PLANNING COMMISSION MEETING AGENDA

Duvall Visitor Center, 15619 Main Street, Duvall
Wednesday, May 9, 2018, at 7:00 p.m.

1. Call to Order – Flag Salute

2. Roll Call

3. Announcements

4. Approval of Minutes

Minutes from the April 25, 2018 Planning Commission Meeting

5. Citizens' Comments and Requests – Items Not on the Agenda

6. Public Hearing(s)
A. 2018 Surface and Stormwater Plan Public Hearing

7. Old Business
A. Continued Discussion on Density – How Does Duvall Calculate Density?

8. New Business
A. DUV I – Quarry House Community Center Site Plan Review

9. Presentation
A. None

10. Good of the Order

11. Adjournment

Materials List

- *Agenda*
- *Minutes from the April 25, 2018*
- *2018 Surface and Stormwater Plan Public Hearing Packet*
- *Duvall Density Powerpoint Presentation*
- *DUV I – Quarry House Community Center Site Plan Review Package*

(*Please call Deloa Dalby [425] 788-2779 if you have any questions or if you cannot attend the meeting.)*

Meeting Room is Wheelchair Accessible. Americans With Disabilities Act - Reasonable Accommodations Provided Upon Request - (425) 788-2779

Meeting Minutes
City of Duvall Planning Commission Meeting

Date: April 25, 2018
Time: 7:00 PM
Place: Duvall Visitor Center, 15619 Main Street NE, Duvall WA 98019

Commissioners Present: Jason Brown, Jim Deal, Ronn Mercer, Eric Preston, Michael Remington, Robert Walker, Michael Yelle

Commissioners Absent: None

Staff Present: Troy Davis, Senior Planner and Deloa Dalby, Administrative Assistant

Others Present: None

Call to Order – Flag Salute

The Planning Commission meeting was called to order by Commissioner Mercer at 7:00 PM.

1. Announcements

A. Senior Planner Davis that the Main Street Dedication Ceremony was held today at Rosenbach Corner and was well attended.
B. Senior Planner Davis announced that the public hearing for the Stormwater Plan is scheduled for May 9, along with design reviews scheduled for the May 9 and May 23 Planning Commission meetings, and that we will need attendance by all Commissioners to have a quorum.
C. Senior Planner Davis announced that he will be on vacation and absent from the May 9 Planning Commission Meeting.
D. Senior Planner Davis announced that the Boy Scouts are proposing to construct a dog park at Dougherty Farm this summer, which will be approximately 20,000 square feet.
E. Senior Planner requested that all Commissioners complete their on-line training and forward their completion certificates to Deloa Dalby.

2. Approval of Minutes

It was moved and seconded (*Mercer-Walker*) to approve the minutes from the March 28, 2018 Planning Commission meeting. The motion carried.

3. Citizens' Comments and Requests – Items Not on the Agenda

There were no citizens in the audience.

4. Public Hearings
None

5. Old Business

A. Food Truck Ordinance-5th Draft
Senior Planner Davis discussed the status and progress of the draft Food Truck Ordinance that was originally started in 2016. Senior Planner Davis went over the draft code and reviewed a power point presentation which was entered into the record. Senior Planner Davis discussed City Council's concerns regarding insuring the temporary nature of the food trucks, setbacks, overlaps between department requirements, and that there will be a 6th code revision to address these concerns. There was discussion between the Commissioners regarding food trucks on school property, licensing, and that the more restrictive of regulations to govern. Senior Planner Davis stated that the Public Hearing will occur in June and the adoption is anticipated for July of 2018.

6. New Business

A. 2018 City of Duvall Long Range Work Plan – Planning Department Overview
Senior Planner Troy Davis presented the Planning Department's long range work plan matrix and reviewed the items. The work items include the Shoreline Master Plan update, Parks Trails and Open Space Plan, Sign Code Update (based on the Gilbert Case), Accessory Dwelling Units, 2018 Comprehensive Plan Docket and Amendments, Food Truck Policy, on-going Annexations, and an Affordable Housing Task Force. Commissioner Mercer requested a timeline of the projects the Planning Department is currently working on and Senior Planner Davis said that he would email the Commissioners the current Project Tracking Matrix.

B **Discussion on Density**
Senior Planner Troy Davis reviewed the MSRC Article on Visualizing Compatible Density. Based on City Council's recommendation, Duvall's zoning code will transition from gross to net density, and Davis reviewed developed scenarios as presented in the article with the Commissioners.

7. Presentation
None.

8. Good of the Order
Planning Commission meetings will be on regularly scheduled dates in May.

9. Adjournment
It was moved and seconded *(Deal-Mercer)* to adjourn the Planning Commission Meeting at 8:16 p.m.

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Exhibit 1

CITY OF DUVALL
Public Works Department
PO Box 1300, Duvall, WA 98019 425.788.3434
www.duvallwa.gov

PLANNING DEPARTMENT STAFF REPORT

TO:	Planning Commission
FROM:	Boyd E. Benson LEG, PE, Director of Public Works; Larissa Grundell, Assistant City Engineer; Troy Davis, Senior Planner
HEARING DATES:	May 9, 2018 (before the Planning Commission) June 5, 2018 (before the City Council)
PROJECT:	2018 Surface and Stormwater Plan

I. INTRODUCTION

Proponent:	City of Duvall Public Works Department, PO Box 1300, Duvall, WA 98019
Project Description:	Proposed 2018 Surface and Stormwater Plan
Requested Action:	Hold a public hearing and make a recommendation to the City Council
Review Process:	Type IV, City Council Decision
Exhibits:	The following exhibits are included with this report: 1. Staff Report 2. Draft 2018 Surface and Stormwater Plan 3. Master Permit Application 4. SEPA Checklist and Threshold Determination 5. 60-Day Notice to Commerce 6. Commerce Acknowledgement 7. Public/Agency Comments 8. Notice of Public Hearing & Affidavit 9. Resolution 18-XX

II. BACKGROUND

The 2018 Surface and Stormwater Plan is intended guide Stormwater management within the City of Duvall. The City is a Western Washington Phase II Municipal Stormwater Permittee. The State of Washington Water Pollution Control Law and the Federal Clean Water Act require compliance with the National Pollutant Discharge Elimination System (NPDES) Permit for discharges from Small Municipal Separate Storm Sewers in Western Washington. NPDES Permit requirements include Stormwater system-wide mapping and inspection along with implementation of Low-Impact Design (LID) requirements and Best Management Practices. The 2018 Surface and

Stormwater Plan evaluations and recommendations specifically address these requirements along with the goals and policies within the City's 2015 Comprehensive Plan Update.

III. HISTORY

In 2015, the City received a U.S. EPA National Estuary Program (NEP) Grant to evaluate the City's stormwater system and identify stormwater retrofit design projects using a watershed-based evaluation. Through this grant, staff was able to update the 20-year old stormwater plan to maintain compliance with the NPDES Permit requirements.

Using a watershed-based approach, City staff evaluated the existing system with consideration of City plans and policies along with State and Federal requirements. The project also created a ranked retrofit list for facility retrofits to improve surface and stormwater management as well as water quality within the City. The updated Plan also evaluates and requires LID techniques and best management practices for development and re-development activities within the City.

This planning effort also updated the City's stormwater Acreage Charge and introduce a new stormwater General Facility Charge (GFC) similar to what is currently collected from new development for sewer and water connections.

A technical Stakeholder/Advisory Group was assembled to review and participate in discussions about stormwater management and retrofit project opportunities in the City. The Stakeholder/Advisory Group was comprised of members from; King County, Ecology, Snoqualmie Tribe, Stewardship Partners, ESA, SDA, public officials, City staff, and private citizens. The group met four times in 2017 with the following tasks:

1. Review existing policy under which the Plan update is being considered to ensure compliance with regulations and consistency between adopted City planning documents (Comprehensive Plan, Transportation Plan, and Watershed Plan).
2. Review of key metrics for stormwater system and basin characterization.
    a. Review of update GIS inventories of existing stormwater facilities.
    b. Erosion concerns.
    c. Water Quality opportunity.
    d. New Development pressure.
3. Review and comment on stormwater prioritization approach and retrofit results:
    a. Assessment of Water Quality and Erosion effectiveness
        i. Approach and metrics
        ii. Initial results
4. Review and comment on Comprehensive Plan Elements:
    a. Review an updated Capital Improvement Program project list.
    b. Programmatic stormwater management opportunities
5. Identify, evaluate, and prioritize target retrofit opportunities.
6. Update Capital Improvement Program (CIP).
    a. Update project and retrofit lists based on information developed as part of the plan.
    b. Update stormwater fees.
7. Review and comment on Duvall specific low impact development (LID) toolbox:
    a. Approach and metrics

   b. Initial management matrix results
8. Review and comment of Draft plan chapters.

IV. STATUTORY REQUIREMENTS

SEPA Compliance:
Public Works staff completed a SEPA Checklist on January 29, 2018 (see Exhibit 4), and the SEPA Responsible Official issued a Determination of Non-Significance (DNS) on February 8, 2018 (see Exhibit 4). No public comments were received during the 14-day SEPA comment period that ran until February 22, 2018. The SEPA Appeal period ended March 1, 2018.

Public Hearing Notice:
A Notice of Public Hearing was published in the Seattle Times on April 27, 2018, and posted at Duvall City Hall, the Library, and the Post Office. All legal requirements for public notice have been satisfied (see Exhibit 8).

Department of Commerce Notification:
On January 29, 2018, the DRAFT 2018 Surface and Stormwater Plan was submitted to the Washington State Department of Commerce for 60-day review (see Exhibit 5). The Department of Commerce provided the City with an acknowledgement letter on January 30, 2018 (see Exhibit 6). The 60-day review period ended March 30, 2018.

V. PARTIES OF RECORD

The technical Stakeholders/Advisory Group was notified of this report. There are no parties of record.

VI. FINDINGS AND CONCLUSIONS

1. The City of Duvall issued a Determination of Non-Significance (DNS) on February 8, 2018. No comments were received and no appeals have been filed. The appeal period expired March 1, 2018.
2. The proposed amendments were sent to the State Department of Commerce consistent with RCW 36.70A.106 on January 29, 2018.
3. The Notice of Public Hearing before the planning commission for the 2018 Surface and Stormwater Plan was duly advertised in accordance with the Duvall Municipal Code in the Seattle Times on March 27, 2018 distributed to applicable parties on March 25, 2018.
4. The Planning Commission held a public hearing for this proposal at their May 9, 2018 meeting.
5. The Planning Commission recommended approval of the proposed 2018 Surface and Stormwater Plan at their May 23, 2018 meeting.
6. The proposed 2018 Surface and Stormwater Plan has been reviewed concurrently and do not pose a conflict within the City's 2015 Comprehensive Plan.

VII. PLANNING COMMISSION RECOMMENDATION

The Planning Commission passed a motion at their May 23, 2018 Planning Commission meeting to recommend approval of the 2018 Surface and Stormwater Plan to the City Council.

EXHIBIT 2

City of Duvall

Surface and Stormwater Plan

DRAFT – May 2018

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EXHIBIT 2

TABLE OF CONTENTS

TABLE OF CONTENTS ..... **I**

LIST OF TABLES III
LIST OF FIGURES IV
ABBREVIATIONS VII

CHAPTER 1. INTRODUCTION **1-1**

1.1 WHY A SURFACE AND STORMWATER PLAN? 1-1
1.2 HISTORY OF STORM AND SURFACE WATER MANAGEMENT 1-2
1.3 POLICY AND REGULATORY FRAMEWORK 1-4
1.3.1 NPDES Municipal Stormwater Management Program 1-4
1.3.2 2015 Comprehensive Plan 1-5
1.3.3 2015 Watershed Plan 1-5
1.3.4 1997 Stormwater Management Plan 1-7

CHAPTER 2. SURFACE AND STORMWATER MANAGEMENT BACKGROUND **2-1**

2.1 CURRENT STORMWATER MANAGEMENT PROGRAM OVERVIEW 2-1
2.1.1 Program Components 2-1
2.1.2 Coordination with Other Programs and Permit Requirements 2-6
2.2 ACCOMPLISHMENTS SINCE 1997 STORMWATER MANAGEMENT PLAN 2-9
2.3 CHALLENGES AND OPPORTUNITIES FOR SURFACE AND STORMWATER MANAGEMENT 2-12

CHAPTER 3. WATERSHED AND LAND COVER CONDITIONS **3-1**

3.1 GEOLOGIC CONDITIONS 3-1
3.1.1 Soil Conditions 3-2
3.1.2 Erosion and Landslide Hazards 3-4
3.1.3 Constraints and Opportunities for Surface and Stormwater Management 3-6
3.2 CLIMATE 3-7
3.3 LAND COVER 3-8
3.3.1 Historic Changes to Land Cover 3-8
3.3.2 Vegetation 3-9
3.4 DUVALL BASINS AND SUBBASINS 3-9
3.4.1 Surface Waters and Natural Resources 3-9
3.4.2 Cherry Creek Basin 3-11
3.4.3 Duvall Tributaries Basin 3-14
3.4.4 Weiss Creek Basin 3-22
3.5 TARGET RETROFIT SUBBASINS 3-24

CHAPTER 4. SURFACE AND STORMWATER SYSTEM DESCRIPTION **4-1**

4.1 OVERVIEW OF STORMWATER INFRASTRUCTURE 4-1
4.1.1 Factors Analyzed 4-1

DRAFT

4.2 ASSET MANAGEMENT 4-4
4.3 STORMWATER FLOW CONTROL AND WATER QUALITY TREATMENT FACILITIES 4-5
4.3.1 Cherry Creek Basin 4-7
4.3.2 Duvall Tributaries Basin 4-9
4.3.3 Weiss Creek Basin 4-12
4.4 DRAINAGE, EROSION AND WATER QUALITY CONCERNS 4-12

CHAPTER 5. SYSTEM ANALYSIS 5-1

5.1 SYSTEMS ANALYSIS AND PRIORITY PROJECT IDENTIFICATION METHODS 5-1
5.2 RETROFIT OPTIONS 5-3
5.2.1 Reducing Peak Flows 5-3
5.2.2 Improving Water Quality 5-4
5.3 STORMWATER RETROFIT PROJECT EVALUATION 5-5
5.3.1 Retrofit Ranking Results 5-5
5.3.2 Top Five Retrofit Projects 5-7

CHAPTER 6. FUNDING AND FINANCING PROGRAM 6-1

6.1 FISCAL POLICIES AND FINANCIAL STATUS 6-1
6.1.1 Future Revenue 6-2
6.2 DEVELOPER IMPROVEMENTS 6-3
6.3 COST SUMMARY 6-3
6.4 DEVELOPMENT FORECAST (2018 TO 2035) 6-4
6.5 REVENUE REQUIREMENTS 6-1
6.5.1 404 Storm Drainage Operations Utility Fund 6-1
6.5.2 409 Capital Improvement Fund 6-2
6.5.3 Storm Drainage Acreage Charge Incentives 6-1

CHAPTER 7. SYSTEM IMPROVEMENTS 7-1

7.1 STORMWATER SYSTEM IMPROVEMENTS 7-1
7.1.1 Capital Improvement Plan (CIP) Development 7-1
7.2 IMPROVEMENT PROJECTS AND PROGRAMS 7-5
7.2.1 Retrofit Projects 7-5
7.2.2 Culvert / Outfall Repair or Replacement Projects 7-5
7.2.3 Minor Conveyance and/or Water Quality Improvement Projects 7-5
7.2.4 Citywide improvement Programs 7-5
7.3 PROJECT COST ESTIMATES 7-6
7.4 IMPLEMENTATION SCHEDULE, PERFORMANCE MEASURES AND STRATEGIES 7-8
7.4.1 Implementation Schedule 7-8
7.4.2 Performance Measures 7-9
7.4.3 Monitoring and Evaluation Strategy 7-9

CHAPTER 8. OPERATIONS AND MAINTENANCE 8-1

8.1 OPERATIONS AND MAINTENANCE 8-1
8.1.1 Facility and Conveyance Inspection and Cleaning 8-2
8.1.2 Flood Response and Non-routine Maintenance 8-4

DRAFT

8.1.3 Maintenance Repairs *8-4*
8.1.4 Spill Response and Illicit Discharge Elimination (IDDE) *8-4*
8.1.5 Construction Site Inspection *8-5*
8.1.6 Other Maintenance Activities *8-5*
8.2 REVIEW AND RECOMMENDATIONS FOR OPERATIONS AND MAINTENANCE BEST MANAGEMENT PRACTICES (BMPS) 8-5
8.3 OPERATIONS AND MAINTENANCE OF PRIVATE FACILITIES 8-6

CHAPTER 9. POLICIES AND REGULATION 9-1

9.1 SURFACE AND STORMWATER POLICY 9-1
9.1.1 Duvall Municipal Code Regulations *9-5*
9.2 PROGRAMMATIC OPPORTUNITIES FOR SURFACE AND STORMWATER MANAGEMENT 9-7
9.2.1 Expanded Flow Control Exemption to Floodplain *9-7*
9.2.2 Low Impact Development Toolbox for Future Development *9-8*
9.3 RECOMMENDATIONS FOR PLAN IMPLEMENTATION 9-13
9.3.1 Implementation Sequence *9-13*
9.3.2 Future Evaluation and Updates *9-15*

CHAPTER 10. REFERENCES 10-1

LIST OF TABLES

Table 2-1. Summary of Federal, State, and City implemented regulations and programs related to storm and surface water management. 2-6

Table 2-2. Known (inventoried within City stormwater geodatabase) facility and catch basin counts, by year. 2-12

Table 3-1. Subbasin Summary 3-10

Table 3-2. Cherry Creek Subbasin Summary 3-11

Table 3-3. Duvall Tributaries Subbasin Summary 3-15

Table 3-4. Upper Weiss Creek Subbasin Summary 3-23

Table 4-1. Facilities by Type 4-1

Table 4-2. Facilities by Design Basis 4-2

Table 4-3. Catch Basins by Type 4-3

Table 4-4. Conveyance by Type 4-4

Table 4-5. Recommended Component Service Life (WSDOT, 2017) 4-4

Table 4-6. Public Conveyance by Age in linear feet (as of March 2018) 4-5

DRAFT

Table 4-7. Count of Public Catchments by Age (as of March 2018, does not include private structures)4-5

Table 4-10. Stormwater facility distribution by subbasin. 4-7

Table 5-1. Top 25 Retrofit ranking for drainage plats with existing stormwater facilities 5-6

Table 6-1. Summary of Existing Revenue for Operations, Maintenance and Capital Improvements of the City's Storm Drainage Utility. 6-1

Table 6-2. 2018 to 2035 Project Cost Summary 6-4

Table 6-3. 2018 to 2035 Development Forecast....6-1

Table 6-4. Summary of 2017 One-Time Storm Capital Charges at Seven Cities. 6-3

Table 6-5. Storm Drainage Acreage Charge for 2018-2035 Anticipated Change in Development. 6-1

Table 6-6. General Facility Charge for 2018-2035 Anticipated Change in Development. 6-1

Table 7-1. Stormwater System Capital Improvement Program Project List (2018-2035). 7-2

Table 7-2. Grant funding received between 2008-2016....7-7

Table 7-3. Existing and anticipated changes in development within the City 7-8

Table 9-1. LID measures required by project type....9-10

Table 9-2. Single-family residential (platted subdivisions), Multi-family....9-12

Table 9-3. Roadway, Trails, and Sidewalk Projects 9-12

Table 9-4. Commercial Projects (may use Table 9-2 when applicable) 9-12

LIST OF FIGURES

Figure 1-1. City of Duvall Watershed Plan - Subbasin Management Designation....1-6

Figure 2-1. Water budget for Puget Sound lowlands, within a natural forested area and within a developed area (Washington State University Extension; Puget Sound Partnership, 2012) 2-14

Figure 2-2. Invasive New Zealand mudsnail. Photo: Elaine Thompson, AP 2-15

Figure 3-1. Hydrologic Cycle....3-1

DRAFT

Figure 3-2. Geologic Map with Duvall City limits (in red) and surrounding area; the dominant geologic deposits across Duvall and surrounding areas east of the Snoqualmie River Valley are Vashon lodgment till (Qgtv, extending through purple shaded areas). 3-3

Figure 3-3. 2012 Coe-Clemmons Creek culvert replacement project under SR-203. Inset: Old Coe-Clemmons Creek fish barrier culvert, prior to project. 3-4

Figure 3-4. Inventoried Geologically Hazardous Areas (ESA & Stratum Group, 2017) 3-5

Figure 3-5. Average monthly precipitation and low/high temperatures in the Duvall vicinity (U.S. Climate Data, 2018). 3-8

Figure 4-1. Stormwater drainage areas and infrastructure 4-6

Figure 5-1. A diagram outlining the facility assessment and ranking process including the factors in each scoring category. 5-2

Figure 5-2. Duvall Highlands Mobile Home Park Pond 5-7

Figure 5-3. Big Rock Ridge Pond, Laura Vera Detention Pipe, and Big Rock Road Bioswale. 5-9

Figure 5-4. Kasper Heights Pond and Bioswale 5-11

Figure 5-5. Cedarcrest High School East Pond 5-13

Figure 5-6. Cherry Valley Vista Detention Pipes 5-15

Figure 6-1. Summary of 2017 Monthly Storm Utility Rates at Seven Cities 6-2

Figure 7-1. CIP Project Map 7-4

Figure 8-1. Example of a Vactor-Truck for catch basin cleaning and conveyance pipe jetting. 8-3

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ABBREVIATIONS

BMP: Best Management Practice
CIP: Capital Improvement Program
CIPP: Cured-In-Place-Pipe
CITY: City of Duvall
CPI-U: Consumer Price Index for All Urban Consumers
DMC: Duvall Municipal Code
ECOLOGY: Washington State Department of Ecology (DOE)
EPA: Environmental Protection Agency
ERU: Equivalent Residential Unit
ESA: Endangered Species Act
FEMA: Federal Emergency Management Agency
FY: Fiscal Year
GFC: General Facility Charge
GIS: Geographic Information System
GMA: Growth Management Act
GSI: Green Stormwater Infrastructure
HPA: Hydraulic Project Approval
HSG: Hydrologic Soil Group
IDDE: Illicit Discharge Detection and Elimination
KCSWDM: King County Surface Water Design Manual
LID: Low Impact Development
NFIP: National Flood Insurance Program
NPDES: National Pollutant Discharge Elimination System
NRCS: National Resources Conservation Service
PAU: Project Assessment Unit
PGIS: Pollution Generating Impervious Surface
PSP: Puget Sound Partnership
PWDDS: Public Works Development Design Standards
ROS: Rain on Snow
SBPP: Snohomish Basin Protection Plan
SBSRF: Snohomish Basin Salmon Recovery Forum
SCSWM: Snohomish County Surface Water Management
SDOT: Seattle Department of Transportation
SEPA: State Environmental Protection Act

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SF: Square Feet
SFR: Single Family Residence
SMA: Shoreline Management Act
SMP: Shoreline Master Program
STORM: Stormwater Outreach for Regional Municipalities
SWMP: Stormwater Management Program
TESC: Temporary Erosion and Sediment Control
TIR: Technical Information Report
TMDL: Total Maximum Daily Load
TSS: Total Suspended Solids
UGA: Urban Growth Area
UGAR: Urban Growth Area Reserve
WDFW: Washington State Department of Fish and Wildlife
WRIA: Water Resources Inventory Area
WSDNR: Washington State Department of Natural Resources
WSUE: Washington State University Extension
WWHM: Western Washington Hydraulic Model

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CHAPTER 1. **INTRODUCTION**

Surface watercourses and stormwater infrastructure support nearly all aspects of stormwater management within the City of Duvall (City). Movement of storm runoff through the landscape from ditches, pipes, and streams to the Snoqualmie River and associated aquifers directly supports fish and wildlife habitats, diverse vegetation, and other environmental features.

Drainage infrastructure within developed areas of the City ensures that storm flows are conveyed away from homes, commercial buildings, schools, and other structures allowing for ongoing use and activity even during Fall and Winter rainstorms. Many of these developed areas have replaced native soils and vegetation with impervious surfaces including roadways, parking lots, roofs and sidewalks. Runoff from these impervious surfaces is concentrated and impacted by pollution from cars and other human activities. For these areas, storm drainage infrastructure has the important role of slowing and treating runoff before it is discharged to wetlands, streams, and ultimately the Snoqualmie River.

This Surface and Stormwater Plan is the implementing document for several elements of the City's 2015 Comprehensive Plan. The intent of this Plan is to be consistent with applicable adopted 2015 to 2035 goals and policies which focus on stormwater, watershed and sensitive areas management, while also meeting development and land use goals. This Surface and Stormwater Plan will assist the City in maintaining and advancing stormwater infrastructure and low impact development (LID) approaches that meet the 2015 Comprehensive Plan objectives while also addressing existing stormwater needs, supporting the overall vision of the community.

1.1 WHY A SURFACE AND STORMWATER PLAN?

The City's stormwater management systems are key infrastructure resources for the community, wildlife habitat, and the environment. As of 2017, stormwater infrastructure includes over 40 miles of conveyance pipes and ditches along with approximately 170 stormwater facilities (vaults, detention pipes, ponds, bioswales, and stormfilters), and over 2,500 catch basins. The Surface and Stormwater Plan is a functional document that provides direction for the management of stormwater runoff entering surrounding receiving waters. Proper Stormwater management provides protection of public health and safety, public and private property, reduction in localized nuisance flooding, enhanced resilience in the face of climate change, and improvements in surface and groundwater quality, and the ecological functions of natural drainage systems.

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1.2 History of Storm and Surface Water Management

The City has evolved from a sparsely populated area of homes and businesses, concentrated around the Old Town center with surrounding farms and rural forest lands, to a developed (and still developing) suburban community in northeastern King County. Before the early 1990's, most residential development occurred without the benefit of formalized stormwater systems. Throughout much of the downtown area, there are no systems that detain or treat storm runoff; flows are conveyed via roadside ditches and pipes to two primary outfalls directly into the Snoqualmie River.

Residential development within the City has significantly expanded since the 1990's. These developments have been required to design and construct stormwater facilities in accordance with the King County Stormwater Design Manual (KCSWDM) as adopted by the City. Early systems provided some amount of storm runoff detention, with very little water quality treatment. Although early systems were adequate for development at the time, rapid residential development within the eastern portion of the City has increased runoff rates beyond capacities of downstream systems, or has changed the timing and volumes (hydroperiods) of conveyance to small, tributary streams within the City, such as Coe-Clemmons Creek and Thayer Creek.

In 1994, the City formed a Storm Drainage Utility, as codified within Duvall Municipal Code (DMC) Chapter 9.06. The Utility was established shortly before Public Works first efforts to complete a Stormwater Management Plan, which was adopted in 1997.

What is Low Impact Development?

Low Impact Development (LID) is a stormwater and land use management strategy that strives to mimic pre-development hydrologic processes (i.e., infiltration into the ground, evaporation and transpiration by plants, and storage in wetlands, floodplains and the ground) by emphasizing conservation and use of on-site natural features, site planning, and distributed stormwater management practices that are integrated into project design.

The City became a National Pollutant Discharge Elimination System Phase II Permit (NPDES Permit) holder in 2008. Coverage under the Phase II NPDES Permit authorizes discharge of stormwater to waters of the United States in accordance with the Federal Clean Water Act. Discharges covered under the NPDES Permit must effectively prohibit non-stormwater discharges into storm sewers that drain to surface waters and must apply controls to reduce the release of pollutants. Additional NPDES Permit requirements include illicit discharge detection and elimination (IDDE), implementation of updated requirements for new development and redevelopment, and requirements for operations and maintenance. By the time the NPDES Permit was reissued in August 2013, overall thinking about stormwater management had shifted to an emphasis on LID. Consistent with this emphasis, the City requires new development to consider LID stormwater best management practices (BMPs) consistent with the 2016 KCSWDM, and has developed this Plan to provide additional tools for appropriate use of LID BMPs.

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Regional and national changes have occurred in the way surface and stormwater are managed, with a clearer recognition of impacts to natural resources and aquatic species. The 1999 listing of Puget Sound Chinook Salmon as a threatened species under the Endangered Species Act (ESA) resulted in widespread regional surface water management changes to prevent the further decline of the species, and promote salmon population recovery. With an eye toward environmental protection and meeting Washington State Growth Management Act (GMA) requirements, the City completed comprehensive updates to Sensitive Area protection policies for streams and wetlands in 2005, including standards for surface and stormwater management facilities and discharges to these natural surface water features. The City completed additional updates to Sensitive Area and Tree Protection policies in 2018.

In a continued effort to comply with policies and regulations, DMC Chapter 9.06 has been revised several times to incorporate use of the current KCSWDM. Additionally, this chapter establishes a system of development fees and service charges to support Public Works implementation of Strom Drainage Utility programs. Many of the recommended capital projects listed in the 1997 Stormwater Management Plan have been implemented, and the City has grown significantly in the last 20 years. Residential subdivision has continued to occur throughout City limits, with corresponding increases in the network of stormwater management facilities and conveyance infrastructure.

The Storm and Surface Water Plan is organized as follows:

Chapter 1 - Introduction: Describes the purpose of this Plan, the history of storm and surface water management in the City, and the policy and regulatory setting.

Chapter 2 - Storm and Surface Water Management Background: Provides an overview of the City's current Stormwater Program and NPDES Phase II Permit compliance, accomplishments since adoption of the 1997 Stormwater Management Plan, and an introduction to the challenges and opportunities of stormwater management.

Chapter 3 - Watershed and Land Cover Conditions: Presents information on the City's subbasins, surface waters, geologic and soil conditions, and other natural resources; summarizes existing land cover and subbasin alterations, and retrofit opportunities based on subbasin conditions.

Chapter 4 - Storm and Surface Water System Description: Inventory of existing flow control and water quality facilities, conveyance systems, and drainage/erosion/water quality concerns.

Chapter 5 - System Analysis: Summary of analysis completed in support of stormwater infrastructure assessment and prioritization of retrofit actions; introduction of retrofit options useful within the City; and summary of prioritized retrofit project evaluations and predesign efforts.

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Chapter 6 - System Improvements: The Capital Improvement Program (CIP) project list, estimated cost, and action options useful for each; and implementation schedule, performance measures, and strategies for CIP effectiveness.

Chapter 7 - Funding and Financing Program: Summary of existing fiscal policies and utility status, revenue requirements, and recommendations.

Chapter 8 - Operations and Maintenance: Overview of ongoing O&M, review of O&M best management practices, and recommendations.

Chapter 9 - Policies and Regulation: Overview of existing stormwater policies and recommendations for programmatic opportunities for surface and stormwater management.

1.3 POLICY AND REGULATORY FRAMEWORK

This section provides a summary of the policy and regulatory basis under which the Surface and Stormwater Plan was developed. In addition to complying with **NPDES Municipal Stormwater Permit Requirements**, the City recently adopted the **2015 Comprehensive Plan** and **2015 Watershed Plan**. These planning documents provide goals, policies, and action for management of surface waters and stormwater within the City. In addition, previously adopted priorities and policies in the existing **1997 Stormwater Management Plan** are summarized.

This Plan is intended as an implementing tool to meet City-adopted surface and stormwater policy and regulatory requirements. Chapter 9, Section 9.1.1 details the policies summarized in this section.

1.3.1 NPDES MUNICIPAL STORMWATER MANAGEMENT PROGRAM

The City is a Phase II community under the NPDES Western Washington Municipal Stormwater Permit (Washington State Department of Ecology (Ecology) permit through the United States Environmental Protection Agency [U.S. EPA]). As a permittee, the City must create and implement a Stormwater Management Program (SWMP) which addresses five required program elements:

1. Construction Site Run-Off
2. Illicit Discharge Detection and Elimination
3. Operations and Maintenance of Post Construction Stormwater Facilities
4. Public Education and Outreach
5. Public Involvement and Participation

The City maintains a Stormwater System Information webpage, which includes SWMP Annual Reports and other resources related to the City's stormwater systems. Ecology also maintains a resource webpage for each of the five required SWMP elements. The 2018 NPDES Permit requires permittees to require LID principles and LID BMPs. The intent of this requirement is to make LID the preferred and commonly-used approach to site development.

1.3.2 2015 Comprehensive Plan

The City's recently adopted 2015 Comprehensive Plan includes goals and policies that are directly relevant to the management of surface and stormwater infrastructure. These goals and policies, along with NPDES Phase II Permit requirements, provide the primary framework guiding development of the Surface and Stormwater Plan Update. The primary goal and associated policies for stormwater management is included in the Capital Facilities Element - Chapter 7:

Goal CF-8: Duvall's stormwater management system is effective, efficient, and enhanced to meet present and future population needs.

Additional relevant goals and policies are included in the Land Use Element (Chapter 2) and the Environment and Sustainability Element (Chapter 8) of the 2015 Comprehensive Plan. For some of the goals, only one or two of the underlying policies are relevant. All relevant goals and policies from the 2015 Comprehensive Plan are listed in Section 9.1.1 of this Plan.

1.3.3 2015 Watershed Plan

The 2015 Watershed Plan (WSP) provides guidance for improving stormwater management in the City based on watershed assessment results and the subbasin management groups established by that Plan (Figure 1-1). Subbasin management groups provide a system for regulating land use and associated development that protects and mitigates allowed impacts for high-functioning watershed processes, and that facilitates more intense land use activities to less sensitive subbasins.

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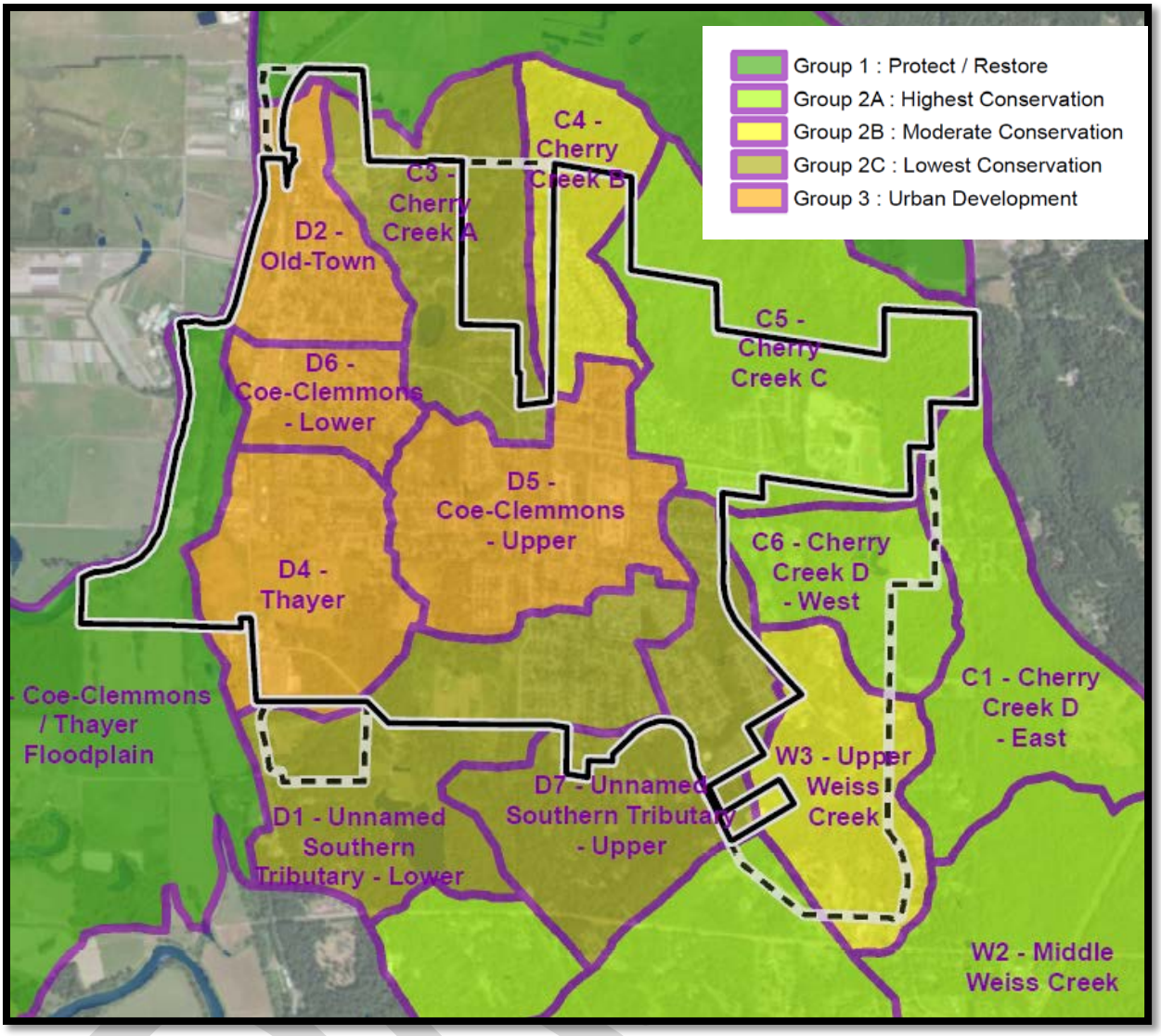

Figure 1-1. City of Duvall Watershed Plan - Subbasin Management Designation

The WSP establishes policies and prioritized actions relying on the subbasin management group framework. Each action was reviewed by a project Advisory Committee (including City staff from Public Works and Planning, and City Council and Planning Commission representatives) and ranked by feasibility and importance for achieving the City's watershed management goals. A series of actions were identified as directly relevant to management of surface and storm water from both existing uses and future development:

- Actions SW-1 and SW-3: Defining and requiring the most useful and applicable LID BMPs in new development activities, including consideration of site/development scale.
- Action SW-2: Improve soil amendment BMPs established by City code for ease of understanding and enforcement.

- Action SW-4: Establishing an expanded flow control exemption for portions of the City that are predominantly built-out and already drain directly to the Snoqualmie River through pipe and/or ditch infrastructure.
- Action SW-5: In UGAs, explore opportunity for centralized stormwater facilities to off-set onsite detention requirements.
- Action SW-6: Incentivize stormwater LID standards.
- Action SW-7: Adjust the landscape strip for street trees to be a minimum of 6-8 feet in width to ensure adequate space for successful growth, and encourage even wider landscape strips with integrated stormwater treatment and infiltration through incentives.
- Action SW-8: Specific suggestions for enhancement of the current City NPDES educational outreach program.

1.3.4 1997 Stormwater Management Plan

Although dated, the City's 1997 Stormwater Management Plan was reviewed for identified goals and policies. The following Water Quality Program goals were established and emphasized given "enforcement by the U.S. EPA of the NPDES Permits as a requirement of Clean Water Act":

1. Identify and document the locations, sources, and magnitude of water quality problems within the existing drainage system.
2. Institute a program of water quality source control measures, including an expanded operation and maintenance program, regulation of development and private property, and public education with respect to water quality issues.

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CHAPTER 2. SURFACE AND STORMWATER MANAGEMENT BACKGROUND

2.1 CURRENT STORMWATER MANAGEMENT PROGRAM OVERVIEW

This section provides a summary of current SWMP components, consistent with adopted Storm Drainage Utility (DMC Chapter 9.06) and NPDES Permit requirements. Additionally, this section summarizes connections to other related programs and requirements under which operations and maintenance, capital improvements, new development, and redevelopment activities must be completed.

The SWMP is implemented consistent with NPDES Permit Section S5.A. The SWMP is designed to reduce the discharge of pollutants from City infrastructure, to the maximum extent practicable, and to protect water quality.

2.1.1 PROGRAM COMPONENTS

The following sections detail current SWMP components, as required by the NPDES Permit and as currently implemented within the City.

Public Education and Outreach

The City's SWMP includes an education program aimed at residents, businesses, elected officials, and City staff. The goal of the education program is to reduce or eliminate behaviors and practices that contribute to adverse stormwater impacts. Public Works staff coordinate with the Snoqualmie Watershed Forum (interagency collaboration with King County Water & Land Resources Division and Snoqualmie Valley cities), King Conservation District, Riverview School District, and non-governmental organizations – namely, Stewardship Partners.

The City has developed and maintains a stormwater webpage to help increase public awareness of stormwater related issues and provide links to useful information from other sources (City of Duvall, 2018).

Public Works staff track and maintain records of public education and outreach activities, including documentation in SWMP Annual Reports. Recent and ongoing public education and outreach activities include:

- Educational activities for children and adults at Earth Day and Public Works Open House events.
- Presentations to local elementary school classes.

