
</table>

10,498 94 Weighted Average
1,911 74 18.20% Pervious Area
8,587 98 81.80% Impervious Area

<table>
<thead>
<tr>
<th>Tc (min)</th>
<th>Length (feet)</th>
<th>Slope (ft/ft)</th>
<th>Velocity (ft/sec)</th>
<th>Capacity (cfs)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.7</td>
<td>40</td>
<td>0.0200</td>
<td>0.99</td>
<td></td>
<td>Sheet Flow, Sheet</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Smooth surfaces   n= 0.011   P2= 2.40&quot;</td>
</tr>
<tr>
<td>1.4</td>
<td>234</td>
<td>0.0200</td>
<td>2.87</td>
<td></td>
<td>Shallow Concentrated Flow, SCF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Paved   Kv= 20.3 fps</td>
</tr>
</tbody>
</table>

2.1 274 Total, Increased to minimum Tc = 10.0 min

Subcatchment 3S: Franklin Ave 2

Hydrograph

Type IA 24-hr  25-Year Rainfall=3.94"
Runoff Area=10,498 sf
Runoff Volume=0.066 af
Runoff Depth=3.27"
Flow Length=274'
Slope=0.0200 '/'
Tc=10.0 min
CN=94
Summary for Subcatchment 4S: Phase 1 & 2

Runoff = 1.30 cfs @ 7.97 hrs, Volume= 0.416 af, Depth= 2.96"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type IA 24-hr 25-Year Rainfall=3.94"

<table>
<thead>
<tr>
<th>Area (sf)</th>
<th>CN</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>8,098</td>
<td>98</td>
<td>Paved parking, HSG C</td>
</tr>
<tr>
<td>1,945</td>
<td>98</td>
<td>Water Surface, 0% imp, HSG C</td>
</tr>
<tr>
<td>61,755</td>
<td>90</td>
<td>1/8 acre lots, 65% imp, HSG C</td>
</tr>
<tr>
<td>1,713</td>
<td>74</td>
<td>&gt;75% Grass cover, Good, HSG C</td>
</tr>
<tr>
<td>73,511</td>
<td>91</td>
<td>Weighted Average</td>
</tr>
<tr>
<td>25,272</td>
<td>77</td>
<td>34.38% Pervious Area</td>
</tr>
<tr>
<td>48,239</td>
<td>98</td>
<td>65.62% Impervious Area</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tc</th>
<th>Length</th>
<th>Slope</th>
<th>Velocity</th>
<th>Capacity</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.0</td>
<td>20</td>
<td>0.0200</td>
<td>0.05</td>
<td></td>
<td>Sheet Flow, Sheet</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Grass: Bermuda n= 0.410 P2= 2.40&quot;</td>
</tr>
<tr>
<td>1.3</td>
<td>80</td>
<td>0.0200</td>
<td>0.99</td>
<td></td>
<td>Shallow Concentrated Flow, SCF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Short Grass Pasture Kv= 7.0 fps</td>
</tr>
<tr>
<td>1.9</td>
<td>400</td>
<td>0.0050</td>
<td>3.47</td>
<td>2.73</td>
<td>Pipe Channel, To Pond</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>12.0&quot; Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012</td>
</tr>
</tbody>
</table>

10.2 500 Total

Subcatchment 4S: Phase 1 & 2

Type IA 24-hr 25-Year Rainfall=3.94"
Runoff Area=73,511 sf
Runoff Volume=0.416 af
Runoff Depth=2.96"
Flow Length=500'
Tc=10.2 min
CN=91
Summary for Subcatchment 5S: Phase 3

Runoff = 0.59 cfs @ 7.97 hrs, Volume= 0.188 af, Depth= 3.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type IA 24-hr  25-Year Rainfall=3.94"

<table>
<thead>
<tr>
<th>Area (sf)</th>
<th>CN</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>11,947</td>
<td>98</td>
<td>Paved parking, HSG C</td>
</tr>
<tr>
<td>2,490</td>
<td>98</td>
<td>Water Surface, 0% imp, HSG C</td>
</tr>
<tr>
<td>2,227</td>
<td>98</td>
<td>Unconnected pavement, HSG C</td>
</tr>
<tr>
<td>8,084</td>
<td>98</td>
<td>Roofs, HSG C</td>
</tr>
<tr>
<td>6,353</td>
<td>74</td>
<td>&gt;75% Grass cover, Good, HSG C</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Area (sf)</th>
<th>CN</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>31,101</td>
<td>93</td>
<td>Weighted Average</td>
</tr>
<tr>
<td>8,843</td>
<td>81</td>
<td>28.43% Pervious Area</td>
</tr>
<tr>
<td>22,258</td>
<td>98</td>
<td>71.57% Impervious Area</td>
</tr>
<tr>
<td>2,227</td>
<td></td>
<td>10.01% Unconnected</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tc (min)</th>
<th>Length (feet)</th>
<th>Slope (ft/ft)</th>
<th>Velocity (ft/sec)</th>
<th>Capacity (cfs)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.4</td>
<td>20</td>
<td>0.0200</td>
<td>0.86</td>
<td></td>
<td>Sheet Flow, Sheet</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Smooth surfaces n= 0.011 P2= 2.40&quot;</td>
</tr>
<tr>
<td>0.3</td>
<td>60</td>
<td>0.0200</td>
<td>2.87</td>
<td></td>
<td>Shallow Concentrated Flow, Paved</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Kv= 20.3 fps</td>
</tr>
<tr>
<td>1.3</td>
<td>280</td>
<td>0.0050</td>
<td>3.47</td>
<td>2.73</td>
<td>Pipe Channel, Pipe</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>12.0&quot; Round Area= 0.8 sf Perim= 3.1' r= 0.25'</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>n= 0.012</td>
</tr>
<tr>
<td>2.0</td>
<td>360</td>
<td></td>
<td></td>
<td></td>
<td>Total, Increased to minimum Tc = 10.0 min</td>
</tr>
</tbody>
</table>
Subcatchment 5S: Phase 3

Type IA 24-hr 25-Year Rainfall=3.94"
Runoff Area=31,101 sf
Runoff Volume=0.188 af
Runoff Depth=3.16"
Flow Length=360'
Tc=10.0 min
CN=93
Summary for Subcatchment 6S: Phase 4 & 5

Runoff = 1.24 cfs @ 8.01 hrs, Volume = 0.422 af, Depth = 2.23"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span = 0.00-36.00 hrs, dt = 0.01 hrs
Type IA 24-hr 25-Year Rainfall = 3.94"

<table>
<thead>
<tr>
<th>Area (sf)</th>
<th>CN</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2,019</td>
<td>98</td>
<td>Water Surface, 0% imp, HSG C</td>
</tr>
<tr>
<td>11,637</td>
<td>98</td>
<td>Roofs, HSG C</td>
</tr>
<tr>
<td>* 30,024</td>
<td>98</td>
<td>Parking Lot, Sidewalk, Unconnected Roofs</td>
</tr>
<tr>
<td>55,134</td>
<td>72</td>
<td>Woods/grass comb., Good, HSG C</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tc (min)</th>
<th>Length (feet)</th>
<th>Slope (ft/ft)</th>
<th>Velocity (ft/sec)</th>
<th>Capacity (cfs)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.0</td>
<td>20</td>
<td>0.0200</td>
<td>0.05</td>
<td></td>
<td>Sheet Flow, Sheet</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Grass: Bermuda n = 0.410 P2 = 2.40&quot;</td>
</tr>
<tr>
<td>1.3</td>
<td>80</td>
<td>0.0200</td>
<td>0.99</td>
<td></td>
<td>Shallow Concentrated Flow, SCF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Short Grass Pasture Kv = 7.0 fps</td>
</tr>
<tr>
<td>1.5</td>
<td>322</td>
<td>0.0050</td>
<td>3.47</td>
<td>2.73</td>
<td>Pipe Channel, To Pond</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>12.0&quot; Round Area = 0.8 sf Perim = 3.1' r = 0.25' n = 0.012</td>
</tr>
<tr>
<td>9.8</td>
<td>422</td>
<td>Total, Increased to minimum Tc = 10.0 min</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Subcatchment 6S: Phase 4 & 5

Hydrograph

Type IA 24-hr 25-Year Rainfall=3.94"
Runoff Area=98,814 sf
Runoff Volume=0.422 af
Runoff Depth=2.23"
Flow Length=422'
Tc=10.0 min
CN=83
Summary for Subcatchment 7S: Wetland

Runoff = 0.21 cfs @ 8.31 hrs, Volume = 0.146 af, Depth = 0.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span = 0.00-36.00 hrs, dt = 0.01 hrs
Type IA 24-hr 25-Year Rainfall = 3.94"

<table>
<thead>
<tr>
<th>Area (sf)</th>
<th>CN</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>76,610</td>
<td>65</td>
<td>Brush, Good, HSG C</td>
</tr>
<tr>
<td>76,610</td>
<td>65</td>
<td>100.00% Pervious Area</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tc (min)</th>
<th>Length (feet)</th>
<th>Slope (ft/ft)</th>
<th>Velocity (ft/sec)</th>
<th>Capacity (cfs)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>22.8</td>
<td>150</td>
<td>0.0200</td>
<td>0.11</td>
<td></td>
<td>Sheet Flow, Sheet</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Grass: Dense n = 0.240</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>P2 = 2.40&quot;</td>
</tr>
<tr>
<td>5.1</td>
<td>215</td>
<td>0.0200</td>
<td>0.71</td>
<td></td>
<td>Shallow Concentrated Flow, SCF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Woodland Kv = 5.0 fps</td>
</tr>
</tbody>
</table>

27.9 365 Total

Subcatchment 7S: Wetland

Type IA 24-hr 25-Year Rainfall = 3.94"
Runoff Area = 76,610 sf
Runoff Volume = 0.146 af
Runoff Depth = 0.99"
Flow Length = 365'
Slope = 0.0200 '/'
Tc = 27.9 min
CN = 65
Summary for Reach 1R: EX SE Shore Drive

Inflow Area = 6.916 ac, 43.08% Impervious, Inflow Depth = 2.18" for 25-Year event

Inflow = 1.90 cfs @ 8.22 hrs, Volume = 1.256 af
Outflow = 1.90 cfs @ 8.25 hrs, Volume = 1.256 af, Atten = 0%, Lag = 1.8 min

Routing by Stor-Ind+Trans method, Time Span = 0.00-36.00 hrs, dt = 0.01 hrs
Max. Velocity = 3.19 fps, Min. Travel Time = 0.8 min
Avg. Velocity = 1.94 fps, Avg. Travel Time = 1.4 min

Peak Storage = 96 cf @ 8.24 hrs
Average Depth at Peak Storage = 0.71'
Bank-Full Depth = 1.00' Flow Area = 0.8 sf, Capacity = 2.23 cfs

12.0" Round Pipe
n = 0.012 PVC, smooth interior
Length = 161.8' Slope = 0.0033 '/'
Inlet Invert = 210.64', Outlet Invert = 210.10'

Reach 1R: EX SE Shore Drive

Hydrograph

Inflow Area = 6.916 ac
Avg. Flow Depth = 0.71'
Max Vel = 3.19 fps
12.0" Round Pipe
n = 0.012
L = 161.8'
S = 0.0033 '/'
Capacity = 2.23 cfs
Summary for Reach 2R: Franklin Avenue 3

Inflow Area = 5.157 ac, 57.77% Impervious, Inflow Depth = 2.58" for 25-Year event
Inflow = 1.69 cfs @ 8.18 hrs, Volume = 1.110 af
Outflow = 1.69 cfs @ 8.20 hrs, Volume = 1.110 af, Atten = 0%, Lag = 1.2 min

Routing by Stor-Ind+Trans method, Time Span = 0.00-36.00 hrs, dt = 0.01 hrs
Max. Velocity = 3.67 fps, Min. Travel Time = 0.7 min
Avg. Velocity = 2.20 fps, Avg. Travel Time = 1.1 min

Peak Storage = 68 cf @ 8.19 hrs
Average Depth at Peak Storage = 0.57'
Bank-Full Depth = 1.00' Flow Area = 0.8 sf, Capacity = 2.74 cfs

12.0" Round Pipe
n = 0.012 PVC, smooth interior
Length = 147.0' Slope = 0.0050 '/'
Inlet Invert = 211.38', Outlet Invert = 210.64'

Reach 2R: Franklin Avenue 3

Hydrograph

Inflow Area = 5.157 ac
Avg. Flow Depth = 0.57'
Max Vel = 3.67 fps
12.0"

Round Pipe
n = 0.012
L = 147.0'
S = 0.0050 '/'
Capacity = 2.74 cfs
Summary for Reach 4R: Franklin Avenue 2

Inflow Area = 4.911 ac, 56.44% Impervious, Inflow Depth = 2.58" for 25-Year event
Inflow = 1.55 cfs @ 8.24 hrs, Volume= 1.055 af
Outflow = 1.55 cfs @ 8.25 hrs, Volume= 1.055 af, Attenuation= 0%, Lag= 0.8 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.57 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 2.17 fps, Avg. Travel Time= 0.8 min

Peak Storage= 43 cf @ 8.24 hrs
Average Depth at Peak Storage= 0.54'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.72 cfs

12.0" Round Pipe
n= 0.012 PVC, smooth interior
Length= 98.9' Slope= 0.0050 '/'
Inlet Invert= 211.87', Outlet Invert= 211.38'

Reach 4R: Franklin Avenue 2

[Hydrograph diagram]

Inflow Area=4.911 ac
Avg. Flow Depth=0.54'
Max Vel=3.57 fps
12.0"
Round Pipe
n=0.012
L=98.9'
S=0.0050 '/'
Capacity=2.72 cfs
Summary for Reach 5R: Franklin Avenue 1

Inflow Area = 0.241 ac, 81.80% Impervious, Inflow Depth = 2.69" for 25-Year event
Inflow = 0.20 cfs @ 7.97 hrs, Volume= 0.054 af
Outflow = 0.20 cfs @ 8.01 hrs, Volume= 0.054 af, Atten= 0%, Lag= 2.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.04 fps, Min. Travel Time= 1.3 min
Avg. Velocity = 1.13 fps, Avg. Travel Time= 2.3 min

Peak Storage= 16 cf @ 7.99 hrs
Average Depth at Peak Storage= 0.18'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.74 cfs

12.0" Round Pipe
n= 0.012 PVC, smooth interior
Length= 157.1' Slope= 0.0050 '/'
Inlet Invert= 212.86', Outlet Invert= 212.07'

Reach 5R: Franklin Avenue 1

Hydrograph

Inflow Area=0.241 ac
Avg. Flow Depth=0.18'
Max Vel=2.04 fps
12.0"
Round Pipe
n=0.012
L=157.1'
S=0.0050 '/'
Capacity=2.74 cfs
Summary for Reach 7R: Private Road A 2

Inflow Area = 4.670 ac, 55.13% Impervious, Inflow Depth = 2.57" for 25-Year event
Inflow = 1.43 cfs @ 8.33 hrs, Volume= 1.001 af
Outflow = 1.43 cfs @ 8.35 hrs, Volume= 1.001 af, Atten= 0%, Lag= 1.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.50 fps, Min. Travel Time= 0.6 min
Avg. Velocity = 2.16 fps, Avg. Travel Time= 1.0 min

Peak Storage= 54 cf @ 8.34 hrs
Average Depth at Peak Storage= 0.51'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.72 cfs

12.0" Round Pipe
n= 0.012 PVC, smooth interior
Length= 132.9' Slope= 0.0050 '/'
Inlet Invert= 212.73', Outlet Invert= 212.07'

Reach 7R: Private Road A 2

Inflow Area=4.670 ac
Avg. Flow Depth=0.51'
Max Vel=3.50 fps

12.0"
Round Pipe
n=0.012
L=132.9'
S=0.0050 '/'
capacity=2.72 cfs
Summary for Reach 8R: Pond 1 Lateral

Inflow Area = 1.688 ac, 65.62% Impervious, Inflow Depth = 2.94" for 25-Year event
Inflow = 0.82 cfs @ 8.23 hrs, Volume= 0.413 af
Outflow = 0.82 cfs @ 8.24 hrs, Volume= 0.413 af, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.04 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.99 fps, Avg. Travel Time= 0.2 min