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- City newsletter information and education updates.
- Distributing information at City Hall and specific events (Duvall Days, Farmers Market).
- Education and outreach information and links on the City's Stormwater webpage.
- Annual City-sponsored recycling event including used motor oil and household hazardous waste recycling.
- Collaboration with the Stormwater Outreach for Regional Municipalities (STORM) campaign.
- Summarizing public education and outreach activities in the SWMP annual report.
- Utility bill inserts to reach households within the City, addressing various topics including:
    - Landscaping and Yard Care design, plant selection, mulch, fertilizers, pesticides, herbicides, and compost/disposal.
    - Car washing
    - Proper disposal of household waste, recycling, storm drain awareness, and proper disposal of hazardous household waste (paint, hydrocarbons, and antifreeze).
- Strategies to track outreach and education program success, including:
    - Community surveys (including previous comprehensive Stormwater Community Survey Program with other NPDES municipalities; (Klima & Buttenob, 2009)).
    - Utility billing questionnaires.

Potential Future Activities: In recent years, the City has considered implementation of additional public education and outreach activities such as:

- Installing storm drain buttons and completing storm drain stenciling including "Adopt a Drain" neighborhood stenciling and "Puget Sound Starts Here" storm drain button programs.
- Developing an Illegal Dumping and Littering program including additional awareness, signage, and trash receptacles.
- Developing natural yard care education programs.

Public Involvement and Participation

All updates to the City's SWMP and adopted Storm Drainage Utility standards over the last 20 years have been reviewed and adopted through required public involvement and participation. City Council consideration of new or updated policies include opportunity for public comment prior to Council action. In addition, recent development of the City's 2015 Watershed Plan included public and stakeholder participation through an Advisory Committee, Open House, Planning Commission review, public workshops, City Council review, survey input, and public hearings. Similar public involvement and participation efforts were completed prior to adoption of the 2015 Comprehensive Plan. As such, policies related to surface and stormwater management within the Watershed Plan and the Comprehensive Plan (detailed in Chapter 9) were adopted after opportunities for public input.

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This Plan highlights the City's most recent effort to include public involvement and participation. Plan development, including analysis and prioritization for retrofit of existing facilities and strategies for future development, included input from a technical stakeholder group. This stakeholder group included City staff, technical advisors, elected officials, and members of the public. Four stakeholder group meetings were held in 2017 with additional input throughout Plan development from the group and at City Council and Planning Commission presentations.

Illicit Discharge Detection and Elimination (IDDE)

The City's SWMP includes an ongoing program to detect and remove illicit connections and discharges as defined in the Code of Federal Regulations (40 CFR 122.26(b)(2)). The IDDE program addresses improper dumping and disposal including any spills into stormwater infrastructure owned and operated by the City.

Public Works has ongoing Geographic Information System (GIS) map data collection and digitization procedures in place. Through recent efforts, the City's current stormwater system has been completely mapped and attributed within a GIS geodatabase. Updating stormwater system mapping and attributes will continue as additional system data is collected and as new development and redevelopment projects are completed in the City. The stormwater geodatabase is used by Public Works to identify upstream sources of illicit discharge, when detected.

Public Works maintenance crew personnel actively search out illicit connections during catch basin cleaning as well as respond to:

- clogged storm drains;
- accidental spills; and
- other illicit discharges.

Staff Training: The City ensures that all Public Works Maintenance Crew personnel who are responsible for identification, investigation, cleanup, and reporting of illicit discharges are trained to conduct these activities. Annual training is provided as needed to address changes in procedures, techniques or requirements. The City documents and maintains records of staff trained.

Controlling Runoff from New Development, Redevelopment, and Construction Sites

The City enforces standards to reduce pollutants in stormwater runoff from new development, redevelopment and construction site activities consistent with NPDES Permit requirements. DMC 9.06.030 adopts the current edition of the KCSWDM (King County, 2016b). The City supplements the adopted KCSWDM with Duvall-specific requirements for small (DMC 9.06.040) and large (DMC 9.06.050) parcels. This gives the City Engineer additional authority to ensure that detention and water quality approaches mitigate potential downstream impacts to the maximum extent feasible.

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Summary of Review, Permitting and Inspection Process: Public Works staff complete plan review, inspection, and enforcement for all project types using qualified personnel as defined by the NPDES Permit. The following steps are a general representation of these procedures:

1. Review of all stormwater site plans for proposed development activities, including Temporary Erosion and Sediment Control (TESC) Plans for construction activities, as well as drainage plans and supporting Technical Information Reports (TIRs) for the proposed development.

2. Inspect, prior to clearing and grading, all known development sites that have a potential for sediment transport.

3. Inspect all known permitted development sites during construction to verify proper installation and maintenance of required TESC BMPs. Enforce as necessary based on the inspection.

4. Inspect all permitted development sites upon completion of construction and prior to final approval or occupancy to ensure proper installation of permanent stormwater BMPs.

5. As part of stormwater site plan review and approval, verify an operations and maintenance plan is completed and responsibility for maintenance and ownership is assigned. Enforce as necessary based on inspection.

6. Document completion of all inspections.

Municipal Operations and Maintenance

In accordance with Section S5.C.5 of the NPDES Permit, the SWMP includes a pollution prevention and operation and maintenance program for municipal operations. This City program went into effect prior to the February 15, 2010 permit deadline and includes established operational BMPs and a training component with the goal of preventing or reducing runoff from municipal operations. The City program to control runoff from municipal operations is summarized in the City's 2017 SWMP Report (Appendix D; City of Duvall, 2018b). Operations and maintenance is discussed in more detail in CHAPTER 8.

Compliance with TMDL Requirements

Total Maximum Daily Load (TMDL) requirements from Section S7 of the NPDES Permit do not apply to the City because there are no TMDL's listed for the City (Ecology, 2018d).

Monitoring

Public Works is not required to implement a program of monitoring for the SWMP, because the City's population is less than 10,000 residents, and there are no listed TMDL's for the City. The City participates in SWMP effectiveness monitoring as part of the "Stormwater Monitoring Work Group" (Ecology, 2018).

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Potential Future Activities: In previous annual SWMP reports, the City has considered implementing the following additional monitoring activities:

- Identifying outfalls or conveyances where stormwater sampling (flow, temperature, etc.) may be conducted.
- Summarizing monitoring activities in future annual SWMP reports.

Annual Reporting Requirements

During the first quarter of each year, Public Works staff submit an annual SWMP report to Ecology to meet NPDES Permit reporting requirements for the previous year. Public Works staff ensure that annual SWMP reports and all other records related to NPDES Permit requirements are made available to Ecology and the public for at least the five most recent years (City of Duvall, 2017a).

Each annual SWMP report includes the following information:

- Reference to the City's current adopted SWMP, storm drainage utility standards, and administrative rules relevant to NPDES Permit compliance.
- Status of implementation of each component of the SWMP consistent with NPDES Permit requirements (Sections 1 to 6), including assessment of progress towards meeting minimum measures associated with each Section.
- Description of activities implemented to comply with each component of the SWMP, including details on inspections, enforcement actions, public education and outreach activities, and IDDE (reporting includes numbers and types for all activities).
- An assessment of the relevance of BMPs identified by Public Works for each NPDES Permit requirement, and documentation and rationale of any changes made, or anticipated to be made, to BMPs that were previously selected to implement the SWMP.
- Details on implementation schedule and plans for meeting NPDES Permit deadlines for all NPDES Permit requirements where minimum measures have not been achieved.
- Any updated information to supplement prior annual reports, and any new relevant information received during the reporting period. Including any storm and/or surface water monitoring or studies conducted by Public Works or other entities for subbasins within Duvall and urban growth areas.
- Notification of any annexations, incorporations or jurisdictional boundary changes and inclusion of implications for SWMP.
- Certification and signature pursuant to the NPDES Permit, and notification of any changes to authorization.

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2.1.2 Coordination with Other Programs and Permit Requirements

A variety of land use and resource management regulations and permit requirements contribute to planning and designing stormwater infrastructure. Table 2-1 provides a summary of applicable regulations, permit requirements, and programs, and their relevance to the City.

Table 2-1. Summary of Federal, State, and City implemented regulations and programs related to storm and surface water management.

Law	Program	Intent	Relevance to the City's Stormwater Program
Clean Water Act / Federal	NPDES Phase II MS4 Permit (Ecology, 2018a)	Regulate stormwater and wastewater discharges to waters of the state, to protect and restore surface water quality.	The NPDES Permit authorizes the discharge of stormwater to surface and ground waters from Duvall's storm drainage system. The 2013-2018 NPDES Permit is in effect as of August 1, 2013 with the latest modifications effective as of January 16, 2015. The permit requires that the City implement a Stormwater Management Program and submit annual progress reports to the Ecology (City of Duvall, 2017a).
	Water quality standards (303(d) list) (Ecology, 2018b)	Protect and restore waters so they are suitable for fishing and swimming.	Every two years, states are required to submit a Water Quality Assessment for surface waters in the state to the EPA. The Ecology compiles water quality data and waters impaired by pollutants are placed on the 303(d) list. Water bodies on the list require a water cleanup plan, typically a total maximum daily load (TMDL) prepared by the Ecology, for each pollutant at levels greater than the water quality standards. TMDL projects can impose additional requirements on NPDES permittees. The City does not currently have any waters on the 303(d) list.
	Sections 401 (Ecology, 2018c) and 404	Protect water quality during project construction and operation in waterways	Activities that may discharge dredge or fill materials to Waters of the United States require a Section 404 permit from the U.S. Army Corps of Engineers. Any applicant for this permit must also obtain a 401 Water Quality Certification issued by the Ecology to confirm that the discharge will comply with state water quality standards.

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Law	Program	Intent	Relevance to the City's Stormwater Program
Tribal Agreements and Related Case Law / Federal	Tribal Consultation, for In-Water work, Biological Assessments, and other planning efforts and permits in Duvall	Protect fisheries and other natural resources / tribal resources	The City seeks input from Environmental and Natural Resources of the Snoqualmie Tribe during SEPA review and Shoreline Permit review for development proposals and programs with the potential to affect fish habitat and water quality such as projects involving in-water work and/or new stormwater outfalls. A representative of the Snoqualmie Tribe was a member of the Watershed Planning Advisory Group, which contributed to the development of the City's Watershed Plan, which informed the City's Comprehensive Plan Update process.
National Flood Insurance Act, Flood Disaster Protection Act / Federal	National Flood Insurance Program (NFIP) (FEMA, 2018)	Reduce threats to property and public safety from flooding.	The City administers regulations on development within the floodplain, primarily through DMC Chapter 14.84, but the NFIP identifies minimum standards that must be met to maintain program participation. In exchange for the City adopting these requirements, property owners can purchase flood insurance at considerably reduced rates.
Endangered Species Act (ESA) - Federal	Listing of Chinook salmon, steelhead, and bull trout as threatened species.	Prevent further decline of the species by regulating or prohibiting "take" of the species, and designating the species' critical habitat	Chinook salmon, steelhead and bull trout are federally listed as threatened species (since 1999, 2007, and 1999, respectively). All three species of fish are present in the Snoqualmie River. The City participates in Water Resources Inventory Area (WRIA) 7 salmon conservation planning through the Snoqualmie Watershed Forum and other programs. Surface and stormwater management implications for Chinook salmon, bull trout, Coho and other salmonid population habitats include: water temperature, pollutant loading, hydrologic changes, and spread of invasive/noxious plant species.

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Law	Program	Intent	Relevance to the City's Stormwater Program
	Snohomish Basin Protection Plan SBPP (Snohomish County Surface Water Management, King County Snoqualmie Watershed Forum, Tulalip Tribes Natural Resources Department, 2015).	Provide direction on recovery actions that will protect fish and wildlife habitat by protecting hydrology.	The 2015 SBPP examined tools that help support the goal of improving hydrologic processes, focusing on protection, not restoration. The City utilized this approach and protection tools by incorporating a watershed planning effort. The 2015 Comprehensive Plan contains goals and policies supporting salmon habitat, including removing existing (and preventing future) fish barriers.
	Snohomish River Basin Salmon Conservation Plan (Snohomish County Department of Public Works, Surface Water Management Division, 2005)	Develop a local salmon recovery response in coordination with regional efforts, focused on habitat protection and restoration.	The City is a member of the Snohomish Basin Salmon Recovery Forum (SBSRF), which adopted the Plan in 2005. The Plan presented a 50-year vision for salmon recovery and focused on specific goals to be accomplished over ten years. It contains specific recommendations for managing stormwater for salmon habitat and water quality protection.
State Environmental Policy Act (SEPA) - State		Identify and analyze probable environmental impacts of a proposal and modify or deny a proposal to avoid, reduce, or mitigate for these impacts.	The City reviews proposals and issues SEPA determinations. Any agency "action" that is not categorically exempt requires SEPA environmental review. Actions can include specific project actions such as the construction of a City facility, and non-project actions such as updates to stormwater regulations.
Shoreline Management Act (SMA) - State	City of Duvall Shoreline Master Program (SMP) (City of Duvall, 2016)	Protect shoreline resources (ecological, economic, aesthetic) and encourage shoreline land uses that enhance and conserve shoreline functions and values. Implemented by DMC Chapter 14.78.	The City is in the process of updating its Shoreline Master Program, last updated in 1974, to comply with SMA requirements. The SMP contains regulations for managing shoreline in the City. This includes where stormwater facilities may be located and measures required to minimize impacts of stormwater runoff within shoreline jurisdiction.
Hydraulic Code – State	Revised Code of Washington	Protect fish and their habitat	Since 1943, hydraulic projects that will "use, divert, obstruct, or change the natural flow or bed of state waters" must obtain a Hydraulic Project Approval (HPA) from Washington Department of Fish and Wildlife WDFW (Washington Department of Fish & Wildlife, 2018).

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Law	Program	Intent	Relevance to the City's Stormwater Program
Growth Management Act – State	City Comprehensive Plan, City zoning and critical areas regulations	Regulate land use and growth while providing essential public facilities and services and protecting sensitive environmental resources	The 2015 Duvall Comprehensive Plan and supporting municipal code regulations address surface and stormwater goals, BMPs, and regulations.
Puget Sound Partnership (PSP) - State	Action Agenda (Puget Sound Partnership, 2016)	Protect and restore habitat and economic resources in Puget Sound	The Action Agenda outlines strategies and specific actions needed to protect and restore water quality, quantity, and habitat, in Puget Sound, and the entire watershed. One of the Strategic Initiatives of the Action Agenda's Implementation Plan is to prevent pollution from stormwater runoff. Although the PSP has no regulatory authority, it creates funding incentives for advancing Puget Sound recovery goals. For example, stormwater retrofit efforts prioritizing restoration of natural stream flows and cool, unpolluted waters would contribute directly to meeting recovery targets established in the Action Agenda.

2.2 ACCOMPLISHMENTS SINCE 1997 STORMWATER MANAGEMENT PLAN

The following highlights City efforts, investigations, and capital improvements completed in the last 20 years:

2003: NPDES Permit regulations went into effect.

2003: City removed two Thayer Creek culverts in the Snoqualmie floodplain (within McCormick Park), restoring channel and surrounding riparian vegetation, replacing the culverts with precast concrete bridge spans.

2005: City installed two beaver deceivers in Coe-Clemmons Creek to discourage beaver dam construction that can obstruct fish migration in the stream.

2007: Ecology issued the Western Washington NPDES Permit. Requirements are phased in throughout the five-year permit period. Permit was modified in 2009 to be effective through July 31, 2013. Duvall implemented the following programs and policies as required by the NPDES Permit:

- Public education and outreach program to lessen behaviors and practices that cause or contribute to adverse stormwater impacts.

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- Illicit Discharge Detection and Elimination (IDDE) Program, including components for the public and Public Works Municipal Operations & Maintenance activities.
- Additions to the City's reporting efforts included: Public involvement and participation program, public hotline comment and reporting number, and the City's stormwater web page. Also included in these efforts - completing public notices, City Council presentations, and other public presentations; to collect, document, and implement public feedback.

August 2009: Adopted City Ordinance No. 1090, DMC Section 9.06.35, which addresses runoff from new development, redevelopment, and construction sites, while also prohibiting illegal discharges, and/or dumping into the stormwater system.

- Implemented a training program for staff responsible for implementing these new regulations.

August 2010: Adopted City Ordinance No. 1098 – adopting the 2009 KCSWDM.

2010: City received a grant from Snoqualmie Watershed Forum to remove knotweed along the Snoqualmie and in the floodplain.

2011: Carrie Rae Pond Retrofit. Utilized $155,020 in Stormwater Retrofit grant funding from Ecology. This project included retrofitting a 4,000-square foot pond that was constructed as a flow-through stormwater facility in 1985 and provided no water quality improvement or detention. The retrofit increased pond depth and volume to provide water quality and flow control within the existing pond footprint. Construction of this project began in 2012.

2011: Provided and maintained a non-emergency email reporting link on City's Stormwater/NPDES web page.

2011: Revised DMC Section 9.06.125 (Service Charges) to provide a stormwater fee discount for non-residential sites utilizing pervious surfacing and documenting annual maintenance of on-site stormwater facilities.

August 1, 2013: 2013 to 2018 NPDES permit went into effect. Requires an increased frequency of catch basin inspections, among other requirements.

2013: Preparedness Calendar: included a month dedicated to Stormwater education. Calendar was mailed to approximately 7,900 households in Duvall and the surrounding Snoqualmie Valley area.

2015: Taylor Park Wall Stabilization - Coe-Clemmons Creek flows through a ravine in Taylor Park with forested steep slopes. Upstream increases in runoff from developed areas have led to increased channel erosion and slope failure near a playground and basketball court in the park. The project installed a soldier pile wall immediately behind the top of the slope to stabilize the park area.

2015: Adoption of 2015 Watershed Plan and 2015 Comprehensive Plan addressing surface and stormwater goals, BMPs, and regulations.

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2015: Completed SR-203 Coe Clemons Creek Culvert replacement project in partnership with WSDOT. Project included removal of 6-foot wide sediment-filled box culvert and replacement with 25-foot wide fish-passable culvert.

2016: King County updated their Surface Water Design Manual, effective April 24, 2016, with new standards for low impact development (LID). Duvall Code adopts the "current version" of the Manual. Manual updated to "improve the clarity and cost effectiveness of its requirements" and be equivalent with the state's 2012 Stormwater Management Manual for Western Washington (amended in December 2014).

2016/2017: Bowe Court (private residential development) incorporated LID elements throughout – such as drywells, pervious pavers, and bioretention swales – to significantly reduce runoff from impervious surfaces, eliminating the need for a detention facility. This project, along with other initial development projects implementing LID approaches in the City, have been approved by Public Works. Integration of LID elements as privately owned stormwater BMPs requires implementation of an operations & maintenance program that is the responsibility of the developer.

2016/2017: Parkwood Estates Pond Retrofit project: Retrofit of an existing flow through stormwater pond that was originally constructed in 1986 as a single cell, asphalt-lined pond with little or no water quality BMPs. The new design included a water quality wetpond, removal of the pavement liner and replacement with vegetated slopes, a biofiltration swale to improve water quality, and retention of existing mature conifers.

February 21, 2017: Adopted Ordinance No. 1214 to DMC 9.06 (Storm Drainage Utility). Updated Stormwater regulations and restrictions to incorporate and require LID principles and LID BMPs, as required by the NPDES permit.

2017: Completed Thayer Creek Culvert replacements at SR-203 (Main Street) and NE 143rd Place crossings as part of the City of Duvall Main Street South reconstruction project. The project included removal of a 24-inch diameter culvert on SR-203 and a 30-inch diameter culvert on NE 143rd Place and replacement with 7-foot wide fish passable culverts at both locations.

Ongoing projects, programs, or partnerships:

- Snoqualmie floodplain wetland and stream restoration efforts:
  - There are several completed and ongoing restoration projects. Objectives include restoring shoreline bank conditions; removing invasive plants; installing native plants; enhancing fish habitat; improving water quality and hydrology functions in tributary streams; reducing sediment loading, erosion, and stormwater impacts to creeks; and stabilizing banks at key locations.
  - Restoring lower Coe-Clemens Creek and associated wetlands. Planting native vegetation in wetland and stream buffers (**2009**: planted a half acre of wetland and stream buffer along Depot Creek. Included a pervious concrete walkway.)
- Updating the GIS stormwater and facilities geodatabase.

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- Stormwater Outreach for Regional Municipalities (STORM) – education and outreach.
  - Formed the "Puget Sound Starts Here" campaign with Puget Sound Partnership.
  - Continued installation of "Puget Sound Starts Here" storm drain buttons.
- Growing network of stormwater facilities and catch basins (Table 2-2).

Table 2-2. Known (inventoried within City stormwater geodatabase) facility and catch basin counts, by year.

Year	Known Facilities	Known Catch Basins[1]
2010	82	1,590
2012	89	1,640
2014	100	1,871
2015	100	1,890
2016	125	2,206
2017	170	2,500

2.3 Challenges and Opportunities for Surface and Stormwater Management

The following section provides an overview of the complexities of managing stormwater within the City. This includes existing development and infrastructure, redevelopment, new development, and integration of LID or green infrastructure approaches.

Aging Infrastructure and Asset Management

Repair and replacement of aging and failing infrastructure is important to prevent catastrophic failures that may cause flooding or public safety hazards. The City implements facility inspection and maintenance consistent with NPDES Permit requirements (see summary in 2.1.1 for details). Opportunities for a more systematic, proactive asset management would support Public Works in maintenance and completing improvements to aging stormwater infrastructure. Approaches could include:

[1] The increase in known catch basins is attributed to improved mapping as well as installation of new catch basins as part of public and private projects throughout the City.

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- Implementing a City-wide asset management software tool.
- Standardized and digitized field inspection forms (tablet-based), linked to stormwater infrastructure database or software tool.
- Including long-term asset management costs in requirements for new facilities, through incentives encouraging LID or green infrastructure approaches.

This Plan is also implementing analysis to prioritize stormwater facility retrofit actions in areas of greatest need (see Chapter 5 - System Analysis for details). For other recommendations focusing on inspection, maintenance, and repair of infrastructure; see Chapter 8 - Operations and Maintenance.

A Shift Toward Low Impact Development

The NPDES Permit now requires permittees to adopt LID site-scale standards and update development related codes requiring use of LID principles and facilities. In addition, adoption of the Ecology's 2012 Stormwater Management Manual for Western Washington or approved equivalent is required (2016 KCSWDM is an approved equivalent). These manuals emphasize the incorporation of LID standards and have a new flow control performance standard for small projects of 2,000-square feet of new or replaced impervious surface. The City took initial steps toward compliance with new NPDES Permit requirements with adoption of Ordinance No. 1214 in early 2017, and is taking additional steps through development of this Plan.

The use of LID for stormwater management presents a significant shift from a purely structural approach for detention and treatment of runoff, to a source reduction approach (Washington State University Extension; Puget Sound Partnership, 2012). Traditional "grey" infrastructure does not encourage use of integrated site planning, resulting in significant impervious surface coverage which routes or conveys storm runoff through inlets, catch basins, and pipes to a centralized facility.

In urban developed areas, impervious surfaces such as parking lots, streets, sidewalks, and roofs have replaced areas that historically stored and infiltrated precipitation. Precipitation sheds off impervious surfaces and is collected in conveyance pipes, which is then routed to a facility or discharged directly to a receiving water body. Unless this runoff is properly managed, it contributes to high flow rates during storm events; increasing flooding, and threatening private property, roads, utilities, and other important infrastructure. High flows also damage and destabilize stream banks and habitat, making conditions less suitable for fish spawning, rearing and migration. Stormwater runoff also picks up pollutants from pollution generating impervious surfaces such as parking areas, roads, etc., degrading water quality when discharged directly to water bodies.

Alternatively, LID approaches emphasize site planning as an integral part of stormwater management. The intent of LID is maintaining "a more hydrologically functional landscape even in denser settings" (Washington State University Extension; Puget Sound Partnership, 2012). Figure 2-1 illustrates the differences in how precipitation moves through a natural, undeveloped area as opposed to typical developed areas. Integrating LID BMPs into developed areas restores some of the natural hydrologic functions resulting in improved water quality, reduced flooding, and reduced stream erosion.

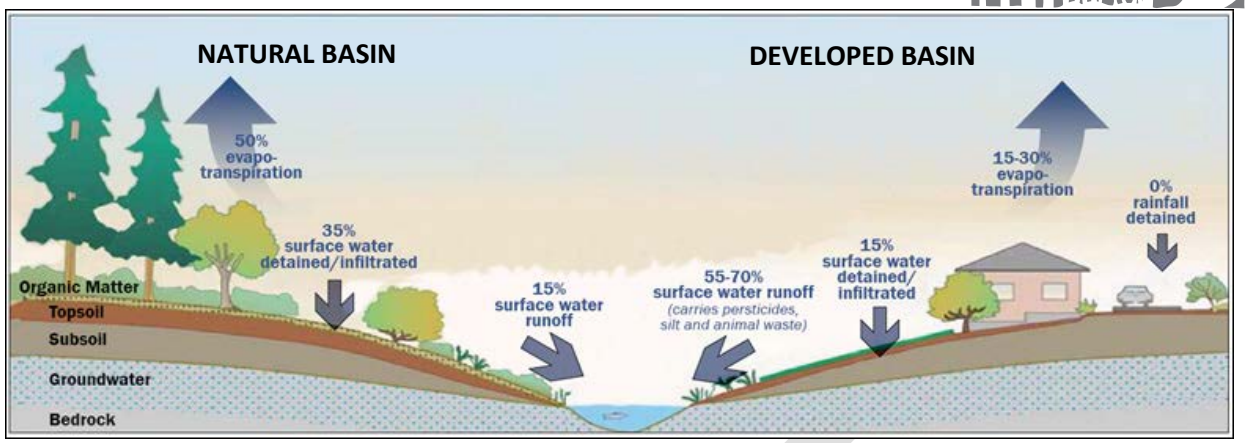

Figure 2-1. Water budget for Puget Sound lowlands, within a natural forested area and within a developed area (Washington State University Extension; Puget Sound Partnership, 2012)

Establish Flow Control Exemption

Section 1.2.3 of the KCSWDM allows a flow-control "Direct Discharge" exemption for projects that are within a quarter mile of a listed receiving water body and comply with several other requirements intended to minimize downstream impacts. Creating an extended flow control exemption in the City is consistent with policy recommendation SW-4 from the City's Watershed Plan and allowances provided by KCSWDM and NPDES Permit. This would affect portions of the City that are predominantly built-out and already drain directly to the Snoqualmie River through pipe or ditch conveyance.

Invasive Species Management

Invasive and noxious plant species are common in stormwater facilities. The King County Noxious Weed Control Board requires the control of several species of noxious weeds that may be found in facilities within the City, such as:

- purple loosestrife (*Lythrum salicaria*)
- policeman's helmet (*Impatiens glandulifera*).

Other invasive plants, not listed, can be damaging to the functioning of stormwater facilities including:

- Himalayan blackberry (*Rubus armeniacus*)
- Reed canarygrass (*Phalaris arundinacea*)
- Japanese knotweed (*Polygonum cuspidatum)*

Stormwater conveyance systems and stream corridors can be a vector for the spread of invasive plant species. Typical travel routes are from developed areas to downstream waters, or from agricultural areas into the City. Therefore, managing current invasive plants that are prevalent, and recognizing risks from other invasive species, is an important component of maintaining vegetated facilities. Control of invasive plant species maintains the proper function of facilities, and prevents spread to other aquatic resources.

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New Zealand mudsnail (a potential future threat): As of 2017, the New Zealand mudsnail has not been found in the Snoqualmie Watershed. However, they have been identified within several nearby areas (including in the lower Snohomish River near Everett, and in multiple basins draining to Lake Washington). The New Zealand mudsnail, as seen in Figure 2-2, is a non-native species that has no natural predator, parasite, or disease to control population size in North America. Although the full understanding of implications for Puget Sound lowland streams remains unknown, the species can multiply very quickly and has the potential to become a serious economic and ecological problem (King County, 2016). They are known to reproduce to extremely high densities, crowding out native vegetation, insects, fish, and potentially changing water chemistry. City staff should continue to monitor the presence of New Zealand mudsnails within vicinity streams and basins. Coordination with King County to take necessary preventative steps to minimize potential for spread into the Snoqualmie River and tributary basins is recommended.

Figure 2-2. Invasive New Zealand mudsnail. Photo: Elaine Thompson, AP

Targeted Residential Property Owner Outreach

The City currently implements public education and outreach that targets property owners. Review of current efforts, and focused updates to target residential property owners may be the most effective way to improve stormwater practices and reduce runoff from areas of existing development. Single family homes are by far the most prevalent throughout the City. Potential approaches could include:

- New guidance and outreach focused on natural yard care, including integration of stormwater pollution prevention information sheets for residential uses developed by King County (King County, 2016a).
- Implementing rain garden resources and incentives program (in partnership with Stewardship Partners).

- Supporting pilot projects with interested property owners, with agreement to serve as educational examples for others.

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CHAPTER 3. WATERSHED AND LAND COVER CONDITIONS

Duvall is located immediately east of the Snoqualmie River within the lower Snoqualmie River Valley. The 692-square mile lower Snoqualmie River Watershed, and the Skykomish River Watershed to the northeast, make up Water Resource Inventory Area (WRIA) 7. These two rivers converge approximately five miles north of Duvall, forming the Snohomish River, which flows into Puget Sound at Everett.

The 2.5-square mile City is surrounded by unincorporated areas of King County, with agricultural areas and open space floodplain to the west and north, and forested rural lands to the south, east, and southeast. The basins of four small tributaries to the Snoqualmie River are located within or partially within the City and urban growth area (UGA) boundaries: Thayer Creek, Coe-Clemons Creek, Cherry Creek, and Weiss Creek. The City's Watershed Plan further divided these basins into subbasins, representing relatively small catchments where precipitation and groundwater move through natural features and stormwater infrastructure.

This chapter assesses Duvall's basins and subbasins, including consideration of surface waters and other natural resources, geologic conditions, land cover, and known basin alterations. This chapter concludes with identification of prioritized subbasins for surface and stormwater retrofit actions.

3.1 GEOLOGIC CONDITIONS

Geologic conditions are a key element determining how surface water moves through the hydrologic cycle, Figure 3-1. The specific land form and soil conditions affect how much precipitation infiltrates and how much runs off into surface waters. Additional geologic processes such as groundwater aquifer recharge, soil erosion, and landslides are also key geologic considerations related to surface and stormwater management.

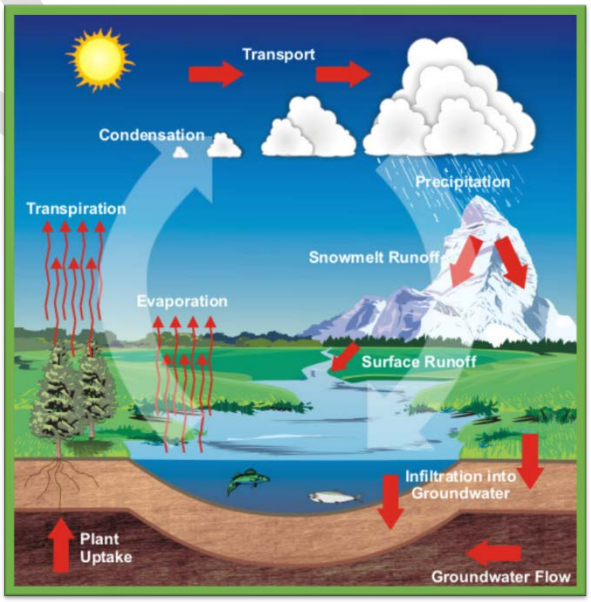

Figure 3-1. Hydrologic Cycle

According to the report titled *Geohydrology and Ground-Water Quality of East King County* (Turney, Kahle, & Dion, 1995), the topographic surface of the area surrounding the City is the result of erosion and deposition from the Vashon Stade of the Fraser Glaciation which ended approximately 15,000 years ago. Topography of the 1-mile wide Snoqualmie River

Valley is a result of recent erosion and deposition of alluvial sediments associated with the river since deglaciation.

Duvall is located on the east valley slope of the lower Snoqualmie River, which flows northward past the community. In general, the City slopes down to the west from an upland plateau at approximately elevation of 500 feet above sea level to the Snoqualmie River floodplain at approximate elevation of 50 feet above sea level.

Approximately 138 acres of the City is located within the Snoqualmie River floodplain; these areas are predominantly City-owned open space and park lands with very little pollution generating impervious surfaces (PGIS). The remainder of the City includes residential, commercial, and undeveloped properties. The western and northern slope of the City transition from Puget Sound lowlands to the foothills of the Cascades.

3.1.1 Soil Conditions

Mapped soils are consistent with this characterization of the geologic history. According to recent geologic mapping by the Washington State Department of Natural Resources (Dragovich, et al., 2010), soils within the Snoqualmie River floodplain include alluvium (Qa) composed of sand and silt and peat (Qp) deposited since deglaciation (Figure 3-2).

Extremely compacted glacial deposits can be found at the surface east of the Snoqualmie River in a mapped geologic cross-section located south of the City, which is likely similar to subsurface conditions within the City. Deposits from glaciation and subsequent events occur as layered lenses that outcrop on the surface at different elevations and locations. These deposits sit in relatively thin lenses above older glacial (Pre-Fraser) and nonglacial deposits and bedrock.

The dominant sedimentary deposit in the City east of the Snoqualmie River is Vashon lodgment till (Qgtv), a mixture of clay, silt, sand, and gravel that was deposited beneath, and consolidated by, glaciers as they advanced to the south across the Puget Sound lowlands. At the northern slopes of the City the glacial till is underlain by Vashon advance outwash (Qgav), composed of sand and gravel deposited in meltwater streams and deltas and then consolidated during glacial advance. The glacial till and Advance Outwash are underlain by Advance glaciolacustrine deposits (Qglv), which include silt and clay that were deposited in lakes and other bodies of water in front of advancing Vashon glaciers.

Less common geologic deposits include recessional deposits such as Ice-contact kame deposits (Qgik) with generally higher sand, gravel, and cobble gravel soil that were deposited as the Vashon glaciers receded. Areas along the northern slopes are also mapped as Landslide deposits (Qls) since deglaciation.

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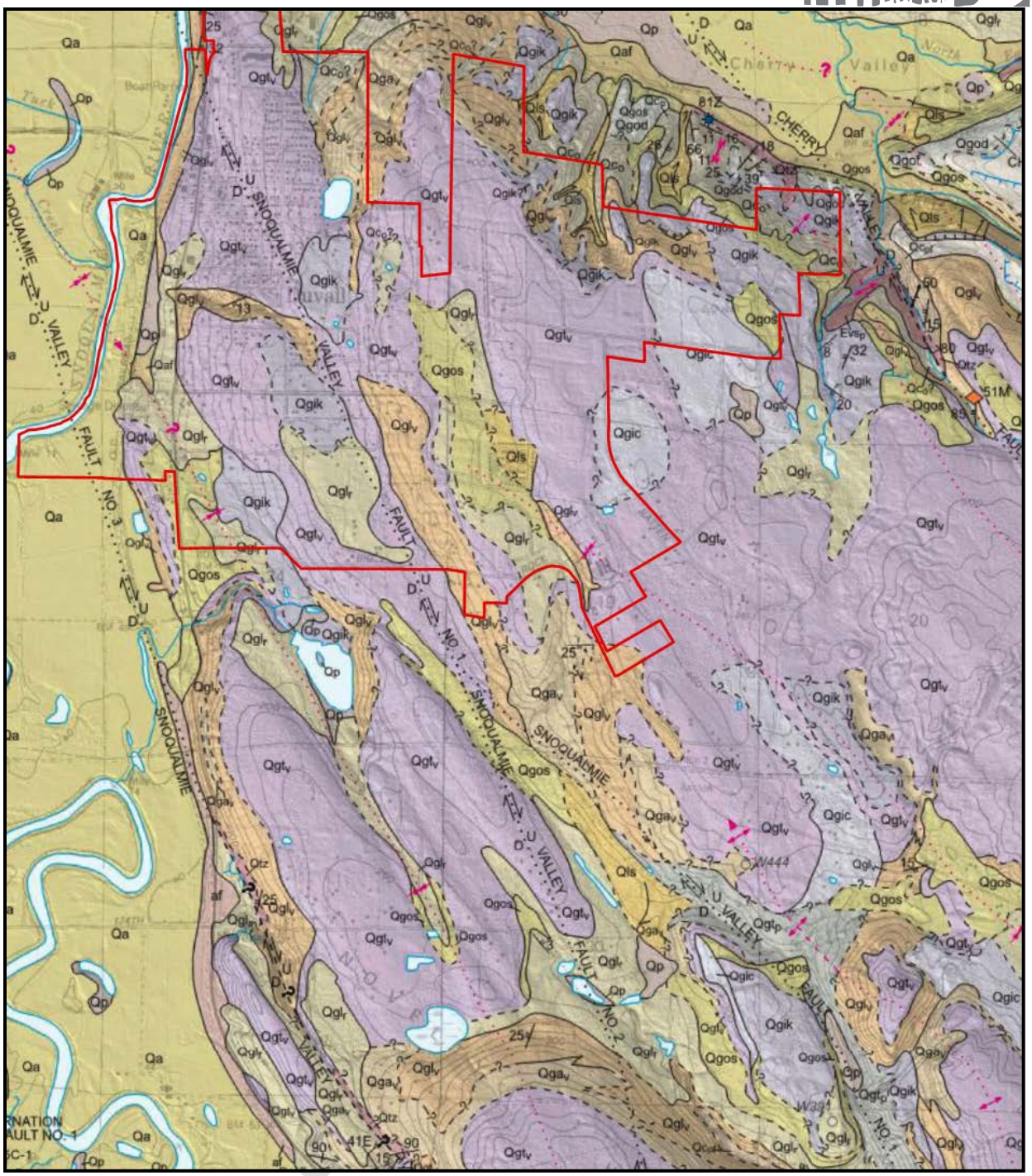

Figure 3-2. Geologic Map with Duvall City limits (in red) and surrounding area; the dominant geologic deposits across Duvall and surrounding areas east of the Snoqualmie River Valley are Vashon lodgment till (Qgtv, extending through purple shaded areas).

According to the Natural Resources Conservation Service (NRCS) soil survey, the dominant surface soil type in the City is Tokul gravelly medial loam. This soil is categorized in Hydrologic Soil Group B, which represents soils with moderate infiltration ability. The soil survey also indicates that this soil group is

subject to a relatively shallow soil restrictive layer (NRCS). Previous site-specific studies performed in the City identified porous outwash soil above fractured bedrock and alluvium along major streams, as well as alluvium throughout the floodplains of the Snoqualmie River and Cherry Creek (City of Duvall, 2015).

3.1.2 Erosion and Landslide Hazards

Soil erosion is a natural geologic process by which individual soil particles are detached and moved by agents such as wind, rain, frost action, or surface water flows. Mass erosion, such as landslides, is also a natural geologic process. Erosion and movement of sediment through the landscape and within surface waters is an essential process that supports creation of stream, wetland, floodplain and riparian habitats.

In developed areas, however, erosion can be exacerbated by changes in land cover and concentration of storm runoff. Erosion and landslides adjacent to developed areas can also be a safety hazard. Runoff from impervious surfaces results in concentrated storm flows which in turn can result in excess eroded sediment entering surface waters. Excess eroded sediment can negatively impact ecosystem functions, adding additional fine sediments to stream beds that degrade salmon spawning habitats. Increased stream sediment loads can also plug culverts at road crossings, limiting conveyance capacity, restricting fish passage, and increasing the potential for infrastructure damage during storm events. A recent example of this was the undersized, 6-foot by 6-foot culvert where Coe-Clemmons Creek crosses beneath Main Street, Figure 3-3. The culvert was too small for the size of the stream flow through the culvert was further restricted by increased sediment and debris loads from upstream erosion within Taylor Park until the culvert was replaced in October 2015 with a much larger (25-feet wide by 12-feet high) culvert.

Figure 3-3. 2012 Coe-Clemmons Creek culvert replacement project under SR-203. Inset: Old Coe-Clemmons Creek fish barrier culvert, prior to project.

Recent Sensitive Areas inventory updates completed by the City have identified known landslide hazard areas, and other potential landslide and erosion hazard areas within and surrounding the City (Figure 3-5).

EXHIBIT 2

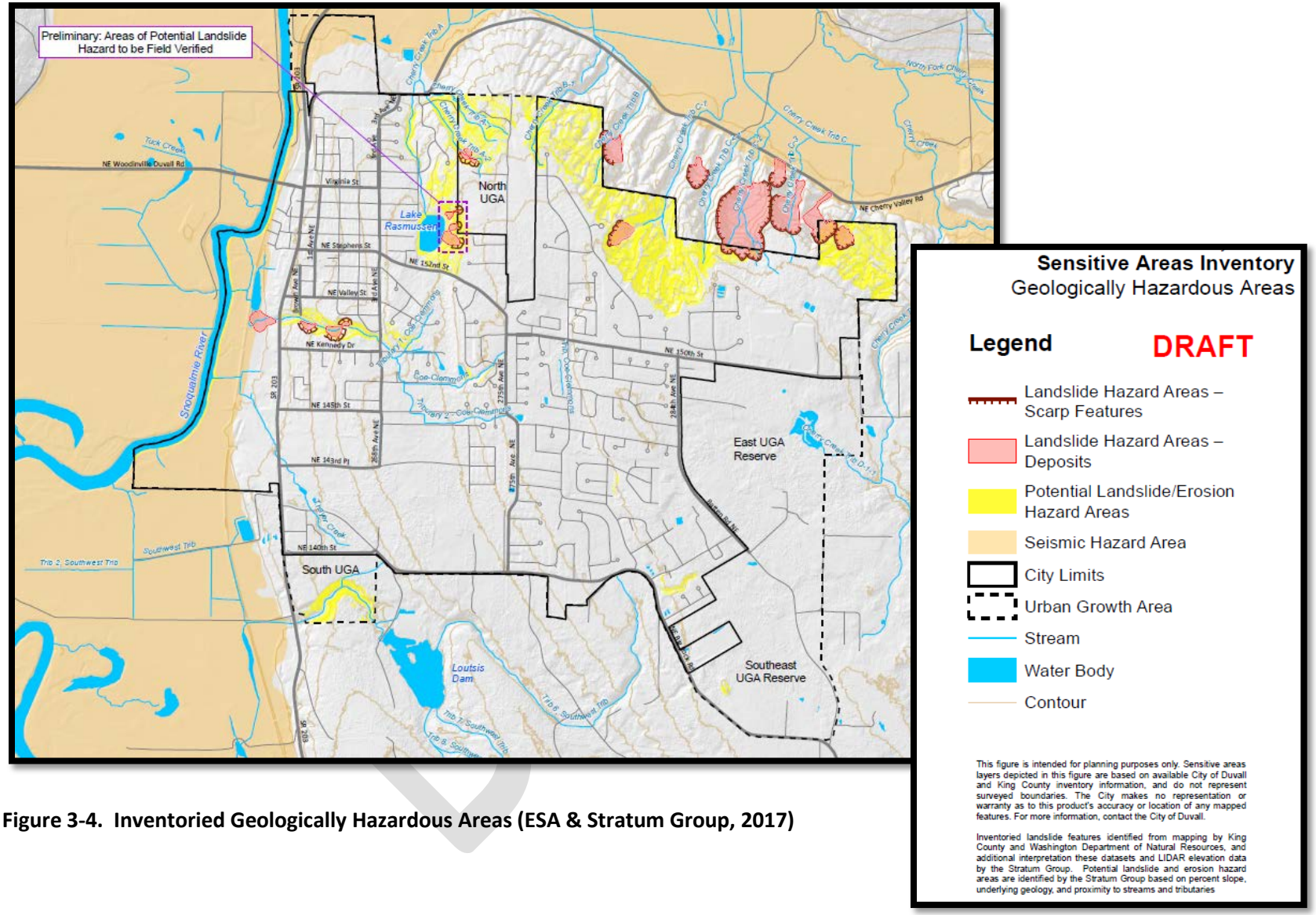

Figure 3-4. Inventoried Geologically Hazardous Areas (ESA & Stratum Group, 2017)

Areas of higher potential for land erosion hazard areas occur within the City, in UGAs, and in surrounding rural areas. The largest concentration on steeper slopes along the northeastern edge of City limits, as well as the Coe-Clemmons Creek ravine.

King County has mapped some areas inside and outside of City limits as being prone to landslides (Dragovich, et al., 2010); (King County, 2017). Additional areas with a history of shallow landslides and inventoried erosion hazards are in Taylor Park where stream incision and stream bank erosion along Coe-Clemmons Creek resulted in recent ravine slope failures. Similar features are present along similar ravine slopes in lower reaches of the Unnamed Southern Tributary to the south of City limits. There are no other significant mapped landslide hazard areas located elsewhere within the City or UGAs.

3.1.3 Constraints and Opportunities for Surface and Stormwater Management

Key geologic considerations for stormwater and surface water management include the following:

Limited opportunity for full infiltration LID approaches – Generally, the predominance of relatively low-permeability till soils in Duvall does not support full infiltration BMPs. However, infiltration is feasible in areas of advance outwash and other relatively permeable deposits. These areas have the dominant soil type, Tokul gravelly medial loam, and having adequate depth may accommodate an engineering stormwater design. Experience from project-specific geotechnical explorations suggest that in many areas of the City adequate depths are not available to provide full stormwater infiltration. However, it has been determined by City staff that limited infiltration techniques can be incorporated into stormwater design based on site specific characteristics.

In many areas of the City, the subsurface low permeability glaciolacustrine and till deposits inhibit deeper infiltration from Tokul gravelly medial loam surface soils into the subsurface, and in certain instances may also limit opportunities for underground injection approaches. In several areas of the City infiltrated water is conveyed laterally within shallow advance outwash lenses confined by relatively impermeable till and glaciolacustrine deposits, resulting in springs and seeps emerging on hillslopes and ravines along the northern and western sides of the City. In some locations, the underlying bedrock is likely to be fissured, allowing for deep groundwater recharge at relatively low, variable, infiltration rates.

Erosion potential – Presence of erosive soils and landslide hazard areas heighten the need for effective stormwater flow control approaches and facilities in the Cherry Creek tributary basins and the Coe-Clemons Creek basin. There are several resources that are susceptible to impacts from erosion and sedimentation including tributary streams, floodplain habitats, and the mainstem Snoqualmie River.

There are also steep, erosive slopes along the northern edge of the City, and incised streams forming ravines along the western boundary. Excessive water flowing down these slopes can form gullies and increase ravine erosion, which may result in soil wasting, downstream sedimentation, habitat degradation, and infrastructure impacts.

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Protection of headwater features – Areas within the City and the associated UGAs have mapped surface soils that include higher amounts of silt, clay, organic silt-clay, and minor peat content. These soil types are generally appropriate for wetland formation. Correlation between geologic mapping of these areas and areas of known depressional wetlands within the upper portions of the City's subbasins has not been reviewed. It remains important to ensure future development maintains soils that could support headwater wetlands. This action will reduce peak flows to downstream channels and provide important habitat and water quality functions.

3.2 CLIMATE

The region has a temperate, maritime climate. Winters are cool and wet, while there is typically a drought period in the summer and early fall. The climate is influenced by Puget Sound to the west and the Cascade Mountains to the east. Average annual precipitation ranges from approximately 30 inches near Puget Sound to 90 inches in the Cascade foothills, with the area surrounding the City averaging 49 inches. Figure 3-5 shows average monthly precipitation as well as low and high temperatures near the City. Most precipitation falls between October and March, where summers typically remain relatively dry. In Duvall and other lowland areas, winter temperatures dip below freezing and snow may occur but are usually of short duration (Franklin & Dyrness, 1987).

Runoff processes influencing surface and stormwater systems are a function of the timing and type of rainfall. Well upstream of Duvall in the Cascade Mountains, Snoqualmie River headwater streams receive a large proportion of their total annual runoff from snowmelt. At mid to high elevations within the watershed between 1,500 and 4,500 feet elevation, rain on snow (ROS) events play an important role in runoff. Below approximately 1,500 feet elevation, including the Snoqualmie Valley basins, rainfall is the principal source of precipitation (Brunengo, Smith, & Bernath, 1992); (Bethel & Solomon, 2004).

Increases in rainfall intensity and altered seasonal precipitation patterns are anticipated within the next several decades due to accelerated climate change. Climate change in the overall Snoqualmie Basin has been modeled extensively by the University of Washington Climate Impact Group and the National Oceanic and Atmospheric Administration (Battin, et al., 2007); (Yang, Wang, Voisin, & Copping, 2015). Predicted effects include increases in the magnitude of peak flows, changes in the timing of seasonal flow peaks, prolonged and persistent low flows, reductions in summer flows, and increased stream temperatures. These effects would place even greater strain on water quality, threatened salmon populations, drinking water supplies, and flood prone areas.

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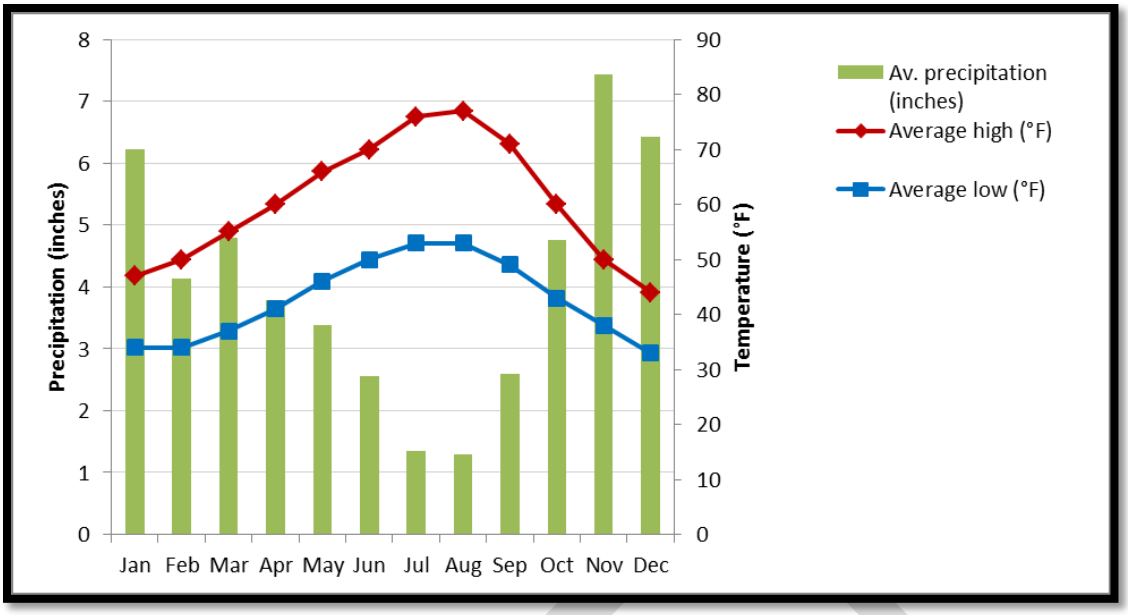

Figure 3-5. Average monthly precipitation and low/high temperatures in the Duvall vicinity (U.S. Climate Data, 2018).

3.3 LAND COVER

Land cover plays an important role in protecting and maintaining watershed processes. Native vegetation provides habitat, reduces erosion, intercepts runoff, and provides water quality benefits. Additionally, significant trees and tree cover are an important part of the City's rural character. The City has recognized the importance of preserving and replacing trees and other native vegetation in various policy documents, including the KCSWDM, adopted by reference, the Watershed Plan (City of Duvall, 2015), and 2018 Tree Protection Policy (DMC 14.40).

3.3.1 HISTORIC CHANGES TO LAND COVER

The hydrology and ecology of the study area have been shaped by historical landscape use. European settlers were drawn to the area starting in the 1870's for its timber resources and used the Snoqualmie River to transport logs downstream to commercial markets. The railroad was constructed in the 1890's on a 12- to 15-foot-tall fill berm that stretched along the eastern edge of the Snoqualmie River, adjacent to the City's modern day Main Street. In the following decades, bridges were constructed over the Snoqualmie River along with roads built on fill berms in the floodplain to connect the area with Lake Sammamish and Lake Washington. The growth of the timber industry and the expanded population brought about rapid changes in vegetative cover and character. These changes included clearing of forest to create agricultural fields and harvesting of old-growth forest and establishment of second-growth forest. Population growth continued through the 1920's, after which the decline of the timber industry in the area minimized the need for laborers.

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After the 1920's the pattern of alterations to the Snoqualmie Valley landscape was characterized by clearing native shrubs and riparian vegetation, ditching of streams, land clearing to create pasture, and bank hardening along the Snoqualmie River. In the last 50 years, expanding suburban development from Seattle and Bellevue have led to growth in the City and throughout the Snoqualmie Valley. Agricultural activities are an important component of the economy and land use, with cattle and dairy operations, produce and crop farms, and greenhouse operations extending up and down the Valley. These activities have increased residential housing and associated businesses that have come to characterize the City and other urbanized areas of the watershed.

3.3.2 VEGETATION

Protecting native trees and contiguous forest areas benefits multiple watershed processes, including water flow, water quality, and habitat. All aspects of water flow processes, including delivery, surface storage, recharge, and discharge benefit from increased canopy cover and more mature vegetation. Vegetation improves water quality processes by increasing the opportunity for filtration and reducing the potential for erosion and sedimentation. This is particularly important in sensitive areas such as stream buffers and wetlands.

Riparian vegetation consists of the plants that grow along the margin of streams, lakes, and wetlands. Out of 107 miles of riparian area surveyed in the Snohomish basin, it was found that nearly two-thirds of the riparian vegetation consisted of grass, brush, or sparse trees. The loss of riparian vegetation within the City has impacted salmonid habitat by reducing the food supply for fry, increasing solar heating of the water, and reducing cover and refuge habitat.

3.4 DUVALL BASINS AND SUBBASINS

3.4.1 SURFACE WATERS AND NATURAL RESOURCES

The City delineated 17 subbasins to more precisely characterize watershed conditions as part of the City of Duvall Watershed Plan, as seen in Figure 1-1 of this Plan (City of Duvall, 2015). The current study focuses on those subbasins that include City limits and UGAs. These basins range in size from 98 to 457 acres, varying in forest and impervious surface cover, and generally correspond to first-order streams and specific topographic boundaries as summarized in Table 3-1.

The primary basins making up much of the City and surrounding areas include the: Cherry Creek basin; Duvall Tributaries (Coe-Clemmons Creek, Thayer Creek, and an unnamed tributary); and Weiss Creek basin. These basins ultimately drain to the Snoqualmie River.

The shape and size of the subbasins are related to the morphology of the subbasin and its drainage pattern. Several subbasins extend outside of City or UGA boundaries. Areas outside of UGA boundaries were included in the Watershed Plan analysis to help understand the connection between actions taken either inside or outside the City's jurisdiction and watershed processes. The areas outside of City limits

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are either headwaters or receiving waters. Headwater areas can provide information on the quality or quantity of water coming into the City or UGA, while receiving water areas are impacted by actions occurring within City and UGA boundaries.

For the City's Watershed Characterization, an evaluation of water flow (hydrologic) processes was completed for all subbasins based on the Washington State Department of Ecology's Puget Sound Characterization model (City of Duvall, 2015). Relative importance and degradation of water flow processes were determined for key water flow processes.

Table 3-1. Subbasin Summary

Subbasin Name	Landscape Position	Total Area (acres)	Percent Within City*	Forest Cover (%)	Impervious Surface (%)
Cherry Creek Tributaries Basin					
Cherry Creek Floodplain	Floodplain	865	1%	5%	3%
Cherry Creek A*	**Slope / Ravine**	**264**	**55%**	**44%**	**24%**
Cherry Creek B*	**Slope / Ravine**	**158**	**46%**	**62%**	**15%**
Cherry Creek C*	**Slope / Ravine**	**457**	**59%**	**71%**	**11%**
Cherry Creek D – East	Slope / Ravine	288	< 1%	56%	4%
Cherry Creek D – West	Terrace	166	< 1%	55%	6%
Duvall Tributaries Basin					
Old Town*	**Slope / Ravine**	**146**	**88%**	**11%**	**43%**
Coe-Clemons – Lower*	**Slope / Ravine**	**98**	**100%**	**27%**	**43%**
Coe-Clemons – Upper*	**Terrace**	**273**	**100%**	**26%**	**43%**
Thayer*	**Slope / Ravine**	**235**	**92%**	**24%**	**29%**
Coe-Clemons / Thayer Floodplain*	**Floodplain**	**663**	**13%**	**7%**	**3%**
Unnamed Southern Tributary – Lower*	**Slope / Ravine**	**373**	**42%**	**40%**	**17%**
Unnamed Southern Tributary – South	Slope / Ravine	158	0%	70%	7%
Unnamed Southern Tributary – Upper*	**Terrace**	**327**	**36%**	**54%**	**18%**
Weiss Creek Basin					
Weiss Creek – Upper*	**Terrace**	**207**	**4%**	**42%**	**11%**
Weiss Creek – Middle	Slope / Ravine	587	0%	54%	8%
Weiss Creek – Lower	Slope / Ravine	1273	0%	63%	7%

*Subbasins within the City and associated UGAs are highlighted and shown in **Bold**

3.4.2 CHERRY CREEK BASIN

Cherry Creek is the lowest significant tributary of the Snoqualmie River and the only significant tributary that drains areas of the City. The Cherry Creek watershed covers approximately 32,000 acres, but less than 2% (percent) of the total watershed falls within City and UGA boundaries. Cherry Creek tributaries drain the northeastern portion of the City to the north mainstem creek.

Alterations to the tributaries of Cherry Creek within the City and UGA can impact the high conservation value mainstem and associated floodplain to the north. High to moderate degradation is observed in tributaries A and B, where development is more extensive as summarized in Table 3-2. Tributaries C and D still have low levels of development and many watershed processes are still intact.

Table 3-2. Cherry Creek Subbasin Summary

Subbasin Name	Watershed Plan Management Group	Area (acres)		Impervious Surface within the City (%)			
		City	UGA	non-PGIS	PGIS	Total	Directed to a Stormwater Facility
Cherry Creek A	Lowest Conservation (2C)	146	64	15%	15%	30%	80%
Cherry Creek B	Moderate Conservation (2B)	72	23	46%	62%	15%	100%
Cherry Creek C	Highest Conservation (2C)	272	20	59%	71%	11%	100%
Cherry Creek D - West	Highest Conservation (2C)	0.3	129	NA - very small area within the City			100%

Note: non-PGIS (pollution generation impervious surface) includes walkways/sidewalks, roofs, patios/concrete pads, and decks; PGIS includes roadways, driveways, and parking lots.

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Cherry Creek A

Subbasin Cherry Creek A is located on the northern edge of the City, extending through residential areas to the southeast and north of Lake Rasmussen, and north into agricultural areas of King County outside of City jurisdiction. The subbasin also includes the majority of the North UGA, including forested areas, tributary stream channels, and wetlands.

Subbasin Characterization	
Acres	264
Within City	55%
Within UGA	24%
Predominant uses	Single-family residential; rural residential and vacant lots in North UGA
Streams	Cherry Creek Tributary A (flows from Lake Rasmussen), Tributaries A-1 and A-2
Soils and Geology	Some steep slopes and moderately well drained soils categorized in Hydrologic Soil Group (HSG) B.
Erosion and Landslide Hazard Areas (within City and UGA)	28% mapped as erosion hazard, extending from Lake Rasmussen to northern City limits, and into North UGA along tributary channels. No mapped landslide hazards.

Basin topography slopes generally north down to the Cherry Creek Valley. The southern portion around Lake Rasmussen occurs as a terrace, and slopes increase moving north.

The following summarizes existing conditions and importance for key processes relevant to surface and stormwater management as summarized from the City of Duvall Watershed Plan (City of Duvall, 2015):

Surface Storage: Subbasin features provide moderate surface storage during storm events, mostly provided by the man-made, 5.5-acre Lake Rasmussen and depressional wetlands in the upper portion of subbasin. Lake storage processes are minimally degraded despite the existing intensity of development within the City, due to retention of existing wetlands and the lake.

Groundwater and Base Flow Maintenance: There are relatively few areas of permeable soils, and higher levels of impervious surface except in the North UGA area that further limit groundwater recharge. Slope wetlands occur around Cherry Creek Tributaries A-1 and A-2 on the forested slopes in the northern portions of the subbasin; however overall there are relatively few features that maintain stream base flows.

Water Quality: Steep slope areas in the northern portion of the subbasin have high export potential for phosphorus and sediment. Runoff from developed areas has likely increased pollutant inputs to subbasin and downstream areas, as well as channel erosion along Cherry Creek Tributary A. Lake Rasmussen and depressional wetlands within the upper subbasin do provide some filtration and sediment deposition for runoff.

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Cherry Creek B

Subbasin Cherry Creek B is located on the northern edge of the City, extending through a residential subdivision at Manion Way NE and 277th Place NE construction in 1995-1996, and north into forested, steep slope open space areas that extend to City limits. The subbasin also includes the eastern portion of the North UGA, including rural residential and forested properties.

Subbasin Characterization	
Acres	158
Within City	46%
Within UGA	15%
Predominant uses within Duvall	Single-family residential, rural residential in North UGA, and vacant lots
Streams	Cherry Creek Tributary B
Soils and Geology	Some steep slopes and moderately well drained soils characterized in HSG B.
Erosion and Landslide Hazard Areas (within City and UGA)	No mapped erosion hazards. 6% mapped as landslide hazard, occurring on forested slopes in the northern portion of the subbasin.

Basin topography slopes generally northeast down to the Cherry Creek Valley, with grade increasing through forested open space areas.

The following summarizes existing conditions and importance for key processes relevant to surface and stormwater management as summarized from the City of Duvall Watershed Plan (City of Duvall, 2015):

Surface Storage – This subbasin is of lower importance for surface storage processes and has limited storage opportunity due to steep slopes and lack of wetlands. What surface storage is available is provided by a depressional wetland at the southern edge of the subbasin and is minimally degraded.

Groundwater and Base Flow Maintenance – This subbasin has features that are very important for groundwater recharge and base flow maintenance processes. Permeable soils account for 7% of the subbasin; however, groundwater infiltration is moderately degraded due to higher impervious surface cover within the residential areas. Base flow maintenance processes are likely to be more intact, occurring primarily in forested open space areas.

Water Quality – Potential water quality issues relate to extensive steep slope areas below developed areas with high sediment and phosphorus export potential. The large depressional wetland at the southern edge of the subbasin provides filtration and retains sediment, as do existing stormwater facilities.

Existing stormwater infrastructure (developed in 1995 consistent with 1990 KCSWDM standards) likely provide minimal water quality treatment; but may not fully address water quantity and flow control. Stormwater retrofits and future residential development in the North UGA could provide opportunity to improve water quality and flow control, including potential infiltration approaches.

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Cherry Creek C

Subbasin Cherry Creek C covers the northeastern arm of the City, including residential subdivisions on286th Ave NE and Cedarcrest High School, and extends north into steeply sloped vacant forested areas to City limits, and beyond into forested and rural county residential areas.

Subbasin Characterization	
Acres	457
Within City	59%
Within UGA	4%
Predominant uses within Duvall	Single-family residential, Cedarcrest High School, protected open space
Streams	Multiple Cherry Creek Tributary C channels
Soils and Geology	Areas of very steep slopes. Soils can be slowly drained (HSG C) or moderately well drained (HSG B).
Erosion and Landslide Hazard Areas (within City and UGA)	20% mapped as erosion hazard and 32% mapped as landslide hazard, occurring on forested slopes in the northern and eastern portions of the subbasin

Basin topography slopes generally northeast down to the Cherry Creek Valley, with slopes increasing through forested areas.

The following summarizes existing conditions and importance for key processes relevant to surface and stormwater management as summarized from the City of Duvall Watershed Plan (City of Duvall, 2015).

Surface Storage – This subbasin is of low importance for surface storage processes due to a predominance of steep slopes and only one percent of the subbasin surface area being occupied by wetlands. Surface storage was historically provided by a depressional wetland at the northern end of the Subbasin, which has been largely degraded by surrounding development.

Groundwater and Base Flow Maintenance – This subbasin is highly important for groundwater recharge processes, with 36% permeable soils that support recharge. Slope wetlands are present in forested areas. Infiltration to groundwater is moderately degraded within the southern portion of the subbasin due to high impervious surface cover; this process remains intact throughout undeveloped areas. Base flow maintenance processes are of lower importance due to the subbasins position in the watershed.

Water Quality – This subbasin has relatively high sediment export potential due to the erodibility of slopes and tributary channels. Extensive steep slopes in the northern subbasin have high export potential for phosphorus and sediment. Recently developed areas (large subdivisions and Cedarcrest High School) likely provide adequate water quality treatment but impact flow quantity and timing.

3.4.3 DUVALL TRIBUTARIES BASIN

The Duvall Tributaries basin covers approximately 2,500 acres within the study area and discharges into the Snoqualmie River. The majority of the associated subbasins are highly developed and watershed processes are heavily degraded. The importance of these subbasins for surface storage, groundwater and

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base flow, and water quality tends to be low to moderate. Fish and wildlife habitat is moderate to high, which is primarily due to salmonid use of tributaries that feed into the Snoqualmie River. Only the largely undeveloped Coe Clemons/Thayer Floodplain subbasin retains the most watershed processes.

The majority of the subbasins within the Duvall Tributaries Basin are developed, and watershed processes are heavily degraded. Surface storage, groundwater and base flow, and water quality importance tend to be low to moderate. Fish and wildlife habitat is moderate to high, which is primarily due to salmonid use of tributaries that feed into the Snoqualmie River. Only the Coe Clemons / Thayer Floodplain subbasin, located along the western edge of the city and extending into agricultural lands within King County jurisdiction to the south, retains many watershed processes because it is largely undeveloped as summarized in Table 3-3.

Table 3-3. Duvall Tributaries Subbasin Summary

Subbasin Name	Watershed Plan Management Group	Area (acres)		Impervious Surface within the City (%)			
		City	UGA	non-PGIS	PGIS	Total	Directed to a Stormwater Facility
Old Town	Urban Development (3)	129	10	18%	23%	41%	29%
Coe-Clemons - Lower	Urban Development (3)	98	0	14%	22%	36%	29%
Coe-Clemons - Upper	Urban Development (3)	273	0	19%	16%	36%	92%
Thayer	Urban Development (3)	215	5	9%	16%	25%	64%
Coe-Clemons / Thayer Floodplain	Protect / Restore (1)	84	0	<0.1%	0.15%	0.15%	98%
Unnamed Southern Tributary - Lower	Lowest Conservation (2C)	156	35	13%	13%	26%	87%
Unnamed Southern Tributary - Upper	Lowest Conservation (2C)	117	19	15%	15%	30%	92%

Note: non-PGIS (pollution generation impervious surface) includes walkways/sidewalks, roofs, patios/concrete pads, and decks; PGIS includes roadways, driveways, and parking lots.

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Old Town

The Old Town subbasin is located on the northwestern edge of the City, encompassing historic downtown area. The subbasin is primarily commercial and single family residential with some remnant agricultural land at its northern tip.

Basin topography slopes generally westward to the Snoqualmie River.

The following summarizes existing conditions and importance for key processes relevant to surface and stormwater management as summarized from the City of Duvall Watershed Plan (City of Duvall, 2015).

Subbasin Characterization	
Acres	146
Within City	88%
Within UGA	7%
Predominant uses within Duvall	Commercial
Streams	East bank Snoqualmie River
Soils and Geology	Areas of moderate slopes with moderately well drained soils categorized in HSG B.
Erosion and Landslide Hazard Areas (within City and UGA)	17% mapped as erosion hazard, occurring south of Main St, in the center of the subbasin. No mapped landslide hazards.

Surface Storage – This subbasin is of low importance for surface storage processes and has limited storage opportunity due to slopes and existing infrastructure and development patterns. The subbasin contains almost no wetlands (0.1%) and previous development has resulted in piped and ditched stormwater conveyance directly to the river.

Groundwater and Base Flow Maintenance – This subbasin has features that historically were moderately important for groundwater recharge and base flow maintenance processes. However, these processes have been highly degraded. Permeable soils account for 14% of the subbasin; however, groundwater infiltration is highly degraded due to extensive imperious surface cover and altered flow pathways.

Water Quality – This subbasin is important for water quality due its direct discharge of stormwater to the Snoqualmie River. The subbasin has moderate sediment export potential related to surface erodibility and subbasin slopes. Impervious surface cover and conveyance infrastructure has likely reduced sediment export potential; however, this increases water quality issues related to developed areas.

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Coe-Clemmons Lower

The subbasin is located on the western edge of the City, along the southern edge of the Old Town subbasin and includes Taylor and McCormick Parks. The subbasin is primarily single family residential with some commercial areas.

Basin topography slopes generally westward to the Snoqualmie River.

The following summarizes existing conditions and importance for key processes relevant to surface and stormwater management as summarized from the City of Duvall Watershed Plan (City of Duvall, 2015).

Subbasin Characterization	
Acres	98
Within City	100%
Within UGA	0%
Predominant uses within Duvall	Single-family residential, City park / open space, commercial development along Main Street
Streams	Coe-Clemmons Creek
Soils and Geology	Areas of moderate slopes with moderately well drained soils categorized in HSG B.
Erosion and Landslide Hazard Areas (within City and UGA)	38% mapped as erosion hazard, occurring along steeper slopes of local drainages throughout the subbasin. No mapped landslide hazards.

Surface Storage – This subbasin is of low importance for surface storage processes and has limited storage opportunity due to slopes and existing infrastructure and development patterns. The subbasin contains only 2% wetlands and previous development has resulted in piped and ditched stormwater conveyance directly to the river.

Groundwater and Base Flow Maintenance – This subbasin has features that historically were moderately important for groundwater recharge and base flow maintenance processes. However, these processes have been highly degraded. Permeable soils account for 8% of the subbasin; however, groundwater infiltration is highly degraded due to extensive imperious surface cover and altered flow pathways. Base flow maintenance processes are of lower importance due to the subbasins position in the watershed.

Water Quality – This subbasin is important for water quality due its direct discharge of stormwater to the Snoqualmie River. The subbasin has moderate sediment export potential related to surface erodibility and subbasin slopes. Impervious surface cover and conveyance infrastructure has likely reduced sediment export potential; however, this increases water quality issues related to polluted runoff from developed areas.

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Coe-Clemmons Upper

The subbasin is located at the center of the City. Land use is predominantly single family residential.

Basin topography slopes generally westward to the Snoqualmie River. The central portion of the basin is relatively flat, while the eastern and western portions have more pronounced slopes.

The following summarizes existing conditions and importance for key processes relevant to surface and stormwater management as summarized from the City of Duvall Watershed Plan (City of Duvall, 2015).

Subbasin Characterization	
Acres	273
Within City	100%
Within UGA	0%
Predominant uses within Duvall	Single-family residential
Streams	Coe-Clemmons Creek and tributary channels
Soils and Geology	Areas of moderate slopes with moderately well drained soils categorized in HSG B.
Erosion and Landslide Hazard Areas (within City and UGA)	12% mapped as erosion hazard. No mapped landslide hazards.

Surface Storage - This subbasin is of moderate importance for surface storage processes and is highly degraded. There is significant opportunity for storage process enhancements through retrofits and other actions. The subbasin contains only 1% wetlands or other surface storage features. Previous development has resulted in piped/ditched stormwater conveyance with inadequate flow control measures.

Groundwater and Base Flow Maintenance – This subbasin has features that historically were moderately important for groundwater recharge and base flow maintenance processes. However, these processes have been highly degraded. There are many small slope wetlands along the tributary channels; however, groundwater infiltration is highly degraded due to extensive imperious surface cover and altered flow pathways. Base flow maintenance processes are of lower importance due to the subbasins position in the watershed.

Water Quality – This subbasin is important for water quality due its direct sediment contribution and known erosion issues on Coe-Clemmons Creek. The subbasin has low sediment export potential related to channel erosion and bank stability. Degradation related to impervious runoff has likely increased channel erosion and peak flows downstream. Additionally, urban runoff is likely polluted with metals and other pollutants.

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Thayer

The Thayer subbasin is located at the southwestern portion of the City and includes single family residential development, vacant grassy and forested areas, and the Safeway shopping center complex.

Subbasin Characterization	
Acres	235
Within City	92%
Within UGA	2%
Predominant uses within Duvall	High-density single-family residential, rural residential, and commercial
Streams	Thayer Creek
Soils and Geology	Areas of moderate slopes with moderately well drained soils categorized in HSG B.
Erosion and Landslide Hazard Areas (within City and UGA)	12% mapped as erosion hazard, on the steeper slopes draining to Coe-Clemmons Creek. No mapped landslide hazards.

Basin topography slopes generally westward to the Snoqualmie River, except for the areas immediately adjacent to Thayer Creek, which drain steeply to the creek. The eastern portion of the basin is relatively flat, while the western portion slopes more steeply towards the river.

The following summarizes existing conditions and importance for key processes relevant to surface and stormwater management as summarized from the City of Duvall Watershed Plan (City of Duvall, 2015).

Surface Storage – This subbasin is of low importance for surface storage processes and has limited storage enhancement opportunity due to slopes and existing infrastructure and development patterns. The subbasin contains only 2% wetlands or other surface storage features and previous development has resulted in piped/ditched stormwater conveyance directly to the Snoqualmie river floodplain.

Groundwater and Base Flow Maintenance – The subbasin features are of relatively low importance for groundwater recharge and base flow maintenance processes. The area contains 4% pervious soils and there are small slope wetlands along Big Rock Road. However, groundwater infiltration in the subbasin is degraded due to concentrated imperious surface cover and altered flow pathways.

Water Quality – This subbasin is important for water quality due its direct sediment contribution to lower Thayer Creek and the Snoqualmie River floodplain. The subbasin has moderate sediment export potential related to channel erosion, erodible soils, and channel slopes. Stormwater runoff directed to Thayer Creek affects channel erosion and water quality. Additionally, urban runoff is likely polluted with metals and other pollutants.

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Coe-Clemmons / Thayer Floodplain

The Coe-Clemmons and Thayer Floodplain subbasin is located at and to the southwest of the City, with the majority of the subbasin lying outside City boundaries. The subbasin consists primarily of parks and open space immediately adjacent to the Snoqualmie River in the shared floodplain of Thayer Creek, Coe-Clemmons Creek, and the Snoqualmie River.

Subbasin Characterization	
Acres	663
Within City	13%
Within UGA	0%
Predominant uses within Duvall	Public park and open space
Streams	East bank of the Snoqualmie River, Lower Coe-Clemmons and Thayer Creeks, Unnamed southern tributary
Soils and Geology	Flat slopes with areas of moderately well drained soils (HGS B) and areas of slowly drained soils (HSG C).
Erosion and Landslide Hazard Areas (within City and UGA)	3% mapped as erosion hazard, along the eastern edge of the subbasin. No mapped landslide hazards.

Basin topography is generally flat, with a minor slope towards the Snoqualmie River. This slope becomes steeper and more pronounced in the western portion of the subbasin.

The following summarizes existing conditions and importance for key processes relevant to surface and stormwater management as summarized from the City of Duvall Watershed Plan (City of Duvall, 2015).

Surface Storage - The subbasin is of high importance for surface storage processes, particularly during floods. These processes are significantly degrading due to past and ongoing agricultural uses that resulted in stream and wetland loss. These processes have been partially restored within City limits. The entire subbasin lies in the floodplain and 4% is wetland.

Groundwater and Base Flow Maintenance – This subbasin contains important features for maintaining agricultural and domestic water supplies as well as Snoqualmie River temperatures. The floodplain is 90% pervious soils and infiltration to groundwater is largely intact due to low levels of impervious surface cover.

Water Quality – The floodplain and wetland landscape supports sediment deposition, water filtration, and shade processes. Although, changes in land use have depleted forest and increased input of pollutants to the subbasin including metals from upstream roadway runoff. The Snoqualmie River also experiences elevated water temperatures due to riparian forest loss and tributary impoundment.

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Unnamed Southern Tributary Lower

The subbasin is located at the southern portion of the City. The subbasin consists primarily of residential development and undeveloped rural areas to the south of City limits.

Subbasin Characterization	
Acres	373
Within City	42%
Within UGA	9%
Predominant uses within Duvall	Single family residential and rural residential
Streams	Lower southern tributary, including Loutsis Dam Pond
Soils and Geology	Areas of moderate slopes with moderately well drained soils categorized in HSG B.
Erosion and Landslide Hazard Areas (within City and UGA)	11% mapped as erosion hazard, along the steep slopes draining to the tributary. No mapped landslide hazards.

The basin topography is a valley, with ridges sloping towards Loutsis Dam Pond from both the east and the west. The topography drains westward towards the Snoqualmie River along the western edge of the subbasin.

The following summarizes existing conditions and importance for key processes relevant to surface and stormwater management as summarized from the City of Duvall Watershed Plan (City of Duvall, 2015).

Surface Storage – Subbasin features provide moderate levels of surface storage during storm events, reducing downstream erosion; 6% of the subbasin is comprised of wetlands and other surface storage features (primarily Loutsis Dam pond). Surface storage processes remain largely intact, suggesting importance of maintaining storage into the future.

Groundwater and Base Flow Maintenance – Subbasin features are of relatively low importance to groundwater and base flow maintenance processes. There are no mapped permeable soils, and few mapped slope wetlands; although small slope wetlands likely do occur along the riparian corridors. Processes are minimally degraded due to low levels of existing development and a wide, forested riparian corridor

Water Quality – The subbasin has low sediment export potential; however potential direct sediment contribution to the lowest stream reaches within the ravine upstream of the Snoqualmie River floodplain indicates possible water quality importance. Sediment sources are related to channel erosion, including soil erodibility and channel bank conditions. Sediment sinks occur at Loutsis Dam and other depressional wetlands. Low levels of existing development have left most water quality processes intact. Large areas of impervious surfaces in contributing subbasins have likely increased channel erosion.

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Unnamed Southern Tributary Upper

The subbasin is located at the southeastern edge of the City, and straddles City limits. Within the City, the subbasin consists predominantly of residential development, with less developed rural-residential areas lying outside of the UGA boundary.

Subbasin Characterization	
Acres	327
Within City	36%
Within UGA	6%
Predominant uses within Duvall	Single family residential
Streams	Upper southern tributary
Soils and Geology	Areas of moderate slopes with moderately well drained soils categorized in HSG B.
Erosion and Landslide Hazard Areas (within City and UGA)	10% mapped as erosion hazard, along the southwestern edge of the subbasin. No mapped landslide hazards.

Basin topography slopes generally westward towards the Snoqualmie River.

The following summarizes existing conditions and importance for key processes relevant to surface and stormwater management as summarized from the City of Duvall Watershed Plan (City of Duvall, 2015).

Surface Storage – The subbasin is of low importance for surface storage processes, with only 1% wetlands or other surface storage features. Previous development and filling of wetlands in the northeastern portion of the subbasin (within City limits) has reduced the available storage. The surface storage that is provided is minimally degraded, especially in areas outside of City.

Groundwater and Base Flow Maintenance – Subbasin features are of relatively low importance to groundwater and base flow maintenance processes. There are no mapped permeable soils and few mapped slope wetlands, although small slope wetlands likely do occur along the riparian corridors. Processes are minimally degraded due to low levels of existing development and a wide, forested riparian corridor

Water Quality – The subbasin has low sediment export potential; however potential direct sediment contribution to the lowest stream reaches within the ravine upstream of the Snoqualmie River floodplain indicates possible water quality importance. Sediment sources include erodible soils and steep slopes. Degradation related to runoff from impervious areas has likely increased channel erosion and peak flows downstream. Additionally, urban runoff is likely to contain metals and other pollutants.

3.4.4 WEISS CREEK BASIN

Weiss Creek discharges into the Snoqualmie River upstream of the City. Most of the basin has low to moderate development and watershed processes are moderately intact as summarized in Table 3-4. Of the 2,169 acres in the basin, only the Upper Weiss Creek subbasin is within the City and UGA boundaries.

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Table 3-4. Upper Weiss Creek Subbasin Summary

Subbasin Name	Watershed Plan Management Group	Area (acres)		Impervious Surface within the City (%)			
		City	UGA	non-PGIS	PGIS	Total	Directed to a Stormwater Facility
Upper Weiss Creek	Moderate Conservation (2B)	7	156	2%	9%	11%	4%

Weiss Creek - Upper

The Upper Weis Creek subbasin is located to the southeast of the City, with the majority of the subbasin lying outside City boundaries. The subbasin is predominantly rural with large areas of forested land. The subbasin is within the existing UGA; any future annexation would increase development pressure, especially along the Big Rock Road and Batten Road corridors.

Subbasin Characterization	
Acres	207
Within City	4%
Within UGA	75%
Predominant uses within Duvall	Rural residential and vacant forest lands
Streams	Headwaters of Weis Creek
Soils and Geology	Areas of moderate slopes with moderately well drained soils categorized in HSG B.
Erosion and Landslide Hazard Areas	No mapped erosion or landslide hazards.

Basin topography is generally flat, with steeper slopes along the eastern basin boundary.

The following summarizes existing conditions and importance for key processes relevant to surface and stormwater management as summarized from the City of Duvall Watershed Plan (City of Duvall, 2015).

Surface Storage – The subbasin provides a moderate level of surface storage, with 13% of the land area occupied by wetlands or other surface storage features. There is a large, forested, depressional wetland complex within the UGA, to the northeast of Big Rock Ball Fields Park. Surface storage processes are generally intact, as there are low levels of existing development.