Peak Storage= 7 cf @ 8.23 hrs
Average Depth at Peak Storage= 0.38'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.72 cfs

12.0" Round Pipe
n= 0.012 PVC, smooth interior
Length= 26.1’ Slope= 0.0050 '/'
Inlet Invert= 213.06', Outlet Invert= 212.93'

Reach 8R: Pond 1 Lateral

Inflow Area=1.688 ac
Avg. Flow Depth=0.38'
Max Vel=3.04 fps
12.0"
Round Pipe
n=0.012
L=26.1'
S=0.0050 '/'
Capacity=2.72 cfs
Summary for Reach 10R: Private Road A 1

Inflow Area = 2.982 ac, 49.20% Impervious, Inflow Depth = 2.36" for 25-Year event
Inflow = 0.63 cfs @ 8.58 hrs, Volume= 0.588 af
Outflow = 0.63 cfs @ 8.58 hrs, Volume= 0.588 af, Atten= 0%, Lag= 0.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.81 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 1.89 fps, Avg. Travel Time= 0.3 min

Peak Storage= 9 cf @ 8.58 hrs
Average Depth at Peak Storage= 0.33'
Bank-Full Depth= 1.00’ Flow Area= 0.8 sf, Capacity= 2.71 cfs

12.0” Round Pipe
n= 0.012  PVC, smooth interior
Length= 38.5’  Slope= 0.0049 '/'
Inlet Invert= 213.12', Outlet Invert= 212.93'

Reach 10R: Private Road A 1

**Hydrograph**

- Inflow Area=2.982 ac
- Avg. Flow Depth=0.33'
- Max Vel=2.81 fps
- 12.0” Round Pipe
- n=0.012
- L=38.5’
- S=0.0049 '/'
- Capacity=2.71 cfs
Summary for Reach 11R: Pond 2 Lateral

Inflow Area = 0.714 ac, 71.57% Impervious, Inflow Depth = 2.92" for 25-Year event
Inflow = 0.09 cfs @ 13.63 hrs, Volume = 0.174 af
Outflow = 0.09 cfs @ 13.66 hrs, Volume = 0.174 af, Atten = 0%, Lag = 1.8 min

Routing by Stor-Ind+Trans method, Time Span = 0.00-36.00 hrs, dt = 0.01 hrs
Max. Velocity = 1.58 fps, Min. Travel Time = 1.0 min
Avg. Velocity = 1.40 fps, Avg. Travel Time = 1.2 min

Peak Storage = 5 cf @ 13.64 hrs
Average Depth at Peak Storage = 0.12'
Bank-Full Depth = 1.00' Flow Area = 0.8 sf, Capacity = 2.73 cfs

12.0" Round Pipe
n = 0.012 PVC, smooth interior
Length = 98.2' Slope = 0.0050 '/'
Inlet Invert = 213.81', Outlet Invert = 213.32'

Reach 11R: Pond 2 Lateral

Hydrograph

Inflow Area = 0.714 ac, Inflow Depth = 0.12'
Vel= 1.58 fps
12.0" Round Pipe
L = 98.2'
S = 0.0050 '/'
Capacity = 2.73 cfs
Summary for Reach 13R: Pond 3 Lateral

Inflow Area = 2.268 ac, 42.16% Impervious, Inflow Depth = 2.19" for 25-Year event
Inflow = 0.55 cfs @ 8.50 hrs, Volume= 0.414 af
Outflow = 0.55 cfs @ 8.55 hrs, Volume= 0.414 af, Attenuation= 0%, Lag= 3.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.72 fps, Min. Travel Time= 1.8 min
Avg. Velocity = 1.92 fps, Avg. Travel Time= 2.6 min

Peak Storage= 60 cf @ 8.52 hrs
Average Depth at Peak Storage= 0.30'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.73 cfs

12.0" Round Pipe
n= 0.012 PVC, smooth interior
Length= 297.0' Slope= 0.0050 '/'
Inlet Invert= 214.81', Outlet Invert= 213.32'

Reach 13R: Pond 3 Lateral

Hydrograph

Inflow Area=2.268 ac
Avg. Flow Depth=0.30'
Max Vel=2.72 fps
12.0"
Round Pipe
n=0.012
L=297.0'
S=0.0050 '/'
Capacity=2.73 cfs
Summary for Pond 2P: WQ Facility 1

Inflow Area = 0.246 ac, 84.20% Impervious, Inflow Depth = 3.27" for 25-Year event
Inflow = 0.21 cfs @ 7.97 hrs, Volume= 0.067 af
Outflow = 0.21 cfs @ 7.97 hrs, Volume= 0.063 af, Atten= 0%, Lag= 0.1 min
Discarded = 0.00 cfs @ 4.20 hrs, Volume= 0.007 af
Primary = 0.21 cfs @ 7.97 hrs, Volume= 0.055 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 214.94' @ 7.97 hrs Surf.Area= 0.014 ac Storage= 0.009 af

Plug-Flow detention time= 151.1 min calculated for 0.063 af (94% of inflow)
Center-of-Mass det. time= 107.6 min (812.0 - 704.4)

Volume Invert Avail.Storage Storage Description
--- --- --- ---
#1 210.88' 0.002 af 4.00' W x 50.00' L x 1.00' H Gravel Storage
0.005 af Overall x 40.0% Voids
#2 211.88' 0.000 af 4.00' W x 50.00' L x 1.50' H Growing Medium
0.007 af Overall x 5.0% Voids
#3 213.38' 0.009 af 4.00' W x 50.00' L x 2.00' H Open Storage
0.011 af Total Available Storage

Device Routing Invert Outlet Devices
--- --- --- ---
#1 Primary 214.88' 12.0" Horiz. Orifice/Grate C= 0.600
Limited to weir flow at low heads
#2 Discarded 210.88' 0.200 in/hr Exfiltration over Surface area
#3 Primary 214.35' 1.9" Vert. Orifice/Grate C= 0.600

Discarded OutFlow Max=0.00 cfs @ 4.20 hrs HW=213.38' (Free Discharge)
2=Exfiltration (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.20 cfs @ 7.97 hrs HW=214.94' (Free Discharge)
1=Orifice/Grate (Weir Controls 0.14 cfs @ 0.77 fps)
3=Orifice/Grate (Orifice Controls 0.07 cfs @ 3.43 fps)
Pond 2P: WQ Facility 1

Inflow Area = 0.246 ac
Peak Elev = 214.94'
Storage = 0.009 af
**Summary for Pond 3P: WQ Facility 2**

Inflow Area = 0.241 ac, 81.80% Impervious, Inflow Depth = 3.27" for 25-Year event

<table>
<thead>
<tr>
<th>Inflow Area</th>
<th>Inflow</th>
<th>Outflow</th>
<th>Discarded</th>
<th>Primary</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.241 ac</td>
<td>0.20 cfs</td>
<td>0.20 cfs</td>
<td>0.20 cfs</td>
</tr>
<tr>
<td></td>
<td>81.80%</td>
<td>7.97 hrs</td>
<td>7.97 hrs</td>
<td>7.97 hrs</td>
</tr>
<tr>
<td></td>
<td>0.20 cfs</td>
<td>0.066 af</td>
<td>0.062 af</td>
<td>0.054 af</td>
</tr>
<tr>
<td></td>
<td>0.00 cfs</td>
<td>0.007 af</td>
<td>0.007 af</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.20 cfs</td>
<td>0.066 af</td>
<td>0.062 af</td>
<td></td>
</tr>
</tbody>
</table>

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 216.42' @ 7.97 hrs   Surf.Area= 0.014 ac   Storage= 0.009 af

Plug-Flow detention time= 153.4 min calculated for 0.062 af (94% of inflow)
Center-of-Mass det. time= 110.2 min (814.6 - 704.4)

<table>
<thead>
<tr>
<th>Volume</th>
<th>Invert</th>
<th>Avail.Storage</th>
<th>Storage Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1</td>
<td>212.36'</td>
<td>0.002 af</td>
<td>4.00'W x 50.00'L x 1.00'H Gravel Storage</td>
</tr>
<tr>
<td>#2</td>
<td>213.36'</td>
<td>0.000 af</td>
<td>4.00'W x 50.00'L x 1.50'H Growing Medium</td>
</tr>
<tr>
<td>#3</td>
<td>214.86'</td>
<td>0.009 af</td>
<td>4.00'W x 50.00'L x 2.00'H Open Storage</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Device</th>
<th>Routing</th>
<th>Invert</th>
<th>Outlet Devices</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1</td>
<td>Primary</td>
<td>216.36'</td>
<td>12.0&quot; Horiz. Orifice/Grate C= 0.600</td>
</tr>
<tr>
<td>#2</td>
<td>Discarded</td>
<td>212.36'</td>
<td>0.200 in/hr Exfiltration over Surface area</td>
</tr>
<tr>
<td>#3</td>
<td>Primary</td>
<td>215.80'</td>
<td>1.8&quot; Vert. Orifice/Grate C= 0.600</td>
</tr>
</tbody>
</table>

Discarded OutFlow Max= 0.00 cfs @ 4.24 hrs HW=214.86' (Free Discharge)

Primary OutFlow Max= 0.20 cfs @ 7.97 hrs HW=216.42' (Free Discharge)
Pond 3P: WQ Facility 2

Inflow Area = 0.241 ac
Peak Elev = 216.42'
Storage = 0.009 af
Summary for Pond 4P: WQ/Det Facility 1

Inflow Area = 1.688 ac, 65.62% Impervious, Inflow Depth = 2.96" for 25-Year event

Inflow = 1.30 cfs @ 7.97 hrs, Volume= 0.416 af
Outflow = 0.83 cfs @ 8.23 hrs, Volume= 0.416 af, Atten= 36%, Lag= 15.6 min
Discarded = 0.01 cfs @ 8.23 hrs, Volume= 0.003 af
Primary = 0.82 cfs @ 8.23 hrs, Volume= 0.413 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 218.00' @ 8.23 hrs Surf.Area= 1,277 sf Storage= 1,774 cf

Plug-Flow detention time= 26.1 min calculated for 0.416 af (100% of inflow)
Center-of-Mass det. time= 26.1 min (755.2 - 729.1)

<table>
<thead>
<tr>
<th>Volume</th>
<th>Invert</th>
<th>Avail.Storage</th>
<th>Storage Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1</td>
<td>215.00’</td>
<td>3,375 cf</td>
<td>Custom Stage Data (Pyramidal)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>(feet)</td>
<td>(sq-ft)</td>
<td>(cubic-feet)</td>
<td>(cubic-feet)</td>
<td>(sq-ft)</td>
</tr>
<tr>
<td>215.00</td>
<td>115</td>
<td>0</td>
<td>0</td>
<td>115</td>
</tr>
<tr>
<td>216.00</td>
<td>363</td>
<td>227</td>
<td>227</td>
<td>370</td>
</tr>
<tr>
<td>217.00</td>
<td>751</td>
<td>545</td>
<td>773</td>
<td>769</td>
</tr>
<tr>
<td>218.00</td>
<td>1,278</td>
<td>1,003</td>
<td>1,776</td>
<td>1,311</td>
</tr>
<tr>
<td>219.00</td>
<td>1,944</td>
<td>1,599</td>
<td>3,375</td>
<td>1,996</td>
</tr>
</tbody>
</table>

Device Routing Invert Outlet Devices

| #1 Primary      | 213.26' | 2.3" Vert. Orifice/Grate | C= 0.600 |
| #2 Primary      | 218.25' | 24.0" x 24.0" Horiz. Orifice/Grate | C= 0.600 |
| #3 Discarded    | 215.00' | 0.200 in/hr Exfiltration over Surface area |
| #4 Primary      | 217.15' | 5.0" Vert. Orifice/Grate | C= 0.600 |

Discarded OutFlow Max=0.01 cfs @ 8.23 hrs HW=218.00’ (Free Discharge)

Primary OutFlow Max=0.82 cfs @ 8.23 hrs HW=218.00’ (Free Discharge)

1=Orifice/Grate (Orifice Controls 0.30 cfs @ 10.37 fps)
2=Orifice/Grate (Controls 0.00 cfs)
3=Exfiltration (Exfiltration Controls 0.01 cfs)
4=Orifice/Grate (Orifice Controls 0.53 cfs @ 3.85 fps)
Pond 4P: WQ/Det Facility 1

Hydrograph

Inflow Area = 1.688 ac
Peak Elev = 218.00'
Storage = 1,774 cf

Flow (cfs)

Time (hours)
Summary for Pond 5P: WQ/Det Facility 2

Inflow Area = 0.714 ac, 71.57% Impervious, Inflow Depth = 3.16" for 25-Year event
Inflow = 0.59 cfs @ 7.97 hrs, Volume= 0.188 af
Outflow = 0.09 cfs @ 13.63 hrs, Volume= 0.188 af, Attenuation= 84%, Lag= 339.8 min
Discarded = 0.01 cfs @ 13.63 hrs, Volume= 0.015 af
Primary = 0.09 cfs @ 13.63 hrs, Volume= 0.174 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 219.12' @ 13.63 hrs   Surf.Area= 1,773 sf   Storage= 2,739 cf

Plug-Flow detention time= 375.1 min calculated for 0.188 af (100% of inflow)
Center-of-Mass det. time= 375.1 min (1,088.1 - 713.0)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>216.00</td>
<td>268</td>
<td>0</td>
<td>0</td>
<td>268</td>
</tr>
<tr>
<td>217.00</td>
<td>561</td>
<td>406</td>
<td>406</td>
<td>572</td>
</tr>
<tr>
<td>218.00</td>
<td>1,031</td>
<td>784</td>
<td>1,190</td>
<td>1,055</td>
</tr>
<tr>
<td>219.00</td>
<td>1,686</td>
<td>1,345</td>
<td>2,535</td>
<td>1,726</td>
</tr>
<tr>
<td>220.00</td>
<td>2,491</td>
<td>2,075</td>
<td>4,610</td>
<td>2,551</td>
</tr>
</tbody>
</table>

Device Routing Invert Outlet Devices

#1 Primary 214.01' 1.0" Vert. Orifice/Grate C= 0.600
#2 Primary 219.25' 24.0" x 24.0" Horiz. Orifice/Grate C= 0.600
   Limited to weir flow at low heads
#3 Discarded 216.00' 0.200 in/hr Exfiltration over Surface area
#4 Primary 218.05' 1.0" Vert. Orifice/Grate C= 0.600

Discarded OutFlow Max=0.01 cfs @ 13.63 hrs HW=219.12’ (Free Discharge)
Exfiltration (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.09 cfs @ 13.63 hrs HW=219.12’ (Free Discharge)
Orifice/Grate (Orifice Controls 0.06 cfs @ 10.84 fps)
Orifice/Grate (Controls 0.00 cfs)
Orifice/Grate (Orifice Controls 0.03 cfs @ 4.88 fps)
Franklin Reserve Post-Developed
Type IA 24-hr 25-Year Rainfall = 3.94"
Prepared by HBH Consulting Engineers
Printed 3/15/2020

Pond 5P: WQ/Det Facility 2
Inflow Area = 0.714 ac
Peak Elev = 219.12'
Storage = 2,739 cf
Summary for Pond 6P: WQ/Det Facility 3

Inflow Area = 2.268 ac, 42.16% Impervious, Inflow Depth = 2.23" for 25-Year event
Inflow = 1.24 cfs @ 8.01 hrs, Volume= 0.422 af
Outflow = 0.56 cfs @ 8.50 hrs, Volume= 0.422 af, Atten= 55%, Lag= 29.3 min
Discarded = 0.01 cfs @ 8.50 hrs, Volume= 0.008 af
Primary = 0.55 cfs @ 8.50 hrs, Volume= 0.414 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 219.62' @ 8.50 hrs  Surf.Area= 1,506 sf  Storage= 2,483 cf

Plug-Flow detention time= 89.9 min calculated for 0.422 af (100% of inflow)
Center-of-Mass det. time= 89.9 min ( 873.9 - 784.0 )