Groundwater and Base Flow Maintenance – The subbasin features are moderately important for base flow maintenance processes, but less important for recharge. There are no areas of mapped permeable soils, but large headwater wetlands for Weiss Creek are present. These processes have been minimally degraded, as there are generally low levels of existing development. Low impervious surface cover and high forest cover (especially within wetlands) support groundwater processes.

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Water Quality – The headwater landscape of the subbasin supports sediment deposition and water filtration processes. Extensive areas of depressional wetlands suggest that the overall subbasin is a sediment and phosphorus sink. Wetlands provide water quality filtration before discharge to Weiss Creek. Water quality processes are relatively intact due to low levels of development throughout subbasin, especially areas surrounding the large forested wetland complex.

3.5 TARGET RETROFIT SUBBASINS

Potential Target Retrofit Subbasins were evaluated based on information in this Plan and the City's Watershed Plan (City of Duvall, 2015). The Unnamed Southern Tributary subbasin, Old Town, Coe-Clemmons – Lower, and two subbasins draining to Cherry Creek (the Cherry Creek A and C subbasin) have been identified as potential Target Retrofit Subbasin due to water quality sensitivity, the risk of erosion due to their positions in the watershed, and the presence of listed salmon species. In general, most of these subbasins are characterized by steep slopes, ravines, and large areas of mapped erosive soils and have the following specific characteristics:

1. All the project sites are located within areas with relatively high amounts of pollution generating impervious surfaces. Water quality LID solutions such as bioswales and vegetated buffers could have positive effects on water quality and removal of suspended sediment. Improved storage solutions such as ponds and vaults can also reduce peak stormwater runoff volumes and alleviate erosion on steep slopes and ravines.

2. The Cherry Creek A subbasin also contains Lake Rasmussen, which has been identified as a critical area for sediment and nutrient loading. Projects in this subbasin may help to improve water quality in the lake.

3. The Unnamed Southern Tributary subbasins have no mapped permeable soils, and the Cherry Creek A subbasin has very limited permeable soils. These areas are thus poor candidates for infiltration-based LID actions.

4. In the Cherry Creek C subbasin 36% of the soils are mapped as permeable with a high potential for groundwater recharge. Depending on the location of the proposed project within the subbasin, this site could potentially be an excellent opportunity for infiltration-based LID. This should be explored further using a site-specific feasibility analysis.

5. In the Old Town and Coe-Clemmons – Lower subbasins have been identified as requiring additional water quality features. Projects in this subbasin may help to improve water quality in the Snoqualmie River.

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CHAPTER 4. SURFACE AND STORMWATER SYSTEM DESCRIPTION

4.1 OVERVIEW OF STORMWATER INFRASTRUCTURE

The City's diverse stormwater infrastructure is characteristic of its transformation from a small, riverfront, logging town into a growing, modern, city. Flow control and water quality facilities are largely nonexistent in the heart of Old Town residential neighborhoods while newer developments are characterized by LID BMPs and other stormwater facilities designed to meet current requirement.

The information presented in this chapter was derived from as-built design drawings for private and public projects along with Geographic Information Systems (GIS) facility analysis and inventory performed by Public Works staff. This analysis represents the best available data on the City's stormwater system.

4.1.1 FACTORS ANALYZED

Facilities

A total of 170 public and privately-owned stormwater facilities were identified within the City as of June 2017. As a NPDES Permit requirement, these facilities are reported on an annual basis to Ecology. Table 4-1 shows the facility distribution by type and ownership.

Table 4-1. Facilities by Type

Type	Ownership	
	Public	Private
Bioswale / bioretention	38	2
Detention Pipe	32	7
Stormfilter	13	11
Pond	29	4
Vault	20	9
Other (OWS structures, infiltration, etc.)	2	3
Totals	**134**	**36**
	170	

Bioswales, including bioretention areas (typically paired with detention vaults or ponds to provide additional water quality function), and detention pipes are the most common facility types in the City, followed by ponds, vaults, and stormfilters respectively. As discussed in Chapter 3, the relatively low

infiltration capacity of the glacially consolidated fin-grained soils within the City limits locations where full infiltration techniques will operate effectively.

City staff determined that important factors for assessing the effectiveness of stormwater infrastructure are the water quality and detention requirements that correlate to the edition of the KCSWDM used to design the facility. As the science has improved, the effectiveness of stormwater facilities has also improved. Stormwater facilities designed to more recent standards will provide more effective flow control and water quality treatment along with increasing protection of sensitive areas and downstream systems. For example, the 1998 KCSWDM provides a higher standard of flow detention and treatment than previous manuals, whereas the most recent (2005, 2009, and 2016) manuals are even better still. Table 4-2 shows the facility distribution by design basis.

Table 4-2. Facilities by Design Basis

Design Manual	Percent (%)
Pre-1998 KCSWDM	44%
1998 KCSWDM	31%
2005 KCSWDM	9%
2009 KCSWDM	15%
2016 KCSWDM	No constructed facilities as of November 2017

The largest percentage by category is for facilities based on the pre-1998 KCSWDMs, however, this percentage is shifting as newer facilities come online, and older facilities are retrofitted. These facility design dates strongly reflect trends in the robust development and housing market with spikes in the early 1990's and the early to mid-2000's.

Detention and Water Quality

Actual detention and water quality volumes for existing stormwater facilities was not readily available for approximately 40% of the inventoried facilities. Consequently, while the data presented is the best available based on actual volumes and approximate measurements and is believed to be representative, it should be regarded as an estimate. For these calculations, Total Volume refers to the total amount of stormwater that a facility can store, while Water Quality Volume is the amount of that storage that provides water quality benefits. For example, in a bioswale, 100% of the available storage would be expected to provide water quality benefits, while in a detention pond or a vault, the percentage would be much lower and would depend on the design of the individual facility. Currently, there is over two million cubic feet of known detention volume in the study area, 20% of which also provides water quality benefits by design. Some facility types (such as ponds) may provide incidental water quality benefits associated with vegetated slopes even if they are not specifically designed to do so.

Catch Basins

There are over 2,600 mapped public and privately-owned catch basin stormwater structures in the City, for an average density of 2.8 catch basins per developed acre. Catch basin density can be an important metric because it serves as an indication of how far runoff will have to travel before finding its way into the stormwater system. The longer runoff travels before entering the stormwater system, the more opportunities there are to cause erosion or collect pollutants. Table 4-3 details the types of catch basins in the City.

Table 4-3. Catch Basins by Type

Type	Count	Percent (%)
Type 1 Catch Basin	1,979	76
Type 1-L Catch Basin	68	3
Type 2 Catch Basin	553	21
Total	**2,600**	**100**

A Type 1 catch basin has a metal lid (solid or grated) set flush with the ground surface and covering a rectangular concrete box up to five feet deep. These are used to convey water into pipes less than 12-inches in diameter (Type 1) and up to 18-inches in diameter (Type 1L) within five feet of the surface. These structures commonly include a sediment sump are the most common type of stormwater catch basin in the City and widely used nationwide.

A Type 2 catch basin has either a solid or a grated cover. These are used to connect to larger pipes or when the depth from the ground surface to the pipe is greater than five feet. These structures are also used as control structures or flow splitters to manage discharge flow rates from facilities. These structures include a sediment sump and are the second most common type of catch basin in the City and widely used nationwide.

There are more than 60 miles of mapped stormwater conveyance in the study area, including approximately 172 mapped culverts (includes driveway crossings) and 2.5 miles of natural stream mapped as part of the stormwater conveyance system.

Pipes are by far the most common type of conveyance in the City, as in most cities, as seen in Table 4-4. Pipes are effective, safe, out of sight, have a long service life, and are the right design choice for many situations. However, most conveyance pipes are not designed to provide water quality or ecological benefits in contrast to grass-lined swales or other naturalized conveyance systems. Consequently, it is important to pair pipes with stormwater facilities that provide these benefits.

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Table 4-4. Conveyance by Type

Type	Count (Segment)	Total Length (Ft)	Percent (%) by Length	Percent (%) by Count
Artificial Stream	2	336	0.1	0.05
Culvert	172	7,902	2	4
Detention Pipe	51	4,738	1	1
Ditch	264	39,910	12	6
French Drain	34	4,115	1	1
Infiltration Trench	27	1,644	0.5	1
Pipe	2,953	220,240	66	67
Natural Stream	52	13,548	4	1
Yard Drain	879	38,860	12	20
Total	**4,434**	**331,295**	**100**	**100**

4.2 Asset Management

In addition to planning for regular operations and maintenance of the system (described in more detail in Chapter 8) the City must also budget and plan for regular replacement cycles as stormwater system components reach the end of their functional lives. Different components of the system have different service lives, and may last longer or shorter depending on how they were constructed and how they are being used. Table 4-5 shows the minimum design service life for different system components (WSDOT, 2017). This the minimum amount of time that a well-designed and properly installed and maintained component should be expected to last.

Table 4-5. Recommended Component Service Life (WSDOT, 2017)

Component	Service Life (years)
Conveyance Pipe	50 - 80
Drain Pipe	25
Manhole	50
Catch Basin	30
Roadside Ditch	15
Culvert	50 - 75

The City is fortunate to have a relatively new stormwater systems in most parts of the City. As part of the planning process, the Public Works Department has been compiling information on the age and types of different components of the system, as seen in **Error! Reference source not found.**, and **Error! Reference source not found.**. This process is still ongoing, and it is likely that some of the components with unknown

installation dates listed will still be identified. Facilities in parts of Old Town are likely to be older and designed to less stringent requirements.

Table 4-6. Public Conveyance by Age in linear feet (as of March 2018)

	Total Length	Age (Years)					Average Cost*
		Unknown	≤ 10	11 - 20	21-30	31 - 40	
Pipe (12" PVC only)	109,151	74,522	2,585	690	25,917	5,437	$76 per linear foot
Ditch (Grass lined swale)	36,024	3,366	200	3,484	14,498	14,476	$5 per square foot

*Average costs derived from recent City projects

Table 4-7. Count of Public Catchments by Age (as of March 2018, *does not include private structures*)

	Total Number	Age (Years)					Average Unit Cost*
		Unknown	≤ 10	11 - 20	21-30	31 - 40	
Type 1	1,709	621	174	442	369	103	$1,500
Type 1-L	64	20	5	30	8	1	$1,630
Type 2	470	159	54	133	102	22	$4,000 - $4,800

*Average costs derived from recent City projects

4.3 Stormwater Flow Control and Water Quality Treatment Facilities

This section discusses existing stormwater infrastructure by subbasin. The stormwater flow control and water quality facility distribution shown in **Error! Reference source not found.** reflects the broader pattern of development within the City. Older areas are less likely to be served by a stormwater facility, shown in red in **Error! Reference source not found.**.

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Stormwater Drainage Areas & Infrastructure

Storm and Surface Water Plan Update and Retrofit Design Project

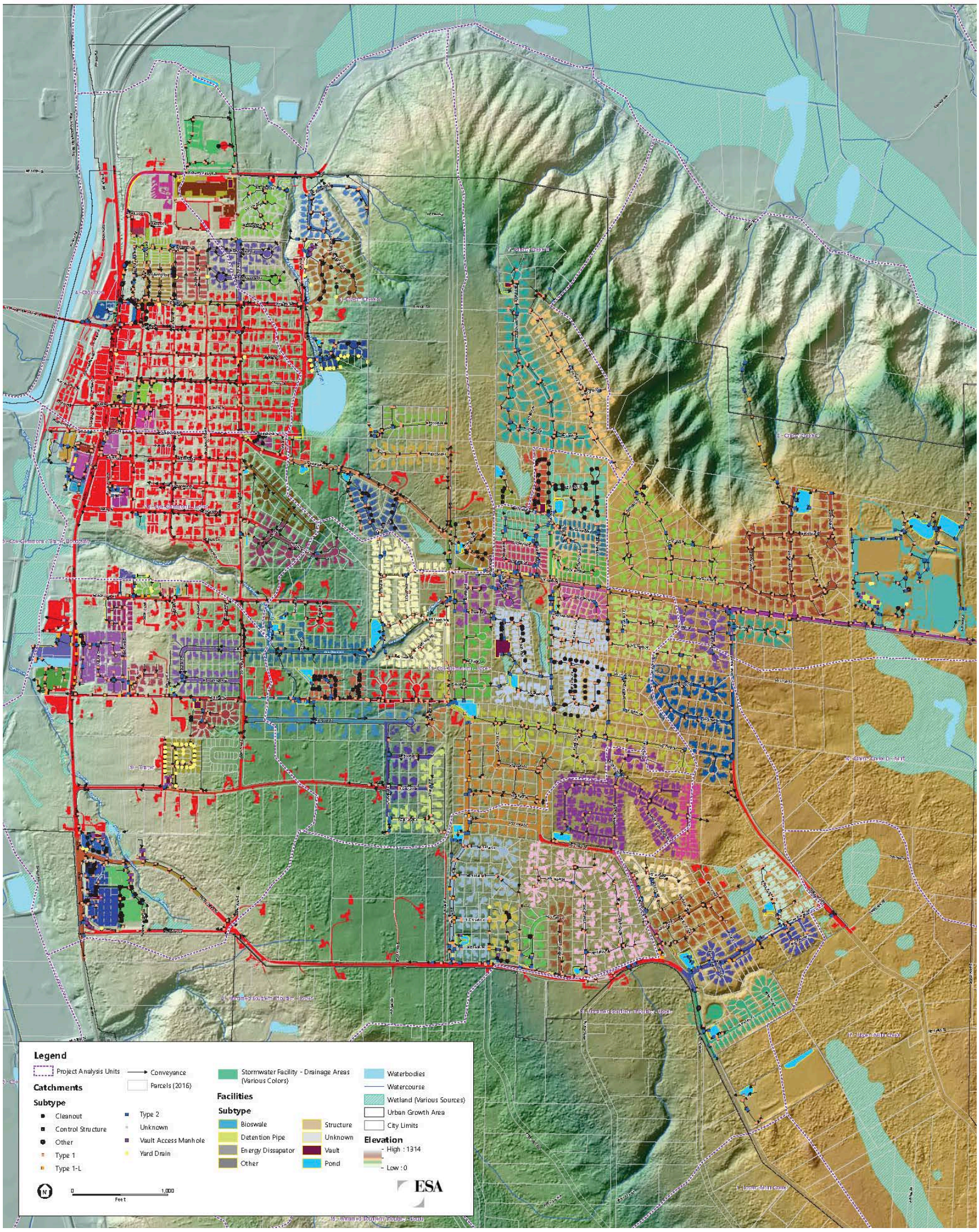

Figure 4-1. Stormwater drainage areas and infrastructure

Table 4-8. Stormwater facility distribution by subbasin.

Subbasin	Developed Area* (Acres)	Total Area in City & UGA (Acres)	Developed Area* Served by a Facility (%)	Facility Count	Average Development Year
Cherry Creek A	100	215	81%	19	2000
Cherry Creek B	50	76	96%	7	2000
Cherry Creek C	143	268	100%	16	2001
Coe-Clemmons - Lower	74	99	31%	12	1990
Coe-Clemmons - Upper	196	212	94%	36	1998
Coe-Clemmons / Thayer Floodplain	9	94	79%	6	1998
Old-Town	104	136	26%	25	2003
Thayer	71	315	77%	22	2002
Unnamed Southern Tributary - Lower	126	166	100%	11	1997
Unnamed Southern Tributary - Upper	99	108	78%	13	1995
Upper Weiss Creek	5	123	94%	3	Unknown

* Developed area was approximated as any area within a subdivision that does not include: wetlands, stream buffers, landslide hazard areas, or designated open space.

4.3.1 Cherry Creek Basin

The Cherry Creek tributaries drain the northern edge of the City and the North UGA. The large-scale transition of this area from primarily rural-residential development and forest land to residential subdivision started in the early 1990's and continues to the present. The three subbasins are very similar in percent coverage and age of development.

Cherry Creek A

Facilities – There are 19 stormwater facilities in the Cherry Creek A subbasin, which were constructed between 1989 and 2016, with an average construction year of 2000. Approximately 81% of the developed area is classified as both developed and served by a stormwater facility. Facility types are primarily bioswales, detention pipes, ponds, and vaults, with stormfilters being less common. The majority were designed using the 1998 KCSWDM with the remainder based on the pre-1998 KCSWDM, 2005 KCSWDM, and 2009 KCSWDM.

Detention and Water Quality – Approximately 32% of the known storage volume in the watershed provides water quality benefits.

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Catch basins – There are approximately 308 mapped catch basins in the Cherry Creek A subbasin for a density of 3.1 catch basins per developed acre. Most of these catch basins are Type 1 and Type 2.

Conveyance – There are 34 mapped culverts and approximately eight miles of conveyance in the Cherry Creek A subbasin. Most of this conveyance is pipes and ditches. The subbasin also contains 3,470 feet of natural stream and 342 feet of infiltration/dispersion trench.

Cherry Creek B

Facilities – There are 7 stormwater facilities in the Cherry Creek B subbasin that were constructed in 1994 or 2005, with an average construction year of 2000. Approximately 96% of the developed area is served by a stormwater facility. Facility types are primarily bioswales, detention pipes, and vaults with stormfilters and ponds being less common. Over half were designed using the 1998 KCSWDM and the rest using the pre-1998 KCSWDM.

Detention and Water Quality – Only 7% of the known storage volume in the watershed provides water quality benefits.

Catch basins – There are approximately 84 mapped catch basins in the Cherry Creek B subbasin for a density of 1.7 catch basins per developed acre. Most of the catch basins are Type 1 or Type 2.

Conveyance – There are no mapped culverts and approximately two miles of conveyance pipe in the Cherry Creek B subbasin. There are no natural or artificial streams mapped as part of the stormwater conveyance.

Cherry Creek C

Facilities – There are 16 stormwater facilities in the Cherry Creek C subbasin that were constructed between 1992 and 2016, with an average construction year of 2001. Approximately 100% of the developed area is served by a stormwater facility. Facility types are primarily bioswales, detention pipes, and vaults with stormfilters, infiltration or dispersion trenches, and ponds being less common options. The majority were designed using a pre-1998 KCSWDM and the remainder using the 2005 and 2009 KCSWDM.

Detention and Water Quality – Approximately 16% of the known storage volume in the watershed provides water quality benefits.

Catch basins – There are approximately 405 mapped catch basins in the Cherry Creek C subbasin for a density of 2.8 catch basins per developed acre. Most catch basins are Type 1 or Type 2.

Conveyance – There are 13 mapped culverts and approximately nine miles of conveyance pipe in the Cherry Creek C subbasin. The subbasin also contains 415 feet of infiltration or dispersion trench. There are no natural stream channels mapped as part of the stormwater conveyance.

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4.3.2 DUVALL TRIBUTARIES BASIN

The Tributaries Basin covers the oldest and most developed portions of the City including the lowland areas and floodplain of the Snoqualmie River. Since much of this area was developed before stormwater collection and treatment was common, there tend to be no stormwater facilities.

Old Town

Facilities – There are 25 stormwater facilities in the Old Town subbasin that were constructed between 1989 and 2014, with an average construction year of 2003. These facilities are largely clustered in Old Town and are privately-owned facilities serving commercial properties. Only 26% of the developed area is served by a stormwater facility, reflecting the area's age and history. Facility types are primarily stormfilters and detention pipes, with bioswales, ponds, vaults, and infiltration/dispersion trenches being less common options. Design basis is evenly split among all the KCSWDMs with no period having prevalence.

Detention and Water Quality – Approximately 54% of the known storage volume in the watershed provides water quality benefits, the highest of any subbasin in the City.

Catch basins – There are approximately 322 mapped catch basins in the subbasin for a density of 3.1 catch basins per developed acre. Most of these catch basins are Type 1.

Conveyance – There are 32 mapped culverts and approximately six miles of conveyance in the subbasin, most of which conveys flows from other parts of the City. Most of this conveyance is piped with the remainder being open ditch. This subbasin also contains 39 feet of infiltration or dispersion trench.

Coe-Clemmons Lower

Facilities – There are 12 stormwater facilities in the relatively small Coe-Clemmons Lower subbasin that were constructed between 1987 and 2002, with an average construction year of 1990. Only 31% of the developed area is served by a stormwater facility, reflecting the area's age and history. Facility types are primarily detention pipes with bioswales, ponds, and vaults being less common options. All but one of the facilities were designed based on a pre-1998 KCSWDM.

Detention and Water Quality – None of the known storage in this subbasin is designed to provide water quality benefits.

Catch basins – There are approximately 112 mapped catch basins in the subbasin for a density of 1.5 catch basins per developed acre. Most of these catch basins are Type 1.

Conveyance – There are 31 mapped culverts and approximately five miles of conveyance in the subbasin. Most of this conveyance is pipes and ditches. The subbasin contains 3,900 feet of natural stream.

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Coe-Clemmons Upper

Facilities – There are 36 stormwater facilities in the Coe-Clemmons Upper subbasin that were constructed between 1988 and 2012, with an average construction year of 1998. Approximately 94% of the developed area is served by a stormwater facility. Facility types are primarily bioswales, detention pipes, and ponds with vaults being a less common option. Most of the facilities were designed based on the 1998 or a pre-1998 KCSWDM. The remainder are split between the 2005 or 2009 KCSWDM.

Detention and Water Quality – Approximately 21% of the known storage volume in the watershed provides water quality benefits.

Catch basins – There are approximately 566 mapped catch basins in the subbasin for a density of 2.9 catch basins per developed acre. Most of these catch basins are Type 1 or Type 2.

Conveyance – There are 21 mapped culverts and approximately 12 miles of conveyance in the subbasin. Most of this conveyance is pipes and ditches. The subbasin contains 4,360 feet of natural stream.

Thayer

Facilities – There are 22 stormwater facilities in the Thayer subbasin that were constructed between 1998 and 2009, with an average construction year of 2002. Approximately 77% of the developed area is served by a stormwater facility. Facility types are primarily bioswales and vaults with detention pipes, stormfilters, infiltration or dispersion trenches, and ponds being less common options. The design basis for these facilities is evenly split between the pre-1998, 1998, and 2009 KCSWDMs, plus a few facilities based on the 2005 KCSWDM.

Detention and Water Quality – Approximately 24% of the known storage volume in the watershed provides water quality benefits.

Catch basins – There are approximately 334 mapped catch basins in the subbasin for a density of 4.7 catch basins per developed acre – some of the densest coverage in the City, largely due to newer shopping complexes. Most of these catch basins are Type 1 or Type 2.

Conveyance – There are 29 mapped culverts and approximately seven miles of conveyance in the subbasin. Most of this conveyance is pipes and ditches. The subbasin contains 3,550 feet of natural stream and 650 feet of infiltration/dispersion trench.

Coe-Clemmons / Thayer Floodplain

Facilities – There are 6 stormwater facilities in the very small and largely undeveloped (and undevelopable) Coe-Clemmons/Thayer Floodplain subbasin. These facilities were constructed between 1991 and 2003, with an average construction year of 1998. Approximately 79% of the developed area is served by a stormwater facility. Facility types are primarily detention pipes with bioswales and stormfilters

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being less common options. Most of the facilities were designed based the 1998 KCSWDM, with a couple using an earlier guidance manual or method.

Detention and Water Quality – None of the known storage in this subbasin is designed to provide water quality benefits.

Catch basins – There are approximately 43 mapped catch basins in the subbasin for a density of 4.9 catch basins per developed acre. Most of these catch basins are Type 1 or Type 2.

Conveyance – There are 4 mapped culverts and approximately one mile of conveyance in the subbasin. Most of this conveyance is pipes and natural stream. The subbasin contains 1,800 feet of natural stream.

Unnamed Southern Tributary Lower

Facilities – There are 11 stormwater facilities in the Unnamed Southern Tributary Lower subbasin. These facilities were constructed between 1985 and 2011, with an average construction year of 1997. Approximately 100% of the developed area is served by a stormwater facility. Facility types are evenly split between bioswales, detention pipes, ponds, and vaults with stormfilters being a less common options. Most of the facilities were designed based on a pre-1998 KCSWDM with all but one of the rest using the 1998 KCSWDM.

Detention and Water Quality – Approximately 18% of the known storage volume in the watershed provides water quality benefits.

Catch basins – There are approximately 299 mapped catch basins in the subbasin for a density of 2.4 catch basins per developed acre. Most of these catch basins are Type 1 or Type 2.

Conveyance – There are three mapped culverts and approximately six miles of conveyance in the subbasin. Most of this conveyance is pipes. The subbasin contains no infiltration/dispersion trenches or natural streams mapped as stormwater conveyance.

Unnamed Southern Tributary Upper

Facilities – There are 13 stormwater facilities in the Unnamed Southern Tributary Upper subbasin. These facilities were constructed between 1989 and 2005, with an average construction year of 1995. Approximately 78% of the developed area is served by a stormwater facility. Facility types are primarily detention pipes with bioswales and ponds being less common options. Most of the facilities were designed based on a pre-1998 KCSWDM with the rest using the 1998 KCSWDM.

Detention and Water Quality – Only 2% of the known storage volume in the watershed provides water quality benefits.

Catch basins – There are approximately 214 mapped catch basins in the subbasin for a density of 2.2 catch basins per developed acre. Most of these catch basins are Type 1 or Type 2.

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Conveyance – There are five mapped culverts and approximately four miles of conveyance in the subbasin. Most of this conveyance is pipes or ditches. The subbasin contains 198 feet of infiltration/dispersion trench.

4.3.3 WEISS CREEK BASIN

The Weiss Creek basin is located to the southeast of the City, with most of the basin lying outside of City boundaries. Only a very small area of developed land lies within this basin – a portion of Big Rock Ball Fields Park.

Weiss Creek - Upper

Facilities – There are three inventoried stormwater facility in the Upper Weiss Creek subbasin, covering 94% of the area classified as developed. These are pond facilities, but the date of construction and design basis are not known.

Detention and Water Quality – The attributes of these facilities are not known.

Catch basins – There are four catch basins in the subbasin for a density of 0.7 catch basins per developed acre – the lowest in the city. Three catch basins are Type 2 and one Type 1.

Conveyance – There are no mapped culverts and approximately 782 linear feet of conveyance in the subbasin. Most of this conveyance is ditches and pipes.

4.4 DRAINAGE, EROSION AND WATER QUALITY CONCERNS

The following section provides areas of known drainage, erosion and/or water quality concerns within the City's surface and stormwater drainage network. For the most part, these areas have been identified through maintenance activities, citizen complaints, and storm incident response documentation.

- Duvall Mobile Home Park
- Big Rock Road NE
- Cherry Valley Vista (NE Rupard Road)
- 3rd Avenue NE Corridor
- Legacy Ridge (NE 286th Avenue culvert)
- Juniper Glen (neighborhood ditch conveyance)
- 4th Avenue Apartments (a.k.a. The Park Apartments – outfall)
- NE Kennedy Drive Corridor

Public Works has also implemented several capital projects in the last decade to address concerns within other subbasins at specific storm drainage catchments. These projects and the underlying concerns

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addressed are documented in Chapter 2 and include several stormwater pond retrofit activities in the Coe-Clemmons Upper subbasin and the Unnamed Southern Tributary Upper subbasin.

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CHAPTER 5. SYSTEM ANALYSIS

5.1 SYSTEMS ANALYSIS AND PRIORITY PROJECT IDENTIFICATION METHODS

There are approximately 170 mapped stormwater facilities within the City, including many multi-structure facilities. As such, it was not feasible to visit each one to conduct a field analysis as a part of this planning effort. Instead, Public Works developed and implemented an innovative approach to assess and prioritize drainage areas (organized as drainage plats) across the City and urban growth areas (UGAs). For this Plan, all assessment relies on the City's geodatabase of existing stormwater conveyance infrastructure, including: type, size, outfall location, and design parameters at the time of development (as well as identification of areas without water quality or detention facilities).

Geodatabase characteristics were considered at the drainage plat level along with detailed mapping of tree canopy cover and impervious surface coverage. City staff used these parameters to establish an assessment and ranking tool to identify stormwater retrofit opportunities across the City. Each facility and associated drainage plat area was assigned a score based on:

- Facility features:
  - Facility type;
  - Design basis (adopted design manual used);
  - Outfall location.
- Drainage area features:
  - Tree cover;
  - Impervious surface coverage;
- Watershed features:
  - Susceptibility to erosion;
  - Sensitivity of downstream waters - *with respect to water quality.*

Assigning scores to each of the factors resulted in a facility rank in each of three categories: Opportunity, Performance, and Downstream Water. **Error! Reference source not found.** conceptually highlights the overall assessment and ranking structure (see Appendix A for details on assessment and ranking methodology).

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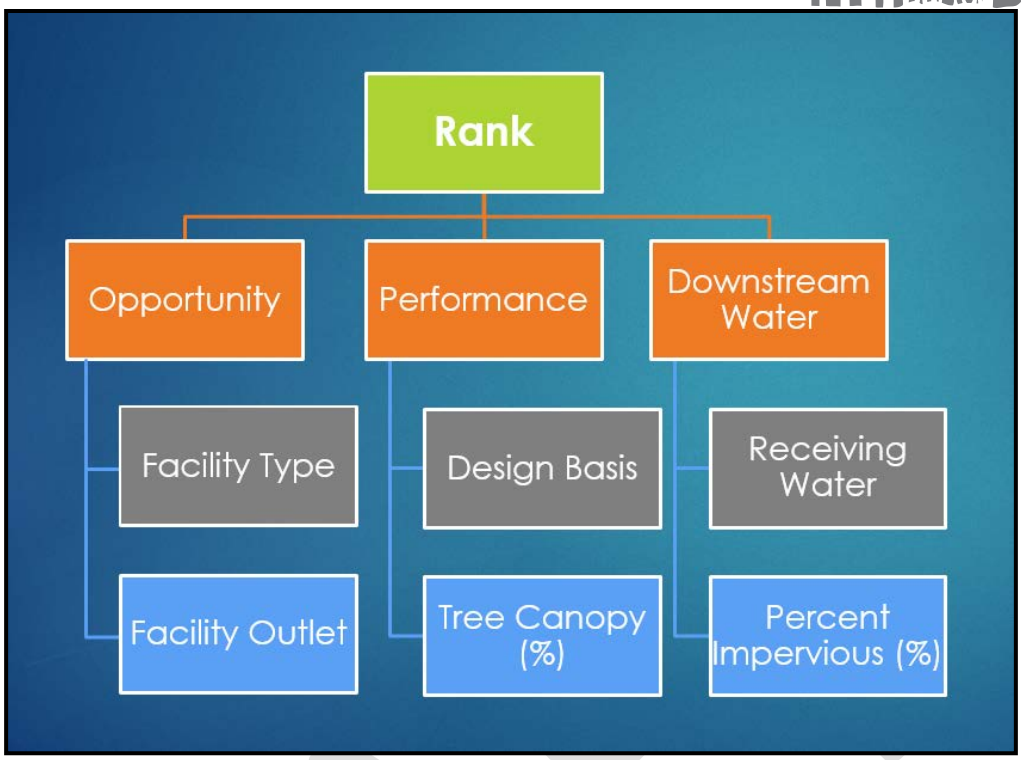

Figure 5-1. A diagram outlining the facility assessment and ranking process including the factors in each scoring category.

The higher the aggregate score, the higher the facility (and associated drainage plat) ranked for retrofit. Drainage plat areas within the City that are not currently served by a facility were also ranked, but in a separate list that does not include the Opportunity scoring component. Separate scoring and ranking of drainage plats with no facility recognize the additional cost and complexity of installing new facilities in an area where one does not exist.

For all drainage plats with existing facilities, the top-ranked projects were then reviewed by the project team and assessed on more site-specific factors. These factors include additional considerations for:

- Private/Public partnership potential;
- Ownership;
- Known facility deficiencies – "hot spots";
- Site specific information regarding retrofit ease/difficulty (available area, existing grade, etc.);
- Potential to implement Low Impact Development (green stormwater) solutions; and
- Upstream or downstream retrofit opportunity.

The final list of projects recommended for retrofit reflects both the ranking process, additional filters for feasibility, and the professional judgement of City staff.

5.2 RETROFIT OPTIONS

The goal of any retrofit project is to improve the performance of the existing facility. In this context, improvement is measured in reductions in peak flows (improved detention) and reductions in pollutants (improved water quality). The specific pollutants that need to be addressed vary by location. Water quality testing should be conducted at each proposed retrofit site so that the system can be designed to best address the prevailing water quality issues. Common water quality issues include total suspended solids (TSS), heavy metals, oil and grease, and biological matter.

This section provides general identification of the suite of retrofit approaches that could be used to address identified surface and stormwater impairments. Each of the specific actions that have been considered for stormwater retrofit projects rely on these general retrofit approaches. Along with traditional stormwater facility retrofit actions, green-stormwater infrastructure (GSI) and LID actions will be identified, as well as discussion of actions that could combine traditional and GSI/LID approaches

5.2.1 REDUCING PEAK FLOWS

Reducing peak flows to downstream receiving waters generally involves use of BMPs to either reduce runoff from a drainage area, or delay the arriving inflows. Reduction in flow is generally accomplished by increasing infiltration to the groundwater table, while delay of flow is generally accomplished by providing additional storage or reconfiguring the facility's outfall to release storage more slowly.

Maximizing Infiltration

As discussed in Chapter 3, infiltration is not a widely applicable solution in the till soils of the City. However, permeable soils are present in some areas, and depending on results of site-specific investigation, it may be feasible to design infiltration facilities at these locations. For sites located within mapped areas of permeable soils, it is recommended to conduct infiltration tests to verify that the soils have the appropriate characteristics for infiltration as well as any available groundwater mapping. This will assess if the infiltrated stormwater will just reappear as a spring further downslope, resulting in adverse drainage problems for adjacent properties (whether developed or natural).

Another alternative to a traditional infiltration system is to change the characteristics of the contributing drainage area from impervious to pervious surface coverage. Impervious surfaces such as roofs, driveways, and roadways increase runoff concentrations as opposed to soaking into vegetated areas. For example, replacing a paved pathway with woodchips, gravel, pavers, grasscrete, or some other pervious material would allow more runoff to soak in rather than flow into a conveyance system. For many areas of the City, implementing retrofits that separate 'clean' runoff from pollution generating impervious surfaces would allow for a more beneficial focus of resources.

Amending soils to increase infiltrative capacity, and increasing vegetative cover across a site, are additional strategies to maximize pervious surfaces. Planting trees or retaining and shrubs can help reduce

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total runoff, especially if providing canopy and root structures in areas of restored soils converted from hardscapes. Additionally, for single family residential homes, LID solutions like rain barrels and cisterns can have dual benefits of reducing both winter runoff and summer domestic water demand by allowing homeowners to store runoff on their properties for use on their lawns and gardens.

New or Expanded Detention

The concept of stormwater detention has been around for a long time and is generally well understood. By capturing runoff during a storm's peak rainfall intensity, and releasing it over a longer period to mimic pre-developed conditions, you can reduce downstream flow impacts including flooding and erosion. This approach also leads to a more natural stream hydrograph, maintaining aquatic habitat conditions beneficial to native fish species, including salmonids. Increasing detention time generally involves enlarging a facility to add additional storage capacity, but can sometimes be accomplished more economically by reconfiguring an outlet control structure.

There are several stormwater models to determine detention requirements in a basin, including the Washington Department of Ecology's Western Washington Hydrologic Model (WWHM). These models are frequently required for new construction but can also be applied to retrofit studies. Other ways to assess if more detention is required in a basin is to monitor existing facilities and look for downstream impacts. If an existing facility reaches its storage capacity and overflows frequently during rainfall events, it is a candidate for expansion. Evidence of bank erosion in an otherwise healthy channel or reports of downstream flooding during storms are also indicators of a need for additional storage upstream.

After determining that there is a need for additional detention in the subbasin, sites should be assessed for feasibility such as site layout and facility type. The site layout determines if there is space available to make the proposed modifications, and how it should be designed. For example, at a wide-open site it may be possible to add a new pond or expand an existing one, while in a more constrained location an underground facility might be a better option. Facility type affects the ease of construction. It is much easier to add capacity to a pond rather than modify a buried concrete vault.

5.2.2 IMPROVING WATER QUALITY

The 2009 and 2016 KCSWDMs place nearly equal emphasis on controlling peak discharge and protecting water quality. The goal in protecting water quality is to prevent TSS, oils, heavy metals, and a host of other pollutants from reaching rivers and streams. This is best achieved by some form of filtration. Settling, which may be achieved in a traditional pond or vault, is an effective treatment for TSS but does very little to remove fine particles, oils, or dissolved contaminants.

There are already a significant number of facilities within the City that are classified as bioswales or stormfilters, highlighting the higher water quality treatment standards that have been implemented since adoption and enforcement of the 2005 KCSWDM. Filtration has two fundamental approaches: mechanical and biological.

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- **Mechanical filtration** includes stormfilters and oil-water separators that use some form of natural or artificial media to strain pollutants from the flow. This media usually needs to be maintained and replaced at some defined interval for the facility to continue the designed function.
- **Natural filtration** includes bioswales, treatment wetlands, and grass filter strips, which use the inherent ability of vegetation to absorb pollutants and trap sediment to achieve water quality improvements. Natural filtration methods take more work to establish and require regular maintenance to prevent sediment accumulation or colonization by invasive weeds.

5.3 Stormwater Retrofit Project Evaluation

5.3.1 Retrofit Ranking Results

This section presents the results of the City's retrofit ranking results for drainage plats with existing stormwater facilities. Table 5-1 shows the top 25 ranked existing stormwater facilities that were identified as needing retrofit actions. A detailed methodology for facility assessment and ranking can be found in Appendix A. After these facilities were identified, City staff applied additional feasibility criteria and known system deficiencies to come up with five retrofit projects to be added to the CIP project list. With the update of this Plan, conceptual pre-design reports for these five facilities are provided in Appendix B.

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Table 5-1. Top 25 Retrofit ranking for drainage plats with existing stormwater facilities

Rank	Facility / Drainage Plat Name	Facility Description
1	Taylors Ridge I (No. 1)	Detention Pipe in ROW (150th St) (public facility)
2	Taylors Ridge I (No. 2)	Detention Pipe in ROW (150th St) (public facility)
3	**Duvall Highlands Mobile Home Park**	**Pond (privately owned)**
4	Big Rock Ridge Div. 1-3 (South Pond)	Pond (public facility)
5	**Big Rock Ridge Div. 1-3 (North Pond)**	**Pond (public facility)**
6	Houston Barclay Building	Detention Pipe (privately owned)
7	US Post Office	Oil/Water Separator (privately owned)
8	**Kasper Heights Div. 1**	**Pond (public facility)**
9	**Cedarcrest High School (1992)**	**Pond (privately owned)**
10	278th Street Improvements	Detention Pipe in ROW (278th St) (public facility)
11	Chapman Div. 1	Bioswale (public facility)
12	Bruett Road Phase II (a.k.a. 152nd St)	Pond (public facility)
13	Cedar Grove	Pond (public facility)
14	Cedarbrooke	Pond (public facility)
15	Duvall Town Center (a.k.a. Chevron)	Detention Pipe (privately owned)
16	NE 150th Road Improvements (1996)	Detention Pipe in ROW (150th St) (public facility)
17	Taylors Ridge Div. 1 & 2	Bioswales to Vault (public facility)
18	Legacy Ridge	Pond (public facility)
19	Braithburn Academy	Infiltration pipe (privately owned)
20	Big Rock Road	Bioswale (public facility)
21	**Cherry Valley Vista**	**Detention Pipe (public facility)**
22	Cherrybrooke	Detention Pipe (public facility)
23	150th Vault (CHS off-site)	Vault (public facility)
24	Ritas Homestead	Bioswale (public facility)
25	The Ridge	Pond (public facility)

The five highlighted facilities have been identified as the City's top priorities and are included on the CIP project list

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5.3.2 TOP FIVE RETROFIT PROJECTS

Duvall Highland Mobile Home Park - Pond (Ranked #3)

This is a shallow asphalt lined, privately owned and maintained 'flow-through' pond constructed in 1986, Figure 5-2. The City is proposing to either create a partnership with the property owners, or take over ownership and maintenance of the facility. Currently the pond has little to no storage or water quality attributes. Design could include accommodation of stormwater from future ROW improvements along NE 142nd Place and expansion into the ROW.

The facility is located in the southwest corner of King County parcel, 1926079005 at address 28000 NE 142nd Place, Duvall, WA 98019.

Figure 5-2. Duvall Highlands Mobile Home Park Pond

Facility Opportunities and Efficiencies

This stormwater facility ranked third in the City's watershed based approach to improve stormwater management. Based on the age of the facility and 2016/2017 stormwater management standards, the opportunity to add water quality and increase detention volumes will protect and improve downstream systems. This project will incorporate a larger, deeper stormwater pond to comply with 2016 KCSWDM

flow control and water quality standards as well as incorporating low impact development (LID) techniques. These LID approaches include but are not limited to increased tree canopy coverage, water quality components, and right-of-way (NE 142nd Place) bioretention options.