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>216.50</td>
<td>244</td>
<td>0</td>
<td>0</td>
<td>244</td>
</tr>
<tr>
<td>217.50</td>
<td>554</td>
<td>389</td>
<td>389</td>
<td>564</td>
</tr>
<tr>
<td>218.50</td>
<td>941</td>
<td>739</td>
<td>1,128</td>
<td>966</td>
</tr>
<tr>
<td>219.50</td>
<td>1,444</td>
<td>1,184</td>
<td>2,311</td>
<td>1,487</td>
</tr>
<tr>
<td>220.50</td>
<td>2,019</td>
<td>1,723</td>
<td>4,035</td>
<td>2,086</td>
</tr>
</tbody>
</table>

Device Routing  Invert  Outlet Devices

| #1 | Primary 215.01' | 1.7" Vert. Orifice/Grate C= 0.600 |
| #2 | Primary 219.75' | 24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 |
| #3 | Discarded 216.50' | 0.200 in/hr Exfiltration over Surface area |
| #4 | Primary 218.60' | 4.0" Vert. Orifice/Grate C= 0.600 |

Discarded OutFlow Max=0.01 cfs @ 8.50 hrs  HW=219.62' (Free Discharge)

Primary OutFlow Max=0.55 cfs @ 8.50 hrs  HW=219.62' (Free Discharge)

1=Orifice/Grate (Orifice Controls 0.16 cfs @ 10.25 fps)
2=Orifice/Grate (Controls 0.00 cfs)
3=Exfiltration (Exfiltration Controls 0.01 cfs)
4=Orifice/Grate (Orifice Controls 0.39 cfs @ 4.44 fps)
Pond 6P: WQ/Det Facility 3

Inflow Area = 2.268 ac
Peak Elev = 219.62'
Storage = 2,483 cf
Franklin Reserve Post-Developed

Prepared by HBH Consulting Engineers

Type IA 24-hr  50-Year Rainfall=4.38"  Printed 3/15/2020

HydroCAD® 10.00-22  s/n 01354  © 2018 HydroCAD Software Solutions LLC

Page 118

Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method -  Pond routing by Stor-Ind method

Subcatchment 2S: Franklin Ave 1
Runoff Area=10,733 sf  84.20% Impervious  Runoff Depth=3.70"
Flow Length=242'  Slope=0.0200 '/'  Tc=10.0 min  CN=94  Runoff=0.24 cfs  0.076 af

Subcatchment 3S: Franklin Ave 2
Runoff Area=10,498 sf  81.80% Impervious  Runoff Depth=3.70"
Flow Length=274'  Slope=0.0200 '/'  Tc=10.0 min  CN=94  Runoff=0.23 cfs  0.074 af

Subcatchment 4S: Phase 1 & 2
Runoff Area=73,511 sf  65.62% Impervious  Runoff Depth=3.38"
Flow Length=500'  Tc=10.2 min  CN=91  Runoff=1.48 cfs  0.476 af

Subcatchment 5S: Phase 3
Runoff Area=31,101 sf  71.57% Impervious  Runoff Depth=3.59"
Flow Length=360'  Tc=10.0 min  CN=93  Runoff=0.67 cfs  0.214 af

Subcatchment 6S: Phase 4 & 5
Runoff Area=76,610 sf  0.00% Impervious  Runoff Depth=1.26"
Flow Length=422'  Tc=10.0 min  CN=83  Runoff=1.48 cfs  0.495 af

Subcatchment 7S: Wetland
Runoff Area=76,610 sf  0.00% Impervious  Runoff Depth=1.26"
Flow Length=365'  Slope=0.0200 '/'  Tc=27.9 min  CN=65  Runoff=0.31 cfs  0.184 af

Reach 1R: EX SE Shore Drive
Avg. Flow Depth=1.00'  Max Vel=3.24 fps  Inflow=2.63 cfs  1.466 af
12.0" Round Pipe  n=0.012  L=161.8'  S=0.0033 '/'  Capacity=2.23 cfs  Outflow=2.40 cfs  1.466 af

Reach 2R: Franklin Avenue 3
Avg. Flow Depth=0.71'  Max Vel=3.91 fps  Inflow=2.32 cfs  1.282 af
12.0" Round Pipe  n=0.012  L=147.0'  S=0.0050 '/'  Capacity=2.74 cfs  Outflow=2.32 cfs  1.282 af

Reach 4R: Franklin Avenue 2
Avg. Flow Depth=0.68'  Max Vel=3.85 fps  Inflow=2.18 cfs  1.218 af
12.0" Round Pipe  n=0.012  L=98.9'  S=0.0050 '/'  Capacity=2.72 cfs  Outflow=2.18 cfs  1.218 af

Reach 5R: Franklin Avenue 1
Avg. Flow Depth=0.20'  Max Vel=2.11 fps  Inflow=0.23 cfs  0.063 af
12.0" Round Pipe  n=0.012  L=157.1'  S=0.0050 '/'  Capacity=2.74 cfs  Outflow=0.23 cfs  0.063 af

Reach 7R: Private Road A 2
Avg. Flow Depth=0.64'  Max Vel=3.80 fps  Inflow=2.04 cfs  1.155 af
12.0" Round Pipe  n=0.012  L=132.9'  S=0.0050 '/'  Capacity=2.72 cfs  Outflow=2.03 cfs  1.155 af

Reach 8R: Pond 1 Lateral
Avg. Flow Depth=0.40'  Max Vel=3.14 fps  Inflow=0.93 cfs  0.472 af
12.0" Round Pipe  n=0.012  L=26.1'  S=0.0050 '/'  Capacity=2.72 cfs  Outflow=0.93 cfs  0.472 af

Reach 10R: Private Road A 1
Avg. Flow Depth=0.44'  Max Vel=3.28 fps  Inflow=1.11 cfs  0.684 af
12.0" Round Pipe  n=0.012  L=38.5'  S=0.0049 '/'  Capacity=2.71 cfs  Outflow=1.11 cfs  0.684 af

Reach 11R: Pond 2 Lateral
Avg. Flow Depth=0.15'  Max Vel=1.83 fps  Inflow=0.14 cfs  0.197 af
12.0" Round Pipe  n=0.012  L=98.2'  S=0.0050 '/'  Capacity=2.73 cfs  Outflow=0.14 cfs  0.197 af

Reach 13R: Pond 3 Lateral
Avg. Flow Depth=0.43'  Max Vel=3.23 fps  Inflow=1.04 cfs  0.486 af
12.0" Round Pipe  n=0.012  L=297.0'  S=0.0050 '/'  Capacity=2.73 cfs  Outflow=1.03 cfs  0.486 af

Pond 2P: WQ Facility 1
Peak Elev=214.94'  Storage=0.009 af  Inflow=0.24 cfs  0.076 af
Discarded=0.00 cfs  0.008 af  Primary=0.23 cfs  0.064 af  Outflow=0.24 cfs  0.072 af
Franklin Reserve Post-Developed

Type IA 24-hr  50-Year Rainfall=4.38”

Prepared by HBH Consulting Engineers

Printed 3/15/2020

HydroCAD® 10.00-22  s/n 01354  © 2018 HydroCAD Software Solutions LLC

Page 119

Pond 3P: WQ Facility 2
    Peak Elev=216.42' Storage=0.009 af  Inflow=0.23 cfs  0.074 af
    Discarded=0.00 cfs  0.008 af  Primary=0.23 cfs  0.063 af  Outflow=0.23 cfs  0.070 af

Pond 4P: WQ/Det Facility 1
    Peak Elev=218.25' Storage=2,115 cf  Inflow=1.48 cfs  0.476 af
    Discarded=0.01 cfs  0.004 af  Primary=0.93 cfs  0.472 af  Outflow=0.94 cfs  0.476 af

Pond 5P: WQ/Det Facility 2
    Peak Elev=219.26' Storage=3,001 cf  Inflow=0.67 cfs  0.214 af
    Discarded=0.01 cfs  0.016 af  Primary=0.14 cfs  0.197 af  Outflow=0.15 cfs  0.214 af

Pond 6P: WQ/Det Facility 3
    Peak Elev=219.82' Storage=2,793 cf  Inflow=1.48 cfs  0.495 af
    Discarded=0.01 cfs  0.009 af  Primary=1.04 cfs  0.486 af  Outflow=1.05 cfs  0.495 af
Summary for Subcatchment 2S: Franklin Ave 1

Runoff = 0.24 cfs @ 7.95 hrs, Volume= 0.076 af, Depth= 3.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type IA 24-hr  50-Year Rainfall=4.38"

<table>
<thead>
<tr>
<th>Area (sf)</th>
<th>CN</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>9,037</td>
<td>98</td>
<td>Paved roads w/curbs &amp; sewers, HSG C</td>
</tr>
<tr>
<td>1,696</td>
<td>74</td>
<td>&gt;75% Grass cover, Good, HSG C</td>
</tr>
<tr>
<td>10,733</td>
<td>94</td>
<td>Weighted Average</td>
</tr>
<tr>
<td>1,696</td>
<td>74</td>
<td>15.80% Pervious Area</td>
</tr>
<tr>
<td>9,037</td>
<td>98</td>
<td>84.20% Impervious Area</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tc (min)</th>
<th>Length (feet)</th>
<th>Slope (ft/ft)</th>
<th>Velocity (ft/sec)</th>
<th>Capacity (cfs)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.7</td>
<td>40</td>
<td>0.0200</td>
<td>0.99</td>
<td></td>
<td>Sheet Flow, Sheet</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Smooth surfaces n= 0.011 P2= 2.40&quot;</td>
</tr>
<tr>
<td>1.2</td>
<td>202</td>
<td>0.0200</td>
<td>2.87</td>
<td></td>
<td>Shallow Concentrated Flow, SCF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Paved Kv= 20.3 fps</td>
</tr>
</tbody>
</table>

1.9 242 Total, Increased to minimum Tc = 10.0 min

Subcatchment 2S: Franklin Ave 1

Hydrograph

Type IA 24-hr  50-Year Rainfall=4.38"
Runoff Area=10,733 sf
Runoff Volume=0.076 af
Runoff Depth=3.70"
Flow Length=242'
Slope=0.0200 '/'
Tc=10.0 min
CN=94
Summary for Subcatchment 3S: Franklin Ave 2

Runoff = 0.23 cfs @ 7.95 hrs, Volume = 0.074 af, Depth = 3.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span = 0.00-36.00 hrs, dt = 0.01 hrs
Type IA 24-hr 50-Year Rainfall = 4.38"

<table>
<thead>
<tr>
<th>Area (sf)</th>
<th>CN</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>8,587</td>
<td>98</td>
<td>Paved roads w/curbs &amp; sewers, HSG C</td>
</tr>
<tr>
<td>1,911</td>
<td>74</td>
<td>&gt;75% Grass cover, Good, HSG C</td>
</tr>
<tr>
<td>10,498</td>
<td>94</td>
<td>Weighted Average</td>
</tr>
<tr>
<td>1,911</td>
<td>74</td>
<td>18.20% Pervious Area</td>
</tr>
<tr>
<td>8,587</td>
<td>98</td>
<td>81.80% Impervious Area</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tc (min)</th>
<th>Length (feet)</th>
<th>Slope (ft/ft)</th>
<th>Velocity (ft/sec)</th>
<th>Capacity (cfs)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.7</td>
<td>40</td>
<td>0.0200</td>
<td>0.99</td>
<td></td>
<td>Sheet Flow, Sheet</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Smooth surfaces n = 0.011 P2 = 2.40&quot;</td>
</tr>
<tr>
<td>1.4</td>
<td>234</td>
<td>0.0200</td>
<td>2.87</td>
<td></td>
<td>Shallow Concentrated Flow, SCF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Paved Kv = 20.3 fps</td>
</tr>
</tbody>
</table>

2.1 274 Total, Increased to minimum Tc = 10.0 min

Subcatchment 3S: Franklin Ave 2

- Type IA 24-hr 50-Year Rainfall = 4.38"
- Runoff Area = 10,498 sf
- Runoff Volume = 0.074 af
- Runoff Depth = 3.70"
- Flow Length = 274'
- Slope = 0.0200 '/'
- Tc = 10.0 min
- CN = 94
Summary for Subcatchment 4S: Phase 1 & 2

Runoff = 1.48 cfs @ 7.97 hrs, Volume= 0.476 af, Depth= 3.38"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type IA 24-hr 50-Year Rainfall=4.38"

<table>
<thead>
<tr>
<th>Area (sf)</th>
<th>CN</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>8,098</td>
<td>98</td>
<td>Paved parking, HSG C</td>
</tr>
<tr>
<td>1,945</td>
<td>98</td>
<td>Water Surface, 0% imp, HSG C</td>
</tr>
<tr>
<td>61,755</td>
<td>90</td>
<td>1/8 acre lots, 65% imp, HSG C</td>
</tr>
<tr>
<td>1,713</td>
<td>74</td>
<td>&gt;75% Grass cover, Good, HSG C</td>
</tr>
<tr>
<td>73,511</td>
<td>91</td>
<td>Weighted Average</td>
</tr>
<tr>
<td>25,272</td>
<td>77</td>
<td>34.38% Pervious Area</td>
</tr>
<tr>
<td>48,239</td>
<td>98</td>
<td>65.62% Impervious Area</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tc (min)</th>
<th>Length (feet)</th>
<th>Slope (ft/ft)</th>
<th>Velocity (ft/sec)</th>
<th>Capacity (cfs)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.0</td>
<td>20</td>
<td>0.0200</td>
<td>0.05</td>
<td></td>
<td>Sheet Flow, Sheet</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Grass: Bermuda n= 0.410 P2= 2.40&quot;</td>
</tr>
<tr>
<td>1.3</td>
<td>80</td>
<td>0.0200</td>
<td>0.99</td>
<td></td>
<td>Shallow Concentrated Flow, SCF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Short Grass Pasture Kv= 7.0 fps</td>
</tr>
<tr>
<td>1.9</td>
<td>400</td>
<td>0.0050</td>
<td>3.47</td>
<td>2.73</td>
<td>Pipe Channel, To Pond</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>12.0&quot; Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012</td>
</tr>
</tbody>
</table>

10.2 500 Total

Subcatchment 4S: Phase 1 & 2

Type IA 24-hr 50-Year Rainfall=4.38"
Runoff Area=73,511 sf
Runoff Volume=0.476 af
Runoff Depth=3.38"
Flow Length=500' Tc=10.2' CN=91
Summary for Subcatchment 5S: Phase 3

Runoff = 0.67 cfs @ 7.97 hrs, Volume= 0.214 af, Depth= 3.59"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type IA 24-hr 50-Year Rainfall=4.38"

<table>
<thead>
<tr>
<th>Area (sf)</th>
<th>CN</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>11,947</td>
<td>98</td>
<td>Paved parking, HSG C</td>
</tr>
<tr>
<td>2,490</td>
<td>98</td>
<td>Water Surface, 0% imp, HSG C</td>
</tr>
<tr>
<td>2,227</td>
<td>98</td>
<td>Unconnected pavement, HSG C</td>
</tr>
<tr>
<td>8,084</td>
<td>98</td>
<td>Roofs, HSG C</td>
</tr>
<tr>
<td>6,353</td>
<td>74</td>
<td>&gt;75% Grass cover, Good, HSG C</td>
</tr>
<tr>
<td>31,101</td>
<td>93</td>
<td>Weighted Average</td>
</tr>
<tr>
<td>8,843</td>
<td>81</td>
<td>28.43% Pervious Area</td>
</tr>
<tr>
<td>22,258</td>
<td>98</td>
<td>71.57% Impervious Area</td>
</tr>
<tr>
<td>2,227</td>
<td></td>
<td>10.01% Unconnected</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tc (min)</th>
<th>Length (feet)</th>
<th>Slope (ft/ft)</th>
<th>Velocity (ft/sec)</th>
<th>Capacity (cfs)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.4</td>
<td>20</td>
<td>0.0200</td>
<td>0.86</td>
<td></td>
<td><strong>Sheet Flow, Sheet</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Smooth surfaces n= 0.011 P2= 2.40&quot;</td>
</tr>
<tr>
<td>0.3</td>
<td>60</td>
<td>0.0200</td>
<td>2.87</td>
<td></td>
<td><strong>Shallow Concentrated Flow,</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Paved Kv= 20.3 fps</td>
</tr>
<tr>
<td>1.3</td>
<td>280</td>
<td>0.0050</td>
<td>3.47</td>
<td>2.73</td>
<td><strong>Pipe Channel, Pipe</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>12.0&quot; Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012</td>
</tr>
<tr>
<td>2.0</td>
<td>360</td>
<td></td>
<td></td>
<td></td>
<td>Total, Increased to minimum Tc = 10.0 min</td>
</tr>
</tbody>
</table>
Subcatchment 5S: Phase 3

Type IA 24-hr 50-Year Rainfall=4.38"
Runoff Area=31,101 sf
Runoff Volume=0.214 af
Runoff Depth=3.59"
Flow Length=360'
Tc=10.0 min
CN=93
Summary for Subcatchment 6S: Phase 4 & 5

Runoff = 1.48 cfs @ 8.01 hrs, Volume= 0.495 af, Depth= 2.62"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type IA 24-hr 50-Year Rainfall=4.38"

<table>
<thead>
<tr>
<th>Area (sf)</th>
<th>CN</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2,019</td>
<td>98</td>
<td>Water Surface, 0% imp, HSG C</td>
</tr>
<tr>
<td>11,637</td>
<td>98</td>
<td>Roofs, HSG C</td>
</tr>
<tr>
<td>* 30,024</td>
<td>98</td>
<td>Parking Lot, Sidewalk, Unconnected Roofs</td>
</tr>
<tr>
<td>55,134</td>
<td>72</td>
<td>Woods/grass comb., Good, HSG C</td>
</tr>
<tr>
<td>98,814</td>
<td>83</td>
<td>Weighted Average</td>
</tr>
<tr>
<td>57,153</td>
<td>73</td>
<td>57.84% Pervious Area</td>
</tr>
<tr>
<td>41,661</td>
<td>98</td>
<td>42.16% Impervious Area</td>
</tr>
<tr>
<td>30,024</td>
<td>72</td>
<td>72.07% Unconnected</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tc (min)</th>
<th>Length (feet)</th>
<th>Slope (ft/ft)</th>
<th>Velocity (ft/sec)</th>
<th>Capacity (cfs)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.0</td>
<td>20</td>
<td>0.0200</td>
<td>0.05</td>
<td></td>
<td>Sheet Flow, Sheet</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Grass: Bermuda  n= 0.410  P2= 2.40&quot;</td>
</tr>
<tr>
<td>1.3</td>
<td>80</td>
<td>0.0200</td>
<td>0.99</td>
<td></td>
<td>Shallow Concentrated Flow, SCF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Short Grass Pasture  Kv= 7.0 fps</td>
</tr>
<tr>
<td>1.5</td>
<td>322</td>
<td>0.0050</td>
<td>3.47</td>
<td>2.73</td>
<td>Pipe Channel, To Pond</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>12.0&quot; Round  Area= 0.8 sf  Perim= 3.1'  r= 0.25'  n= 0.012</td>
</tr>
<tr>
<td>9.8</td>
<td>422</td>
<td>Total, Increased to minimum Tc = 10.0 min</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Subcatchment 6S: Phase 4 & 5

Type IA 24-hr 50-Year Rainfall=4.38"
Runoff Area=98,814 sf
Runoff Volume=0.495 af
Runoff Depth=2.62"
Flow Length=422'
Tc=10.0 min
CN=83
Summary for Subcatchment 7S: Wetland

Runoff = 0.31 cfs @ 8.28 hrs, Volume= 0.184 af, Depth= 1.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type IA 24-hr 50-Year Rainfall=4.38"

<table>
<thead>
<tr>
<th>Area (sf)</th>
<th>CN</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>76,610</td>
<td>65</td>
<td>Brush, Good, HSG C</td>
</tr>
<tr>
<td>76,610</td>
<td>65</td>
<td>100.00% Pervious Area</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tc (min)</th>
<th>Length (feet)</th>
<th>Slope (ft/ft)</th>
<th>Velocity (ft/sec)</th>
<th>Capacity (cfs)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>22.8</td>
<td>150</td>
<td>0.0200</td>
<td>0.11</td>
<td></td>
<td>Sheet Flow, Sheet</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Grass: Dense n= 0.240</td>
</tr>
<tr>
<td>5.1</td>
<td>215</td>
<td>0.0200</td>
<td>0.71</td>
<td></td>
<td>Shallow Concentrated Flow, SCF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Woodland Kv= 5.0 fps</td>
</tr>
</tbody>
</table>

Subcatchment 7S: Wetland

Type IA 24-hr 50-Year Rainfall=4.38"
Runoff Area=76,610 sf
Runoff Volume=0.184 af
Runoff Depth=1.26"
Flow Length=365'
Slope=0.0200 '/'
Tc=27.9 min
CN=65
Summary for Reach 1R: EX SE Shore Drive

Inflow Area = 6.916 ac, 43.08% Impervious, Inflow Depth > 2.54" for 50-Year event
Inflow = 2.63 cfs @ 8.29 hrs, Volume= 1.466 af
Outflow = 2.40 cfs @ 8.25 hrs, Volume= 1.466 af, Atten= 9%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.24 fps, Min. Travel Time= 0.8 min
Avg. Velocity = 2.02 fps, Avg. Travel Time= 1.3 min

Peak Storage= 127 cf @ 8.25 hrs
Average Depth at Peak Storage= 1.00'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.23 cfs

12.0" Round Pipe
n= 0.012 PVC, smooth interior
Length= 161.8' Slope= 0.0033 '/'
Inlet Invert= 210.64', Outlet Invert= 210.10'

Reach 1R: EX SE Shore Drive

Inflow Area=6.916 ac
Avg. Flow Depth=1.00'
Max Vel=3.24 fps
12.0"
Round Pipe
n=0.012
L=161.8'
S=0.0033 '/'
Capacity=2.23 cfs
Summary for Reach 2R: Franklin Avenue 3

Inflow Area = 5.157 ac, 57.77% Impervious, Inflow Depth > 2.98" for 50-Year event
Inflow = 2.32 cfs @ 8.27 hrs, Volume= 1.282 af
Outflow = 2.32 cfs @ 8.29 hrs, Volume= 1.282 af, Atten= 0%, Lag= 1.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.91 fps, Min. Travel Time= 0.6 min
Avg. Velocity = 2.29 fps, Avg. Travel Time= 1.1 min

Peak Storage= 87 cf @ 8.28 hrs
Average Depth at Peak Storage= 0.71'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.74 cfs

12.0" Round Pipe
n= 0.012  PVC, smooth interior
Length= 147.0' Slope= 0.0050 '/'
Inlet Invert= 211.38', Outlet Invert= 210.64'

Reach 2R: Franklin Avenue 3

Hydrograph
Summary for Reach 4R: Franklin Avenue 2

Inflow Area = 4.911 ac, 56.44% Impervious, Inflow Depth > 2.98" for 50-Year event
Inflow = 2.18 cfs @ 8.26 hrs, Volume= 1.218 af
Outflow = 2.18 cfs @ 8.28 hrs, Volume= 1.218 af, Atten= 0%, Lag= 0.8 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.85 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 2.25 fps, Avg. Travel Time= 0.7 min

Peak Storage= 56 cf @ 8.27 hrs
Average Depth at Peak Storage= 0.68'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.72 cfs

12.0" Round Pipe
n= 0.012 PVC, smooth interior
Length= 98.9' Slope= 0.0050 '/'
Inlet Invert= 211.87', Outlet Invert= 211.38'

Reach 4R: Franklin Avenue 2

Hydrograph

Inflow Area=4.911 ac
Avg. Flow Depth=0.68'
Max Vel=3.85 fps
12.0"
Round Pipe
n=0.012
L=98.9'
S=0.0050 '/'
Capacity=2.72 cfs
Summary for Reach 5R: Franklin Avenue 1

Inflow Area = 0.241 ac, 81.80% Impervious, Inflow Depth = 3.12" for 50-Year event
Inflow = 0.23 cfs @ 7.97 hrs, Volume= 0.063 af
Outflow = 0.23 cfs @ 8.00 hrs, Volume= 0.063 af, Atten= 0%, Lag= 2.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.11 fps, Min. Travel Time= 1.2 min
Avg. Velocity = 1.17 fps, Avg. Travel Time= 2.2 min

Peak Storage= 17 cf @ 7.98 hrs
Average Depth at Peak Storage= 0.20'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.74 cfs

12.0" Round Pipe
n= 0.012 PVC, smooth interior
Length= 157.1' Slope= 0.0050 '/'
Inlet Invert= 212.86', Outlet Invert= 212.07'

Reach 5R: Franklin Avenue 1

Inflow Area=0.241 ac
Avg. Flow Depth=0.20'
Max Vel=2.11 fps
12.0"
Round Pipe
n=0.012
L=157.1'
S=0.0050 '/'
Capacity=2.74 cfs
Summary for Reach 7R: Private Road A 2

Inflow Area = 4.670 ac, 55.13% Impervious, Inflow Depth > 2.97" for 50-Year event
Inflow = 2.04 cfs @ 8.25 hrs, Volume= 1.155 af
Outflow = 2.03 cfs @ 8.27 hrs, Volume= 1.155 af, Atten= 0%, Lag= 1.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.80 fps, Min. Travel Time= 0.6 min
Avg. Velocity = 2.22 fps, Avg. Travel Time= 1.0 min

Peak Storage= 71 cf @ 8.26 hrs
Average Depth at Peak Storage= 0.64'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.72 cfs

12.0" Round Pipe
n= 0.012 PVC, smooth interior
Length= 132.9' Slope= 0.0050 '
Inlet Invert= 212.73', Outlet Invert= 212.07'

Reach 7R: Private Road A 2

Hydrograph

Inflow Area=4.670 ac
Avg. Flow Depth=0.64'
Max Vel=3.80 fps
12.0"
Round Pipe
n=0.012
L=132.9'
S=0.0050 '
Capacity=2.72 cfs
Summary for Reach 8R: Pond 1 Lateral

Inflow Area = 1.688 ac, 65.62% Impervious, Inflow Depth = 3.35" for 50-Year event
Inflow = 0.93 cfs @ 8.24 hrs, Volume= 0.472 af
Outflow = 0.93 cfs @ 8.24 hrs, Volume= 0.472 af, Atten= 0%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.14 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 2.06 fps, Avg. Travel Time= 0.2 min

Peak Storage= 8 cf @ 8.24 hrs
Average Depth at Peak Storage= 0.40'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.72 cfs

12.0" Round Pipe
n= 0.012 PVC, smooth interior
Length= 26.1' Slope= 0.0050 '/'
Inlet Invert= 213.06', Outlet Invert= 212.93'

Reach 8R: Pond 1 Lateral

Hydrograph

Inflow Area=1.688 ac
Avg. Flow Depth=0.40'
Max Vel=3.14 fps
12.0"
Round Pipe
n=0.012
L=26.1'
S=0.0050 '/'
Capacity=2.72 cfs
Summary for Reach 10R: Private Road A 1

Inflow Area = 2.982 ac, 49.20% Impervious, Inflow Depth > 2.75" for 50-Year event
Inflow = 1.11 cfs @ 8.25 hrs, Volume= 0.684 af
Outflow = 1.11 cfs @ 8.25 hrs, Volume= 0.684 af, Atten= 0%, Lag= 0.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.28 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 1.94 fps, Avg. Travel Time= 0.3 min

Peak Storage= 13 cf @ 8.25 hrs
Average Depth at Peak Storage= 0.44'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.71 cfs

12.0" Round Pipe
n= 0.012  PVC, smooth interior
Length= 38.5'  Slope= 0.0049 '/'
Inlet Invert= 213.12', Outlet Invert= 212.93'

Reach 10R: Private Road A 1

Hydrograph

Inflow Area=2.982 ac
Avg. Flow Depth=0.44'
Max Vel=3.28 fps 12.0''
Round Pipe
n=0.012
L=38.5'
S=0.0049 '/'
Capacity=2.71 cfs
Summary for Reach 11R: Pond 2 Lateral

Inflow Area = 0.714 ac, 71.57% Impervious, Inflow Depth > 3.32" for 50-Year event
Inflow = 0.14 cfs @ 10.19 hrs, Volume= 0.197 af
Outflow = 0.14 cfs @ 10.21 hrs, Volume= 0.197 af, Atten= 0%, Lag= 1.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 1.83 fps, Min. Travel Time= 0.9 min
Avg. Velocity = 1.44 fps, Avg. Travel Time= 1.1 min

Peak Storage= 8 cf @ 10.20 hrs
Average Depth at Peak Storage= 0.15'
Bank-Full Depth= 1.00’ Flow Area= 0.8 sf, Capacity= 2.73 cfs

12.0" Round Pipe
n= 0.012  PVC, smooth interior
Length= 98.2’  Slope= 0.0050 '/'
Inlet Invert= 213.81’, Outlet Invert= 213.32’
Summary for Reach 13R: Pond 3 Lateral

Inflow Area = 2.268 ac, 42.16% Impervious, Inflow Depth = 2.57" for 50-Year event
Inflow = 1.04 cfs @ 8.19 hrs, Volume= 0.486 af
Outflow = 1.03 cfs @ 8.25 hrs, Volume= 0.486 af, Atten= 1%, Lag= 3.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.23 fps, Min. Travel Time= 1.5 min
Avg. Velocity = 1.99 fps, Avg. Travel Time= 2.5 min

Peak Storage= 94 cf @ 8.22 hrs
Average Depth at Peak Storage= 0.43'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.73 cfs

12.0" Round Pipe
n= 0.012 PVC, smooth interior
Length= 297.0' Slope= 0.0050 '/'
Inlet Invert= 214.81', Outlet Invert= 213.32'

Reach 13R: Pond 3 Lateral

Hydrograph

Inflow Area=2.268 ac
Avg. Flow Depth=0.43'
Max Vel=3.23 fps
12.0"
Round Pipe
n=0.012
L=297.0'
S=0.0050 '/'
Capacity=2.73 cfs
Summary for Pond 2P: WQ Facility 1

Inflow Area = 0.246 ac, 84.20% Impervious, Inflow Depth = 3.70" for 50-Year event
Inflow = 0.24 cfs @ 7.95 hrs, Volume= 0.076 af
Outflow = 0.24 cfs @ 7.97 hrs, Volume= 0.072 af, Atten= 0%, Lag= 1.0 min
Discarded = 0.00 cfs @ 3.87 hrs, Volume= 0.008 af
Primary = 0.23 cfs @ 7.97 hrs, Volume= 0.064 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 214.94' @ 7.97 hrs    Surf.Area= 0.014 ac   Storage= 0.009 af

Plug-Flow detention time= 137.0 min calculated for 0.072 af (95% of inflow)
Center-of-Mass det. time= 98.1 min ( 797.4 - 699.3 )

<table>
<thead>
<tr>
<th>Volume</th>
<th>Invert</th>
<th>Avail.Storage</th>
<th>Storage Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1</td>
<td>210.88’</td>
<td>0.002 af</td>
<td>4.00’W x 50.00’L x 1.00’H Gravel Storage</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0.005 af Overall x 40.0% Voids</td>
</tr>
<tr>
<td>#2</td>
<td>211.88’</td>
<td>0.000 af</td>
<td>4.00’W x 50.00’L x 1.50’H Growing Medium</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0.007 af Overall x 5.0% Voids</td>
</tr>
<tr>
<td>#3</td>
<td>213.38’</td>
<td>0.009 af</td>
<td>4.00’W x 50.00’L x 2.00’H Open Storage</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0.011 af Total Available Storage</td>
</tr>
</tbody>
</table>

Device  Routing  Invert  Outlet Devices
#1 Primary 214.88’ 12.0” Horiz. Orifice/Grate C= 0.600
Limited to weir flow at low heads
#2 Discarded 210.88’ 0.200 in/hr Exfiltration over Surface area
#3 Primary 214.35’ 1.9” Vert. Orifice/Grate C= 0.600

Discarded OutFlow  Max=0.00 cfs @ 3.87 hrs  HW=213.38’ (Free Discharge)
Exfiltration  (Exfiltration Controls 0.00 cfs)