This project also provides unique opportunities including:

- Reduced peak flow and improved water quality to the Unnamed South Tributary - Lower watersheds and sensitive downstream conditions associated with the NE Big Rock Road drainage.
- A public/private partnership between the City and MHP
- Treatment and detention for offsite properties located north of the MHP that currently drain to the MHP facility.
- Treatment, detention, and possible coordinated construction for the NE 142nd Non-motorized improvement project (TIP# C-1 and C-2)
- Incorporation of BMP T7.30: Bioretention Cells
- Incorporation of BMP T5.16: Tree Retention
- Incorporation of BMP T5.13: Post Construction Soil Quality and Depth
- Incorporation of BMP T10.40: Combined Detention and Wetpool Facilities

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Big Rock Ridge Div. 1-3 – North Pond (ranked #5)

This is a large pond constructed in 1998 that discharges south of NE Big Rock Road out of City limits into a sensitive drainage (unnamed stream) area. There is room in the northwest of this facility to incorporate the Laura Vera Estates detention pipe (ranked #57) which is occupying a City owned parcel, and possibly Big Rock Road bioswale (ranked #20). All three facilities are shown in Figure 5-3. The intent is to add storage and water quality and possibly eliminate the Laura Vera Estates detention pipe. Monumentation, informational signage (LID), and park equipment could also be incorporated for this project.

This facility is located on the King County parcel, 0808300250 in the northeast corner of the intersection at NE Big Rock Road and NE Roney Road. The facility is owned and maintained by the City of Duvall. The Laura Vera Estates detention pipe is located to the northwest on the vacant, City owned King County parcel, 4213500170. The Big Rock Road bioswale is location on City owned, King County parcel, 6672930380 in the NE corner of the intersection at NE Big Rock Road and 282nd Place NE.

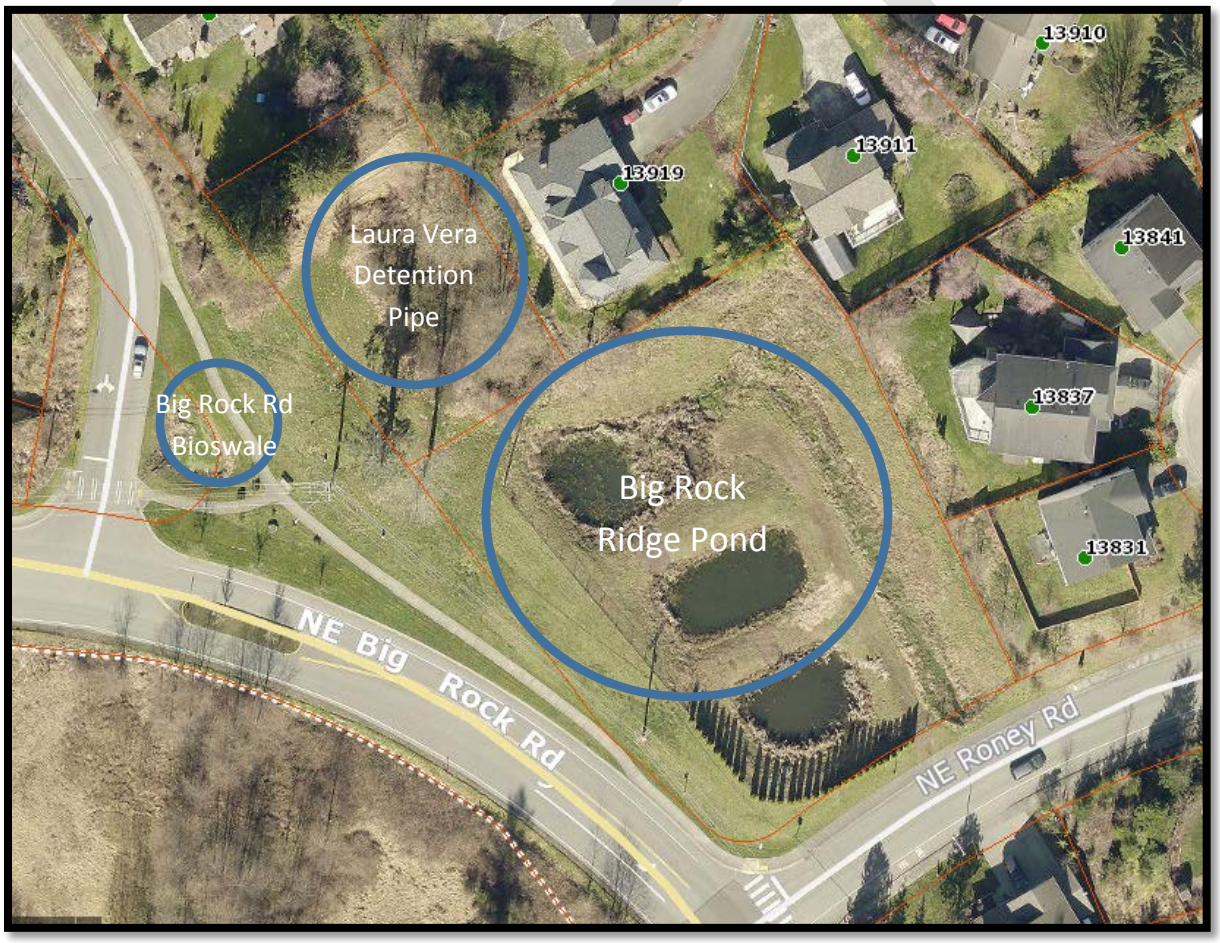

Figure 5-3. Big Rock Ridge Pond, Laura Vera Detention Pipe, and Big Rock Road Bioswale.

Facility Opportunities and Efficiencies

This stormwater facility ranked fifth in the City's watershed based approach to improve stormwater management. There is a possibility to regionalize this facility to add water quality and increase detention volumes to protect and improve downstream systems. This project will incorporate a larger, deeper stormwater pond to comply with 2016 KCSWDM flow control and water quality standards as well as incorporating LID techniques. These LID approaches include but are not limited to increased tree canopy coverage, large bioretention components, and right-of-way (282nd Place NE and NE Big Rock Road) water quality options.

This project also provides unique opportunities including:

- Reduced peak flow and improved water quality to the Unnamed South Tributary - Upper watersheds and sensitive downstream conditions associated with the NE Big Rock Road drainage.
- Possible consolidated drainage with the Laura Vera Facility (located upstream and to the north) and 282nd Ave NE intersection bioswale.
- Incorporation of BMP T7.30: Bioretention Cells
- Incorporation of BMP T5.16: Tree Retention
- Incorporation of BMP T5.13: Post Construction Soil Quality and Depth
- Incorporation of BMP T10.40: Combined Detention and Wetpool Facilities

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Kasper Heights Div. 1 (ranked #8)

This is a pond/bioswale/detention pipe facility constructed in 1997, Figure 5-4, which discharges within City limits to downstream ditches and ultimately south of NE Big Rock Road out of City limits into a sensitive drainage area with previous drainage complaints. There is opportunity to add storage volume to the facility and possibly reconfigure the water quality portion to reduce burdens on downstream conveyance.

This facility is located on the King County parcel, 3793400420 in the northeast corner of the intersection at 275th Avenue NE and NE 140th Place.

Figure 5-4. Kasper Heights Pond and Bioswale

Facility Opportunities and Efficiencies

This stormwater facility ranked eighth in the City's watershed based approach to improve stormwater management. Based on the age of the facility and 2016/2017 stormwater management standards, the opportunity to add water quality and increase detention volumes will protect and improve downstream systems. This project will incorporate a larger, deeper stormwater pond to comply with 2016 KCSWDM

flow control and water quality standards as well as incorporating LID techniques. These LID approaches include but are not limited to increased tree canopy coverage, and improving water quality components.

This project also provides unique opportunities including:

- Reduced peak flow and improved water quality to the Unnamed South Tributary - Lower watersheds and sensitive downstream conditions associated with the NE Big Rock Road drainage and drainage complaints within unincorporated King County south of City Limits.
- Incorporation of BMP T5.16: Tree Retention
- Incorporation of BMP T5.13: Post Construction Soil Quality and Depth
- Incorporation of BMP T10.40: Combined Detention and Wetpool Facilities

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Cedarcrest High School – 1992 Pond (ranked #9)

This facility was designed and built in 1992 during construction of Cedarcrest High School and originally discharged from the east pond, Figure 5-5, through a 200-foot grass-lined swale onto undeveloped property to the north. Since the construction of Cedarcrest High School, athletic field improvements have updated aspects of the stormwater system and incorporated new components. A swale was added to the inlet of the pond in 2002 when the synthetic football field was constructed. In 2013, the bioswale was improved and relocated. The design intent is to increase storage volume of the 1992 pond and possibly relocate the outlet to discharge to the northeast onto School District owned property, minimizing downstream impacts.

This facility is located in the northeast corner of King County parcel: 1826079013 at address: 29000 NE 150th Street, Duvall, WA 98019.

Figure 5-5. Cedarcrest High School East Pond

Facility Opportunities and Efficiencies

This stormwater facility ranked ninth in the City's watershed based approach to improve stormwater management. Based on the age of the facility and 2016/2017 stormwater management standards, the opportunity to add water quality and increase detention volumes will protect and improve downstream systems. This project may incorporate a deeper stormwater pond to comply with 2016 KCSWDM flow control and water quality standards as well as incorporating low impact development (LID) techniques. These LID approaches include but are not limited to water quality and detention components with steep slopes, and improving existing dispersion/infiltration trench. This project will also include a public/public cooperation between the City and the Riverview School District.

This project also provides unique opportunities including:

- Reduced peak flow and improved water quality to steep slopes associated with the Cherry Creek C watersheds and sensitive downstream conditions associated with the Cherry Creek Tributary drainage.
- A partnership between the City and Riverview School District.
- Possible coordinated construction of a new outfall facility to improve dispersion and infiltration.
- Incorporation of BMP T7.20: Infiltration Trenches (depending on soil conditions).
- Incorporation of BMP T5.16: Tree Retention.
- Incorporation of BMP T5.13: Post Construction Soil Quality and Depth.
- Incorporation of BMP T10.40: Combined Detention and Wetpool Facilities

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Cherry Valley Vista (ranked #21)

This facility includes detention pipes, bioswale, and culverts, constructing in 1994 as seen in Figure 5-6. Currently there is a significant impact downstream during the wet season as the bioswale is no longer established or functioning. Water tops the ditch and culvert system and flows over NE Cherry Valley Road. The existing culverts are nearing failure with piping observed along the culverts. There is a large area where a storage or water quality cell could be added, or the bioswale could be re-established. Additional improvements could include mitigation or replacement of the cross-culvert beneath NE Rupard Road.

The detention pipes are located within the right-of-way, parallel to the curb-line in NE Rupard Road, and culverts cross under NE Rupard Road conveying a tributary creek. The bioswale area is on the King County parcel: 1558500320 at the northeast corner of the intersection of 270th Place and Rupard Road.

Figure 5-6. Cherry Valley Vista Detention Pipes

Facility Opportunities and Efficiencies

This stormwater facility ranked twenty-one in the City's watershed based approach to improve stormwater management. Based on the age of the facility and 2016/2017 stormwater management standards, the opportunity to add flow control and water quality features will protect and improve

downstream systems. This project will incorporate a new stormwater pond to comply with 2016 KCSWDM flow control and water quality standards as well as incorporating low impact development (LID) techniques. These LID approaches include but are not limited to water quality and detention components, while possibly improving fish passage elements (for the culvert segment).

This project also provides unique opportunities including:

- Improved water quality to the Cherry Creek A watersheds and sensitive downstream conditions associated with the tributary of the Cherry Valley Creek drainage.
- Possible coordinated construction and mitigation with the Rupert Road culvert fish passage barrier.
- Possibly improve on-site wetlands/re-establish bioswale.
- Incorporation of BMP T7.30: Bioretention Cells.
- Incorporation of BMP T5.16: Tree Retention.
- Incorporation of BMP T5.13: Post Construction Soil Quality and Depth.

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CHAPTER 6. FUNDING AND FINANCING PROGRAM

6.1 FISCAL POLICIES AND FINANCIAL STATUS

Funding and Financing of stormwater infrastructure operations, maintenance, and improvements are a vital component of a successful Stormwater Utility and associated environmental stewardship. Storm Drainage Utility rates and City allotted funds for professional services allow the City to maintain its existing infrastructure and plan for replacement of infrastructure that is nearing the end of its functional lifecycle.

Operations and Maintenance activities are typically funded through rate-payer monthly fees paid into the 404 Storm Drainage Utility Fund. These fees pay for personnel, equipment, and other resources required for regular operations. Storm Drainage Utility rates and annual budget are determined through processes separate from adoption of this Plan and documented by Duvall Municipal Code Chapter 9.06 (Storm Drainage Utility) and associated Fee Ordinances. Storm Drainage Utility revenue in the 404 Storm Drainage Utility Fund was approximately $724,939 in 2017, and has seen an average 4% annual growth from 2014 to 2017, largely due to annual inflation adjustments and increases in the number of dwelling units across the City.

Capital system improvements, such as retrofits and conveyance improvements, are typically funded through development-related fees paid into the City's 409 Storm Drainage Capital Improvement Fund, supplemented by grants and other resources. Development-related stormwater acreage revenues have varied based on the amount of development occurring each year. The development-related stormwater revenue for 2017 was approximately $83,937. Table 6-1 lists recent revenues for stormwater improvements.

Table 6-1. Summary of Existing Revenue for Operations, Maintenance and Capital Improvements of the City's Storm Drainage Utility.

	404 Storm Drainage Utility revenue	409 Storm Drainage Capital Improvement Fund	One-Time Grants
2014	$656,580	$7,684	$41,820
2015	$679,063	$1,890	$80,018
2016	$701,536	$2,286	$11,213
2017 (Year End Estimate)	$724,939	$83,937	$440,816
Annual Average	$690,529	$23,949	$143,466

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In addition to these revenue sources, the City's budget for stormwater operations, maintenance, and capital improvements has been supplemented by one-time, variable funding sources. From 2012-2017, these sources have included:

- King Conservation District grants;
- King County Flood Control District Sub-Regional Opportunity Fund grants;
- Washington State Department of Ecology NPDES Municipal Capacity Grants for NPDES Permit implementation and water quality retrofit planning (future allocations are likely); and
- One-time grants for both capital construction and studies. To provide just a few examples, the City was awarded $155,020 for the Carrie-Rae Pond Retrofit Project in 2013, $203,468 for the Parkwood Pond retrofit project in 2017, and was awarded approximately $200,000 for this Surface and Stormwater Planning and Retrofit Pre-Design project in 2015/2016.

6.1.1 FUTURE REVENUE

Potential rate and fee impacts associated with this Plan's recommendations were a primary consideration in identifying required surface and stormwater services, with the goal of minimizing the need for additional revenue over the life of the Plan. The City recognizes that the Storm Drainage Utility rates and development impact fees collected over the last twenty years have been less than the annual costs of appropriate operations and maintenance of existing publicly owned facilities and capital improvements. Completion of these activities and associated system capital improvements have been heavily dependent on grant revenues, which have accounted for approximately 20% of all available stormwater funding in the 2012-2017 timeframe.

The City owned and operated Storm Drainage Utility served approximately 2,548 accounts in 2017. Commercial, multi-family, and other non-residential Storm Drainage Utility customers within the City pay a monthly storm drainage utility fee that is directed to the City's *404 Storm Drainage Utility Fund*. These charges are based on the number of "equivalent residential units" (ERUs) of impervious surface on the property, where one ERU equals 3,000 square feet of impervious surface. Single-family residences pay a flat fee of one ERU and commercial properties pay a fee based on impervious area measurements completed by the City from recent air-photos. The monthly rate for each ERU is adjusted annually every January based on the 12-month average (July—June) percent change in Consumer Price Index for All Urban Consumers (CPI-U) for the preceding two years within the Seattle-Tacoma-Bremerton area. The 2017 Storm Drainage Utility rate for a single-family residence was $19.56 per month ($234.72 annually).

Developers pay a one-time Storm Drainage Acreage Charge which accounts for the developer portion of cost associated with the CIP. The Storm Drainage Acreage Charge is collected at Final Plat or Commercial Building Permit Approval and is used to help fund system improvements that are needed to serve, or mitigate impacts from future growth. All revenue collected from these fees are directed to the City's *409 Storm Drainage Capital Improvement Fund*. According to DMC 9.06.120, the fund is to be "used to pay the cost and expense of constructing and installing general facilities for storm drainage and flood control". Monies within this fund can be supplemented by contributions from other sources such as grants. This

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fund has been the primary source for implementing facility retrofits. The 2017 acreage charge was $1,972 per acre or fraction thereof; the acreage charge had not been increased or otherwise adjusted since 2001 except for annual inflationary increases. Funds collected between 2001-2017 were insufficient for completion of capital projects. A new Stormwater General Facility Charge (GFC) at Residential and Commercial Building permit issuance is proposed as part of this Plan to further mitigate impacts from new development and provide funding for capital projects.

6.2 DEVELOPER IMPROVEMENTS

The City has adopted specific requirements for new development and redevelopment which include installation of on-site stormwater facilities along with roadway frontage stormwater improvements. Mitigation of identified downstream drainage deficiencies is also required in accordance with King County Surface Water Design Core Requirement 2 (Section 1.2.2.2). Other City requirements, LID techniques, retrofit of existing facilities, and measures to reduce the burden on stormwater infrastructure is promoted by City staff at all project stages from preliminary design to construction.

The City also evaluates development impacts under the State Environmental Policy Act (SEPA) guidelines. A SEPA review process may identify adverse stormwater impacts that require additional mitigation beyond installation of improvements to manage water quality and quantity. These impacts and mitigation measures could be related to downstream private water supplies, sensitive areas, erosion hazards, habitat and endangered species, or other stormwater issues. The needed improvements may or may not be identified as specific projects in this Plan.

6.3 COST SUMMARY

The City has prepared an updated Capital Improvements Plan (CIP) which details the anticipated project costs, including total Capital Improvements and on-going Citywide Programs, from 2018 to the 2035 horizon year. These costs are summarized in Table 6-2. The improvement projects and programs are estimated to cost approximately $8.87 million in 2017 dollars, project list and project cost breakdown can be found in Chapter 7. Approximately $3.33 million of the total project costs are associated with future development and are considered as the basis for calculation of the Storm Drainage Acreage Charge and proposed Stormwater General Facility Charge. The remaining $5.54 million of total project costs represents the City's portion of these costs. This requires approximately $326,000 per year of City and/or grant funds over the life of this Plan.

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Table 6-2. 2018 to 2035 Project Cost Summary

Capital Improvements		Citywide Programs		Total Costs ($1,000's)
Description	Costs ($1,000's)	Description	Costs ($1,000's)	
Retrofit Projects (Projects R1-R12)	$3,853	**Conveyance and other facility or Citywide improvements (Projects O-1 to O-9)**	$1,147	
Culvert/Outfall Repair or Replacement (C-1 to C-6)	$1,852	**Education and Outreach (Project O-10)**	$ 85	
Minor Conveyance and/or Water Quality Improvements (I-1 to I-8)	$1,833	**Stormwater Plan, Standards, and Code Updates (Project O-11)**	$100	
Subtotal	**$7,538**		**$1,332**	**$8,870**

6.4 Development Forecast (2018 to 2035)

The City's Public Works and Planning Departments completed a buildable lands study to support development of the 2015 Comprehensive Plan amendment. The study includes parcel-specific baseline measurements for residential and commercial uses within the City as of January 1, 2015 and forecasts future growth for a period of 20 years, to the horizon year of 2035. This is summarized in the memorandum titled *City of Duvall 2015 Capacity and Transportation Analysis Study/EIS Alternatives* (City of Duvall, 2017) and summarized in Table 6-3.

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Table 6-3. 2018 to 2035 Development Forecast

	Parcel Area (Acres)	Dwelling Units (Units)	Commercial ***Floor Area*** (SF)	Light Industrial ***Floor Area*** (SF)	Commercial ***Impervious Area*** (SF)	Light Industrial ***Impervious Area*** (SF)
2015 Existing Total Development	963	2,657[2]	370,021[2]	56,200[2]	2,602,330	233,988
2035 Anticipated Total Development	1412[3]	3,884[2]	789,767[2]	89,685[2]	5,554,372	373,402
2015-2035 Anticipated Change in Development	449[1]	1,227[3]	419,746[3]	33,485[3]	2,952,042	139,414
2015 – 2017 Actual Development	20[4]	145[4]	0[4]	0[4]	0	0
2018 – 2035 Anticipated Change in Development	429[5]	1,082[5]	419,746[5]	33,485[5]	2,952,042	139,414

[3]Table 5b, *City of Duvall 2015 Capacity and Transportation Analysis Study/EIS Alternatives* (City of Duvall, 2017).
[2]Table 7, *City of Duvall 2015 Capacity and Transportation Analysis Study/EIS Alternatives* (City of Duvall, 2017).
[3]Difference between 2035 Anticipated Development and 2015 Existing Development.
[4]Based on City of Duvall Building Department Data for new homes in 2015-2017 (Year End Estimate), Parcel Area estimated at an average 6,000 SF.
[5]Difference between 2015-2035 Anticipated Development and 2015-2017 Actual Development.

6.5 REVENUE REQUIREMENTS

The financial analysis of the Surface Water Utility is intended to provide a focused review of the overall financial health of the utility and the revenue needed to implement the recommendations of this Surface and Stormwater Plan. The following sections summarize recommended revenue approaches to fund the proposed Plan.

6.5.1 404 STORM DRAINAGE OPERATIONS UTILITY FUND

404 Storm Drainage Operations Utility Fund charges are billed as monthly rates to customers and contribute to operations and maintenance activities along with minor system improvements. These funds pay for staff, equipment, services, and other resources required for day-to-day operation of the Storm Drainage Utility.

A City of Snoqualmie report documented that the Storm Utility rate at seven eastern Puget Sound Cities, ranged from $11.36 (Monroe) to $28.36 (Bellevue) in 2017 (FCS Group; City of Snoqualmie, 2017). The City of Duvall 2017 rate was slightly above the average of seven cities studied at $19.56 per month ($234.72 annually) as illustrated in Figure 6-1.

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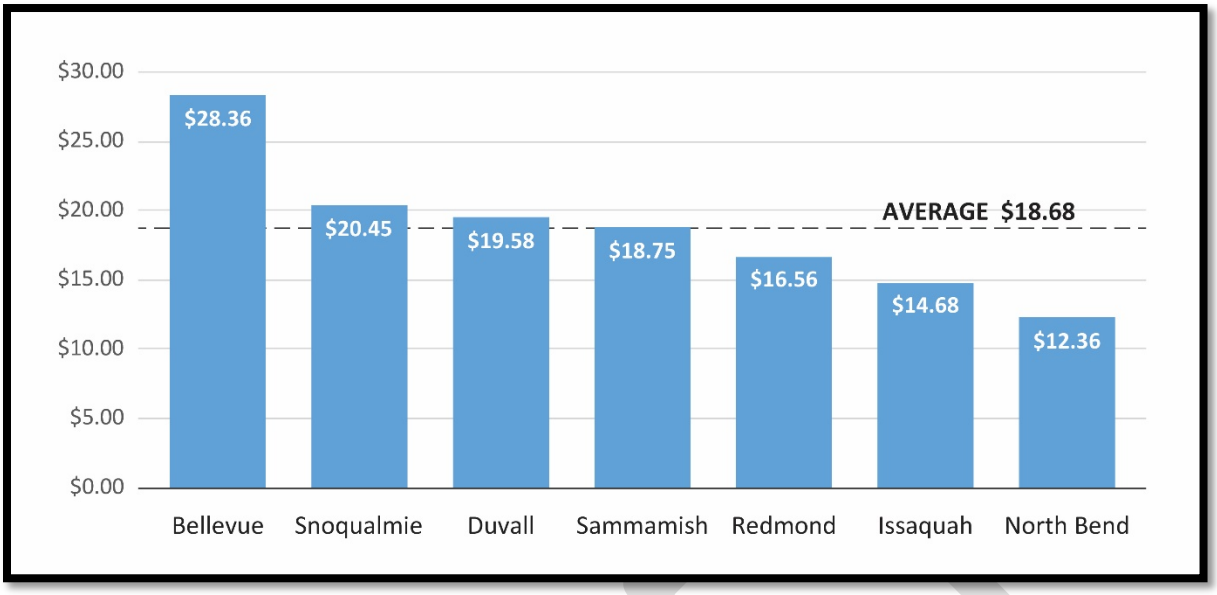

Figure 6-1. Summary of 2017 Monthly Storm Utility Rates at Seven Cities

Annual *404 Storm Drainage Operations Utility Fund* rate revenue and expenses associated with operations and maintenance were relatively balanced from 2014 to 2017 suggesting appropriate rate amounts during that timeframe. However, approximately $146,000 in Ecology's NPDES Municipal Capacity Grant revenue directly offset operation and maintenance costs during this time as well. Therefore, lack of future grant revenue could result in a revenue shortfall for the *404 Storm Drainage Operations Utility Fund.* However, changes to the 2017 Storm Drainage Utility rate and structure are not recommended as part of this Plan based on rate comparison with nearby cities.

6.5.2 409 Capital Improvement Fund

409 Storm Drainage Capital Improvement Utility Fund revenues are reserved for completion of retrofits, conveyance capacity improvements, and other general system improvements. Prior to 2018, revenue to the *409 Storm Drainage Capital Improvement Utility Fund* was limited to one-time Storm Drainage Acreage Charge charged at final plat or Commercial Building Permit Approval at the 2017 rate of $1,972 per acre or fraction thereof. Revenue in the 2014 to 2017 timeframe totaled $95,797 which did not provide sufficient funds for Capital Project completion.

The City's Storm Drainage Acreage Charge is a bulk acreage charge independent of actual use, development density, or burden on the stormwater system and environment. Stormwater capital improvement charges vary among neighboring cities in eastern Puget Sound. However, most cities (except Duvall) charge GFCs as opposed to an acreage charge. These GFCs are generally based on square feet (SF) of impervious surface coverage or an ERU for each single-family residence (SFR). Conversion of the City's 2017 Storm Drainage Acreage Charge to an equivalent GFC ERU would vary from $99/ERU for R-20 (20 units per acre) to $493/ERU for R4 (four residential units per acre) with an ERU equal to a Single Family

Residential (SFR) lot or 3,000 SF of impervious (DMC 9.06.125.C). Table 6-4 summarizes 2017 Stormwater Capital Improvement charges from nearby cities.

Table 6-4. Summary of 2017 One-Time Storm Capital Charges at Seven Cities.

City	General Facility Charge (SFR)	Notes
Bellevue	$999	Capital Recovery Charge for each SFR (based on $5.55/2,000 SF per month for 10 years, normalized to 3,000 SF for consistency with Duvall rate structure).
Snoqualmie	$328	General Facility Charge for each SFR
Duvall*	$99 to $493	Conversion from Storm Drainage Acreage Charge to ERU basis for each SFR (R-20 to R4)
Sammamish	$1,491	System Development Charge ($1,491 for $2,500 SF, an additional $298 for 500 SF to normalize to 3,000 SF for comparison)
Redmond	$1,437	Stormwater Capital Facility Charge (based on $958/2,000 SF, normalized to 3,000 SF for comparison)
Issaquah	$1,256	General Facility Charge per SFR
North Bend	$800	Per SFR (based on $800/2,920 SF)
Average	$916 to $972	

*The City of Duvall is proposing a ***new*** General Facility Charge based on SFR

The 2017 Storm Drainage Acreage Charge was found to be less than capital charges for nearby cities. This charge did not provide sufficient funds for Capital Project completion prior to 2017, and was found to provide insufficient funds for the 2018-2035 CIP within this Plan. As proposed, revenue from the Storm Drainage Acreage Charge would pay half of the Development-related Capital Improvements summarized in Table 6-2 and revenue from a new GFC would pay for the remaining half of Development-related Capital Charges.

To increase revenue into the City's *409 Storm Drainage Capital Improvement Utility Fund* and encourage additional use of LID BMPs as new development occurs, the following is recommended as part of this Plan:

- The Storm Drainage Acreage Charge, paid based on site acreage at the time of final plat, stand-alone new residential, or commercial building permit, should be adjusted upward from $1,972 per acre or fraction thereof, to $3,878 per acre, is outlined in Table 6-5.
- The Storm Drainage Acreage Charge includes allowed reductions where applicants agree to implement additional LID BMPs beyond minimum requirements as summarized in section 6.5.3.

Table 6-5. Storm Drainage Acreage Charge for 2018-2035 Anticipated Change in Development.

Total Development-Related Costs	Half of Development-Related Costs	Parcel Area (Acres)	Acreage Cost (2017 Dollars)[1]
$3,327,042	$1,663,521	429	$3,878

[1]Half of Development-Related Costs/Parcel Area (Acres)

- A new General Facility Charge (GFC) is outlined in Table 6-6.

Table 6-6. General Facility Charge for 2018-2035 Anticipated Change in Development.

Total Development-Related Costs	Half of Development-Related Costs	Dwelling Units ERUs	Total Commercial & Light Industrial Area ERUs[1]	Total ERUs	ERU Cost (2017 Dollars)
$3,327,042	$1,663,521	1,082	302	1,384	$1,202

[1]Total Commercial and Industrial SF/3000 SF per ERU

6.5.3 Storm Drainage Acreage Charge Incentives

This Plan includes proposed Storm Drainage Area Charge reductions where applicants agree to implement additional LID BMPs beyond minimum requirements:

Residential:

- 100% Storm Drainage Area Charge with standard infrastructure and minimal LID BMP implementation because of site limitations.
- Reduction of the Storm Drainage Area Charge to 75% where LID BMPs are used as part of residential development to eliminate the need for traditional detention facilities (vaults, ponds, and detention pipes) and other gray infrastructure approaches.
- Reduction of the Storm Drainage Area Charge by a maximum of 50% as part of residential development if storm runoff is kept on-site through use of LID BMPs and traditional facilities are significantly reduced.

Commercial:

- Reduction of the Storm Drainage Area Charge to 75% where LID BMPs are used as part of commercial development to eliminate the need for traditional detention facilities (vaults, ponds, and detention pipes) and other gray infrastructure approaches.

The intent of the proposed residential Storm Drainage Area Charge reduction is to encourage installation of new and emerging technologies focused around LID and preservation of natural systems to manage surface and stormwater. Reduced capital fee revenues will be offset by the long-term system-wide savings for reduced LID repair/replacement costs, as well as reducing required operations and maintenance activities. Proposed commercial Storm Drainage Area Charge reduction intent is similar. Additional Commercial Rate reductions to further encourage management of all privately owned and maintained commercial facilities is allowed in accordance with DMC 9.06.125.E.4.

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CHAPTER 7. SYSTEM IMPROVEMENTS

7.1 STORMWATER SYSTEM IMPROVEMENTS

7.1.1 CAPITAL IMPROVEMENT PLAN (CIP) DEVELOPMENT

The Capital Improvement Plan (CIP) is a priority list of stormwater system improvement projects and programs that the City hopes to undertake by 2035. Each project in the CIP includes a project description, an estimate of total project cost, the funding approach (proportions of City Storm Fund allocations), and an identified timeframe for implementation. This list was developed by Public Works staff based on the systemwide evaluation and analysis summarized in Chapter 5, and additional consideration of current maintenance practices and anticipated maintenance and system improvement needs. The identified improvement projects and programs will help the City to implement the overall Comprehensive Plan goals and policies.

The CIP includes the following categories of water quality, detention, and conveyance improvements and strategies:

1. Retrofit Projects;
2. Culvert/Outfall Repair or Replacement Projects;
3. Minor Conveyance and/or Water Quality Improvement Projects; and
4. Other Citywide Stormwater Programs.

Error! Reference source not found. summarize the Stormwater System CIP and specific project locations are depicted in Figure 7-1.

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Table 7-1. Stormwater System Capital Improvement Program Project List (2018-2035).

Project Group	Map ID	Project Name	Project Limits	Project Description	Total Project Cost Estimated	City Funds		Development Charges		Grants		Time Frame
						Share (%)	Cost ($)	Share (%)	Cost ($)	Share (%)	Costs ($)	
RETROFIT PROJECTS	R-1	Duvall Highland Mobile Park Homes Pond Retrofit - Public/Private Partnership	Duvall Highlands MHP Stormwater Pond	Expand stormwater pond and increase detention volume to mitigate downstream issues, possibly expanding the facility into existing ROW to accommodate frontage improvement stormwater (requires dedication or easement)	$267,084	0%	$0	40%	$106,834	60%	$160,250	Short
	R-2	Big Rock Ridge Div. 1-3 (North Pond) Retrofit	NE Big Rock Road and NE Roney Road	Retrofit pond and bioswale to increase detention and water quality while possibly incorporating an older detention pipe to the north (Laura Vera Estates), which could regionalize the facility.	$536,169	0%	$0	40%	$214,468	60%	$321,701	Short
	R-3	Kasper Heights Div. 1 Retrofit	275th Avenue NE and NE 140th Place	Retrofit stormwater facility to increase storage volumes and mitigate downstream flooding issues	$454,011	0%	$0	40%	$181,604	60%	$272,407	Short
	R-4	Cedarcrest High School East Pond Retrofit - Public/Public Coop	Cedarcrest High School	Retrofit stormwater facility to increase storage volumes and improve pond outfall.	$281,757	0%	$0	40%	$112,703	60%	$169,054	Short
	R-5	Cherry Valley Vista Retrofit	270th Place NE and NE Rupard Road	Retrofit stormwater facility to accommodate higher flows while incorporating water quality. May include repair or replace existing hanging/undersized culverts to the east.	$235,537	0%	$0	40%	$94,215	60%	$141,322	Short
	R-6	Big Rock Ridge Div. 1-3 (South Pond) Retrofit	NE Big Rock Road and NE 138th Place	Retrofit stormwater pond to increase storage volumes to protect sensitive outfall area south of Big Rock Road (Possibly incorporate PGIS from NE Big Rock Road for additional water quality).	$460,152	0%	$0	40%	$184,061	60%	$276,091	Mid - Long
	R-7	Legacy Ridge Pond & Bioswale Retrofit	near 15413 286th Avenue NE	Reestablish bioswale and increase storage volume in existing stormwater pond to protect Cherry Creek tributary outfall. Possibly look at bypassing or incorporating high flows from adjacent natural flow path to the west to protect from downstream erosion and sediment transport.	$849,560	0%	$0	40%	$339,824	60%	$509,736	Mid - Long
	R-8	Cherrybrooke Bioswale Retrofit	3rd Avenue NE and NE Cherry Valley Road	Retrofit bioswale and incorporate additional water quality features.	$44,066	0%	$0	40%	$17,626	60%	$26,440	Mid - Long
	R-9	Rita's Homestead Bioswale Retrofit	278th Avenue NE and NE 152nd Street	Retrofit stormwater facility to accommodate higher flows while incorporating water quality. Increase volume/storage of bioswale.	$115,983	0%	$0	40%	$46,393	60%	$69,590	Mid - Long
	R-10	Cedarbrooke Pond and Bioswale Retrofit	near 26923 NE Kennedy Drive	Retrofit Pond for additional volume/water quality to incorporate neighborhood to the east (PGIS and nine existing homes) and add outfall energy dissipater.	$179,340	0%	$0	40%	$71,736	60%	$107,604	Mid - Long
	R-V1	Pond Retrofit (various)	Various	Pond Retrofit from included within Table 5-1 of 2018 Surface and Stormwater Plan	$350,000	0%	$0	50%	$175,000	50%	$175,000	Mid – Long
	R-V2	Bioswale Retrofit (various)	Various	Bioswale Retrofit from included within Table 5-1 of 2018 Surface and Stormwater Plan	$80,000	0%	$0	50%	$40,000	50%	$40,000	Mid - Long
CULVERT/OUTFALL REPAIR OR REPLACEMENT	C-1	Coe Clemons Creek Culvert 1	NE Kennedy Drive	Repair/Replace hanging NE Kennedy Drive Culvert immediately east of 3rd Avenue NE	$367,217	25%	$91,804	40%	$146,887	35%	$128,526	Mid - Long
	C-2	Coe Clemons Creek Culvert 2	NE 144th Place	Repair/Replace undersized roadway culvert, near 26932 NE 144th Place	$363,578	25%	$90,895	40%	$145,431	35%	$127,252	Mid - Long
	C-3	Coe Clemons Creek Culvert 3	3rd Avenue NE	Repair/Replace hanging 3rd Avenue NE Culvert immediately east of 3rd Avenue NE and north of NE Kennedy Drive	$366,307	25%	$91,577	40%	$146,523	35%	$128,208	Mid
	C-4	Cherry Creek Tributary Culvert	NE Rupard Road	Repair/Replace culvert beneath NE Rupard Road and associated downstream ditch/swale conveyance (Possible Coordination with Project R-2).	$368,127	25%	$92,032	40%	$147,251	35%	$128,844	Short
	C-5	Thayer Creek Outfall	NE 145th Street	Repair/Replace hanging culverts in the southwest corner of Duvall's Wastewater Treatment Plant property.	$23,851	10%	$2,385	90%	$21,466	0%	$0	Short
	C-6	Unnamed Tributary Culvert	NE Big Rock Road	Repair/replace culvert to address associated flooding issues near 26801 NE Big Rock Road. Add catch basin and piped conveyance upstream if necessary.	$363,578	25%	$90,895	40%	$145,431	35%	$127,252	Mid

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EXHIBIT 2

Project Group	Map ID	Project Name	Project Limits	Project Description	Total Project Cost Estimated	City Funds		Development Charges		Grants		Time Frame
						Share (%)	Cost ($)	Share (%)	Cost ($)	Share (%)	Costs ($)	
MINOR CONVEYANCE AND/OR WATER QUALITY IMPROVEMENTS	I-1	Kennedy 1 Development outfall swale revision	NE Kennedy Place and 1st Ave NE	Re-establish bioswale to accommodate increased flows and improve bioswale outfall system to reduce bypass flow to the west.	$55,993	25%	$13,998	40%	$22,397	35%	$19,598	Short
	I-2	NE 150th Street Pavement Removal/LID Improvements	275th Avenue NE to 286th Avenue NE	Remove pollution generating impervious surface (pavement) width and incorporate bioretention/other LID to improve water quality.	$755,002	25%	$188,751	40%	$302,001	35%	$264,251	Short
	I-3	Improve conveyance along Big Rock Road (ditch, catch basins, pipe)	275th Avenue NE to 3rd Avenue NE Extension	Improve conveyance system along the north side of NE Big Rock Road to accommodate increased volumes (tightline or improved ditch section).	$419,321	10%	$41,932	90%	$377,389	0%	$0	Developer-Driven
	I-4	Improve conveyance/outfall from Glen Cairn	272nd Place NE	Improve outfall in the SW corner of Glencairn development by incorporating level spreader or dispersion trench.	$13,440	10%	$1,344	90%	$12,096	0%	$0	Developer-Driven
	I-5	Improve catch basin/conveyance - 1st Avenue NE	NE Valley Street to NE Stephens Street	Improve stormwater conveyance along 1st Avenue NE to accommodate increased volumes. Includes new pipe and structures along with water quality measures.	$161,028	25%	$40,257	40%	$64,411	35%	$56,360	Mid
	I-6	NE Miller Street Conveyance Improvements (ditch, culverts, catch basins)	NE 3rd Place to Miller Homestead	Improve conveyance system for Coe Clemons Creek tributary along NE Miller Street. Includes re-alignment of conveyance pipe along the north side of the road and new catch basins.	$116,480	25%	$29,120	40%	$46,592	35%	$40,768	Mid - Long
	I-7	Improve conveyance (ditch and pipe) in Juniper Glen Plat	2nd Place NE and NE Comegys Street	Improve conveyance with in Juniper Glen subdivision to minimize downstream impacts and improve flooding issues.	$311,760	25%	$77,940	40%	$124,704	35%	$109,116	Mid
CITYWIDE PROGRAMS	O-1	Annual Pipe Replacement/CIPP Program/Root Removal Program	Citywide	Citywide program to replace broken/deteriorated/missing storm conveyance pipe or utilize Cured-In-Place-Pipe (CIPP) alternatives as well as addressing root intrusion issues that create flooding problems annually or as necessary.	$85,000	95%	$80,750	0%	$0	5%	$4,250	On-going
	O-2	Facility Tree Planting Program	Citywide	Citywide program to plant new trees or shrubs for facility screening, shading, and maintenance.	$17,000	25%	$4,250	0%	$0	75%	$12,750	On-going
	O-3	Disconnect Downspout	Citywide	Public education and outreach program to highlight the importance of finding ways to manage stormwater from your home on site and reduce the burden on existing infrastructure.	$85,000	25%	$21,250	0%	$0	75%	$63,750	On-going
	O-4	Rain Garden Program	Citywide	Public education and outreach program to highlight the importance of incorporating rain gardens to manage stormwater from individual lots and reduce the burden on existing infrastructure.	$25,500	25%	$6,375	0%	$0	75%	$19,125	On-going
	O-5	Chain Link Fence Upgrades	Citywide	This is an on-going, Citywide effort to remove and replace failing perimeter fencing around City owned and maintained stormwater facilities.	$340,000	95%	$323,000	0%	$0	5%	$17,000	On-going
	O-6	Stormwater Facility Baseline Mapping and Asset Management	Citywide	Implementation of an asset management system to compliment and improve operations and maintenance of City owned infrastructure.	$85,000	95%	$80,750	0%	$0	5%	$4,250	On-going
	O-7	Catch Basin Cleaning	Citywide	On-going Citywide program (NPDES requirement)	$170,000	25%	$42,500	0%	$0	75%	$127,500	On-going
	O-8	Maintenance and Operations	Citywide	On-going Citywide program to maintain vegetation and infrastructure.	$255,000	25%	$63,750	0%	$0	75%	$191,250	On-going
	O-9	General Old Town Water Quality Improvements Program	Old Town	Incorporate low impact development (LID) techniques into Old Town to maximize basic treatment of pollution generating impervious surfaces (PGIS).	$85,000	25%	$21,250	0%	$0	75%	$63,750	On-going
	O-10	Education and Outreach Program	Citywide	On-going Citywide program (NPDES requirement)	$85,000	25%	$21,250	0%	$0	75%	$63,750	On-going
	O-11	Stormwater Comprehensive Plan Update	Citywide	On-going effort to keep goals, policies, and design standards current with Federal regulations.	$100,000	25%	$25,000	40%	$40,000	35%	$35,000	On-going
				Totals	**$8,871,841**	**-**	**$1,543,054**	**-**	**$3,327,042**	**-**	**$4,001,745**	**-**

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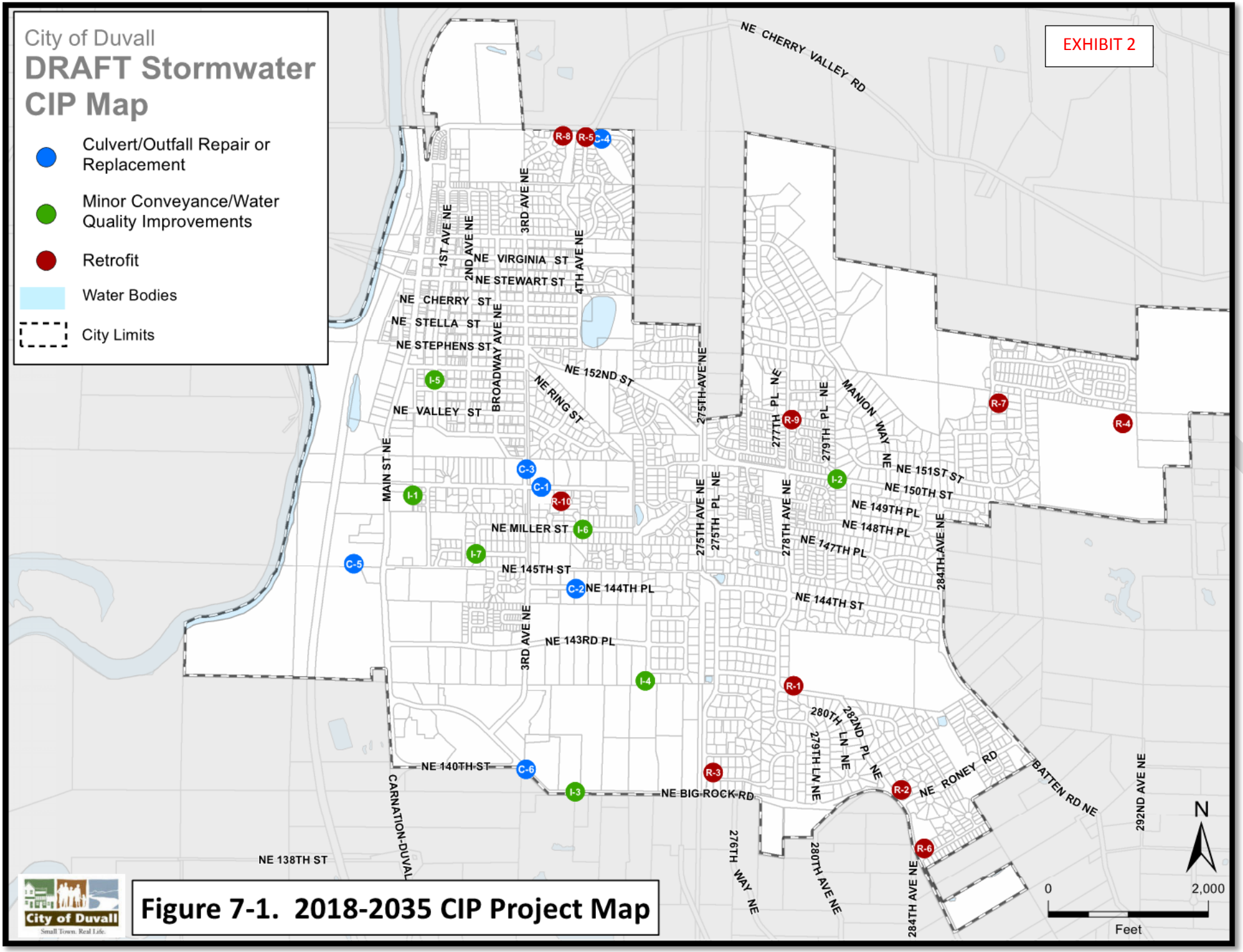

Figure 7-1. 2018-2035 CIP Project Map

7.2 IMPROVEMENT PROJECTS AND PROGRAMS

7.2.1 RETROFIT PROJECTS

The CIP incorporates ten of the highest-ranking stormwater retrofit projects identified in Chapter 5, as well as two general "various" retrofits (pond and bioswale) whose locations may be selected at a future date based on opportunities such as nearby construction projects or available grant funding. These projects will improve water quality and detention and benefit downstream receiving water bodies. Facility retrofits will also incorporate LID BMPs such as bioretention, increased canopy cover, and other approaches as possible.