Primary OutFlow  Max=0.23 cfs @ 7.97 hrs  HW=214.94’ (Free Discharge)
Exfiltration Controls 0.16 cfs @ 0.82 fps
Orifice Controls 0.07 cfs @ 3.45 fps
Pond 2P: WQ Facility 1

Hydrograph

Inflow Area = 0.246 ac
Peak Elev = 214.94'
Storage = 0.009 af
Summary for Pond 3P: WQ Facility 2

Inflow Area = 0.241 ac, 81.80% Impervious, Inflow Depth = 3.70" for 50-Year event

<table>
<thead>
<tr>
<th>Inflow</th>
<th>0.23 cfs @ 7.95 hrs, Volume= 0.074 af</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outflow</td>
<td>0.23 cfs @ 7.97 hrs, Volume= 0.070 af, Atten= 0%, Lag= 1.0 min</td>
</tr>
<tr>
<td>Discarded</td>
<td>0.00 cfs @ 3.90 hrs, Volume= 0.008 af</td>
</tr>
<tr>
<td>Primary</td>
<td>0.23 cfs @ 7.97 hrs, Volume= 0.063 af</td>
</tr>
</tbody>
</table>

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 216.42' @ 7.97 hrs
Surf.Area= 0.014 ac
Storage= 0.009 af

Plug-Flow detention time = 139.3 min calculated for 0.070 af (95% of inflow)
Center-of-Mass det. time = 100.7 min (800.1 - 699.3)

<table>
<thead>
<tr>
<th>Volume</th>
<th>Invert</th>
<th>Avail. Storage</th>
<th>Storage Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1</td>
<td>212.36'</td>
<td>0.002 af</td>
<td>4.00'W x 50.00'L x 1.00'H Gravel Storage</td>
</tr>
<tr>
<td>#2</td>
<td>213.36'</td>
<td>0.000 af</td>
<td>4.00'W x 50.00'L x 1.50'H Growing Medium</td>
</tr>
<tr>
<td>#3</td>
<td>214.86'</td>
<td>0.009 af</td>
<td>4.00'W x 50.00'L x 2.00'H Open Storage</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Device</th>
<th>Routing</th>
<th>Invert</th>
<th>Outlet Devices</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1</td>
<td>Primary</td>
<td>216.36'</td>
<td>12.0&quot; Horiz. Orifice/Grate C= 0.600</td>
</tr>
<tr>
<td>#2</td>
<td>Discarded</td>
<td>212.36'</td>
<td>0.200 in/hr Exfiltration over Surface area</td>
</tr>
<tr>
<td>#3</td>
<td>Primary</td>
<td>215.80'</td>
<td>1.8&quot; Vert. Orifice/Grate C= 0.600</td>
</tr>
</tbody>
</table>

Discarded OutFlow Max=0.00 cfs @ 3.90 hrs HW=214.86' (Free Discharge)
Exfiltration (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.22 cfs @ 7.97 hrs HW=216.42' (Free Discharge)
Orifice/Grate (Weir Controls 0.16 cfs @ 0.82 fps)
Orifice/Grate (Orifice Controls 0.06 cfs @ 3.56 fps)
Pond 3P: WQ Facility 2

Hydrograph

Inflow Area=0.241 ac
Peak Elev=216.42'
Storage=0.009 af
Summary for Pond 4P: WQ/Det Facility 1

Inflow Area = 1.688 ac, 65.62% Impervious, Inflow Depth = 3.38" for 50-Year event
Inflow = 1.48 cfs @ 7.97 hrs, Volume= 0.476 af
Outflow = 0.94 cfs @ 8.24 hrs, Volume= 0.476 af, Atten= 37%, Lag= 16.0 min
Discarded = 0.01 cfs @ 8.24 hrs, Volume= 0.004 af
Primary = 0.93 cfs @ 8.24 hrs, Volume= 0.472 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 218.25' @ 8.24 hrs  Surf.Area= 1,432 sf  Storage= 2,115 cf

Plug-Flow detention time= 30.4 min calculated for 0.476 af (100% of inflow)
Center-of-Mass det. time= 30.4 min (753.1 - 722.7)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>215.00</td>
<td>3,375 cf</td>
<td>Custom Stage Data (Pyramidal) Listed below (Recalc)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>216.00</td>
<td>363</td>
<td>227</td>
<td>227</td>
<td>370</td>
</tr>
<tr>
<td>217.00</td>
<td>751</td>
<td>545</td>
<td>773</td>
<td>769</td>
</tr>
<tr>
<td>218.00</td>
<td>1,278</td>
<td>1,003</td>
<td>1,776</td>
<td>1,311</td>
</tr>
<tr>
<td>219.00</td>
<td>1,944</td>
<td>1,599</td>
<td>3,375</td>
<td>1,996</td>
</tr>
</tbody>
</table>

Device Routing Invert Outlet Devices

| #1 | Primary | 215.00' 2.3" Vert. Orifice/Grate C= 0.600 |
| #2 | Primary | 218.25' 24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 |
|    | Discarded | 215.00' 0.200 in/hr Exfiltration over Surface area |
| #4 | Primary | 217.15' 5.0" Vert. Orifice/Grate C= 0.600 |

Discarded OutFlow Max= 0.01 cfs @ 8.24 hrs HW=218.25' (Free Discharge)
Exfiltration (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max= 0.93 cfs @ 8.24 hrs HW=218.25' (Free Discharge)
Orifice Controls 0.31 cfs @ 10.65 fps
Weir Controls 0.00 cfs @ 0.08 fps
Orifice Controls 0.62 cfs @ 4.55 fps
Pond 4P: WQ/Det Facility 1

Inflow Area=1.688 ac
Peak Elev=218.25'
Storage=2,115 cf
Summary for Pond 5P: WQ/Det Facility 2

Inflow Area = 0.714 ac, 71.57% Impervious, Inflow Depth = 3.59" for 50-Year event
Inflow = 0.67 cfs @ 7.97 hrs, Volume = 0.214 af
Outflow = 0.15 cfs @ 10.19 hrs, Volume = 0.214 af, Attenuation = 78%, Lag = 133.3 min
Discarded = 0.01 cfs @ 10.19 hrs, Volume = 0.016 af
Primary = 0.14 cfs @ 10.19 hrs, Volume = 0.197 af

Routing by Stor-Ind method, Time Span = 0.00-36.00 hrs, dt = 0.01 hrs
Peak Elev = 219.26' @ 10.19 hrs Surf.Area = 1,881 sf Storage = 3,001 cf

Plug-Flow detention time = 386.0 min calculated for 0.214 af (100% of inflow)
Center-of-Mass det. time = 386.0 min (1,093.4 - 707.4)

<table>
<thead>
<tr>
<th>Volume</th>
<th>Invert</th>
<th>Elevation Surf.Area Inc.Store Cum.Store Wet.Area</th>
<th>Storage Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>(feet) (sq-ft) (cubic-feet) (cubic-feet) (sq-ft)</td>
<td></td>
</tr>
<tr>
<td>#1</td>
<td>216.00’</td>
<td>268 0 0 268</td>
<td>Custom Stage Data (Pyramidal) Listed below (Recalc)</td>
</tr>
<tr>
<td></td>
<td>217.00’</td>
<td>561 406 406 572</td>
<td></td>
</tr>
<tr>
<td></td>
<td>218.00’</td>
<td>1,031 784 1,190 1,055</td>
<td></td>
</tr>
<tr>
<td></td>
<td>219.00’</td>
<td>1,686 1,345 2,535 1,726</td>
<td></td>
</tr>
<tr>
<td></td>
<td>220.00’</td>
<td>2,491 2,075 4,610 2,551</td>
<td></td>
</tr>
</tbody>
</table>

Device Routing Invert Outlet Devices

| #1 | Primary | 214.01’ | 1.0" Vert. Orifice/Grate | C = 0.600 |
| #2 | Primary | 219.25’ | 24.0" x 24.0" Horiz. Orifice/Grate | C = 0.600 |
| #3 | Discarded | 216.00’ | 0.200 in/hr Exfiltration over Surface area |
| #4 | Primary | 218.05’ | 1.0" Vert. Orifice/Grate | C = 0.600 |

Discarded OutFlow Max = 0.01 cfs @ 10.19 hrs HW = 219.26’ (Free Discharge)

Primary OutFlow Max = 0.12 cfs @ 10.19 hrs HW = 219.26’ (Free Discharge)

1 = Orifice/Grate (Orifice Controls 0.06 cfs @ 10.99 fps)
2 = Orifice/Grate (Weir Controls 0.03 cfs @ 0.35 fps)
3 = Exfiltration (Exfiltration Controls 0.01 cfs)
4 = Orifice/Grate (Orifice Controls 0.03 cfs @ 5.21 fps)
Pond 5P: WQ/Det Facility 2

Inflow Area = 0.714 ac
Peak Elev = 219.26'
Storage = 3,001 cf
Summary for Pond 6P: WQ/Det Facility 3

Inflow Area = 2.268 ac, 42.16% Impervious, Inflow Depth = 2.62" for 50-Year event
Inflow = 1.48 cfs @ 8.01 hrs, Volume= 0.495 af
Outflow = 1.05 cfs @ 8.19 hrs, Volume= 0.495 af, Atten= 29%, Lag= 11.1 min
Discarded = 0.01 cfs @ 8.19 hrs, Volume= 0.009 af
Primary = 1.04 cfs @ 8.19 hrs, Volume= 0.486 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 219.82' @ 8.19 hrs  Surf.Area= 1,615 sf  Storage= 2,793 cf

Plug-Flow detention time= 83.3 min calculated for 0.495 af (100% of inflow)
Center-of-Mass det. time= 83.3 min ( 858.0 - 774.7 )

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>feet</td>
<td>(sq-ft)</td>
<td>(cubic-feet)</td>
<td>(cubic-feet)</td>
<td>(sq-ft)</td>
</tr>
<tr>
<td>216.50</td>
<td>244</td>
<td>0</td>
<td>0</td>
<td>244</td>
</tr>
<tr>
<td>217.50</td>
<td>554</td>
<td>389</td>
<td>389</td>
<td>564</td>
</tr>
<tr>
<td>218.50</td>
<td>941</td>
<td>739</td>
<td>1,128</td>
<td>966</td>
</tr>
<tr>
<td>219.50</td>
<td>1,444</td>
<td>1,184</td>
<td>2,311</td>
<td>1,487</td>
</tr>
<tr>
<td>220.50</td>
<td>2,019</td>
<td>1,723</td>
<td>4,035</td>
<td>2,086</td>
</tr>
</tbody>
</table>

Device Routing Invert Outlet Devices

#1 Primary 215.01' 1.7" Vert. Orifice/Grate C= 0.600
#2 Primary 219.75' 24.0" x 24.0" Horiz. Orifice/Grate C= 0.600
#3 Discarded 216.50' 0.200 in/hr Exfiltration over Surface area
#4 Primary 218.60' 4.0" Vert. Orifice/Grate C= 0.600

Discarded OutFlow Max=0.01 cfs @ 8.19 hrs HW=219.82' (Free Discharge)

Primary OutFlow Max=1.03 cfs @ 8.19 hrs HW=219.82' (Free Discharge)

1=Orifice/Grate (Orifice Controls 0.17 cfs @ 10.48 fps)
2=Orifice/Grate (Weir Controls 0.44 cfs @ 0.84 fps)
3=Exfiltration (Exfiltration Controls 0.01 cfs)
4=Orifice/Grate (Orifice Controls 0.43 cfs @ 4.93 fps)
Pond 6P: WQ/Det Facility 3

Inflow Area=2.268 ac
Peak Elev=219.82'
Storage=2,793 cf
Franklin Reserve Post-Developed

Prepared by HBH Consulting Engineers

Type IA 24-hr WQ Rainfall=1.00"

Printed 3/15/2020

HydroCAD® 10.00-22 s/n 01354 © 2018 HydroCAD Software Solutions LLC

Page 147

Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 2S: Franklin Ave 1
Runoff Area=10,733 sf  84.20% Impervious  Runoff Depth=0.50"
Flow Length=242'  Slope=0.0200 '/'  Tc=10.0 min  CN=94  Runoff=0.03 cfs  0.010 af

Subcatchment 3S: Franklin Ave 2
Runoff Area=10,498 sf  81.80% Impervious  Runoff Depth=0.50"
Flow Length=274'  Slope=0.0200 '/'  Tc=10.0 min  CN=94  Runoff=0.03 cfs  0.010 af

Subcatchment 4S: Phase 1 & 2
Runoff Area=73,511 sf  65.62% Impervious  Runoff Depth=0.36"
Flow Length=500'  Tc=10.2 min  CN=91  Runoff=0.12 cfs  0.051 af

Subcatchment 5S: Phase 3
Runoff Area=31,101 sf  71.57% Impervious  Runoff Depth=0.45"
Flow Length=360'  Tc=10.0 min  CN=93  Runoff=0.07 cfs  0.027 af

Subcatchment 6S: Phase 4 & 5
Runoff Area=98,814 sf  42.16% Impervious  Runoff Depth=0.13"
Flow Length=422'  Tc=10.0 min  CN=83  Runoff=0.02 cfs  0.025 af

Subcatchment 7S: Wetland
Runoff Area=76,610 sf  0.00% Impervious  Runoff Depth=0.00"
Flow Length=365'  Slope=0.0200 '/'  Tc=27.9 min  CN=65  Runoff=0.00 cfs  0.000 af

Reach 1R: EX SE Shore Drive
Avg. Flow Depth=0.18'  Max Vel=1.64 fps  Inflow=0.16 cfs  0.101 af
12.0" Round Pipe  n=0.012  L=161.8'  S=0.0033 '/'  Capacity=2.23 cfs  Outflow=0.16 cfs  0.101 af

Reach 2R: Franklin Avenue 3
Avg. Flow Depth=0.16'  Max Vel=1.90 fps  Inflow=0.16 cfs  0.101 af
12.0" Round Pipe  n=0.012  L=147.0'  S=0.0050 '/'  Capacity=2.74 cfs  Outflow=0.16 cfs  0.101 af

Reach 4R: Franklin Avenue 2
Avg. Flow Depth=0.16'  Max Vel=1.89 fps  Inflow=0.16 cfs  0.101 af
12.0" Round Pipe  n=0.012  L=98.9'  S=0.0050 '/'  Capacity=2.72 cfs  Outflow=0.16 cfs  0.101 af

Reach 5R: Franklin Avenue 1
Avg. Flow Depth=0.00'  Max Vel=0.00 fps  Inflow=0.00 cfs  0.000 af
12.0" Round Pipe  n=0.012  L=157.1'  S=0.0050 '/'  Capacity=2.74 cfs  Outflow=0.00 cfs  0.000 af

Reach 7R: Private Road A 2
Avg. Flow Depth=0.16'  Max Vel=1.89 fps  Inflow=0.16 cfs  0.101 af
12.0" Round Pipe  n=0.012  L=132.9'  S=0.0050 '/'  Capacity=2.72 cfs  Outflow=0.16 cfs  0.101 af

Reach 8R: Pond 1 Lateral
Avg. Flow Depth=0.14'  Max Vel=1.74 fps  Inflow=0.12 cfs  0.050 af
12.0" Round Pipe  n=0.012  L=26.1'  S=0.0050 '/'  Capacity=2.72 cfs  Outflow=0.12 cfs  0.050 af

Reach 10R: Private Road A 1
Avg. Flow Depth=0.10'  Max Vel=1.36 fps  Inflow=0.05 cfs  0.051 af
12.0" Round Pipe  n=0.012  L=38.5'  S=0.0049 '/'  Capacity=2.71 cfs  Outflow=0.05 cfs  0.051 af

Reach 11R: Pond 2 Lateral
Avg. Flow Depth=0.08'  Max Vel=1.24 fps  Inflow=0.04 cfs  0.026 af
12.0" Round Pipe  n=0.012  L=98.2'  S=0.0050 '/'  Capacity=2.73 cfs  Outflow=0.04 cfs  0.026 af