7.2.2 CULVERT / OUTFALL REPAIR OR REPLACEMENT PROJECTS

Repair and or replacement of undersized or non-functioning culverts along creek reaches within City limits will reduce potential flooding issues, eliminate fish barriers, and provide improved access to upstream habitat. The creeks identified for culvert replacement in the CIP list include Coe Clemons Creek, Thayer Creek, Cherry Creek Tributary, and an Unnamed tributary of the Snoqualmie River that crosses beneath NE Big Rock Road.

7.2.3 MINOR CONVEYANCE AND/OR WATER QUALITY IMPROVEMENT PROJECTS

Improvements to conveyance include removal of pollution generating impervious surfaces (PGIS), ditch maintenance, improving existing conveyance pipe, and adding structures when necessary. The approach to these projects are similar to the *Retrofit Projects*, but on a smaller scale. The purpose of minor conveyance and or water quality improvements are to minimize flooding and mitigate impacts as shown in Table 7-1.

7.2.4 CITYWIDE IMPROVEMENT PROGRAMS

The Surface and Stormwater Plan includes eleven Citywide improvement programs:

- Annual Pipe Replacement/Cured-In-Place Pipe (CIPP) Program/Root Removal Program;
- Facility Tree Planting Program;
- Disconnect Downspouts;
- Rain Garden Program;
- Education and Outreach Program;
- General Old Town Water Quality Improvement Program;
- Chain Link Fence Upgrades;

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- Catch Basin Cleaning;
- Maintenance and Operations;
- Stormwater Facility Baseline Mapping and Asset Management; and
- Surface and Stormwater Plan Update.

The *Annual Pipe Replacement/Cured-In-Place Pipe (CIPP) Program/Root Removal Program* will be used to preserve and enhance the City's existing and planned stormwater system. The program provides the City with a systematic approach for evaluating piped conveyance networks for pipe/structure condition, root intrusion, blockages, sediment accumulation, and other similar conveyance issues. The City will need to consider allocating a significant annual budget including funding for staff resources to administer the maintenance, operations, and capital programs to ensure that the stormwater infrastructure is preserved in a cost-effective manner. For regional improvements, staff resources will be used to prepare grants and coordinate with local and federal governing entities.

The *Facility Tree Planting Program* will be used by the City to improve tree canopy area to enhance water quality, shading, and facility screening. The program will focus on locations not covered by a specific capital project shown in Table 7-1, and will allow the City to fill gaps in canopy coverage that are needed to provide habitat, improved interception and evapotranspiration, and other associated benefits.

The *Disconnect Downspouts,* the *Rain Garden Program* and the *Education and Outreach Program* will be used in conjunction with the NPDES Permit requirements to promote LID techniques and BMPs for stormwater management.

The *General Old Town Water Quality Improvement Program* includes incorporating LID techniques and water quality features where no stormwater management facilities exist. This program will work with other City capital projects and programs to integrate LID BMPs into project design. Staff resources will be used to prepare grants and coordinate with local and federal governing entities.

The *Chain Link Fence Upgrades, Catch Basin Cleaning*, and *Maintenance and Operations* programs are key to maintaining proper function of stormwater infrastructure. These programs address public facilities including but not limited to ponds, pipes, structures, vaults, catch basins, bioswales, infiltration trenches, and ditches.

The *Stormwater Facility Baseline Mapping and Asset Management,* and *Surface and Stormwater Plan Update* programs include updating and maintaining records for asset management and complying with local and federal regulations and requirements.

7.3 PROJECT COST ESTIMATES

Cost estimates for Retrofit Projects R-1 through R-5 were based on specific engineering estimates for those projects. Cost estimates for the remaining Retrofit projects (R-6 through R-V2) were develop based

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on the cost estimates developed for this planning effort, costs from the 2017 Parkwood Estates Retrofit project, and recent project work.

Cost estimates for Culvert/Outfall repair and replacement projects C-1 to C-6 and Minor Conveyance and/or Water Quality Improvements projects I-1 to I-7 were developed based on historical costs from the 2017 Parkwood Estates Retrofit project, the 2016-2017 Main Street Project, and recent project work. Citywide program costs were developed based on historical costs associated with existing programs along with estimates for new programs based on project level of effort.

The proportion of City Funds, Developer Capital Charges, and possible grant funds were developed based on review of past project funding, available grant funding, and an evaluation of developer-related burden. These funding sources are discussed below, and additional information concerning funding and economic analysis is presented in Chapter 6, Funding and Financing Program.

Grants:

Over the past several years the City has secured grants for several Citywide improvement projects. Based on the recent past grant revenues, this source could provide up to $1.5 million in revenues to fund the Plan. Grant funding is typically tied to specific improvement projects and is distributed on a competitive basis. However, the City has also received "Capacity Grants" from Ecology for general stormwater improvements. Recent grant funding is shown below in Table 7-2.

Table 7-2. Grant funding received between 2008-2016

Fiscal Year (FY)	Project Name	Amount Received
FY 08-10	NE 145th Street / 275th Avenue NE	$90,000
FY 10-11	Ecology Pass-Through Grant	$50,000
FY 11	Ecology Capacity Grant	$85,834
FY 11	Pond Retrofit (Carrie Rae)	$140,400
FY 11	Sub-Regional Opportunity Fund	~$30,000
FY 13	Ecology Capacity Grant	$30,000
FY 14	Ecology Capacity Grant	$50,000
FY 14	Pond Retrofit (Parkwood)	$120,000
FY 14	Sub-Regional Opportunity Fund	~$64,000
FY 15-17	Ecology Biennial Capacity Grant	$50,000
FY 16	Ecology Natl. Estuary Program Grant	$199,674
FY 17-19	Ecology Biennial Capacity Grant	$50,000
	Total	**$959,908**

Given the many demands on City funds and the limited applicability of developer capital charges, the City will need to secure significant amounts of grant funding to fully implement the CIP. Ecology grants may

be available for major retrofit improvements including the projects identified in this Plan, and local, regional, state, and federal grants may be available for other types of projects.

Developer Capital Charges:

Improvement projects R-1 to R-12, C-1 to C-6, I-1 to I-7, and O-11 are eligible for developer capital charge funding. The proportion of Developer Capital Charges to total project cost for these projects were developed based on the ratio of existing development with respect to the forecast of total anticipated development within the 2015 Comprehensive Plan. This calculation is shown in Table 7-3.

Table 7-3. Existing and anticipated changes in development within the City

	Parcel Area (Acres)	Dwelling Units
2015 Existing Total Development	963	2,657
2035 Anticipated Total Development	1,412	3,884
2015-2035 Anticipated Change in Development	449	1,227
2015 – 2017 Actual Development	20	145
2018 – 2035 Anticipated Change in Development	429	1,082
% Increase 2018-2035	*43%*	*38%*
Average %	40%	

City Funds:

City funds for stormwater improvements come from the City's general fund, or the 404 Fund. The amount of City funding required to complete each project was derived by subtracting potential Grant funding and Developer Capital Charges from the total project cost.

7.4 Implementation Schedule, Performance Measures and Strategies

7.4.1 Implementation Schedule

This section provides a framework for the City to prioritize and fund the improvements identified in this document. For each project included on the CIP list (Table 7-1. Stormwater System Capital Improvement Program Project List (2018-2035)., an implementation schedule is provided in the 'timeframe' column. The schedule is based on short, mid, and long-term timelines developed based on factors such as project priority, the opportunity for partnerships with other entities, and possible efficiencies associated with adjacent private or public construction projects. The implementation schedule also considers grant

opportunities and associated coordination with other jurisdictions such as Ecology and King County. Other considerations include the need to address existing infrastructure issues and programs to ensure coordination with development to address issues and fund stormwater improvements necessary to support new growth.

7.4.2 Performance Measures

Elements of the Comprehensive Plan and this Surface and Stormwater Plan anticipate the needs and conditions of future stormwater infrastructure which allows the City to plan until the 2035 horizon year. Regular updates are necessary to ensure the plan remains current and relevant. The planning and financing strategies outlined in this document attempt a balance between revenues and expenditures over the life of the Plan. However, the City is committed to reassessing their stormwater needs and funding sources each year as part of their annual Six-Year CIP update. This allows the City to match the financing program and other opportunities with the shorter-term improvement projects, funding, and grant opportunities.

7.4.3 Monitoring and Evaluation Strategy

The City will go through a formal process of updating the Plan every five to eight years as part of the City's regular Comprehensive Plan amendment cycle, which ensures proposed changes go through a public review process before the amended Plan is adopted by the City. Proposed updates may include shifts in City priorities, compliance with regulations and requirements, or the changes in the relevance of certain Plan components.

The City will review identified projects and programs and assess whether the CIP is adequately addressing the implementation strategies necessary to ensure the stormwater infrastructure continues to grow in line with the City's objectives. Establishing and implementing a re-evaluation process allows the City to understand progress made while implementing the CIP, as well as identifying new needs that have developed since the previous update.

As part of this process, the City will review its future project list and update the CIP as needed. Policies, strategies, and funding approaches will also be evaluated to ensure consistency with the City's vision, regulatory requirements, and future funding opportunities. The City will apply the following principles to maintain and develop this Plan and the City's stormwater system:

- Balance improvement costs with available revenues as part of the annual Six-Year CIP Update process;
- Coordinate with local and federal agencies to secure grants and other funding for improvements;
- Pursue grants and economic assistance programs to improve Old Town water quality in accordance with the NPDES Permit, and;

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- Work with private developers to implement LID improvements as identified in this Plan and with respect to the Goals & Polices within the City's Comprehensive Plan and other relevant Plans, Programs, Codes, and Standards.

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CHAPTER 8. OPERATIONS AND MAINTENANCE

8.1 OPERATIONS AND MAINTENANCE

Under the 1997 Stormwater Management Plan, the City's stormwater operations and maintenance program had three primary functions (Gardner Consultants, 1997). They were to:

- Maintain the functional use of the public drainage system;
- Maximize the water quality benefits of the existing drainage system facilities; and
- Provide for emergency response to flooding and water quality problems resulting from drainage system restriction, hazardous material spills or illegal dumping.

New federal and state regulations, coupled with a growing population, require the City to update its regulations and operations and maintenance for the management of stormwater. In 2010, the City adopted the 2009 KCSWDM, including any subsequent amendments, to help guide these efforts. Since 2007, the NPDES Permit requires the development of a SWMP, which must address the operations and maintenance of post-construction stormwater facilities (as discussed in Chapter 2).

Currently, key tasks of the operations and maintenance program include:

- Annual inspections of public and privately-owned stormwater facilities, ensuring proper function and maintenance;
- Annual cleaning and maintenance of pipes, ditches, catch basins, culverts, and other storm drainage system components;
- Repair and maintenance of other structural elements of the storm drainage system, including water quality facilities;
- Cleaning streets and public parking lots to remove sediment, leaves and debris that could plug inlets, catch basins and pipes;
- Routine observation and monitoring of flow and water quality during storm events and wet weather months; Investigating sources of water contamination;
- Training staff for emergency response with regards to hazardous material spills, illegal dumping, and flooding;
- Assembling emergency spill response equipment;
- Develop a plan to deal with heavy rainfall and blockages in highly susceptible and critical drainage systems;
- Construction Site Inspection of TESC plans.

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8.1.1 Facility and Conveyance Inspection and Cleaning

There are 170 stormwater facilities within the City in 2017. Of these, 134 are owned and maintained by the City, with the remaining 36 being privately-owned and maintained. Additionally, the City owns and maintains over 40 miles of stormwater conveyance pipe, approximately 7-miles of ditches, and over 2,000 catch basins.

Annual inspection and cleaning of these facilities is performed to comply with NPDES Permit requirements, as well as in response to reports of localized flooding or other drainage issues. Catch basin inspections and necessary cleaning is also completed by Public Works crew, consistent with updates to the NPDES Permit requirements. The types of stormwater facilities and infrastructure inspected and maintained include:

- Ponds (detention/retention and water quality)
- Tanks, vaults, detention pipes (underground)
- Vegetated (grass-lined) swales and ditches
- StormFilters
- Catch basins/oil-water separators
- Sand Filters
- Infiltration or dispersion trenches
- Conveyance pipe
- Bioretention systems

Traditional stormwater ponds and swales require regular cleaning in addition to mowing, vegetation control, tree removal, and fence maintenance. Cleaning and vegetation control activities help maintain proper function of the stormwater system, which protects downstream water quality and minimizes sediment transport through the system. These activities are completed annually by the Public Works crew.

Since 2014, the Public Works crew has rented a Vactor-Truck for four to six weeks during the summer months to perform jet-cleaning of conveyance pipe, and manual removal of sediment and debris to complete catch basin cleanings (Figure 8-1). All routine and found deficiencies are documented and repaired within one year.

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Figure 8-1. Example of a Vactor-Truck for catch basin cleaning and conveyance pipe jetting.

Catch Basins and Piped Conveyance

Current Catch Basin Inspection and Cleaning Protocol: Catch basins, as well as other stormwater facilities, collect sediment, vegetation, contaminants, and other materials, which build up and can inhibit proper functioning of the stormwater system. When catch basins become approximately 60 percent full, they no longer effectively remove sediment. Therefore, inspection and cleaning is completed by the City at a frequency necessary to avoid catch basins reaching this threshold. The most recent Permit required inspection of all catch basins by August 2017; Public Works met this permit requirement.

The City tracks inspection and cleaning activities through a system of field notes, inspection forms, GIS database, and in-office spreadsheets.

New NPDES Permit Requirements: The NPDES Permit, effective August 1, 2013, requires an increased frequency of catch basin inspection from once every five years to every two years (Ecology, 2018a). If it is determined that a catch basin needs cleaning, the work must be done within six months of the inspection.

As of 2017, Public Works staff have split the City into four maintenance zones which allow for the required inspection and cleaning of catch basins to be streamlined. This systematic approach allows approximately half of the City's catch basins to be inspected and cleaned (as required) every year, therefore resulting in 100% compliance with updated NPDES Permit requirements.

Ditches

The City has approximately seven miles of publicly maintained ditches and grass-lined swales, primarily associated with older residential areas surrounding Old Town. Ditches fill with sediment and vegetation over time, reducing their capacity. This occurs naturally, however, improper erosion and sediment control can speed the process. Maintaining grass-lined ditches is important to both slow storm runoff and provide

basic filtration before discharge to downstream receiving waters. Properly maintained ditches sustain conveyance, reduce the risk of flooding, and protect water quality.

The Public Works crew implement regular maintenance of all public ditches, including mowing and weed-eating to clear accumulated grasses and other weedy vegetation, and removal of trash debris.

8.1.2 Flood Response and Non-routine Maintenance

Significant storm events can trigger the need for emergency maintenance, repairs, or cleaning to protect infrastructure or private property from flooding. The City also performs spot checks of permanent treatment and flow control facilities (not including catch basins) after storm events equal to or greater than 10-year, 24-hour storms and regularly during October through May. If these spot check inspections indicate widespread damage and maintenance needs, the Public Works crew inspects all stormwater facilities that may be affected and conducts appropriate repairs or maintenance actions.

8.1.3 Maintenance Repairs

The City utilizes maintenance standards contained within the adopted KCSWDM. Inspections of stormwater facilities are completed following schedules and standards described in 8.1.1, more detail can be found in the City Facility Maintenance Manual in Appendix C. When maintenance repairs are determined necessary, they are performed as follows:

- Within one year for standard maintenance of facilities (not including catch basins).
- Within six months for catch basins.
- Within two years for maintenance that requires capital construction of less than $25,000.
- If maintenance cannot be completed within the above time frame, then the City completes the maintenance activities as soon as possible and documents/monitors the circumstances.

8.1.4 Spill Response and Illicit Discharge Elimination (IDDE)

The City implements an IDDE program to detect and remove illicit discharge, illicit connections, and improper disposal, including any spills into the stormwater system without a permit. As part of the IDDE program, the City:

- Performs ongoing investigations of stormwater infrastructure:
  - Since 2011 – completed annual dry weather outfall screenings at three locations; and
  - Since 2015 – added screenings to the annual catch basin cleaning program.
- Maintains a publicly listed hotline and email for non-emergency reporting.
- Implements ongoing training for IDDE response staff.
- Tracks IDDE activities.

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8.1.5 Construction Site Inspection

In addition to annual street sweeping, catch basin cleaning, and infrastructure inspections, City staff inspect sites prior to clearing and construction. During construction activities, City inspectors verify proper installation of Temporary Erosion and Sediment Control (TESC) BMPs and ensure they are functioning properly to minimize the probability of silt laden waters from leaving the site. Following the completion of construction, City inspectors ensure proper installation and function of permanent stormwater facilities, structures, and conveyance systems.

8.1.6 Other Maintenance Activities

Street Sweeping: The City hires a third-party contractor to conduct street sweeping activities on the last Thursday of every month to prevent flooding or damage to infrastructure or private property. Street sweeping removes debris from the road that can otherwise end up in stormwater infrastructure and increase the need for structure and pipe cleaning. Currently, the streets that are swept include arterials and roadways with ditches and curb and gutters.

Vegetation Management: Most stormwater facilities have a vegetated functional element to slow flows, and improve water quality. Improper maintenance can negatively impact the functionality of these systems, causing widespread problems such as flooding. The City maintains pond vegetation and roadside ditches during the dry months to reduce sediment transportation. LID BMPs such as rain gardens, stormfilters, modular wetland systems, and bioretention swales require a range of specific maintenance techniques. LID BMPs will be maintained per manufacturer specifications and maintenance is the responsibility of the facility owner.

8.2 Review and Recommendations for Operations and Maintenance Best Management Practices (BMPs)

The City has grown rapidly over the last 25 years, with corresponding expansion of public storm drainage infrastructure. This growth, paired with limitations on staffing resources, warrants implementation of new operations and maintenance program BMPs. These BMPS are intended to provide increased efficiencies, streamlined and improved tracking, and rapid/consistent identification of facility or conveyance deficiencies.

Recommendation: Implement an asset management system to track maintenance and inspection activities, including utilization of mobile technologies (GPS-enabled tablets) and standardized, digital field forms.

Current erosion and water quality issues stemming from less rigorous, previously required stormwater standards include: increased flows, sediment transport, stream channel erosion, slope failures, and under-treated runoff from PGIS. In the past, actions required to improve these issues have included slope and

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channel stabilization, upper basin pond retrofits, and downstream culvert replacement. The intent of this Plan is to go one step further and require implementation (to the maximum extent feasible) of LID BMPs to mimic natural pre-developed conditions.

Recommendation: Develop a training program for Public Works staff to understand and successfully maintain LID infrastructure type facilities, which are anticipated to become common place with new development and redevelopment activities in the years ahead. Specific goals of an LID infrastructure training program would include:

- Best practices for maintenance of pervious pavement.
- Best practices for maintenance of bioretention swales and infiltration-type facilities.
  - If the City is to support vegetated LID facilities with emergent vegetation and/or shrub species, Public Works crew will require direction for annual maintenance needs of these facilities. *Additional landscaping and horticulture skills may be required, and additional training may be necessary to support increased maintenance needs*.
- Best practices for maintenance of modular wetland systems, Filterra™, and other emerging technologies.

8.3 Operations and Maintenance of Private Facilities

There are approximately 36 privately-owned stormwater facilities in the City consisting of ponds, vaults, detention pipes, and bioswales. These facilities are typically associated with commercial development and are inspected annually by Public Works staff. If deficiencies are found, responsible parties are notified in writing and given a time frame in which to correct identified deficiencies.

Private facilities generally drain into City owned and maintained stormwater conveyance systems, and if not properly maintained, these facilities can contribute pollutants and excess sediments to receiving water bodies. If privately-owned facilities operate as designed and are properly maintained, a stormwater utility fee discount is awarded. This process is outlined in DMC 9.06. However, if the privately-owned facilities are not functioning or maintained civil penalties may be applied to the responsible party by the City.

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CHAPTER 9. POLICIES AND REGULATION

9.1 SURFACE AND STORMWATER POLICY

Adopted City policies for stormwater management are included in the 2015 Comprehensive Plan, 2015 Watershed Plan and the 1997 Stormwater Management Plan. Adopted policies provide direction for City staff when implementing NPDES Permit requirements and concurrently meeting City priorities for future development and economic growth, infrastructure management, and environmental protection.

2015 Comprehensive Plan

The City's adopted 2015 Comprehensive Plan includes goals and policies that are directly relevant to the management of surface and stormwater infrastructure. These goals and policies, along with the other described plans and regulations, guided development of the Surface and Stormwater Plan Update. For some of the goals, only one or two of the underlying policies are related to stormwater. All relevant goals and policies from the 2015 Comprehensive Plan considered in developing this Plan are listed below.

Chapter 2 – Land Use Element

Goal LU-3: Building and site design for residential, commercial, industrial, and mixed-use development promote and ensure visual and functional consistency with adopted plans.

- Policy LU 3.5: Provide flexibility in the administration of design standards to allow for innovative products and creative, effective solutions to site challenges.
- Policy LU 3.9: Update subdivision and site plan standards, as needed, to reflect changes in design methodologies, technology, products, or adopted goals and policies relating to desirable development design.

Chapter 7 – Capital Facilities Element

Goal CF-8: Duvall's stormwater management system is effective, efficient, and enhanced to meet present and future population needs.

- Policy CF8.1: Manage the quality and quantity of stormwater runoff to protect public health, safety, and surface and groundwater quality, and to minimize potential erosion and sedimentation within natural drainage systems such as rivers, streams, lakes and wetlands.
- Policy CF8.2: Require development regulations that encourage the use of Low Impact Development (LID) measures, reduce impervious surface coverage, and retain natural vegetation.

- Policy CF8.3: Require design of new development to allow for efficient and economical provision of storm drainage facilities and require new development to pay general facility charges.
- Policy CF8.5: Comply with all National Pollution Discharge Elimination System (NPDES) Phase II permit requirements, including regular review and updates of stormwater development standards

Goal CF-9: Transportation improvement plans and programs provide for future road projects throughout the City to allow growth-related improvements.

- Policy CF9.3: When improving new roads, facilities should be undergrounded where feasible, and sewer, water, and stormwater facilities that are in disrepair should be repaired or replaced if funding allows.

Chapter 8 – Environment and Sustainability Element

Goal ES-16: Protect wetlands from encroachment and degradation, and promote wetland restoration, especially at sites that provide important ecological functions.

- Policy ES16.5: Prohibit stormwater management facilities within wetlands and limit such facilities within wetland buffers; ensure that wetland hydrology and water quality is maintained as adjacent development occurs.

GOAL ES-17: Maintain and protect stream resources that provide multiple functions, including surface water transport, fish and wildlife habitat, and aesthetic value.

- Policy ES17.4: Manage the quality and quantity of stormwater runoff entering streams, to protect public health and safety, surface and groundwater quality, and the ecological functions of natural drainage systems.

GOAL ES-20: Improve important watershed processes and functions through progressive review and updates of land use designations, development practices, and infrastructure improvements.

- Policy ES20.2: Update zoning, subdivision, sensitive areas, and storm drainage standards and other development standards consistent with the subbasin management group framework established in the Watershed Plan.

GOAL ES 21: Improve watershed processes by investing in stormwater infrastructure, parks, open spaces, and restoration in the City's capital improvement program.

- Policy ES21.4: Identify and prioritize stormwater retrofits to address impaired watershed processes and reduce effective impervious surface areas based on the findings of the Watershed Plan.
- Policy ES21.5: Explore the feasibility of building and maintaining centralized stormwater facilities in Management Groups 2B and 2C in the urban growth area (UGA) to offset onsite detention requirements.

Goal ES-23: Improve City-wide stormwater systems to maintain and enhance water flow and water quality processes through implementation of low impact development techniques.

- ES 23.1: Improve stormwater management based on the findings of the Watershed Plan by expanding low impact development requirements, creating incentives, and establishing green infrastructure standards for public roadways in the Duvall Municipal Code.
- ES 23.2: Encourage property owners to use low impact development best management practices for improved stormwater systems by establishing voluntary programs, and partnering with not-for-profit organizations and governmental agencies.

2015 Watershed Plan

The 2015 Watershed Plan (WSP) provides guidance for improving stormwater management in the City based on watershed assessment results and the subbasin management groups established by that Plan. During development of the WSP, each strategy was reviewed by the Advisory Committee and ranked by feasibility and importance for achieving the City's stormwater management goals. Relevant strategies from the 2015 WSP considered in developing this Plan are listed below.

- **Action SW-1: Define the most useful and applicable LID BMPs and require their use in new development activities.** Currently, the City encourages developers to implement LID measures in accordance with the Public Works Development Design Standards (PWDDS), the requirements of NPDES Permit (Appendix A), and requirements of the King County Surface Water Design Manual (KCSWDM).

The WSP recommended that new standards for using LID BMPs should be incorporated within stormwater management regulations (DMC 9.06) to reinforce adopted City policies and standards. This section of the Plan detailed LID BMP facility categories (dispersion by maintaining/restoring natural drainage patterns, infiltration/partial infiltration, filtration, and rain capture/reuse), including identification of specific BMPs and potential opportunity for use within the City.

Recommendations under Action SW-1 apply to all subbasin management groups City-wide. As stated in the WSP "the feasibility of individual strategies varies throughout the City and depends on land ownership, existing topography, soils, hydrology and land cover."

- **Action SW-2: Improve soil amendment BMP in DMC 14.38.130 for clarity, ease of understanding and enforcement.** The City's current code provides soil specifications for enhancing hydrologic benefits of disturbed soils (after clearing and grading) and for maintaining soils around existing trees that are preserved on a development site.

Recommendations of Action SW-2 include suggestions for updating and clarifying these standards, to improve both expectations and outcomes as soil-disturbing activities (land development) occur in the City. Specific subbasins are identified where mapped soils show very low soil permeability, with the suggestion made that these areas would benefit from soil amendments. Recommendations of Action SW-2 apply to all sub-basin management groups City-wide.

- **Action SW-3: Small-site Stormwater Enhancement.** This action recommends defining the most useful and applicable LID BMPs and stormwater enhancement approaches for small sites, and requiring their use in new development and redevelopment activities on small sites. The Action also suggests implementing voluntary and/or incentive-based programs to encourage residential property owners to disconnect downspouts and install rain gardens and rain barrels.

The WSP recommendations of Action SW-3 should be focused within Management Groups 2B, 2C and 3. Generally, the WSP notes that application of small-site strategies that include infiltration will likely be more successful in the Old-Town, Coe-Clemmons – Lower, and Cherry Creek B subbasins, than will efforts in other subbasins. The other subbasins have either low percentages of permeable soils or no mapped permeable soils.

- **Action SW-4: Establish Flow Control Exemption.** The WSP recommends creating a flow control exemption for portions of the City that are predominantly built-out and already drain directly to the Snoqualmie River through pipe and/or ditch infrastructure. Currently, projects that discharge to the Snoqualmie River floodplain within a ¼ mile of improved flow path (pipes or ditches) are flow control exempt per Section 1.2.3 of the KCSWDM.

This action refers to portions of the City that already drain directly to the Snoqualmie River through pipes or ditches. Runoff from this limited area does not adversely impact local stream bed and banks and impacts on the Snoqualmie River are negligible. The City could create an expanded flow control exemption for projects in the highly developed Management Group 3 subbasins, to incentivize the increased use of LID BMPs focused on water quality treatment. The City could also consider development of a program to provide stormwater control transfer to focus rehabilitation in priority project assessment units (PAUs), maximizing environmental benefit.

- **Action SW-5: In UGAs, explore opportunity for centralized stormwater facilities to off-set onsite detention requirements.** Current City code does not prohibit centralized stormwater management approaches, but also does not establish a preference for such facilities. This WSP action suggests that such approaches should be considered in areas where significant development is expected, and where there is sufficient open space and conditions to warrant a centralized approach. This action is identified as a lower priority strategy, applicable to subbasin management groups 2B and 2C within the UGA.

- **Action SW-6: Incentivize stormwater LID standards.** "LID BMPs could be encouraged throughout the City using an incentive program. Incentives that could be considered include a relaxation of buffer limits for sensitive areas (especially in subbasins within subbasin management groups 2C and 3), or allowances that provide additional development opportunity within a given site (density increases, increased lot coverage, or other similar strategies)."

- **Action SW-7: Improve Standards for Landscape Strips in Roadways.** "Adjust the landscape strip for street trees to be a minimum of 6-8 feet in width to ensure adequate space for successful growth, which would provide the added benefit of increased infiltration and retention of stormwater (SDOT,

2014). An incentive for wider landscape strips could include allowing the proposed increased direct discharge exemption or through providing open space credit when developers dedicate more area for landscape strips. In addition to providing more room for successful landscaping and tree growth, wider landscape strips also provide opportunities for LID stormwater approaches to be integrated into the streetscape."

As additional recommendations, the action directs the City to consider allowances for sidewalks adjacent to curb-line on internal roadways (sub-collectors, sub-access and minor access streets) for roadways with dedicated on-street parking. Sidewalks adjacent to curb-line could be considered on the condition that equivalent landscape strip area is provided adjacent to private residential landscape or other compensatory landscape area. This approach would "provide opportunity to maximize landscape width and viability"; and landscape strip consolidation to one side of the street maximizing available width (within limits).

- **Action SW-8:** Enhance the current City of Duvall NPDES educational outreach program. This recommendation recognizes the City's existing educational outreach efforts, and suggests updates to implement other actions within the WSP and to incorporate new and targeted educational materials.

1997 Stormwater Management Plan

Although dated, the City's 1997 Stormwater Management Plan was reviewed for identified goals and policies. The following Water Quality Program goals were established and emphasized by the Plan, given "enforcement by the U.S. EPA of the NPDES Permits as a requirement of Clean Water Act":

1. Identify and document the locations, sources, and magnitude of water quality problems within the existing drainage system.

2. Institute a program of water quality source control measures, including an expanded operation and maintenance program, regulation of development and private property, and public education with respect to water quality issues.

9.1.1 DUVALL MUNICIPAL CODE REGULATIONS

The adopted Storm Drainage Utility regulations (DMC Chapter 9.06) establish the City's primary mechanism for implementation of the Stormwater Management Program consistent with NPDES Permit requirements. Current components of City's Stormwater Management Program are detailed in Chapter 2 – Surface and Stormwater Management Background. Chapter 2 consists mainly of Duvall-specific standards, programs, and requirements associated with the Storm Drainage Utility. However, this Plan recommends removal of adopted 2017 regulations that duplicate KCSWDM requirements to simplify and clarify Storm Drainage Utility language. The following summarizes key sections of DMC Chapter 9.06:

DMC Chapter 9.06 Purpose: *The City Council finds that this Chapter is necessary to promote sound development policies and construction procedures which respect and preserve the City's watercourses; to minimize water quality degradation and control of sedimentation of creeks, streams, ponds, lakes, and other water bodies; to protect the life, health, and property of the general public; to preserve and enhance the suitability of waters for contact recreation and fish habitat; to preserve and enhance the aesthetic quality of the waters; to maintain and protect valuable groundwater quantities, locations, and flow patterns; to ensure the safety of City roads and rights-of-way; to comply with federal and state requirements; and to decrease drainage-related damages to public and private property.*

- **DMC 9.06.030 – Incorporation of King County manual.** Adopts the current edition of the KCSWMD, including any subsequent amendments, as the primary basis for management of stormwater runoff from new development, redevelopment and construction site activities.

- **DMC 9.06.035 - Illicit discharge detection and elimination.** Provides the City Engineer authority to develop an inspection program for illicit discharge and illicit connection to surface waters and stormwater infrastructure, and additionally defines what constitutes an illicit discharge, and what discharges are allowable.

- **DMC 9.06.040 - Requirements for small parcels.** For new development of single family residential lots and duplexes, and other new developments that result in creation or addition of less than 2,000 square feet of impervious area, or clearing/grading activities of less than 7,000 square feet. This section provides Duvall specific criteria primarily for management of runoff during project construction.

- **DMC 9.06.050 - Requirements for large parcels.** For new development and redevelopment activities not meeting the small parcel definition, this section provides minimum criteria for management of runoff during project construction, for permanent stormwater facilities, and for assessment of potential impacts and mitigation for adjacent sensitive areas and downstream waters.

- **DMC 9.06.060 - Operation and maintenance requirements.** Establishes minimum standards for ongoing operation and maintenance of all stormwater facilities, supplemental to the standards in the incorporated KCSWDM. See Chapter 8 of this Plan for details.

- **DMC 9.06.120 – Fees and 9.06.125 - Service charges.** Provides the City with development fee and service charge authority for operations, maintenance, and capital improvements for surface and stormwater infrastructure. See Chapter 7 of this Plan for details.

- **DMC 9.06.140 - Adoption of Comprehensive Plan.** This section adopts the City's official Stormwater Management Plan. The current adopted plan is from 1997, which will be replaced at adoption of this Storm and Surface Water Plan.

9.2 Programmatic Opportunities for Surface and Stormwater Management

9.2.1 Expanded Flow Control Exemption to Floodplain

Adopted City policy identifies creation of a flow control exemption for portions of the City that are predominantly built-out and already drain directly to the Snoqualmie River and associated floodplain through pipe and/or ditch infrastructure (WSP Action SW-4).

Currently, projects that discharge to the Snoqualmie River and floodplain through a ¼ mile of improved flowpath (human-made pipes or ditches), are flow control exempt per Section 1.2.3 of the KCSWDM. Both the Department of Ecology and King County designate the Snoqualmie River as a "major receiving water" eligible for the direct discharge exemption. For projects that are determined eligible for this flow control exemption, discharges cannot be conveyed through tributary streams or hydrologically sensitive wetlands.

By providing limited expansion of the area eligible for direct discharge exemption to ½ mile, the City will provide additional opportunity or incentives for development and redevelopment consistent with 2015 Comprehensive Plan priorities. This Plan sets a framework and identifies policies and development review criteria that:

1. Are consistent with KCSWDM allowances;
2. Require use of LID BMPs to improve water quality from existing and new impervious surfaces; and
3. Ensure adequate evaluation is provided of the downstream flowpath between the development site and the floodplain.

Limited Geographic Direct Discharge Expansion: The expansion of the existing flow control exemption would only apply to properties occurring in Management Group 3 subbasins (prioritized by the 2015 Comprehensive Plan and 2015 WSP for additional development) where runoff is already conveyed to the Snoqualmie River floodplain through pipe and/or ditch infrastructure (see Old Town, Coe-Clemmons – Lower, and Thayer Creek subbasins on Figure 1-1).

Once implemented, Public Works should consider whether additional development opportunity, and/or development cost-savings, provide adequate incentive for applicants to implement qualifying criteria within the direct discharge expansion area. If additional participation is a priority for Public Works to facilitate developments that use LID, and are consistent with the 2015 Comprehensive Plan, then Public Works should consider use of additional incentives for qualifying projects. Incentives could include reduced stormwater fees, increases in development opportunity, and/or other strategies identified based on community and/or development interest input.