Reach 13R: Pond 3 Lateral
Avg. Flow Depth=0.06'  Max Vel=1.03 fps  Inflow=0.02 cfs  0.025 af
12.0" Round Pipe  n=0.012  L=297.0'  S=0.0050 '/'  Capacity=2.73 cfs  Outflow=0.02 cfs  0.025 af

Pond 2P: WQ Facility 1
Peak Elev=214.32'  Storage=0.006 af  Inflow=0.03 cfs  0.010 af
Discarded=0.00 cfs  0.007 af  Primary=0.00 cfs  0.000 af  Outflow=0.00 cfs  0.007 af
Franklin Reserve Post-Developed

Pond 3P: WQ Facility 2
Peak Elev=215.75' Storage=0.006 af Inflow=0.03 cfs 0.010 af
Discarded=0.00 cfs 0.007 af Primary=0.00 cfs 0.000 af Outflow=0.00 cfs 0.007 af

Pond 4P: WQ/Det Facility 1
Peak Elev=215.03' Storage=3 cf Inflow=0.12 cfs 0.051 af
Discarded=0.00 cfs 0.000 af Primary=0.12 cfs 0.050 af Outflow=0.12 cfs 0.051 af

Pond 5P: WQ/Det Facility 2
Peak Elev=216.20' Storage=58 cf Inflow=0.07 cfs 0.027 af
Discarded=0.00 cfs 0.001 af Primary=0.04 cfs 0.026 af Outflow=0.04 cfs 0.027 af

Pond 6P: WQ/Det Facility 3
Peak Elev=216.51' Storage=2 cf Inflow=0.02 cfs 0.025 af
Discarded=0.00 cfs 0.000 af Primary=0.02 cfs 0.025 af Outflow=0.02 cfs 0.025 af
Summary for Subcatchment 2S: Franklin Ave 1

Runoff = 0.03 cfs @ 8.03 hrs, Volume = 0.010 af, Depth = 0.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span = 0.00-36.00 hrs, dt = 0.01 hrs
Type IA 24-hr WQ Rainfall = 1.00"

<table>
<thead>
<tr>
<th>Area (sf)</th>
<th>CN</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>9,037</td>
<td>98</td>
<td>Paved roads w/curbs &amp; sewers, HSG C</td>
</tr>
<tr>
<td>1,696</td>
<td>74</td>
<td>&gt;75% Grass cover, Good, HSG C</td>
</tr>
<tr>
<td>10,733</td>
<td>94</td>
<td>Weighted Average</td>
</tr>
<tr>
<td>1,696</td>
<td>74</td>
<td>15.80% Pervious Area</td>
</tr>
<tr>
<td>9,037</td>
<td>98</td>
<td>84.20% Impervious Area</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tc (min)</th>
<th>Length (feet)</th>
<th>Slope (ft/ft)</th>
<th>Velocity (ft/sec)</th>
<th>Capacity (cfs)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.7</td>
<td>40</td>
<td>0.0200</td>
<td>0.99</td>
<td></td>
<td>Sheet Flow, Sheet</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Smooth surfaces n= 0.011 P2= 2.40&quot;</td>
</tr>
<tr>
<td>1.2</td>
<td>202</td>
<td>0.0200</td>
<td>2.87</td>
<td></td>
<td>Shallow Concentrated Flow, SCF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Paved Kv = 20.3 fps</td>
</tr>
<tr>
<td>1.9</td>
<td>242</td>
<td></td>
<td></td>
<td></td>
<td>Total, Increased to minimum Tc = 10.0 min</td>
</tr>
</tbody>
</table>

Subcatchment 2S: Franklin Ave 1

Hydrograph

Type IA 24-hr WQ Rainfall = 1.00"
Runoff Area = 10,733 sf
Runoff Volume = 0.010 af
Runoff Depth = 0.50"
Flow Length = 242'
Slope = 0.0200 '/'
Tc = 10.0 min
CN = 94
Summary for Subcatchment 3S: Franklin Ave 2

Runoff = 0.03 cfs @ 8.03 hrs, Volume= 0.010 af, Depth= 0.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type IA 24-hr WQ Rainfall=1.00"

<table>
<thead>
<tr>
<th>Area (sf)</th>
<th>CN</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>8,587</td>
<td>98</td>
<td>Paved roads w/curbs &amp; sewers, HSG C</td>
</tr>
<tr>
<td>1,911</td>
<td>74</td>
<td>&gt;75% Grass cover, Good, HSG C</td>
</tr>
<tr>
<td>10,498</td>
<td>94</td>
<td>Weighted Average</td>
</tr>
<tr>
<td>1,911</td>
<td>74</td>
<td>18.20% Pervious Area</td>
</tr>
<tr>
<td>8,587</td>
<td>98</td>
<td>81.80% Impervious Area</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tc</th>
<th>Length</th>
<th>Slope</th>
<th>Velocity</th>
<th>Capacity</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.7</td>
<td>40</td>
<td>0.0200</td>
<td>0.99</td>
<td>0.03</td>
<td>Sheet Flow, Sheet</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Smooth surfaces n= 0.011 P2= 2.40&quot;</td>
</tr>
<tr>
<td>1.4</td>
<td>234</td>
<td>0.0200</td>
<td>2.87</td>
<td>0.02</td>
<td>Shallow Concentrated Flow, SCF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Paved Kv= 20.3 fps</td>
</tr>
</tbody>
</table>

2.1 274 Total, Increased to minimum Tc = 10.0 min

Subcatchment 3S: Franklin Ave 2

Hydrograph

Type IA 24-hr WQ Rainfall=1.00"
Runoff Area=10,498 sf
Runoff Volume=0.010 af
Runoff Depth=0.50"
Flow Length=274'
Slope=0.0200 '/'
Tc=10.0 min
CN=94
Summary for Subcatchment 4S: Phase 1 & 2

Runoff = 0.12 cfs @ 8.04 hrs, Volume= 0.051 af, Depth= 0.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type IA 24-hr WQ Rainfall=1.00"

<table>
<thead>
<tr>
<th>Area (sf)</th>
<th>CN</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>8,098</td>
<td>98</td>
<td>Paved parking, HSG C</td>
</tr>
<tr>
<td>1,945</td>
<td>98</td>
<td>Water Surface, 0% imp, HSG C</td>
</tr>
<tr>
<td>61,755</td>
<td>90</td>
<td>1/8 acre lots, 65% imp, HSG C</td>
</tr>
<tr>
<td>1,713</td>
<td>74</td>
<td>&gt;75% Grass cover, Good, HSG C</td>
</tr>
<tr>
<td>73,511</td>
<td>91</td>
<td>Weighted Average</td>
</tr>
<tr>
<td>25,272</td>
<td>77</td>
<td>34.38% Pervious Area</td>
</tr>
<tr>
<td>48,239</td>
<td>98</td>
<td>65.62% Impervious Area</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tc (min)</th>
<th>Length (feet)</th>
<th>Slope (ft/ft)</th>
<th>Velocity (ft/sec)</th>
<th>Capacity (cfs)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.0</td>
<td>20</td>
<td>0.0200</td>
<td>0.05</td>
<td></td>
<td>Sheet Flow, Sheet Grass: Bermuda n= 0.410 P2= 2.40&quot;</td>
</tr>
<tr>
<td>1.3</td>
<td>80</td>
<td>0.0200</td>
<td>0.99</td>
<td></td>
<td>Shallow Concentrated Flow, SCF Short Grass Pasture Kv= 7.0 fps</td>
</tr>
<tr>
<td>1.9</td>
<td>400</td>
<td>0.0050</td>
<td>3.47</td>
<td>2.73</td>
<td>Pipe Channel, To Pond 12.0&quot; Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012</td>
</tr>
</tbody>
</table>

10.2 500 Total

Subcatchment 4S: Phase 1 & 2

<table>
<thead>
<tr>
<th>Hydrograph</th>
</tr>
</thead>
</table>
| Type IA 24-hr  
WQ Rainfall=1.00"  
Runoff Area=73,511 sf  
Runoff Volume=0.051 af  
Runoff Depth=0.36"  
Flow Length=500'  
Tc=10.2 min  
CN=91 |
Summary for Subcatchment 5S: Phase 3

Runoff = 0.07 cfs @ 8.03 hrs, Volume = 0.027 af, Depth = 0.45"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type IA 24-hr WQ Rainfall=1.00"

<table>
<thead>
<tr>
<th>Area (sf)</th>
<th>CN</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>11,947</td>
<td>98</td>
<td>Paved parking, HSG C</td>
</tr>
<tr>
<td>2,490</td>
<td>98</td>
<td>Water Surface, 0% imp, HSG C</td>
</tr>
<tr>
<td>2,227</td>
<td>98</td>
<td>Unconnected pavement, HSG C</td>
</tr>
<tr>
<td>8,084</td>
<td>98</td>
<td>Roofs, HSG C</td>
</tr>
<tr>
<td>6,353</td>
<td>74</td>
<td>&gt;75% Grass cover, Good, HSG C</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Area (sf)</th>
<th>CN</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>31,101</td>
<td>93</td>
<td>Weighted Average</td>
</tr>
<tr>
<td>8,843</td>
<td>81</td>
<td>28.43% Pervious Area</td>
</tr>
<tr>
<td>22,258</td>
<td>98</td>
<td>71.57% Impervious Area</td>
</tr>
<tr>
<td>2,227</td>
<td>10.01% Unconnected</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tc (min)</th>
<th>Length (feet)</th>
<th>Slope (ft/ft)</th>
<th>Velocity (ft/sec)</th>
<th>Capacity (cfs)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.4</td>
<td>20</td>
<td>0.0200</td>
<td>0.86</td>
<td></td>
<td><strong>Sheet Flow, Sheet</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Smooth surfaces  n= 0.011  P2= 2.40&quot;</td>
</tr>
<tr>
<td>0.3</td>
<td>60</td>
<td>0.0200</td>
<td>2.87</td>
<td></td>
<td><strong>Shallow Concentrated Flow,</strong> Paved  Kv= 20.3 fps</td>
</tr>
<tr>
<td>1.3</td>
<td>280</td>
<td>0.0050</td>
<td>3.47</td>
<td>2.73</td>
<td><strong>Pipe Channel, Pipe</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>12.0&quot; Round  Area= 0.8 sf  Perim= 3.1'  r= 0.25' n= 0.012</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tc (min)</th>
<th>Length (feet)</th>
<th>Slope (ft/ft)</th>
<th>Velocity (ft/sec)</th>
<th>Capacity (cfs)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.0</td>
<td>360</td>
<td>Total, Increased to minimum Tc = 10.0 min</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Subcatchment 5S: Phase 3

Type IA 24-hr WQ Rainfall=1.00"
Runoff Area=31,101 sf
Runoff Volume=0.027 af
Runoff Depth=0.45"
Flow Length=360'
Tc=10.0 min
CN=93
Summary for Subcatchment 6S: Phase 4 & 5

Runoff = 0.02 cfs @ 17.30 hrs, Volume = 0.025 af, Depth = 0.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span = 0.00-36.00 hrs, dt = 0.01 hrs
Type IA 24-hr WQ Rainfall = 1.00"

<table>
<thead>
<tr>
<th>Area (sf)</th>
<th>CN</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2,019</td>
<td>98</td>
<td>Water Surface, 0% imp, HSG C</td>
</tr>
<tr>
<td>11,637</td>
<td>98</td>
<td>Roofs, HSG C</td>
</tr>
<tr>
<td>30,024</td>
<td>98</td>
<td>Parking Lot, Sidewalk, Unconnected Roofs</td>
</tr>
<tr>
<td>55,134</td>
<td>72</td>
<td>Woods/grass comb., Good, HSG C</td>
</tr>
<tr>
<td>98,814</td>
<td>83</td>
<td>Weighted Average</td>
</tr>
<tr>
<td>57,153</td>
<td>72</td>
<td>57.84% Pervious Area</td>
</tr>
<tr>
<td>41,661</td>
<td>98</td>
<td>42.16% Impervious Area</td>
</tr>
<tr>
<td>30,024</td>
<td>72</td>
<td>72.07% Unconnected</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tc (min)</th>
<th>Length (feet)</th>
<th>Slope (ft/ft)</th>
<th>Velocity (ft/sec)</th>
<th>Capacity (cfs)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.0</td>
<td>20</td>
<td>0.0200</td>
<td>0.05</td>
<td></td>
<td><strong>Sheet Flow, Sheet</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Grass: Bermuda n= 0.410  P2= 2.40&quot;</td>
</tr>
<tr>
<td>1.3</td>
<td>80</td>
<td>0.0200</td>
<td>0.99</td>
<td></td>
<td><strong>Shallow Concentrated Flow, SCF</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Short Grass Pasture Kv= 7.0 fps</td>
</tr>
<tr>
<td>1.5</td>
<td>322</td>
<td>0.0050</td>
<td>3.47</td>
<td>2.73</td>
<td><strong>Pipe Channel, To Pond</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>12.0&quot; Round Area= 0.8 sf Perim= 3.1' r= 0.25'</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>n= 0.012</td>
</tr>
<tr>
<td>9.8</td>
<td>422</td>
<td>Total, Increased to minimum Tc = 10.0 min</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Subcatchment 6S: Phase 4 & 5

Type IA 24-hr WQ Rainfall = 1.00"

- Runoff Area = 98,814 sf
- Runoff Volume = 0.025 af
- Runoff Depth = 0.13"
- Flow Length = 422'
- Tc = 10.0 min
- CN = 83
Summary for Subcatchment 7S: Wetland

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type IA 24-hr WQ Rainfall=1.00"

<table>
<thead>
<tr>
<th>Area (sf)</th>
<th>CN</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>76,610</td>
<td>65</td>
<td>Brush, Good, HSG C</td>
</tr>
<tr>
<td>76,610</td>
<td>65</td>
<td>100.00% Pervious Area</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tc (min)</th>
<th>Length (feet)</th>
<th>Slope (ft/ft)</th>
<th>Velocity (ft/sec)</th>
<th>Capacity (cfs)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>22.8</td>
<td>150</td>
<td>0.0200</td>
<td>0.11</td>
<td></td>
<td>Sheet Flow, Sheet</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Grass: Dense n= 0.240 P2= 2.40&quot;</td>
</tr>
<tr>
<td>5.1</td>
<td>215</td>
<td>0.0200</td>
<td>0.71</td>
<td></td>
<td>Shallow Concentrated Flow, SCF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Woodland Kv= 5.0 fps</td>
</tr>
</tbody>
</table>

27.9 365 Total

Subcatchment 7S: Wetland

Type IA 24-hr WQ Rainfall=1.00"
Runoff Area=76,610 sf
Runoff Volume=0.000 af
Runoff Depth=0.00"
Flow Length=365'
Slope=0.0200 '/'
Tc=27.9 min
CN=65
Summary for Reach 1R: EX SE Shore Drive

Inflow Area = 6.916 ac, 43.08% Impervious, Inflow Depth = 0.18" for WQ event
Inflow = 0.16 cfs @ 8.15 hrs, Volume= 0.101 af
Outflow = 0.16 cfs @ 8.19 hrs, Volume= 0.101 af, Atten= 0%, Lag= 2.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 1.64 fps, Min. Travel Time= 1.6 min
Avg. Velocity = 1.14 fps, Avg. Travel Time= 2.4 min

Peak Storage= 16 cf @ 8.17 hrs
Average Depth at Peak Storage= 0.18'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.23 cfs

12.0" Round Pipe
n= 0.012 PVC, smooth interior
Length= 161.8' Slope= 0.0033 '/'
Inlet Invert= 210.64', Outlet Invert= 210.10'

Reach 1R: EX SE Shore Drive

Inflow Area=6.916 ac
Avg. Flow Depth=0.18'
Max Vel=1.64 fps

12.0"
Round Pipe
n=0.012
L=161.8'
S=0.0033 '/'
Capacity=2.23 cfs
Summary for Reach 2R: Franklin Avenue 3

Inflow Area = 5.157 ac, 57.77% Impervious, Inflow Depth = 0.23" for WQ event
Inflow = 0.16 cfs @ 8.11 hrs, Volume = 0.101 af
Outflow = 0.16 cfs @ 8.15 hrs, Volume = 0.101 af, Atten= 0%, Lag= 2.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 1.90 fps, Min. Travel Time= 1.3 min
Avg. Velocity = 1.33 fps, Avg. Travel Time= 1.8 min