Direct Discharge Expansion Qualifying Criteria:

1) Low Impact Development: To be approved for "extended" flow control exemption, proposals must maximize implementation of LID approaches per KCSWDM Core Requirement 9, reducing site runoff through use of permeable pavers or grassed modular grid pavement, pavers or wheel strip driveways, amended soils, minimum 6- to 8-foot wide landscape strips, planting of trees, or other approved alternatives.

2) Low Impact Development: Ensuring the soil moisture holding capacity of new pervious surfaces throughout the development site.

3) Downstream review: Ensure consistency with requirements for Direct Discharge Exemption (page 1-41 of the KCSWDM).

4) Core Requirement 2 review per KCSWDM for any projects discharging to surface waters (wetlands and/or tributary streams) within the Snoqualmie River floodplain (as opposed to improved conveyance all the way to the Snoqualmie River channel):

   a) Erosion - completing downstream analysis from the point of discharge through to end of tributary surface water. Level 1 review, and potentially Level 2 if warranted.

   b) Temperature - Requiring implementation of on-site and off-site measures focused on tributary surface water temperature. Provide shrub vegetation around on-site swale features to add additional shade. Implement offsite riparian planting within floodplain open space areas, targeting stormwater outfall into wetlands, tributary streams and other opportunities to increase shade over surface waters.

   c) Annual monitoring of sensitive receiving areas within the floodplain after project completion. Review would assess channel and bank conditions (tributary streams) or changes in hydrology (wetlands) to ensure no indications of new erosion or other adverse impacts over a 5-year monitoring period with final plat specific provisions and performance-bonded mitigation measures for erosion and/or vegetation impacts during the monitoring period. Adaptive management required when necessary.

   d) Built-in "adaptive management" requirements if new indications of erosion or other adverse impacts are observed – could include providing bank and bed control measures at targeted areas (bank plantings, large woody debris, and/or other grade control structures within the channel), or native plantings within wetland areas appropriate to post-project conditions.

9.2.2 Low Impact Development Toolbox for Future Development

The City established a toolbox of required and optional/incentivized LID measures to ensure LID techniques and BMPs are implemented to the maximum extent feasible based on the unique conditions and soil types specific to the Duvall landscape conditions and anticipated development patterns. Table

9-1 indicates all LID measures required and incentivized for development. Development-type specific tables on the following pages indicate preferred LID BMPs that must be considered for all developments requiring flow control and water quality treatment. Additionally, criteria for BMP selection will also consider the following:

- **Environmental Benefit:** This includes stormwater management infrastructure type, ecosystem service, and community livability.
- **Cost:** This includes capital and operational costs (for City owned facilities and infrastructure).
- **Implementation:** Ease of implementation and probable success will be evaluated.
- **Ownership and Management:** This will include issues related to public versus private ownership, management, and maintenance.

In most cases traditional grey (hard/concrete) infrastructure BMPs provide only a single benefit, where LID (green) infrastructure BMPs may provide multiple benefits. The use of natural systems (or engineered systems that mimic nature), allow surface and stormwater to be managed and treated near its source. LID and more natural systems deliver environmental, social, and in most cases economic benefits which ultimately lead to a sustainable community.

EXHIBIT 2

Table 9-1. LID measures required by project type.

Development Type	Maintain Natural Drainage	Protect Wetlands	Protect Streams and Rivers	Soil Amendment	On-Site Stormwater Management	Flow Control	Water Quality Treatment	Native Vegetation Retention or Revegetation	Minimize Impervious Surface Coverage
SFR on existing lot	R	R	R	R	R	NR	NR	O	O
SFR Short plat	R	R	R	R	R	R	R	O	O
SFR Long plat/subdivision	R	R	R	R	R	R	R	O	O
Multi-family residential and non-residential developments (e.g., commercial, institutional, mixed-use)	R	R	R	R[1]	R	R	R	O	O
Roadway	R	R	R	R[1]	R	R	R	NR	NR
Sidewalk/trail	R	R	R	R[1]	R[2]	NR	R[1]	NR	NR
R = Required, **O** = Optional/Incentive-based**, NR** = Not required/Not applicable									

1. Protect and amend soil in areas not being developed, where feasible.

2. Required for pollution generating surfaces or those surfaces that contribute flow directly to pollution generating surfaces or adjacent properties. Not required for trails or sidewalks that shed non-point source drainage directly to wetlands, streams, floodplains, associated buffers, or other naturalized areas if low risk of erosion, flooding, or other impacts has been documented and approved by the City during project planning.

The following provide standard descriptions for LID measures identified in Table 9-1. During implementation of the LID toolbox into storm drainage standards for future development and redevelopment, Duvall will review each LID measure category to establish development-type specific criteria.

Maintain Natural Drainage: Drainage patterns shall be maintained and discharges shall occur at the natural location, to the maximum extent feasible. Stormwater discharged from the site, retained or infiltrated on-site, shall not cause a significant adverse impact to receiving waters or downstream or upstream properties.

Protect Wetlands: Projects discharging into a wetland or its buffer, either directly or indirectly through a drainage system, shall prevent impacts to wetlands that would result in a net loss of functions and values.

Protect Stream and Rivers: Projects discharging to a stream or river (either directly or indirectly through a drainage system) shall maintain the water quality of any affected stream or river by selecting, designing, installing, and maintaining permanent controls.

Soil Amendment: Retain and protect undisturbed soil in areas not being developed. Prior to completion of the project, amend all new, replaced, and disturbed topsoil (including construction laydown areas) with organic matter.

On-Site Stormwater Management: Manage stormwater at its source; applicable on-site stormwater management BMPs include, but are not necessarily limited to: dispersion structures, infiltration trenches, rain gardens, bioretention facilities, rainwater harvesting, permeable pavement, vegetated roof systems, cisterns, drywells, etc.

Flow Control: Detention/retention facilities must be designed to match the pre-developed (forested) flow duration standard.

Water Quality Treatment: Water quality treatment BMPs shall be installed to treat flows from pollution generating impervious surfaces.

Native Vegetation Retention/Revegetation: Provided via interception, transpiration, and increased infiltration by retaining existing or installing native vegetation (trees and shrubs).

Minimize Impervious Surface Coverage: Minimize impervious surface coverages, below the maximum allowed by City code.

To meet required flow control and water quality treatment BMPs, the development-type specific tables below indicate preferred LID BMPs that must be considered for all developments requiring flow control and water quality treatment. BMPs are listed in priority categories 1 – 4 along with Optional, Incentive-Based BMPs. The City will require use of BMPs within the highest feasible categories; when lower category BMPs are proposed, development applicants will be required to document that higher category BMPs would not be feasible.

Table 9-2. Single-family residential (platted subdivisions), Multi-family

Category	BMP
1	Full Dispersion
	Infiltration Trenches
	Bioretention
2	Dry Wells
	Permeable Pavement outside of Public ROW
	Sheet Flow Dispersion
	Concentrated Flow Dispersion
3	Splash-block Downspout Dispersion
	Trench Downspout Dispersion
4	Perforated Stub-out Connections
	Site Soil Improvements
Optional, Incentive-Based	Single-family Residential Cisterns
	Newly Planted Trees
	Rain Gardens
	Rainwater Harvesting
	Vegetated Roofs

Table 9-3. Roadway, Trails, and Sidewalk Projects

Category	BMP
1	Full Dispersion
	Trench Drains
2	Bioretention
	Sheet Flow Dispersion
3	Permeable Pavement Surfaces
	Newly Planted Trees

Table 9-4. Commercial Projects (may use Table 9-2 when applicable)

Category	BMP
1	Full Dispersion
	Trench Drains
2	Bioretention
	Stormwater Filtration
	Permeable Pavement Surfaces
3	Sheet Flow Dispersion
	Concentrated Flow Dispersion
	Newly Planted Trees

9.3 RECOMMENDATIONS FOR PLAN IMPLEMENTATION

The recommendations of this Surface and Stormwater Plan include updates to SWMP activities, City policy and Storm Drainage Utility code (DMC Chapter 9.06), and adoption of a new surface and stormwater CIP. Updates will support the City in meeting the requirements of the NPDES Phase II permit and the objectives and policies in the 2015 Comprehensive Plan, including retrofit actions to address drainage and water quality problems. This section provides a recommended implementation sequence, and commitments for future Plan evaluation to ensure both annual progress reporting and periodic updates.

9.3.1 IMPLEMENTATION SEQUENCE

There are several opportunities and constraints to consider in the implementation of surface and stormwater projects and programs included in the CIP (Section 7.1). The City is fortunate to have many of the areas proposed for retrofit project actions (as well as associated with ongoing stormwater programs) within public ownership, but community support of effective management and improvements to stormwater systems will contribute to the long-term success of this Plan. The overall strategy for implementation is to: 1) encourage future development to provide stormwater infrastructure that maximizes use of LID and integrated site planning measures; 2) provide effective maintenance of existing systems (maximizing operational function); 3) gain public support for program improvements and retrofit actions that minimize runoff and improve drainage detention capacity and water quality treatment; and 4) pursue grant funding for CIP retrofit projects to supplement the financing program (Chapter 6).

The following provides a recommended sequence for Plan implementation consistent with this overall strategy:

1. Implement updates to DMC Chapter 9.06 (Storm Drainage Utility) to codify policy within this Plan, including:
    - Minor updates to Operations and Maintenance Requirements (DMC 9.06.060) section as necessary to implement recommendations from Plan Chapter 8.
    - Updates to Service Charges (DMC 9.06.125) section to implement updates to the Storm Drainage Acreage Charge and new incentives encouraging LID along with new General Facility Charge as recommended in Plan Chapter 6.
    - Develop and adopt standards and/or Public Works Development Design Standards (PWDDS) that formalize Programmatic Opportunities for Surface and Stormwater Management as recommended by Plan Section 9.2.
    - Update to Adoption of Comprehensive Plan (DMC 9.06.140) section to replace reference to the 1997 Duvall Stormwater Management Plan with reference to this 2018 Surface and Stormwater Plan.

2. Rely on updated DMC Chapter 9.06 standards, including the KCSWDM, to maximize protection of existing forest canopy, native soils (quality and depth), and other prioritized LID BMPs through a combination of incentives and regulations for new development integrated across DMC Chapter 9.06 (Storm Drainage Utility) and key chapters of DMC Title 14 (Unified Development Regulations).

3. Update City programs to ensure consistency with objectives of the 2015 Comprehensive Plan and this Plan.

    - Continue public outreach efforts per NPDES Phase II permit requirements to educate residents, businesses, industries, elected officials, policy makers, and City staff with the aim of reducing or eliminating behaviors that cause or contribute to adverse stormwater impacts, and to build support for this Plan.

    - Implement an asset management system to track maintenance and inspection activities, including utilization of mobile technologies (GPS-enabled tablets) and standardized, digital field forms (consistent with Plan Section 8.2). Support Public Works Operations and Maintenance (O&M) Crew through training and roll-out of asset management tracking system.

    - Develop and implement a training program for Public Works O&M crew to understand and successfully maintain LID infrastructure type facilities (consistent with Plan Section 8.2).

4. Focus City resources to implement 'Short' timeframe projects listed within each project category:

    - Retrofit Projects – select projects for focus consistent with CIP prioritization, support from project partners / adjoining property owners, and with resources available through the *409 Storm Drainage Capital Improvement Utility Fund*.

    - Culvert/Outfall Repair or Replacement Projects – select projects for focus consistent with CIP prioritization.

    - Minor Conveyance and/or Water Quality Improvement Projects – select projects for focus consistent with CIP prioritization.

5. Leverage CIP prioritization, pre-design resources, and the City's record of successful project completion to receive grant funding support from King County, Ecology, and other granting agencies. Target grants consistent with the specific benefits and funding needs associated with prioritized retrofits and other CIP projects.

9.3.2 FUTURE EVALUATION AND UPDATES

The Surface and Stormwater Plan anticipates the needs and conditions of future surface and stormwater system management. Nonetheless, both the constructed and natural drainage networks across the City and associated UGAs are dynamic, with changing circumstances beyond the scope and influence of this Plan. Regular updates are necessary to ensure the Plan remains current and relevant.

The funding and financing strategy attempts a balance between revenues and expenditures; however, the City is committed to reviewing and documenting Plan progress and implementation challenges each year as part of SWMP annual reports. Annual review allows the City to regularly track progress and provide an opportunity to ensure that shorter-term improvement projects and ongoing programs are being funded consistent with the financing program and grant opportunities.

The City will complete a formal process of updating the Plan every five to eight years as part of the City's regular Comprehensive Plan amendment cycle. Formal updates will be completed consistent with the monitoring and evaluation strategy detailed in Section 7.4.3.

CHAPTER 10. REFERENCES

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Exhibit 3

Received Stamp		Planning Department
RECEIVED JAN 29 2018 CITY OF DUVALL	City of Duvall Small Town. Real Life.	15535 Main St. NE PO Box 1300 Duvall, WA 98019 (425) 788-2779 FAX (425) 788-8097 www.duvallwa.gov

Master Permit Application

This form must be completed (clearly printed or typed) and submitted to the Planning Department to file an application. Additional materials are required for specific types of applications. Please provide 7 complete packets with copies of all required application materials (stapled or binder clipped). For questions, please contact the Planning Department at (425) 788-2779.

FOR STAFF USE ONLY

File No.:	Received By:	Date Received:

Type of Application:	TYPE I	TYPE II	TYPE III	TYPE IV	TYPE V	TYPE VI
	☐ Administrative Interpretation ☐ Boundary Line Adjustment ☐ Wireless Facility ☐ Other Construction Permits – no SEPA required ☐ Final Site Plan	☐ Building Permit-SEPA required ☐ Other construction permit – SEPA required ☐ Sensitive Area Permits ☐ Site Plans, Parks less than ½ acre in new area ☐ Infill Development of duplexes and townhome	☐ Conditional Use Permit ☐ Shoreline Conditional Use Permit ☐ Shoreline Substantial Development Permit ☐ Shoreline Variance ☐ Preliminary Short Subdivision ☐ Preliminary Long Subdivision ☐ Site Plan/ Master Development Plan Over ½ acre ☐ Variance ☐ Vacations/Alterations ☐ Reasonable Use Exception	☐ Rezone	☐ Final Plat ☐ ROW Vacation	☐ UDR Text Amendment ☐ Annexation ☐ Area-Wide Zoning Map Amendment ☐ Comp. Plan Amendment ☐ Development Agreement ☐ Pre-Annexation Zoning

☒ Other Application (please explain): 2018 Surface and Stormwater Plan Update

APPLICANT

Name (please print): Larissa Grundell Email Address: larissa.grundell@duvallwa.gov		Phone # (425) 788-3434	
Street Address: 14525 Main St NE	City: Duvall	State: WA	Zip: 98019

BASIC PROJECT INFORMATION

Project / Development Name: 2018 Surface and Stormwater Plan Update	Project / Development Location (including nearest intersections): City of Duvall; Citywide

Description of Proposed Action: The 2018 Surface and Stormwater Plan Update is a companion document which implements the City's adopted goals and policies for the managemtnand summarizes possible stormwater retrofit, conveyance, culvert, and water quality improvement projects to develop a 2018-2035 CIP project list.

Assessor / Tax Parcel Numbers (include 10-digit parcel number for all parcels within project boundaries):

Citywide		

Land Area of Project Site (sq. ft. & acres): 2.5 square miles (Citywide)	Zoning District:	Comp Plan Designation:

CONTINUED ON BACK PAGE

Present use of property: Residential, Commercial, Public Facilities	Are there Sensitive Areas on the property? Yes (variable Citywide)

OWNER (if other than applicant)

Name (please print): Email Address:		Phone #:	
Street Address:	City:	State:	Zip:

AUTHORIZATION TO FILE APPLICATION (all persons with an ownership interest in property)

Name (please print): Larissa Grundell ☐ Owner ☐ Contract Purchaser

Address: 14525 Main St NE, Duvall, WA, 98018 ☐ Option Purchaser

Phone #: (425) 788-3434 Option Expiration Date:

Assessor Parcel Number(s): Citywide

I certify that the information and exhibits contained in and with this application is true and correct to the best of my knowledge and under the penalty of perjury by the laws of the state of Washington.

Signature:

Name (please print): ☐ Owner ☐ Contract Purchaser

Address: ☐ Option Purchaser

Phone #: ( ) Option Expiration Date:

Assessor Parcel Number(s):

Other Documents Required:
1. Application / Information for specific permit type.
2. SEPA Checklist.

I certify that the information and exhibits contained in and with this application is true and correct to the best of my knowledge and under the penalty of perjury by the laws of the state of Washington.

Signature: Date:

CONTINUED ON NEXT PAGE

APPLICANT NOTARY

I, the undersigned, state that to the best of my knowledge the above information is true and complete. It is understood that the City of Duvall may nullify any decision made in reliance upon information given on this application form should there by any willful omission of significant information or any misrepresentation or willful lack of full disclosure on my part.

Applicant's Signature _____

STATE OF WASHINGTON }
COUNTY OF KING } SS

On this 23 day of January, 2018, before me, the undersigned, a Notary Public in and for the State of Washington, duly commissioned and sworn, personally appeared herself, to me known to be the individual described in and who executed the within and foregoing instrument, and acknowledged that Larson Brundell signed the same as her free and voluntary act and deed, for the uses and purposes therein mentioned, and on oath stated that he/she was authorized to execute said instrument.

WITNESS MY HAND AND OFFICIAL SEAL THIS 23 day of January, 2018.

Alana McCoy
Notary Public in and for the State of Washington
residing at Duvall, WA

ALANA MCCOY
COMMISSION EXPIRES
NOTARY
PUBLIC
1-29-18
STATE OF WASHINGTON

Notary Seal Affixed Here

OWNER NOTARY (if other than Applicant)

I, the undersigned, state that to the best of my knowledge the above information is true and complete. It is understood that the City of Duvall may nullify any decision made in reliance upon information given on this application form should there by any willful omission of significant information or any misrepresentation or willful lack of full disclosure on my part.

Owner's Signature _____

STATE OF WASHINGTON }
COUNTY OF KING } SS

On this _____day of _____. 20__, before me, the undersigned, a Notary Public in and for the State of Washington, duly commissioned and sworn, personally appeared _____, to me known to be the individual described in and who executed the within and foregoing instrument, and acknowledged that _____ signed the same as _____ free and voluntary act and deed, for the uses and purposes therein mentioned, and on oath stated that he/she was authorized to execute said instrument.

WITNESS MY HAND AND OFFICIAL SEAL THIS _____ day of _____, 20__.

_____
Notary Public in and for the State of Washington
residing at _____

Notary Seal Affixed Here

CONTINUED ON NEXT PAGE

The following tables set out the project permit decision making and appeal processes, the division of action types into permit types and the required procedure for each permit type.

Table 14.08.010.C.1 Project Permit Applications – Action Type

Project Permit Applications – Action Type					
TYPE I	TYPE II	TYPE III	TYPE IV	TYPE V	TYPE VI
Boundary Line Adjustments	Building Permits – SEPA required	Conditional Use Permits	Rezones	Final Plats	UDR Text Amendments
Minor exterior remodels, no building permit required		Shoreline Conditional Use Permits			Annexations [2]
Building Permits – no SEPA required	Other Construction permits – SEPA required	Shoreline Substantial Development Permits			Area-Wide Zoning Map Amendments
Other Construction Permits – no SEPA required	Sensitive Area Permits	Shoreline Variances			Comprehensive Plan Amendments
Wireless Facilities on Existing Structure – Camouflaged	Site Plans, Parks less than ½ acre in new area				
Final Site Plan Permits					
Administrative Interpretations					Development Agreements
Shoreline Exemptions	Infill Development of Duplexes and Town Home	Preliminary Short Subdivisions			
		Site Plans/Master Development Plan greater than ½ acre[5]			Pre-Annexation Zoning[3]
		Preliminary Long Subdivisions			
		Variances			
		Vacations or Alterations – Subdivisions			
		Reasonable Use Exceptions			

Table 14.08.010.C.2 Project Permit Applications – Decision Making and Appeal Process

Project Permit Applications – Decision Making and Appeal Process						
	TYPE I	TYPE II	TYPE III	TYPE IV	TYPE V	TYPE VI
Final Decision made by	Director	Director	Hearing Examiner	City Council	City Council	City Council
Recommendation made by	N/A	N/A	Planning Department Planning Commission [1]	Planning Commission	Engineering Department	Planning Commission
Open Record Public Hearing – Decision	No	No	Yes – Hearing Examiner	Yes – City Council	No	Yes - Planning Commission[4] Yes - City Council
Open Record Public Hearing - Appeal	Yes	Yes	No	No	No	No
Closed Record Appeal	No	No	No	No	No	No

Appeal to:	Hearing Examiner	Hearing Examiner	King County Superior Court	King County Superior Court, SHB	King County Superior Court, GMHB	King County Superior Court, GMHB, SHB
Judicial Appeal	Yes	Yes	Yes	Yes	Yes	Yes

(1) Site plan applications require a recommendation by the Planning Commission and the Planning Department. See DMC 14.62 for Planning Commission criteria. All other Type III applications require a recommendation by the Planning Department.
(2) Annexation petition decisions are not appealable.
(3) City Council shall hold two public hearings for a pre-zone application consistent with state law.
(4) Planning Commission does not hold a public hearing for a pre-zone application.
(5) Master Development Plan shall follow the criteria in DMC 14.62 and 14.18.060.

Table 14.08.010.C.3 Required Procedures for Project Permit Applications

Required Procedures for Project Permit Applications						
	TYPE I	TYPE II	TYPE III	TYPE IV	TYPE V	TYPE VI
Pre-Application Meeting	No	No	Yes	Yes	No	No
Notice of Completeness	No	Yes	Yes	Yes	Yes	No
Notice of Application	No	Yes	Yes	Yes	No	No
SEPA Determination (1)	No	Yes	Yes	Yes	No	Yes
Notice of Hearing	No	No	Yes	Yes	No	Yes
Notice of Decision	No	Yes	Yes	Yes	Yes	No
120 Day Review (2)	No	Yes	Yes	No	No	No

(1) SEPA not required for projects that are categorically exempt in accordance with DMC 14.60.
(2) 120 Day Review does not apply to preliminary or final plats. Preliminary long or short plats have a 90-day review clock and final. short or long plats, a 30-day review clock in accordance with RCW 58.17.140.

Table 14.08.010.C.4 Notice Requirements for Project Permit Applications

Notice Requirements for Project Permit Applications [1]							
	Send to Property Owners within 300'	Post Property	Publish Notice	Send to Agencies (including DRC)	Send to Applicant	Provide to PC	Provide to CC
Notice of Completeness	No	No	No	No	Yes	No	No
Notice of Application	Yes	Yes	No	Yes	Yes	Yes	Yes
SEPA Determination	No	No	Yes	Yes	Yes	Yes	Yes
Notice of Open Record Predecision Hearing, if applicable [2]	Yes	Yes	Yes	No	Yes	Yes	Yes
Notice of Decision (1)	No	No	No	No	Yes	Yes	Yes
Notice of Open Record Appeal Hearing, if applicable	Yes	Yes	Yes	No	Yes	Yes	Yes

(1) Notices are sent to parties of record. (See DMC 14.08.030.)
(2) Preliminary plats; see additional notice requirements in DMC 14.08.030.F.4.b.

Exhibit 4

Received Stamp	City of Duvall Small Town. Real Life.	Planning Department 15535 Main St. NE PO Box 1300 Duvall, WA 98019 (425) 788-2779 FAX (425) 788-8097 www.duvallwa.gov

SEPA Environmental Checklist

TO BE COMPLETED BY APPLICANT

APPLICANT

Name (please print): City of Duvall, c/o Larissa Grundell **Email Address:** larissa.grundell@duvallwa.gov		**Phone #** (425) 939-8040	
Street Address: 14525 Main Street NE	**City:** Duvall	**State:** WA	**Zip:** 98019

OWNER (if other than applicant)

Name (please print): **Email Address:**		**Phone #: ( )**	
Street Address:	**City:**	**State:**	**Zip:**

BASIC PROJECT INFORMATION

Project / Development Name: 2018 Surface and Stormwater Plan Update	**Project / Development Location (including nearest intersections):** Citywide, City of Duvall

Assessor / Tax Parcel Numbers (include 10-digit parcel number for all parcels within project boundaries):

Citywide		

Land Area of Project Site (sq. ft. & acres): 2.5 square miles (Citywide)

Present use of property: Residential, Commercial, and Public uses

Date checklist prepared: January 19, 2018	**Agency requesting checklist:** Planning Department

List all permits for this project from local, state, federal, or other agencies for which you have applied or will apply.

AGENCY	PERMIT TYPE	SUBMITTED	*NUMBER	STATUS**

*LEAVE BLANK IF NOT SUBMITTED
**APPROVED, DENIED, OR PENDING

1. Proposed timing or schedule (including phasing and construction dates, if applicable):

This is a non-project action, projects within the Surface and Stormwater Plan may be constructed in the 2018-2035 timeframe.

2. Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal. If yes, explain

This is a non-project action to adopt the 2018 Surface and Stormwater Plan Update (SSWP).

3. List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal.

This is a non-project action. Necessary environmental studies such as SEPA and sensitive area, geotechnical, and technical information reports (TIR) will be completed at time of permit application for the improvement projects.

4. Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain.

Approval is required by the Duvall City Council for adoption of the 2018 Surface and Stormwater Plan Update.

5. Give a brief, complete description of your proposal, including the proposed uses and the size of the project and site. There are several questions later in this checklist that ask you to describe certain aspects of your proposal. You do not need to repeat those answers on this page. (Lead agencies may modify this form to include additional specific information on project description.)

The 2018 Surface and Stormwater Plan Update is a companion document which implements the City's adopted goals and policies and summarizes possible stormwater retrofit, conveyance, culvert, and water quality improvement projects to develop a 2018-2035 CIP project list.

6. Location of the proposal. Give sufficient information for a person to understand the precise location of your proposed project, including a street address, if any, and section, township and range if known. If a proposal would occur over a range of area, provide the range or boundaries of the sites(s). Provide a legal description, site plan, vicinity map and topographic map, if reasonably available. While you should submit any plans required by the agency, you are not required to duplicate maps or detailed plans submitted with any permit applications related to this checklist.

Tax identification number: *Citywide*

Site address: *Citywide*

Located at: *Citywide*

See vicinity map and plans: *Exhibit A: Project List, and Exhibit B: Vicinity Map*

TO BE COMPLETED BY APPLICANT	EVALUATION FOR AGENCY USE ONLY
1. EARTH A. General description of the site (circle one): flat, rolling, hilly, steep slopes, mountainous, other __various___. Describe location and areas on the site that have different topography. *The City of Duvall is located on the east slope of the Snoqualmie River Valley and generally slopes down to the west from an upland plateau situated at approximate Elevation 500 feet to the Snoqualmie River at approximate Elevation 30 feet.* B. What is the steepest slope on the site (approximate percent slope)? Describe location and areas of different topography. *Slopes vary within the City but generally do not exceed 20% in any of the proposed project areas*	

C. What general types of soils are found on the site (for example, clay, sand, gravel, peat, mulch)? If you know the classification of agricultural specify them and note any prime farmland.

Topsoil, weathered glacial soils, glacially consolidated till, and outwash are generally present within the City. No agricultural lands or farmlands are present within the proposed project areas.

D. Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe.

The proposed projects are generally located within existing City owned property and Right-of-Way corridors with no known history of slope instability. Soils with Low to High erodibility may be present within the project areas.

E. Describe the purpose, type, location and approximate quantities of any filling or grading proposed. Indicate source of fill.

This is a non-project action. Individual evaluations and permits will be completed prior to any construction activity.

F. Could erosion occur as a result of clearing, construction, or use. If so, generally describe.

Best management practices will be used during construction to minimize the potential for erosion.

G. About what percentage of the site will be covered with impervious surfaces after project construction (for example, asphalt or building)?

Stormwater management projects typically do not involve adding impervious surfaces. Individual evaluations and permits will be completed prior to any construction activity.

H. Proposed measures to reduce or control erosion, or other impacts to the earth, if any.

Best management practices will be used during construction to minimize the potential for erosion.

TO BE COMPLETED BY APPLICANT	EVALUATION FOR AGENCY USE ONLY

2. AIR

A. What type of emissions to the air would result from the proposal (i.e. dust, automobile, odors, industrial wood smoke) during construction and when the project is completed? If any, generally describe and give approximate quantities if known.

This is a non-project action. Each project on the 2018 SSWP Update will be evaluated at the time of permit application.

B. Are there any off-site sources of emission or odor that may affect your proposal? If so, generally describe.

This is a non-project action. Each project on the 2018 SSWP Update will be evaluated at the time of permit application.

C. Proposed measures to reduce or control emissions or other impact to air, if any.

This is a non-project action. Each project on the 2018 SSWP Update will be evaluated at the time of permit application.

3. WATER

A. Surface

1. Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, wetlands)? If yes, describe type, location and provide names. If appropriate, state what stream or river it flows into. Provide a sketch if not shown on site plans.

This is a non-project action. Each project on the 2018 SSWP Update will be evaluated at the time of permit application. Coe Clemons, Thayer Creek, Cherry Creek Tributary(s), and an Unnamed south tributary are located within projects R-5, R-8, R-10, C-1 through C-6, and I-6. Wetlands and or buffers may be within some of the project area(s). Each project will require a separate permit and SEPA evaluation.

2. Will the project require any work over, in, or adjacent to (within 200 feet) the described waters? If yes, please describe and attach available plans. Note approximate distance between surface of waters and any construction, fill, etc.

A few of the proposed projects will take place in Coe Clemons Creek, Cherry Creek Tributary(s), Thayer Creek, and Unnamed South Tributary. Impacts will be evaluated on a project by project basis. This is a non-project action. Each project on the 2018 SSWP Update will be evaluated at time of permit application.

3. Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands and indicate the area of the site that would be affected. Indicate the source of fill material, if from on site.

This is a non-project action. Each project on the 2018 SSWP Update will be evaluated at time of permit application. Impacts will be evaluated on a project by project basis.

TO BE COMPLETED BY APPLICANT	EVALUATION FOR AGENCY USE ONLY

4. Will the proposal require surface water withdrawals or diversions. Give general description, purpose and approximate quantities if known.

This is a non-project action. Each project on the 2018 SSWP Update will be evaluated at time of permit application.

4. Does the proposal lie within a 100-year floodplain? If so, note the location on the site plan.

This is a non-project action. Each project on the 2018 SSWP Update will be evaluated at time of permit application. None of the proposed projects are in the 100-year floodplain.

5. Does the proposal involve any discharge of waste material to surface waters? If so, describe the type of waste and anticipated volume of discharge.

This is a non-project action. Each project on the 2018 SSWP Update will be evaluated at time of permit application.

B. Ground

1. Will ground water be withdrawn, or will water be discharged to ground water? Give general description, purpose, and approximate quantities if known.

This is a non-project action. Each project on the 2018 SSWP Update will be evaluated at time of permit application.

2. Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (for example: Domestic sewage; industrial chemicals; agricultural; etc.) Describe the general size of the system, the number of such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve.

N/A

C. Water Runoff (including storm water).

1. Describe the source of runoff (including storm water) and method of collection and disposal, if any (include quantities, if known). Where will this water flow? Will this water flow into other waters? If so, describe.

This is a non-project action. Each project on the 2018 SSWP Update will be evaluated at time of permit application. Surface water runoff that is generated by any of the proposed projects will be treated as required by most current adopted King County Surface Water Design Manual.

2. Could waste materials enter ground or surface waters? If so, describe.

No

D. Proposed measures to reduce or control surface, ground, and drain off water impacts, if any:

This is a non-project action. Each project on the 2018 SSWP Update will be evaluated at time of permit application. Individual evaluations and permits will be completed prior to any construction activity.

TO BE COMPLETED BY APPLICANT

EVALUATION FOR AGENCY USE ONLY

4. PLANTS

A. Check or circle types of vegetation found on the site:

This is a non-project action. Each project on the 2018 SSWP Update will be evaluated at time of permit application.

- ☒ deciduous tree: alder, maple, aspen, other
- ☒ evergreen tree: fir, cedar, pine, other
- ☒ shrubs
- ☒ grass
- ☒ pasture
- ☐ crop or grain
- ☐ wet soils plants: cattail, butter cup, bulrush, skunk cabbage, other
- ☐ water plants: water lily, eelgrass, milfoil, other
- ☐ other types of vegetation

B. What kind and amount of vegetation will be removed or altered?

This is a non-project action. Each project on the 2018 SSWP Update will be evaluated at time of permit application. Most of the proposed projects will be on City owned property and in existing public right-of-way (ROW). Stormwater projects typically improve vegetation or add to what is existing.

C. List threatened or endangered species known to be on or near the site.

This is a non-project action. Each project on the 2018 SSWP Update will be evaluated at time of permit application.

D. Proposed landscaping, use of native plants or other measures to preserve or enhance vegetation on the site, if any:

This is a non-project action. Each project on the 2018 SSWP Update will be evaluated at time of permit application. All improvements will comply with DMC 9.06 Strom Drainage Utility, DMC 14.42 Sensitive Area Ordinance, DMC 14.40 Tree Protection, DMC 14.36 Landscape Standards, DMC 14.34 Design Guidelines, and Public Works Development Design Standards.

5. ANIMALS

A. Check any birds and animals which have been observed on or near the site or are known to be on or near the site:

This is a non-project action. Each project on the 2018 SSWP Update will be evaluated at time of permit application.

Birds:

☒ hawk ☐ heron ☐ eagle ☒ songbirds
☐ other:

Mammals:

☒ deer ☐ bear ☐ elk ☐ beaver
☒ rodents ☒ coyotes ☐ other

B. List any threatened or endangered species known to be on or near the site.

This is a non-project action. Each project on the 2018 SSWP Update will be evaluated at time of permit application. Chinook Salmon are present in Coe Clemons and Thayer Creek (project C-1, C-2, C-3, C-5 and I-6). Projects located in these areas will require additional environmental studies.

C. Is the site part of a migration route? If so, explain.

The City of Duvall is located within the Pacific Flyway.

D. Proposed measures to preserve or enhance wildlife, if any.

None needed, project areas located in existing urban environments.

TO BE COMPLETED BY APPLICANT

EVALUATION FOR AGENCY USE ONLY

6. ENERGY AND NATURAL RESOURCES

A. What kinds of energy (electric, natural gas, oil, wood, stove, solar) will be used to meet the completed project's energy needs? Describe whether it will be used for heating, manufacturing, etc.

This is a non-project action. Each project on the 2018 SSWP Update will be evaluated at time of permit application. None of the projects require energy once complete.

B. Would your project affect the potential use of solar energy by adjacent properties? If so, generally describe.

This is a non-project action. Each project on the 2018 SSWP Update will be evaluated at time of permit application.

C. What kinds of energy conservation features are included in the plans on this proposal? List other proposed measures to reduce or control energy impacts, if any.

This is a non-project action. Each project on the 2018 SSWP Update will be evaluated at time of permit application. Typically, stormwater projects do not have significant energy impacts.

7. ENVIRONMENTAL HEALTH

A. Are there any environmental health hazards, including exposure to toxic chemicals, risk or fire and explosion, spill, or hazardous waste, that could occur as a result of this proposal? If so, describe.

This is a non-project action. Each project on the 2018 SSWP Update will be evaluated at time of permit application.

1. Describe special emergency services that might be required.

This is a non-project action. Each project on the 2018 SSWP Update will be evaluated at time of permit application. Environmental health hazards not expected form stromwater improvement project construction.

2. Proposed measures to reduce or control environmental health hazards, if any.

This is a non-project action. Each project on the 2018 SSWP Update will be evaluated at time of permit application. Standard safety practices will be employed during construction.

B. Noise

1. What type of noise exists in the area which may affect your project (i.e. traffic, equipment, operation, other)?

This is a non-project action. Each project on the 2018 SSWP Update will be evaluated at time of permit application.

2. What types and levels of noise would be created by or associated with the project on a short-term or a long-term basis (for example: traffic, construction, operation, other)? Indicate what hours noise would come from the site.

This is a non-project action. Each project on the 2018 SSWP Update will be evaluated at time of permit application.

3. Proposed measures to reduce or control noise impacts, if any.

This is a non-project action. Each project on the 2018 SSWP Update will be evaluated at time of permit application. Hours of construction are regulated to reduce impacts to nearby residence and business.

TO BE COMPLETED BY APPLICANT | **EVALUATION FOR AGENCY USE ONLY**

8. LAND AND SHORELINE USE

A. What is the current use of the site and adjacent properties?

This is a non-project action. Each project on the 2018 SSWP Update will be evaluated at time of permit application. Nearby land use will vary by project. Almost all stormwater projects are in existing ROW or on City owned land.

B. Has the site been used for agriculture? If so, describe.

This is a non-project action. Each project on the 2018 SSWP Update will be evaluated at time of permit application. Almost all roadway projects are in existing ROW and on City owned land with no recent agricultural activity.

C. Describe any structures on the site.

This is a non-project action. Each project on the 2018 SSWP Update will be evaluated at time of permit application.

D. Will any structures be demolished? If so, what?

This is a non-project action. Each project on the 2018 SSWP Update will be evaluated at time of permit application.

E. What is the current zoning classification of the site?

ROW is not zoned. However, zoning may vary by project.

F. What is the current comprehensive plan designation of the site?

ROW's do not have comprehensive plan designation. However, the street classification will vary by project.

G. If applicable, what is the current shoreline master program designation of the site?

This is a non-project action. Each project on the 2018 SSWP Update will be evaluated at time of permit application.

H. Has any part of the site been classified as an "environmentally sensitive area? If so, specify. (If unsure, check with the City.)

This is a non-project action. Each project on the 2018 SSWP Update will be evaluated at time of permit application. Coe Clemons, Thayer, Cherry Creek Tributaries, and Unnamed South Tributary Creeks are environmentally sensitive areas, additional evaluations will take place prior to construction.

I. Approximately how many people would reside or work in the completed project?

This is a non-project action.

J. Approximately how many people would the completed project displace?

This is a non-project action. Each project on the 2018 SSWP Update will be evaluated at time of permit application.