Peak Storage= 12 cf @ 8.13 hrs
Average Depth at Peak Storage= 0.16'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.74 cfs

12.0" Round Pipe
n= 0.012 PVC, smooth interior
Length= 147.0' Slope= 0.0050 '/'
Inlet Invert= 211.38', Outlet Invert= 210.64'

Reach 2R: Franklin Avenue 3

Hydrograph

Inflow Area=5.157 ac
Avg. Flow Depth=0.16'
Max Vel=1.90 fps

12.0"
Round Pipe
n=0.012
L=147.0'
S=0.0050 '/'
Capacity=2.74 cfs
Summary for Reach 4R: Franklin Avenue 2

Inflow Area = 4.911 ac, 56.44% Impervious, Inflow Depth = 0.25" for WQ event
Inflow = 0.16 cfs @ 8.09 hrs, Volume= 0.101 af
Outflow = 0.16 cfs @ 8.11 hrs, Volume= 0.101 af, Atten= 0%, Lag= 1.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 1.89 fps, Min. Travel Time= 0.9 min
Avg. Velocity = 1.32 fps, Avg. Travel Time= 1.2 min

Peak Storage= 8 cf @ 8.10 hrs
Average Depth at Peak Storage= 0.16'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.72 cfs

12.0" Round Pipe
n= 0.012 PVC, smooth interior
Length= 98.9’ Slope= 0.0050 '/'
Inlet Invert= 211.87', Outlet Invert= 211.38'

Reach 4R: Franklin Avenue 2

Inflow Area=4.911 ac
Avg. Flow Depth=0.16'
Max Vel=1.89 fps 12.0"
Round Pipe
n=0.012
L=98.9'
S=0.0050 '/'
Capacity=2.72 cfs
Summary for Reach 5R: Franklin Avenue 1

Inflow Area = 0.241 ac, 81.80% Impervious, Inflow Depth = 0.00" for WQ event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 0.00 hrs
Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.74 cfs

12.0" Round Pipe
n= 0.012 PVC, smooth interior
Length= 157.1'  Slope= 0.0050 '/'
Inlet Invert= 212.86', Outlet Invert= 212.07'

Reach 5R: Franklin Avenue 1

Hydrograph

Inflow Area=0.241 ac
Avg. Flow Depth=0.00'
Max Vel=0.00 fps
12.0"
Round Pipe
n=0.012
L=157.1'
S=0.0050 '/'
Capacity=2.74 cfs
Summary for Reach 7R: Private Road A 2

Inflow Area = 4.670 ac, 55.13% Impervious, Inflow Depth = 0.26" for WQ event
Inflow = 0.16 cfs @ 8.06 hrs, Volume= 0.101 af
Outflow = 0.16 cfs @ 8.09 hrs, Volume= 0.101 af, Atten= 0%, Lag= 1.9 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 1.89 fps, Min. Travel Time= 1.2 min
Avg. Velocity = 1.33 fps, Avg. Travel Time= 1.7 min

Peak Storage= 11 cf @ 8.07 hrs
Average Depth at Peak Storage= 0.16'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.72 cfs

12.0” Round Pipe
n= 0.012 PVC, smooth interior
Length= 132.9’ Slope= 0.0050 '/'
Inlet Invert= 212.73’, Outlet Invert= 212.07’

Reach 7R: Private Road A 2

Inflow Area=4.670 ac
Avg. Flow Depth=0.16'
Max Vel=1.89 fps
12.0" Round Pipe
n=0.012
L=132.9'
S=0.0050 ’/’
Capacity=2.72 cfs
Summary for Reach 8R: Pond 1 Lateral

Inflow Area = 1.688 ac, 65.62% Impervious, Inflow Depth = 0.36" for WQ event
Inflow = 0.12 cfs @ 8.05 hrs, Volume = 0.050 af
Outflow = 0.12 cfs @ 8.06 hrs, Volume = 0.050 af, Atten = 0%, Lag = 0.4 min

Routing by Stor-Ind+Trans method, Time Span = 0.00-36.00 hrs, dt = 0.01 hrs
Max. Velocity = 1.74 fps, Min. Travel Time = 0.2 min
Avg. Velocity = 1.14 fps, Avg. Travel Time = 0.4 min

Peak Storage = 2 cf @ 8.05 hrs
Average Depth at Peak Storage = 0.14'
Bank-Full Depth = 1.00' Flow Area = 0.8 sf, Capacity = 2.72 cfs

12.0" Round Pipe
n = 0.012 PVC, smooth interior
Length = 26.1' Slope = 0.0050 '/'
Inlet Invert = 213.06', Outlet Invert = 212.93'

Reach 8R: Pond 1 Lateral

Hydrograph

Inflow Area = 1.688 ac
Avg. Flow Depth = 0.14'
Max Vel = 1.74 fps
12.0" Round Pipe
n = 0.012
L = 26.1'
S = 0.0050 '/'
Capacity = 2.72 cfs
Summary for Reach 10R: Private Road A 1

Inflow Area = 2.982 ac, 49.20% Impervious, Inflow Depth = 0.20" for WQ event
Inflow = 0.05 cfs @ 9.18 hrs, Volume = 0.051 af
Outflow = 0.05 cfs @ 9.19 hrs, Volume = 0.051 af, Atten= 0%, Lag= 0.8 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 1.36 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 1.09 fps, Avg. Travel Time= 0.6 min

Peak Storage= 2 cf @ 9.19 hrs
Average Depth at Peak Storage= 0.10'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.71 cfs

12.0" Round Pipe
n= 0.012  PVC, smooth interior
Length= 38.5’  Slope= 0.0049 '/'
Inlet Invert= 213.12', Outlet Invert= 212.93'

Reach 10R: Private Road A 1

Hydrograph

Inflow Area=2.982 ac
Avg. Flow Depth=0.10'
Max Vel=1.36 fps
12.0''
Round Pipe
n=0.012
L=38.5'
S=0.0049 '/'
Capacity=2.71 cfs
Summary for Reach 11R: Pond 2 Lateral

Inflow Area = 0.714 ac, 71.57% Impervious, Inflow Depth = 0.44" for WQ event
Inflow = 0.04 cfs @ 8.37 hrs, Volume= 0.026 af
Outflow = 0.04 cfs @ 8.41 hrs, Volume= 0.026 af, Atten= 0%, Lag= 2.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 1.24 fps, Min. Travel Time= 1.3 min
Avg. Velocity = 0.91 fps, Avg. Travel Time= 1.8 min

Peak Storage= 3 cf @ 8.39 hrs
Average Depth at Peak Storage= 0.08'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.73 cfs

12.0" Round Pipe
n= 0.012 PVC, smooth interior
Length= 98.2’ Slope= 0.0050 '/'
Inlet Invert= 213.81', Outlet Invert= 213.32'

attachment L.186
Summary for Reach 13R: Pond 3 Lateral

Inflow Area = 2.268 ac, 42.16% Impervious, Inflow Depth = 0.13" for WQ event
Inflow = 0.02 cfs @ 17.26 hrs, Volume= 0.025 af
Outflow = 0.02 cfs @ 17.41 hrs, Volume= 0.025 af, Atten= 0%, Lag= 8.9 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Max. Velocity= 1.03 fps, Min. Travel Time= 4.8 min
Avg. Velocity = 0.95 fps, Avg. Travel Time= 5.2 min

Peak Storage= 6 cf @ 17.33 hrs
Average Depth at Peak Storage= 0.06'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.73 cfs

12.0" Round Pipe
n= 0.012 PVC, smooth interior
Length= 297.0' Slope= 0.0050 '/'
Inlet Invert= 214.81', Outlet Invert= 213.32'

Reach 13R: Pond 3 Lateral

Hydrograph

Inflow Area=2.268 ac
Flow Depth=0.06'
Max Vel=1.03 fps
12.0" Round Pipe
n=0.012
L=297.0'
S=0.0050 '/'
Capacity=2.73 cfs
Summary for Pond 2P: WQ Facility 1

Inflow Area = 0.246 ac, 84.20% Impervious, Inflow Depth = 0.50" for WQ event
Inflow = 0.03 cfs @ 8.03 hrs, Volume= 0.010 af
Outflow = 0.00 cfs @ 8.54 hrs, Volume= 0.007 af, Atten= 90%, Lag= 30.8 min
Discarded = 0.00 cfs @ 8.54 hrs, Volume= 0.007 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 214.32' @ 24.11 hrs  Surf.Area= 0.014 ac  Storage= 0.006 af

Plug-Flow detention time= 698.9 min calculated for 0.007 af (64% of inflow)
Center-of-Mass det. time= 496.1 min (1,299.5 - 803.4 )

### Volume Invert Avail.Storage Storage Description

<table>
<thead>
<tr>
<th>#</th>
<th>Invert</th>
<th>Avail.Storage</th>
<th>Storage Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1</td>
<td>210.88'</td>
<td>0.002 af</td>
<td><strong>4.00'W x 50.00'L x 1.00'H Gravel Storage</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0.005 af Overall x 40.0% Voids</td>
</tr>
<tr>
<td>#2</td>
<td>211.88'</td>
<td>0.000 af</td>
<td><strong>4.00'W x 50.00'L x 1.50'H Growing Medium</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0.007 af Overall x 5.0% Voids</td>
</tr>
<tr>
<td>#3</td>
<td>213.38'</td>
<td>0.009 af</td>
<td><strong>4.00'W x 50.00'L x 2.00'H Open Storage</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0.011 af Total Available Storage</td>
</tr>
</tbody>
</table>

### Device Routing Invert Outlet Devices

<table>
<thead>
<tr>
<th>#</th>
<th>Routing</th>
<th>Invert</th>
<th>Outlet Devices</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1</td>
<td>Primary</td>
<td>214.88'</td>
<td>12.0&quot; Horiz. Orifice/Grate C= 0.600</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Limited to weir flow at low heads</td>
</tr>
<tr>
<td>#2</td>
<td>Discarded</td>
<td>210.88'</td>
<td>0.200 in/hr Exfiltration over Surface area</td>
</tr>
<tr>
<td>#3</td>
<td>Primary</td>
<td>214.35'</td>
<td>1.9&quot; Vert. Orifice/Grate C= 0.600</td>
</tr>
</tbody>
</table>

**Discarded OutFlow** Max=0.00 cfs @ 8.54 hrs  HW=213.38' (Free Discharge)
**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs  HW=210.88' (Free Discharge)
Pond 2P: WQ Facility 1

Hydrograph

Inflow Area = 0.246 ac
Peak Elev = 214.32'
Storage = 0.006 af
Summary for Pond 3P: WQ Facility 2

Inflow Area = 0.241 ac, 81.80% Impervious, Inflow Depth = 0.50" for WQ event
Inflow = 0.03 cfs @ 8.03 hrs, Volume = 0.010 af
Outflow = 0.00 cfs @ 8.59 hrs, Volume = 0.007 af, Atten = 90%, Lag = 33.8 min
Discarded = 0.00 cfs @ 8.59 hrs, Volume = 0.007 af
Primary = 0.00 cfs @ 0.00 hrs, Volume = 0.000 af

Routing by Stor-Ind method, Time Span = 0.00-36.00 hrs, dt = 0.01 hrs
Peak Elev = 215.75' @ 24.11 hrs  Surf.Area = 0.014 ac  Storage = 0.006 af

Plug-Flow detention time = 693.3 min calculated for 0.007 af (65% of inflow)
Center-of-Mass det. time = 497.0 min (1,300.4 - 803.4)

<table>
<thead>
<tr>
<th>Volume</th>
<th>Invert</th>
<th>Avail.Storage</th>
<th>Storage Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1</td>
<td>212.36'</td>
<td>0.002 af</td>
<td>4.00'W x 50.00'L x 1.00'H Gravel Storage 0.005 af Overall x 40.0% Voids</td>
</tr>
<tr>
<td>#2</td>
<td>213.36'</td>
<td>0.000 af</td>
<td>4.00'W x 50.00'L x 1.50'H Growing Medium 0.007 af Overall x 5.0% Voids</td>
</tr>
<tr>
<td>#3</td>
<td>214.86'</td>
<td>0.009 af</td>
<td>4.00'W x 50.00'L x 2.00'H Open Storage 0.011 af Total Available Storage</td>
</tr>
</tbody>
</table>

Device Routing Invert Outlet Devices

| #1     | Primary | 216.36' | 12.0" Horiz. Orifice/Grate C = 0.600 |
|        |        |         | Limited to weir flow at low heads |
| #2     | Discarded | 212.36' | 0.200 in/hr Exfiltration over Surface area |
| #3     | Primary | 215.80' | 1.8" Vert. Orifice/Grate C = 0.600 |

Discarded OutFlow Max = 0.00 cfs @ 8.59 hrs HW = 214.86' (Free Discharge)
Primary OutFlow Max = 0.00 cfs @ 0.00 hrs HW = 212.36' (Free Discharge)
Pond 3P: WQ Facility 2

Hydrograph

Inflow Area=0.241 ac
Peak Elev=215.75'
Storage=0.006 af
Summary for Pond 4P: WQ/Det Facility 1

Inflow Area = 1.688 ac, 65.62% Impervious, Inflow Depth = 0.36" for WQ event
Inflow = 0.12 cfs @ 8.04 hrs, Volume= 0.051 af
Outflow = 0.12 cfs @ 8.05 hrs, Volume= 0.051 af, Atten= 0%, Lag= 0.5 min
Discarded = 0.00 cfs @ 8.05 hrs, Volume= 0.000 af
Primary = 0.12 cfs @ 8.05 hrs, Volume= 0.050 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 215.03' @ 8.05 hrs Surf.Area= 120 sf Storage= 3 cf

Plug-Flow detention time= 0.4 min calculated for 0.051 af (100% of inflow)
Center-of-Mass det. time= 0.4 min (853.7 - 853.3)

<table>
<thead>
<tr>
<th>Volume</th>
<th>Invert</th>
<th>Avail.Storage</th>
<th>Storage Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1</td>
<td>215.00’</td>
<td>3,375 cf</td>
<td>Custom Stage Data (Pyramidal) Listed below (Recalc)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>215.00</td>
<td>115</td>
<td>0</td>
<td>0</td>
<td>115</td>
</tr>
<tr>
<td>216.00</td>
<td>363</td>
<td>227</td>
<td>227</td>
<td>370</td>
</tr>
<tr>
<td>217.00</td>
<td>751</td>
<td>545</td>
<td>773</td>
<td>769</td>
</tr>
<tr>
<td>218.00</td>
<td>1,278</td>
<td>1,003</td>
<td>1,776</td>
<td>1,311</td>
</tr>
<tr>
<td>219.00</td>
<td>1,944</td>
<td>1,599</td>
<td>3,375</td>
<td>1,996</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Device</th>
<th>Routing</th>
<th>Invert</th>
<th>Outlet Devices</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1</td>
<td>Primary</td>
<td>213.26’</td>
<td>2.3&quot; Vert. Orifice/Grate C= 0.600</td>
</tr>
<tr>
<td>#2</td>
<td>Primary</td>
<td>218.25’</td>
<td>24.0&quot; x 24.0&quot; Horiz. Orifice/Grate C= 0.600</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Limited to weir flow at low heads</td>
</tr>
<tr>
<td>#3</td>
<td>Discarded</td>
<td>215.00’</td>
<td>0.200 in/hr Exfiltration over Surface area</td>
</tr>
<tr>
<td>#4</td>
<td>Primary</td>
<td>217.15’</td>
<td>5.0&quot; Vert. Orifice/Grate C= 0.600</td>
</tr>
</tbody>
</table>

Discarded OutFlow Max=0.00 cfs @ 8.05 hrs HW=215.03’ (Free Discharge)

Primary OutFlow Max=0.18 cfs @ 8.05 hrs HW=215.03’ (Free Discharge)

1=Orifice/Grate (Orifice Controls 0.18 cfs @ 6.22 fps)
2=Orifice/Grate (Controls 0.00 cfs)
3=Exfiltration (Exfiltration Controls 0.00 cfs)
4=Orifice/Grate (Controls 0.00 cfs)
Pond 4P: WQ/Det Facility 1

Inflow Area=1.688 ac
Peak Elev=215.03'
Storage=3 cf
Summary for Pond 5P: WQ/Det Facility 2

Inflow Area = 0.714 ac, 71.57% Impervious, Inflow Depth = 0.45" for WQ event

Inflow = 0.07 cfs @ 8.03 hrs, Volume= 0.027 af

Outflow = 0.04 cfs @ 8.37 hrs, Volume= 0.027 af, Atten= 45%, Lag= 20.5 min

Discarded = 0.00 cfs @ 8.37 hrs, Volume= 0.001 af

Primary = 0.04 cfs @ 8.37 hrs, Volume= 0.026 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 216.20' @ 8.37 hrs Surf.Area= 317 sf Storage= 58 cf

Plug-Flow detention time= 7.5 min calculated for 0.027 af (100% of inflow)
Center-of-Mass det. time= 7.5 min (828.2 - 820.7)

<table>
<thead>
<tr>
<th>Volume</th>
<th>Invert</th>
<th>Avail.Storage</th>
<th>Storage Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1</td>
<td>216.00'</td>
<td>4,610 cf</td>
<td>Custom Stage Data (Pyramidal) Listed below (Recalc)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>216.00</td>
<td>268</td>
<td>0</td>
<td>0</td>
<td>268</td>
</tr>
<tr>
<td>217.00</td>
<td>561</td>
<td>406</td>
<td>406</td>
<td>572</td>
</tr>
<tr>
<td>218.00</td>
<td>1,031</td>
<td>784</td>
<td>1,190</td>
<td>1,055</td>
</tr>
<tr>
<td>219.00</td>
<td>1,686</td>
<td>1,345</td>
<td>2,535</td>
<td>1,726</td>
</tr>
<tr>
<td>220.00</td>
<td>2,491</td>
<td>2,075</td>
<td>4,610</td>
<td>2,551</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Device</th>
<th>Invert</th>
<th>Outlet Devices</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1</td>
<td>Primary 214.01'</td>
<td><strong>1.0&quot; Vert. Orifice/Grate</strong> C= 0.600</td>
</tr>
<tr>
<td>#2</td>
<td>Primary 219.25'</td>
<td><strong>24.0&quot; x 24.0&quot; Horiz. Orifice/Grate</strong> C= 0.600</td>
</tr>
<tr>
<td></td>
<td><strong>Limited to weir flow at low heads</strong></td>
<td></td>
</tr>
<tr>
<td>#3</td>
<td>Discarded 216.00'</td>
<td><strong>0.200 in/hr Exfiltration over Surface area</strong></td>
</tr>
<tr>
<td>#4</td>
<td>Primary 218.05'</td>
<td><strong>1.0&quot; Vert. Orifice/Grate</strong> C= 0.600</td>
</tr>
</tbody>
</table>

Discarded OutFlow Max=0.00 cfs @ 8.37 hrs HW=216.20' (Free Discharge) 3=Exfiltration (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.04 cfs @ 8.37 hrs HW=216.20' (Free Discharge) 1=Orifice/Grate (Orifice Controls 0.04 cfs @ 7.05 fps) 2=Orifice/Grate (Controls 0.00 cfs) 4=Orifice/Grate (Controls 0.00 cfs)
Pond 5P: WQ/Det Facility 2

Inflow Area = 0.714 ac
Peak Elev = 216.20'
Storage = 58 cf
Summary for Pond 6P: WQ/Det Facility 3

Inflow Area = 2.268 ac, 42.16% Impervious, Inflow Depth = 0.13" for WQ event
Inflow = 0.02 cfs @ 17.30 hrs, Volume= 0.025 af
Outflow = 0.02 cfs @ 17.26 hrs, Volume= 0.025 af, Atten= 0%, Lag= 0.0 min
Discarded = 0.00 cfs @ 17.26 hrs, Volume= 0.000 af
Primary = 0.02 cfs @ 17.26 hrs, Volume= 0.025 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 216.51' @ 17.26 hrs  Surf.Area= 246 sf  Storage= 2 cf

Plug-Flow detention time= 1.8 min calculated for 0.025 af (100% of inflow)
Center-of-Mass det. time= 1.8 min (987.2 - 985.4)

<table>
<thead>
<tr>
<th>Volume</th>
<th>Invert</th>
<th>Avail.Storage</th>
<th>Storage Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1</td>
<td>216.50'</td>
<td>4,035 cf</td>
<td>Custom Stage Data (Pyramidal) Listed below (Recalc)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>216.50</td>
<td>244</td>
<td>0</td>
<td>0</td>
<td>244</td>
</tr>
<tr>
<td>217.50</td>
<td>554</td>
<td>389</td>
<td>389</td>
<td>564</td>
</tr>
<tr>
<td>218.50</td>
<td>941</td>
<td>739</td>
<td>1,128</td>
<td>966</td>
</tr>
<tr>
<td>219.50</td>
<td>1,444</td>
<td>1,184</td>
<td>2,311</td>
<td>1,487</td>
</tr>
<tr>
<td>220.50</td>
<td>2,019</td>
<td>1,723</td>
<td>4,035</td>
<td>2,086</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Device</th>
<th>Routing</th>
<th>Invert</th>
<th>Outlet Devices</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1</td>
<td>Primary</td>
<td>215.01'</td>
<td>1.7&quot; Vert. Orifice/Grate C= 0.600</td>
</tr>
<tr>
<td>#2</td>
<td>Primary</td>
<td>219.75'</td>
<td>24.0&quot; x 24.0&quot; Horiz. Orifice/Grate C= 0.600</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Limited to weir flow at low heads</td>
</tr>
<tr>
<td>#3</td>
<td>Discarded</td>
<td>216.50'</td>
<td>0.200 in/hr Exfiltration over Surface area</td>
</tr>
<tr>
<td>#4</td>
<td>Primary</td>
<td>218.60'</td>
<td>4.0&quot; Vert. Orifice/Grate C= 0.600</td>
</tr>
</tbody>
</table>

Discarded OutFlow Max=0.00 cfs @ 17.26 hrs  HW=216.51’ (Free Discharge) Exfiltration Controls 0.00 cfs

Primary OutFlow Max=0.09 cfs @ 17.26 hrs  HW=216.51’ (Free Discharge) Exfiltration Controls 0.00 cfs
Pond 6P: WQ/Det Facility 3

Hydrograph

Flow Area=2.268 ac
Peak Elev=216.51'
Storage=2 cf

Type IA 24-hr WQ Rainfall=1.00"
Home Designs and Elevations

MATERIALS:

**Apartments**
- Light gray or tan to light brown for siding
- Accent color at gables
- White trim
- 1 x 8 or 1 x 12 Hardy Plank exterior siding
- 1 x 4 corner board trim
- 1 x 10 or 1 x 12 belly band
- Hardy Plank or shingles for gable accent or vertical board and bat
- 1 x 4 trim around all windows
- Architectural style asphalt roofing

MATERIALS:

**Houses**
- Earth tone colors for siding
- White or accent color trim
- 1 x 8 or 1 x 12 Hardy Plank exterior siding
- 1 x 4 trim around all windows
- 1 x 10 or 1 x 12 siding/vertical board and bat
- Hardy Plank or shingles for gable accent or vertical board and bat
- Pre-painted steel garage doors- raised panel – window option for accent style
Building Area Legend

- UNIT A
- UNIT B
- UNIT B - ADA
- UNIT C

- 661 SF
- 666 SF
- 664 SF
- 715 SF
- 716 SF
- 816 SF

Building Map - Ground Floor
Building Map - Second Floor
Site Key Plan - New

INDEX OF DRAWINGS

Sheet Number
Sheet Name
A3.0 COVER SHEET
A3.1 FLOOR PLANS - PROPOSED
A3.2 FLOOR PLANS - PROPOSED
A3.3 EXTERIOR ELEVATIONS - PROPOSED
A3.4 EXTERIOR ELEVATIONS - PROPOSED

REVISION DATE
DESCRIPTION
1/8" = 1'-0" BUILDING MAP - GROUND FLOOR
1/8" = 1'-0" BUILDING MAP - SECOND FLOOR
1" = 50'-0" SITE KEY PLAN - NEW

COVER SHEET
NEW APARTMENTS
FRANKLIN AVE.
ALBANY, OR

NOT FOR CONSTRUCTION
NOT FOR CONSTRUCTION
NEW APARTMENTS
PRELIMINARY - NOT FOR CONSTRUCTION
FRANKLIN AVE.
ALBANY, OR

NOT FOR CONSTRUCTION
NEW APARTMENTS
PRELIMINARY - NOT FOR CONSTRUCTION
FRANKLIN AVE. ALBANY, OR

3/19/2020 3:26:07 PM

K.K.

PRELIMINARY - NOT FOR CONSTRUCTION

EXTERIOR ELEVATIONS - PROPOSED

ATTACHMENT O.13

NOT FOR CONSTRUCTION
REF. OFFICE
FITNESS
1/2 BATH 1/2 BATH
SITTING DINING
KITCHENETTE
ENTRY
DECK
8' - 0"
7' - 6"
13' - 9"
10' - 0"
11' - 3"
13' - 6"
6' - 6"
15' - 0"
35' - 0"
35' - 0"
11' - 6"
23' - 6"
35' - 0"
1' - 9"
35' - 0"
2016 KYMBER COMPANIES, LLC
PO Box 362
Vernonia, OR 97064
503 - 432 - 1358
kymber@candidhomedesign.com
www.candidhomedesign.com
SHEET NAME:
SHEET NUMBER:
ISSUE DATE:
PROJECT NUMBER:
DRAWN BY:
Candid Design
3/19/2020 2:41:01 PM
FLOOR PLANS - PROPOSED
NEW APARTMENTS
PRELIMINARY - NOT FOR CONSTRUCTION
FRANKLIN AVE.
ALBANY, OR
A5.1
NOT FOR CONSTRUCTION
1. LOT 12 SHALL BE COVERED BY A BLANKET EASEMENT BENEFITING LOTS 1-11 OVER ALL THE OUTDOOR COMMON AREAS AS SHOWN ON THE APPROVED PLANNED UNIT DEVELOPMENT FOR PEDESTRIAN ACCESS PURPOSES.

2. THE PLANNED UNIT DEVELOPMENT SHALL BE IN COMPLIANCE WITH THE SOLAR ACCESS REQUIREMENTS OF THE APPROVED LAND USE DECISION.
TO: Melissa Anderson, Planner  
From: Lora Ratcliff, Fire Marshal  
DATE: June 17, 2020  
SUBJECT: PD-01-20 – 840 Airport Rd SE – Multi- & Single-Family Development – Fire Department Comments

The fire department has reviewed the above project for conformance to the 2019 Oregon Fire Code (OFC) per your request and has the following comments:

1. The only new street to receive a name will be Franklin Ct (Pvt) which serves the single-family residences. All other internal roads will not be named, and the multi-family buildings will be addressed off Franklin Ave SE with one address number given to the complex and a separate building letter designation for each structure.

2. Approved fire apparatus roadways must extend to within 150 feet of all exterior portions of any structure that will be built on the property as measured by an approved route of travel around the exterior of the structure. (OFC 503.1.1)

The last two single-family lots at the southernmost end of Franklin Court (Pvt) will be fire sprinklered with an NFPA 13D system in lieu of this requirement per approved F1 sheet.

3. Dead-end fire apparatus roads in excess of 150 feet in length shall be provided with an approved area for turning around fire apparatus (OFC 503.2.5 and D103.4)

The last two single-family lots at the southernmost end of Franklin Court (Pvt) will be fire sprinklered with an NFPA 13D system in lieu of this requirement per approved F1 sheet.

4. This proposed project is located within a “Protected Area” as defined by Oregon Fire Code (OFC) Appendix B, Section B102 and this area is currently served by a public water system. The Fire Flow required for shall be as specified in Appendix B of the fire code. (OFC 507.3).

5. Where required by the fire code official, address numbers shall be provided in additional approved locations to facilitate emergency response (OFC 505.1).

Wayfinder signage will be required at each entrance.

6. INADEQUATE FIRE APPROACH & ACCESS TO WATER SUPPLY

If the Fire Official determines that there is an inadequate fire apparatus access condition or an inadequate fire water supply for one or more parcels of the proposed division, in lieu of providing adequate fire apparatus access or supply and acting in conformance to the standards set forth in OAR 918-480-0125, the Uniform Alternate Construction Standard for One and Two Family Dwellings, the Building Official, will select one or more of the following standard(s) to address the inadequacies pertaining to structures built on the affected parcels. The first choice is to have the buildings on the lots affected, protected by a NFPA 13D fire suppression system.

a. Installation of an NFPA Standard 13D fire suppression system;
b. Installation of a partial NFPA Standard 13D fire suppression system;
c. Installation of additional layers of 5/8 inch, Type-X gypsum wallboard;
d. Installation of fire-resistive compartmentalization of dwellings to limit the spread of fire by use of fire-resistant building elements, components or assemblies. Fire resistance ratings shall be determined in accordance with the Oregon Structural Specialty Code;

e. Installation of fire-resistive exterior wall covering and roofing components; or

f. Provide fire separation containment in accordance with the default standards as set forth in the Wildland-Urban Interface rules adopted by the Oregon Department of Forestry (See OAR 629-044-1060).

LAR/lar
Wetland Land Use Notice Response

Response Page

Department of State Lands (DSL) WN# *
WN2020-0240

Responsible Jurisdiction

<table>
<thead>
<tr>
<th>Staff Contact</th>
<th>Jurisdiction Type</th>
<th>Municipality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Melissa Anderson</td>
<td>City</td>
<td>City of Albany</td>
</tr>
</tbody>
</table>

Local case file #
PD-01-20

County
Linn

Activity Location

<table>
<thead>
<tr>
<th>Township</th>
<th>Range</th>
<th>Section</th>
<th>QQ section</th>
<th>Tax Lot(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>11S</td>
<td>03W</td>
<td>09</td>
<td>BB</td>
<td>2700,2701</td>
</tr>
</tbody>
</table>

Street Address
840 Airport Rd SE
Address Line 2

City
Albany

State / Province / Region
OR

Country
Linn

Latitude
44.634

Longitude
-123.064

Wetland/Waterway/Other Water Features

There are/may be wetlands, waterways or other water features on the property that are subject to the State Removal-Fill Law based upon a review of wetland maps, the county soil survey and other available information.

Your Activity

A state permit will not be required for the proposed project because, based on the submitted site plan, the project avoids impacts to jurisdictional wetlands, waterways, or other waters.

Applicable Oregon Removal-Fill Permit Requirement(s)
A state permit is required for 50 cubic yards or more of fill removal or other ground alteration in wetlands, below ordinary high water of waterways, within other waters of the state, or below highest measured tide.

**Closing Information**

**Additional Comments**

Based on review of submitted site plan, the proposed project ("Planned development with land division and tree felling") does not appear to impact jurisdictional wetlands, waterways or other waters of the state. As drawn on the site plan, it appears that all construction/site development will avoid impacts to the 1.759 acre wetland mapped on the subject tax lots. Should fill, removal or other ground alteration activities reach or exceed 50 cubic yards within the mapped wetland, a permit will be required.

This is a preliminary jurisdictional determination and is advisory only.

This report is for the State Removal-Fill law only. City or County permits may be required for the proposed activity.

**Contact Information**

- For information on permitting, use of a state-owned water, wetland determination or delineation report requirements please contact the respective DSL Aquatic Resource, Proprietary or Jurisdiction Coordinator for the site county. The current list is found at: [http://www.oregon.gov/dsl/WW/pages/wstaff.aspx](http://www.oregon.gov/dsl/WW/pages/wstaff.aspx)
- The current Removal-Fill permit and/or Wetland Delineation report fee schedule is found at: [https://www.oregon.gov/dsl/WW/Documents/Removal-FillFees.pdf](https://www.oregon.gov/dsl/WW/Documents/Removal-FillFees.pdf)

**Response Date**

4/16/2020

**Response by:** Grey Wolf  
**Response Phone:** 503-986-5321