K. Proposed measures to avoid or reduce displacement impacts, if any: *This is a non-project action. Each project on the 2018 SSWP Update will be evaluated at time of permit application.* L. Proposed measures to ensure the proposal is compatible with existing and projected land use and plans, if any. *The storm CIP is coordinated with the land use element of the City's Comprehensive Plan.*	
TO BE COMPLETED BY APPLICANT **9. <u>HOUSING</u>** A. Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing. *None* B. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing. *None* C. Proposed measures to reduce or control housing impacts, if any. *N/A, this is a non-project action.*	**EVALUATION FOR AGENCY USE ONLY**
10. <u>AESTHETICS</u> A. What is the tallest height of any proposed structure(s), not including antennas; what is the principal exterior building material(s) proposed? *This is a non-project action. Each project on the 2018 SSWP Update will be evaluated at time of permit application.* B. What views in the immediate vicinity would be altered or obstructed? *This is a non-project action. Each project on the 2018 SSWP Update will be evaluated at time of permit application. Where new facilities are constructed/improved the view will be altered or improved but not obstructed.* C. Proposed measures to reduce or control aesthetic impacts, if any. *None needed*	
11. <u>LIGHT AND GLARE</u> A. What type of light or glare will the proposal produce? What time of day or night would it mainly occur? *This is a non-project action. Each project on the 2018 SSWP Update will be evaluated at time of permit application. The proposed projects will comply with DMC 14.46 Exterior Lighting.* B. Could light or glare from the finished project be a safety hazard or interfere with views? *This is a non-project action. Each project on the 2018 SSWP Update will be evaluated at time of permit application.*	

C. What existing off-site sources of light or glare may affect your proposal? *This is a non-project action. Each project on the 2018 SSWP Update will be evaluated at time of permit application.* D. Proposed measures to reduce or control light and glare impacts, if any. *This is a non-project action. Each project on the 2018 SSWP Update will be evaluated at time of permit application.*	
12. <u>RECREATION</u> A. What designated and information recreational opportunities are in the immediate vicinity? *This is a non-project action. Each project on the 2018 SSWP Update will be evaluated at time of permit application. Varies by location, individual evaluations and permits will be completed prior to any construction activity.*	
TO BE COMPLETED BY APPLICANT B. Would the proposed project displace any existing recreational uses? If so, describe? *This is a non-project action. Each project on the 2018 SSWP Update will be evaluated at time of permit application. The TIP includes additional bike lanes and sidewalks to increase pedestrian connectivity.* C. Proposed measures to reduce or control impacts on recreation including recreation opportunities to be provided by the project or applicant, if any. *Not applicable*	**EVALUATION FOR AGENCY USE ONLY**
13. <u>HISTORICAL AND CULTURAL PRESERVATION</u> A. Are there any places or objects listed on, or proposed for national, state or local preservation registers known to be on or next to the site? If so, generally describe. *This is a non-project action. Each project on the 2018 SSWP Update will be evaluated at time of permit application. Individual evaluations and permits will be completed prior to any construction activity.* B. Generally, describe any landmarks or evidence of historic, archaeological, scientific, or cultural importance known to be on or next to the site. *This is a non-project action. Each project on the 2018 SSWP Update will be evaluated at time of permit application. Individual evaluations and permits will be completed prior to any construction activity.* C. Proposed measures to reduce or control impacts, if any. *This is a non-project action. Each project on the 2018 SSWP Update will be evaluated at time of permit application. Individual evaluations and permits will be completed prior to any construction activity.*	

14. TRANSPORTATION A. Identify public streets and highways serving the site and describe proposed access to the existing street system. Show on site plans, if any. *Existing city streets and highways adjacent to CIP projects and improvements to public ROW.* B. Is site currently served by public transit? If not, what is the approximate distance to the nearest transit stop? *The City of Duvall is currently served by Metro and Snoqualmie Valley Transportation with approximately 30 to 40 trips per day.* C. How many parking spaces would the completed project have? How many would the project eliminate? *This is a non-project action. Each project on the 2018 SSWP Update will be evaluated at time of permit application. Stormwater facilities and improvements do not typically add parking spaces.* D. Will the proposal require any new roads or streets or improvements to existing roads or streets, not including driveways? If so, generally describe (indicate whether public or private). *This is a non-project action. Each project on the 2018 SSWP Update will be evaluated at time of permit application.*	
TO BE COMPLETED BY APPLICANT E. Will the project use (or occur in the immediate vicinity of) water, rail or air transportation? If so, generally describe. *No* F. How many weekday vehicular trips (one way) per day would be generated by the completed project? *No New Trips* If known, indicate when peak volumes would occur. a.m. & p.m. How many of these trips occur in the a.m. peak hours? How many of these trips occur in the p.m. peak hours? G. Proposed measures to reduce or control transportation impacts, if any. *This is a non-project action. Each project on the 2018 SSWP Update will be evaluated at time of permit application.*	**EVALUATION FOR AGENCY USE ONLY**
15. PUBLIC SERVICES A. Would the project result in an increased need for public services (for example: fire protection, police protection, health care, schools, other)? If so, generally describe. *This is a non-project action.* B. Proposed measures to reduce or control direct impacts on public services. If any. *This is a non-project action.*	

16. UTILITIES

A. Check utilities currently available at the site:

☐ electricity ☐ natural gas ☐ refuse service ☐ water
☐ telephone ☐ sanitary sewer ☐ septic system ☐ other

B. Describe the utilities that are proposed for the project, the utility providing the service, the general construction activities on the site or in the immediate vicinity which might be needed.

This is a non-project action. Each project on the 2018 SSWP Update will be evaluated at time of permit application. City will coordinate with public and private utilities prior to construction.

17. SIGNATURE

The above answers are true and complete to the best of my knowledge. I understand that the lead agency is relying on them to make its decision.

Applicant Signature:

Date Submitted: January 29, 2017

Relationship of signer to project? Assistant City Engineer

TO BE COMPLETED BY APPLICANT

EVALUATION FOR AGENCY USE ONLY

18. SUPPLEMENTAL SHEET FOR NON-PROJECT ACTIONS

(DO NOT USE THIS SHEET FOR PROJECT ACTIONS)

Because these questions are very general, it may be helpful to read them in conjunction with the list of the elements of the environment.

When answering these questions, be aware of the extent the proposal or the types of activities likely to result from the proposal, would affect the item at a greater intensity or at a faster rate than if the proposal were not implemented. Respond briefly and in general terms.

a. How would the proposal be likely to increase discharge to water; emissions to air; production, storage, or release of toxic or hazardous substances; or production of noise:

Air and noise pollution may occur during construction. Stormwater improvement projects improve water quality and, unless within the quarter mile direct discharge exemption area, will not increase discharges to water bodies.

Proposed measures to avoid or reduce such increases are:

All impervious surface will be managed by existing or proposed drainage facilities. Additionally, the individual projects within the proposal will be evaluated with respect to discharge or emissions at the planning and permitting stage and any or all impacts will be avoided or mitigated.

b. How would the proposal be likely to affect plants, animals, fish, or marine life?

The proposed improvements will not harm plants, animals, fish or marine life as most of the work will be done to enhance habitat and the environment.

Proposed measures to protect or conserve plants, animals, fish or marine life are:

Individual projects within the proposal will be evaluated with respect to plant and animal at the planning and permitting stage and any or all impacts will be avoided or mitigated.

c. How would the proposal be likely to deplete energy or natural resources?

Some energy and natural resources will be expended during construction.

d. Proposed measures to protect or conserve energy and natural resources are:

Energy and natural resources will be the minimum necessary to construct the needed improvements. Additionally, the individual projects within the proposal will be evaluated with respect to conserving energy and resources at the planning and permitting stage and any or all impacts will be avoided or mitigated.

e. How would the proposal be likely to use or affect environmentally sensitive areas or areas designated (or eligible or under study) for governmental protection; such as parks, wilderness, wild and scenic rivers, threatened or endangered species habitat, historic or cultural sites, wetlands, floodplains, or prime farmlands:

Coe Clemons, Thayer, Cherry Creek Tributary, Unnamed South Tributary Creeks are located within project(s) R-5, R-8, R-10, C-1 through C-6, and I-6.

Proposed measures to protect such resources or to avoid or reduce impacts are:

The projects taking place near a sensitive area will require additional environmental evaluation (SEPA) and will be required to comply with the City's Sensitive Area Code.

f. How would the proposal be likely to affect land and shoreline use, including whether it would allow or encourage land or shoreline uses incompatible with existing plans?

The proposal is a non-project action and will not have any land and shoreline use impacts. Individual projects within the proposal will be evaluated with respect to land and shoreline use impacts at the planning and permitting stage and any or all impacts will be avoided or mitigated.

TO BE COMPLETED BY APPLICANT	EVALUATION FOR AGENCY USE ONLY
Proposed measures to avoid or reduce shoreline and land use impacts are: *None of the proposed projects are in shoreline areas.*	

g. How would the proposal be likely to increase on transportation or public services and utilities?

The proposed projects will not increase transportation, or utilities. Increase to public services would be limited to maintenance and operations functions.

Proposed measures to reduce or respond to such demand(s) are:

None needed

h. Identify, if possible, whether the proposal may conflict with local, state, or federal laws or requirements for the protection of the environment.

The proposed improvements are not in conflict with local, state, or federal laws or requirements for the protection of the environment.

Exhibit 4

City of Duvall
Small Town. Real Life.

Planning Department
SEPA THRESHOLD DETERMINATION
2018 Stormwater Plan Update
(PW18-001)
February 8, 2018

PROJECT NAME / DESCRIPTION OF PROPOSAL

2018 Surface and Stormwater Plan Update (PW18-001). The Applicant, Larissa Grundell, on behalf of the City of Duvall, submitted an application for environmental review (SEPA) of the City's DRAFT 2018 Stormwater Plan on January 29, 2018.

The 2018 Surface and Stormwater Plan Update is a companion document which implements the City's adopted goals and policies and identifies a 2018-2035 Capital Improvement Program (CIP) project list that includes: stormwater retrofit, conveyance, culvert, and water quality improvement projects throughout the City.

APPLICANT/CONTACT

Larissa Grundell, Assistant City Engineer, City of Duvall, PO BOX 1300, Duvall, WA 98019, larissa.grundell@duvallwa.gov. 425.939.8040.

LEAD AGENCY

Lead Agency: City of Duvall, PO Box 1300, Duvall, WA 98019

The responsible official hereby makes the following determination based upon impacts identified in the environmental checklist and evaluated by staff, the policies set out in the 2015 City of Duvall Comprehensive Plan, and other municipal policies, plans, rules, and regulations designated as a basis for the exercise of substantive authority of the Washington State Environmental Policy Act Rules pursuant to RCW 43.21C.

It is hereby determined that this proposal does not have a probable significant adverse impact on the environment. An Environmental Impact Statement (EIS) is not required under RCW 43.21C.031(1). This DNS is issued under WAC 197-11-340; the lead agency will not act on this proposal for at least 14 days from February 8, 2018.

DISCLAIMER

Issuance of this threshold determination does not constitute approval of any permit associated with this proposal. The proposal will be reviewed for compliance with all applicable City of Duvall codes which regulate development activities including, but not limited to, Land Use Codes, Building Codes, Public Works Development Design Standards, and Sensitive Area regulations.

DESCRIPTION OF ACTION AND IMPACTS

Action: This is a non-project action. Environmental impacts will be evaluated on a project-by-project basis. The proposed policies contained within the DRAFT 2018 Surface and Stormwater Plan are written for the purpose of improving water quality from stormwater resulting from pollution-generating surfaces, and incorporating low impact development (LID) techniques to minimize impervious surface and treat stormwater on site (to the maximum extent feasible).

COMMENT PERIOD

Comments regarding this DNS must be submitted no later than **4:30 p.m. on Thursday, February 22, 2018.** Appeals shall be filed in accordance with DMC 14.08.060.C.

RESPONSIBLE OFFICIAL

Lara Thomas, Planning Director
PO Box 1300, Duvall, WA 98019, (425) 939-8079

Lara Thomas

Lara Thomas, ~~Planning~~ Director - Date Issued 02/08/18

Exhibit 5

Department of Commerce

Notice of Intent to Adopt Amendment
60 Days Prior to Adoption

Indicate one (or both, if applicable):

☒ **Comprehensive Plan Amendment**
☐ **Development Regulation Amendment**

Pursuant to RCW 36.70A.106, the following jurisdiction provides notice of intent to adopt a proposed comprehensive plan amendment and/or development regulation amendment under the Growth Management Act.

Jurisdiction:	City of Duvall
Mailing Address:	PO Box 1300
Date:	January 29, 2018

Contact Name:	Troy Davis
Title/Position:	Senior Planner
Phone Number:	425-939-8078
E-mail Address:	troy.davis@duvallwa.gov

Brief Description of the Proposed/Draft Amendment: *If this draft amendment is provided to supplement an existing 60-day notice already submitted, then please provide the date the original notice was submitted **and** the Commerce Material ID number located in your Commerce acknowledgement letter.*	*This is a proposed amendment to the City's Surface and Stormwater Plan which is a companion document that implements the City's adopted goals and policies and summarizes possible stormwater retrofit, conveyance, culvert, and water quality improvement projects to develop a 2018-2035 CIP project list.*
Is this action part of the scheduled review and update? *GMA requires review every 8 years under RCW 36.70A.130(4)-(6).*	Yes: _X_ No: ___
Public Hearing Date:	Planning Board/Commission: April 11, 2018 Council/County Commission: April 17, 2018
Proposed Adoption Date:	May 1, 2018

REQUIRED: Attach or include a copy of the proposed amendment text or document(s). **We do not accept a website hyperlink requiring us to retrieve external documents. Jurisdictions must submit the actual document(s) to Commerce.** If you experience difficulty, please contact reviewteam@commerce.wa.gov

Exhibit 6

STATE OF WASHINGTON
DEPARTMENT OF COMMERCE
1011 Plum Street SE • PO Box 42525 • Olympia, Washington 98504-2525 • (360) 725-4000
www.commerce.wa.gov

January 30, 2018

Troy Davis
Senior Planner
City of Duvall
Post Office Box 1300
Duvall, Washington 98019

Dear Mr. Davis:

Thank you for sending the Washington State Department of Commerce (Commerce) the following materials as required under RCW 36.70A.106. Please keep this letter as documentation that you have met this procedural requirement.

City of Duvall - Proposed amendment to the City's Surface and Stormwater Plan which is a companion document that implements the City's adopted goals and policies and summarizes possible stormwater retrofit, conveyance, culvert, and water quality improvement projects to develop a 2018-2035 CIP project list. These materials were received on January 29, 2018 and processed with the Material ID # 24590.

We have forwarded a copy of this notice to other state agencies.

If this submitted material is an adopted amendment, then please keep this letter as documentation that you have met the procedural requirement under RCW 36.70A.106.

If you have submitted this material as a draft amendment, then final adoption may occur no earlier than sixty days following the date of receipt by Commerce. Please remember to submit the final adopted amendment to Commerce within ten days of adoption.

If you have any questions, please contact Growth Management Services at reviewteam@commerce.wa.gov, or call Dave Andersen (509) 434-4491 or Paul Johnson (360) 725-3048.

Sincerely,

Review Team
Growth Management Services

EXHIBIT 7

City of Duvall

Surface and Storm Water Plan – Initial Review Draft, November 2017

Comment Matrix

Comment
General Comments
Overall good, but very little to no policy integration for tree/vegetation retention/replacement directly relating to stormwater functions and I cannot find implementation of any LID technologies in our retrofits or CIP. Also I discussed financial issues/questions during committee, and I understand the software and other accounting challenges, but can we have at least some cursory understanding/approximation of the unfunded asset liability of the utility? Do we have at least a summary listing of facilities and components in the utility, the anticipated lifecycle, and the estimated cost to eventually replace that infrastructure over time?
Under "General Old town water quality improvement Program" I think it would be great to list examples of "city capital projects" where LID could be integrated. Duvall can continue to build on regional/statewide leadership by being explicit about busting silos between agencies. Stating an intention to look for LID opportunities any time X-amount of earth will be moved for any reason, would be powerful language in a document like this. And explicitly identifying transportation improvements, new development, creation of new open spaces/parks would also add clarity. And defining the many types of LID tools that could be considered in these instances would also add clarity. E.g.: rain gardens, bioswales, bioretention, bioretention planters, green roofs, rain catchment, depaving, permeable paving, and urban tree canopy/ tree planting (including fliterra and other bioretention tree planters).
Stormwater facility baseline mapping and asset management: The Sound Impacts tool (www.soundimpacts.org) is currently only a beta, but the underlying public database will continue to grow and, if utilized, can provide some valuable data for planning and tracking. It is only intended to be a mapping tool for restoration and green infrastructure (LID) projects, so it wouldn't be a good fit for mapping catch basins and pipes etc, but by mapping how much stormwater is being managed by green infrastructure, planning and maintenance decisions for green and gray infrastructure could be adaptively managed. We'd love to set up a time to work with Duvall on data entry of existing LID in the city into Sound Impacts, and we have grant funding for 2018 to do exactly that. Let me know if that is of interest.
I have a couple of idealistic suggestions for additions to the City's "principles to maintain and develop this Plan…" they are: • Emphasize design for maintenance efficiency, incorporating lifetime costs • Bust silos: include stormwater improvements in all kinds of projects and establish cost-sharing agreements with stormwater, transportation (WSDOT too if possible), office of development/construction/permits, and parks (possibly others). • Collaborate with partners on community engagement and education and consider contracting with NGOs and consultants on integrated scopes of work that leverage physical projects and education (e.g. the recent rain garden at Carnation Elementary, that included a lot of school participation, outreach during STEM night to students and families, and leveraged interest in the rain garden to promote STEM education within the school as a win-win for the school and stormwater and community engagement. That project was funded by a modest grant from the flood control district, but benefited way beyond flood control.

EXHIBIT 7

City of Duvall

Surface and Storm Water Plan – Initial Review Draft, November 2017

Comment Matrix

Comment
The Plan is very well written and provides a nice balance between narrative and data. I see several areas highlighted in yellow that are incomplete. For example: Table 4-6 is missing "Average 2018 Unit Cost". Some Appendix references are not complete. For example page 5-1, last paragraph "(see Appendix XX)". I expect these are simply waiting for the information/data. It might be helpful to provide an executive summary for City Council that includes the plan highlights, key recommendations/conclusions found in the plan and budget impacts associated with recommendations.
Chapter 1 comments
1.3.2: how can efficiency be evaluated for Comp Plan CF-8 compliance without a financial analysis of the utility, inclusive of asset values, infrastructure component lifecycles, unfunded maintenance operations and unstated priorities related to efficiency in maintenance actions? How can there be operational efficiency without basic asset management and cost accounting?
1.1 Why a Surface and SW Plan?: I think some mention of reduced local flooding (i.e. big puddles, clogged drains) and reduced contribution to downstream flooding (floodplains and Snoqualmie River) as well as some mention of climate resilience for a future with more severe weather events, both wet and dry, would all enhance the "why" statement. I think adding those things to the last sentence about benefits of good SW management would be great.
Chapter 2 comments
Table 2-1. Please use "Ecology" instead of "DOE". Ecology is the preferred short title of that state agency in state policy guidance. DOE is the Department of Energy.
Municipal Operations and Maintenance should be more than NPDES compliance to address CF-8 and overall policy integration. *How maintenance actions are prioritized – for basic regulatory compliance; on an emergency basis; for economies of scale as done with more frequent catch basin cleaning, or related to long term strategic operations to prolong infrastructure life? How does this correspond to accomplishments in 2.2? Should we have some stated policy strategy for O&M?*

EXHIBIT 7

City of Duvall

Surface and Storm Water Plan – Initial Review Draft, November 2017

Comment Matrix

Comment
The Snohomish Basin Protection Plan (which Duvall has legislatively approved though ILA) should also be cited as guiding policy for stormwater management: http://www.govlink.org/watersheds/7/pdf/SBPP/SBPP%20December%202015_reduced%20size.pdf
2.3: Can we begin a basic accounting of our infrastructure assets?
Page 2-5/Annual Reporting/second bullet – should be "associated"
Page 2-8/ESA/--- Puget Sound Steelhead are listed as threatened in the ESA as well (listed May 2007)
"Rain Garden Resources and Incentives program (in partnership with Stewardship Partners)" – We are happy to partner with Duvall on this. We currently manage homeowner incentive programs in various parts of king county and can easily extend that to Duvall with adequate funding.
Chapter 3 comments
3.2: Suggested text from Snohomish Basin Protection Plan: Climate change in the overall Snoqualmie Basin has been modeled extensively by the University of Washington Climate Impact Group and Battelle (CIG and NWFSC 2005; PNNL 2015). Predicted effects include increases in the magnitude of peak flows, changes in the timing of seasonal flow peaks, prolonged and persistent low flows, reductions in summer flows, and increased stream temperatures. These effects would place even greater strain on water quality, threatened salmon populations, drinking water supplies, and floodprone areas. Citations: CIG and NWFSC (Climate Impacts Group and NOAA Northwest Fisheries Science Center), 2005. Modeling Climate Change and Land Use Impacts on Salmon Recovery in the Snohomish River Basin. Available from: http://cses.washington.edu/cig/res/ae/snohomish.shtml PNNL (Pacific Northwest National Laboratory), 2015. Estuarine response to river flow and sea-level rise under future climate change and human development. Estuarine, Coastal and Shelf Science 156:19-30.

EXHIBIT 7

City of Duvall

Surface and Storm Water Plan – Initial Review Draft, November 2017

Comment Matrix

Chapter 3 general comment: All elements described here are important, but forest and tree canopy retention/function is not mentioned. Pursuant to the LID Technical Guidance Manual for Puget Sound, water budget studies of wet coniferous forest in western WA indicates that approximately 40 percent of annual rainfall is intercepted by foliage and evaporated during the rainy season. The need for vegetation and soil protection is addressed in Chapter 4.1 of the LID manual.

For the consideration of native vegetation retention, a definition and BMP is provided in the 2016 KCSWDM for flow control: Chapter 1, Definitions: *Native vegetated surface means a surface in which the soil conditions, ground cover, and species of vegetation are like those of the original native condition for the site. More specifically, this means (1) the soil is either undisturbed or has been treated according to the "native vegetated landscape" specifications in Appendix C, Section C.2.1.8; (2) the ground is either naturally covered with vegetation litter or has been top-dressed between plants with 4 inches of mulch consistent with the native vegetated landscape specifications in Appendix C; and (3) the vegetation is either (a) comprised predominantly of plant species, other than noxious weeds, that are indigenous to the coastal region of the Pacific Northwest and that reasonably could have been expected to occur naturally on the site or (b) comprised of plant species specified for a native vegetated landscape in Appendix C. Examples of these plant species include trees such as Douglas fir, western hemlock, western red cedar, alder, bigleaf maple and vine maple; shrubs such as willow, elderberry, salmonberry and salal; and herbaceous plants such as sword fern, foam flower, and fireweed.*

See also KCSWDM BMP C.2.1.8 - *Native Vegetated Landscape Specifications* Some policy integration regarding the stormwater benefits of tree canopy occurs in our comp plan but not in the Stormwater Plan: CP 2.5: *"policy and regulatory measures that protect significant trees and increase tree canopy are integral to retaining Duvall's rural character and protecting environmental quality. It is the community's intent to ensure that a substantial number of significant trees are retained on development site*s.

CP GOAL ES 22: *Preserve and enhance Duvall's tree canopy cover through education and outreach, partnerships, and pragmatic implementation strategies.*

CP GOAL ES 25: *Avoid mass clearing and grading associated with new developments that result in large amounts of tree loss and changes in topography*.

Also there are many policy references relating to water quality for integration into the Stormwater Plan from the Watershed Plan?

Package A: *Improved Outcomes for Trees and Forest Canopy*.

WATERSHED GOAL 3: *Preserve and enhance Duvall's tree canopy cover through education and outreach, partnerships, and pragmatic implementation strategies.*

WATERSHED GOAL 6: Avoid mass clearing and grading associated with new developments that result in large amounts of tree loss and changes in topography.

EXHIBIT 7

City of Duvall

Surface and Storm Water Plan – Initial Review Draft, November 2017

Comment Matrix

Comment
3.4: I appreciate that nutrient loading for Lake Rasmussen is mentioned in 3.4. How can this loading be better understood and addressed from knowing more about the source locations and actions occurring in that basins? I think a limnology study should be done to better understand the lake ecology/impairments and as a headwater to Cherry Creek Trib A. Due to headwater position and assumed impairment conditions, and since only 32% of the known storage volume in the watershed provides water quality benefits, should this basin be prioritized for LID retrofits?
3.1.2/ 2nd paragraph/5th sentence "A and recent example…" likely needs to be fixed
Did you use the King County updated land slide hazard information? It was updated in 2017 and I see 2010 referenced
3.2 – you're welcome to use the Snohomish Basin Climate Change impacts to Salmon white paper in your reference in climate
Rainfall intensity and duration associated with climate change are anticipated within the next several decades (ADD REFERENCE, EXPAND TEXT): Agree with the highlighted recommendation. Suggest including discussion of how this will affect surface and stormwater drainage, and how this plan can help to address the effects of climate change.
Chapter 4 comments
4.1.1: Are there any bioretention facilities? Bioretention is not stated or "analyzed". Does it remain true at this time that no 2016 KCSWDM facilities exist? For infiltration, urban tree roots also have the potential to penetrate compacted subsoils and increase infiltration rates. There are many scientific sources that validate this.
Page 4-3; third paragraph, last sentence appears to have an extra word at the end of the sentence: *"It is the second most common type of catch basin in the City and widely used nationwide. ~~Conveyance"~~*

EXHIBIT 7

City of Duvall

Surface and Storm Water Plan – Initial Review Draft, November 2017

Comment Matrix

Comment
Chapter 5 comments
5.1: It would be interesting to know the current tree canopy cover, and by subbasin if known. Please provide the data.
5.2.1: Retaining as well as planting trees can reduce runoff.
5.3.1: I do not understand what the ranking strategy is for retrofits. Where is that described? This policy document states LID is a priority; are there no LID or bioretention priorities or opportunities for retrofits?
Cherry Valley Vista (ranked #21): suggest including information on failing status of culvert(s). Water has been observed piping alongside the culvert under Cherry Valley Road
Page 5-9; The Title and the first sentence on second paragraph appear to be in conflict: *"Big Rock Ridge Div. 1-3 - North Pond (ranked #5)"* *"This stormwater facility ranked third in the City's watershed based approach to improve stormwater management"*
Chapter 6 comments (initial thoughts)
Similar, what do we have on our CIP for LID if that is now a fundamental priority of this policy?
6.1, table 6.3: Just noting that the %increase in parcel area is greater than the %increase in dwelling units. That implies that Duvall is expecting to decrease population density (if slightly), which sounds like sprawl vs. urban village density. Not judging that, just pointing it out in case that doesn't align with the city's intentions.
6.2.2: It would be helpful to explicitly state that undersized culverts will be replace with larger one ("right sized or oversized").
6.2.3: I work closely with a loose network of partners who are involved in a "Depave Puget Sound" effort. The depave model (based off of the groundbreaking work of the original Depave organization: www.depave.org) focuses on voluntary removal of unnecessary pavement. The "removal of pollution generating impervious surfaces (PGIS)" can find considerable regional support, both in terms of potential funding and collaboration with local partner NGOs, businesses, landowners etc. that Stewardship Partners would be more than happy to help the City of Duvall leverage and utilize. More information about the depave Puget sound effort can be found here: https://www.piercecountycd.org/246/Depave-Puget-Sound

EXHIBIT 7

City of Duvall

Surface and Storm Water Plan – Initial Review Draft, November 2017

Comment Matrix

Comment
6.2.4: several elements here (tree planting, downspout disconnection, rain gardens, education and outreach, and even maintenance and operations and stormwater facility baseline mapping and asset management) could leverage regional and local partnerships including those that Stewardship Partners leads or co-leads like 12,000 Rain Gardens, City Habitats, Snoqualmie Stewardship, Adopt-a-Buffer, Depave Puget Sound, Sound Impacts (community engagement but also asset management potential- more later on that). Other resources and partners to be sure to include in these strategies are: STORM, Puget Sound Starts Here, Oxbow Farm, Mountains to Sound, Nature Vision. 6.3.3: Sound Impacts could be a useful tool to "review identified projects and programs and assess whether the plan is adequately… ensure the stormwater infrastructure continues to grow in line with the City's objectives."
Page 6-5; Third paragraph, first and second sentences appear to have extra words and it has a conflict with number of cities in the Snoqualmie report: *"A City of Snoqualmie report documented that the Storm Utility rate at seven eastern Puget Sound Cities ranged from $11.36 (Monroe) to $28.36 (Bellevue) in 2017 ~~(Snoqualmie,2017)~~."* *" The City of Duvall 2017 rate was the third highest of the nine cities at $19.56 per month ($234.72 annually) in 2017 as summarized in Figure 6-1."*
Chapter 7 comments
Council should be able to be provided with a basic/preliminary accounting of our infrastructure assets and how that relates to the O&M replacement costs needed to manage the utility. Rate payers can only pay what they can afford (I'm not looking for a rate hike) but Council should be aware of the structural deficit in the program and if it will be solvent over time. My preference and first priority for this policy update would be to focus on the financial and asset management aspects of this plan and the operations of the utility.
7.6.1 ANNUAL EVALUATION: suggest including in the evaluation, an assessment of success in meeting timeline goals, and formation of a strategy to meet unmet goals.
Chapter 8 comments

EXHIBIT 7

City of Duvall

Surface and Storm Water Plan – Initial Review Draft, November 2017

Comment Matrix

Chapter 9 comments
Table 9-4: I would include “Rain Gardens” for commercial projects as well. Bioretention is similar and more likely due to the larger scale of commercial projects, but small commercial sites should be able to utilize rain gardens as a lower cost alternative to engineered bioretention facilities and achieve similar outcomes.

EXHIBIT 7

City of Duvall

Surface and Storm Water Plan – Initial Review Draft, November 2017

Comment Matrix

EXHIBIT 8

City of Duvall

Small Town. Real Life.

NOTICE OF PUBLIC HEARINGS

2018 SURFACE AND STORMWATER PLAN
May 9, 2018 and June 5, 2018

The Duvall Planning Commission and City Council will each hold a public hearing regarding the proposed 2018 Surface and Stormwater Plan (PW18-001). All interested parties may appear and provide testimony to the above proposal at each Public Hearing. The public hearings will take place at the following times and locations:

Before the Planning Commission: Wednesday, May 9, 2018, at 7:00 p.m., at the Duvall Visitor Center, 15619 Main Street, Duvall WA 98019

Before the City Council: Tuesday, June 5, 2018, at 7:00 p.m., at the Riverview Educational Service Center, 15510 First Ave NE, Duvall, WA 98019

Following the public hearing before the Planning Commission, the Planning Commission will make a recommendation on the proposed 2018 Surface and Stormwater Plan to the City Council. Following the public hearing before the City Council, the City Council will make a final decision on the 2018 Surface and Stormwater Plan.

Applicant: City of Duvall
PO Box 1300
15535 Main Street NE
Duvall, WA 98019

Project Planner: Larissa Grundell
PO Box 1300
Duvall, WA 98019
(425) 788-2779
larissa.grundell@duvallwa.gov

Copies of all application documents are available for review at City Hall. In addition, a copy of the staff report will be available seven days prior to the Public Hearing. Written comments regarding this proposal will be accepted up to and at the Public Hearing. Comments should be addressed to the Planning Department at the address shown above. Contact the Planning Department for appeal procedures. **If you have any questions, please call the Project Planner.**

EXHIBIT 8

City of Duvall

Small Town. Real Life.

AFFIDAVIT OF INSTALLATION OF MARKERS AND POSTING OF PUBLIC INFORMATION SIGN(S)

FILE NAME/NUMBER: 2018 Surface & Stormwater Plan- Notice of Public Hearings

I Deloa Dalby (print name) understand that UDR 14.08.030 requires me to post the subject property at time of public hearing.

I certify that on 4/25/18 (date), the signs (provided by the City) were placed on the subject property, library, and city hall for the following: ☐ SEPA Determination, ☐ Planning Commission public meeting ☒ Public Hearing, or ☐ Other Land Use Notice _____;

Sign 1: _____ (give general location of each marker.)
Sign 2: _____ (give general location of each marker.)
Sign 3: City Hall X (Public Notice Posting Board)
Sign 4: Library X (Public Notice Posting Board)
Posting 5: X City of Duvall Official Website

Deloa Dalby
Applicant (or representative) Signature

4/25/18
Date

City of Duvall Planning Department
14525 Main Street – PO Box 1300, Duvall, WA 98019
ph (425) 788-2779
fax (425) 788-8097

EXHIBIT 8

City of Duvall

Small Town. Real Life.

DECLARATION OF MAILING AND ELECTRONIC MAILING

Re: 2018 Surface & Stormwater Plan
Notice of Public Hearings

The undersigned declares under penalty of perjury under the laws of the State of Washington that the foregoing is true and correct:

That on the 25 day of April, 2018, the undersigned declarant
[X] emailed
[X] mailed
a copy of:

Notice of Public Hearings

in the above-referenced matter directed to:

Attached is the list of agencies, names and addresses to whom this information was emailed and/or mailed.

Deloa Dalby 4/25/18
Name, Date

EXHIBIT 8

FOR PUBLICATION IN THE FRIDAY, APRIL 27, 2018 EDITION OF THE SEATTLE TIMES:

CITY OF DUVALL
NOTICE OF PUBLIC HEARINGS
2018 SURFACE AND STORMWATER PLAN

The Duvall Planning Commission and City Council will each hold a public hearing regarding the proposed 2018 Surface and Stormwater Plan (PW18-001). All interested parties may appear and provide testimony to the above proposal at each Public Hearing. The public hearings will take place at the following times and locations: Before the Planning Commission: Wednesday, May 9, 2018, at 7:00 p.m., at the Duvall Visitor Center, 15619 Main Street, Duvall WA 98019. Before the City Council: Tuesday, June 5, 2018, at 7:00 p.m., at the Riverview Educational Service Center, 15510 First Ave NE, Duvall, WA 98019. Following the public hearing before the Planning Commission, the Planning Commission will make a recommendation on the proposed 2018 Surface and Stormwater Plan to the City Council. Following the public hearing before the City Council, the City Council will make a final decision on the 2018 Surface and Stormwater Plan. Applicant: City of Duvall, PO Box 1300, 15535 Main Street NE, Duvall, WA 98019. Project Planner: Larissa Grundell, PO Box 1300, Duvall, WA 98019, (425) 788-2779, larissa.grundell@duvallwa.gov. Copies of all application documents are available for review at City Hall. In addition, a copy of the staff report will be available seven days prior to the Public Hearing. Written comments regarding this proposal will be accepted up to and at the Public Hearing. Comments should be addressed to the Planning Department at the address shown above. Contact the Planning Department for appeal procedures. If you have any questions, please call the Project Planner.

EXHIBIT 8

Deloa Dalby

From: Deloa Dalby
Sent: Wednesday, April 25, 2018 2:54 PM
To: SEPA
Cc: Larissa Grundell; Troy Davis; Lara Thomas
Subject: City of Duvall 2018 Surface and Stormwater Plan Public Hearing
Attachments: 2018SW SEPA Checklist_signed.pdf; Stormwater Plan - Notice of Public Hearing.pdf

Greetings Agencies,

Attached please find the SEPA Checklist and Notice of Public Hearings for the City of Duvall 2018 Surface and Stormwater Plan.

Sincerely,

Deloa Dalby, Administrative Assistant
City of Duvall Planning Department
15535 Main Street NE, Duvall, WA 98019 (Box 1300)
t: 425.939.8077

City of Duvall

NOTICE OF PUBLIC DISCLOSURE: This e-mail account is public domain. Any correspondence from or to this e-mail account is a public record. Accordingly, this e-mail, in whole or in part, may be subject to disclosure pursuant to RCW 42.56, regardless of any claim of confidentiality or privilege asserted by an external party.

EXHIBIT 8

Puget Sound Energy
Attn: Government Relations
PO Box 97034
Bellevue WA 98009-9734

US Army Corps of Engineers
Regulatory Branch
PO Box 3755
Seattle WA 98124-225

EXHIBIT 8

Deloa Dalby

From: Deloa Dalby
Sent: Wednesday, April 25, 2018 3:11 PM
To: City Council and Planning Commission Members
Cc: Larissa Grundell; Troy Davis; Lara Thomas
Subject: 2018 Surface and Stormwater Plan - Notice of Public Hearings
Attachments: Stormwater Plan - Notice of Public Hearing.pdf

Greetings Mayor, City Council and Planning Commission,

Attached please find the Notice of Public Hearing for the 2018 Surface and Stormwater Plan.

Sincerely,

Deloa Dalby, Administrative Assistant
City of Duvall Planning Department
15535 Main Street NE, Duvall, WA 98019 (Box 1300)
t: 425.939.8077

City of Duvall

NOTICE OF PUBLIC DISCLOSURE: This e-mail account is public domain. Any correspondence from or to this e-mail account is a public record. Accordingly, this e-mail, in whole or in part, may be subject to disclosure pursuant to RCW 42.56, regardless of any claim of confidentiality or privilege asserted by an external party.

EXHIBIT 8

Deloa Dalby

From: Deloa Dalby
Sent: Wednesday, April 25, 2018 3:09 PM
To: Jim Deal; Jason Walker; Heather Khan; 'CL@stewardshippartners.org'; Michael Crowson; 'Beth.Ledoux@kingcounty.gov'; 'MAM@coredesigninc.com'; 'Aaron Booy'; 'jturcott@sdaengineers.com'; 'richardwboman@me.com'; Boyd Benson; Lara Thomas; Troy Davis; Larissa Grundell; Ronn Mercer; 'AC@stewardshippartners.org'; 'KJ@stewardshippartners.org'; 'Elissa.ostergaard@kingcounty.gov'
Cc: Larissa Grundell; Troy Davis; Lara Thomas
Subject: 2018 Surface and Stormwater Plan Public Hearing Notice
Attachments: Stormwater Plan - Notice of Public Hearing.pdf

Greetings Stormwater Stakeholder Group Member,

Attached please find the Notice of Public Hearing for the 2018 Surface and Stormwater Plan.

Sincerely,

Deloa Dalby, Administrative Assistant
City of Duvall Planning Department
15535 Main Street NE, Duvall, WA 98019 (Box 1300)
t: 425.939.8077

City of Duvall

NOTICE OF PUBLIC DISCLOSURE: This e-mail account is public domain. Any correspondence from or to this e-mail account is a public record. Accordingly, this e-mail, in whole or in part, may be subject to disclosure pursuant to RCW 42.56, regardless of any claim of confidentiality or privilege asserted by an external party.

EXHIBIT 9

CITY OF DUVALL
WASHINGTON

RESOLUTION NO. 18-XX

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF DUVALL, WASHINGTON, ADOPTING THE 2018 SURFACE AND STORMWATER PLAN.

WHEREAS, the City of Duvall (City) is a Western Washington Phase II Municipal Stormwater Permittee, in compliance with the provisions of the State of Washington Water Pollution Control Law Chapter 90.48 Revised Code of Washington (RCW) and the Federal Clean Water Act Title 33 United States Code, Section 1251 *et seq.*; and

WHEREAS, the National Pollutant Discharge Elimination System (NPDES) and State Waste Discharge General Permit include regulations for discharges from Small Municipal Separate Storm Sewers (MS4) in Western Washington; and

WHEREAS, the City's Stormwater Management Plan was last updated in 1997; and

WHEREAS, the City's Surface and Stormwater Plan is adopted by reference in the City's 2015 Comprehensive Plan and Watershed Plan; and

WHEREAS, on January 19, 2016 the City Council approved a Consultant Contract with Environmental Science Associates (ESA) to work with City Staff to update the City's 1997 Stormwater Management Plan to comply with NPDES Permit requirements, and

WHEREAS, a SEPA Threshold Determination of Non-Significance (DNS) was issued for the City's proposed 2018 Surface and Stormwater Plan on February 8, 2018, with a 14-day comment period that ended February 22, 2018; and,

WHEREAS, a public meeting on the proposed 2018 Surface and Stormwater Plan was held before the Planning Commission on February 28, 2018; and

WHEREAS, public meeting on the proposed 2018 Surface and Stormwater Plan was held before the City Council on April 17, 2018; and

WHEREAS, 60-Day Review Notice was sent to Commerce on January 29, 2018 and no comments were received by the City from State agencies by March 30, 2018; and,

WHEREAS, on April 11, 2018, a Public Hearing on the proposed 2018 Surface and Stormwater Plan was held before the City's Planning Commission; and

WHEREAS, on April 25, 2018, the Planning Commission made a recommendation on the proposed 2018 Surface and Stormwater Plan to the City Council; and

WHERAS, on May 1, 2018, a Public Hearing on the proposed 2018 Surface and Stormwater Plan was held before the City Council;

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF DUVALL,

EXHIBIT 9

WASHINGTON, DO RESOLVE AS FOLLOWS:

Section 1. 2018 Surface and Stormwater Plan: The 2018 Surface and Stormwater Plan, attached as Exhibit A, is hereby adopted as the City's 2018 Surface and Stormwater Plan.

Section 2. The City Clerk is directed to file a copy of this resolution with the Secretary of Transportation not more than thirty days after its adoption.

PASSED BY THE CITY COUNCIL AT A REGULAR MEETING THEREOF ON THE _____ DAY OF _____, 2018.

CITY OF DUVALL

Approved as to form:

_____

Mayor Amy Ockerlander

_____

Rachel Turpin, City Attorney

ATTEST/AUTHENTICATED

_____

Jodi Wycoff, City Clerk

Exhibit 2

Received Stamp	City of Duvall Small Town. Real Life.	Planning Department 15535 Main St. NE PO Box 1300 Duvall, WA 98019 (425) 788-2779 FAX (425) 788-8097 www.duvallwa.gov

Master Permit Application

This form must be completed (clearly printed or typed) and submitted to the Planning Department to file an application. Additional materials are required for specific types of applications. Please provide 7 complete packets with copies of all required application materials (stapled or binder clipped). For questions, please contact the Planning Department at (425) 788-2779.

FOR STAFF USE ONLY		
File No.:	Received By:	Date Received:

Type of Application:	TYPE I	TYPE II	TYPE III	TYPE IV	TYPE V	TYPE VI
	☐ Administrative Interpretation ☐ Boundary Line Adjustment ☐ Wireless Facility ☐ Other Construction Permits – no SEPA required ☐ Final Site Plan	☐ Building Permit-SEPA required ☐ Other construction permit – SEPA required ☐ Sensitive Area Permits ☐ Site Plans, Parks less than ½ acre in new area ☐ Infill Development of duplexes and townhome	☐ Conditional Use Permit ☐ Shoreline Conditional Use Permit ☐ Shoreline Substantial Development Permit ☐ Shoreline Variance ☐ Preliminary Short Subdivision ☐ Preliminary Long Subdivision ☒ Site Plan/ Master Development Plan Over ½ acre ☐ Variance ☐ Vacations/Alterations ☐ Reasonable Use Exception	☐ Rezone	☐ Final Plat ☐ ROW Vacation	☐ UDR Text Amendment ☐ Annexation ☐ Area-Wide Zoning Map Amendment ☐ Comp. Plan Amendment ☐ Pre-Annexation Zoning

☐ Other Application (please explain):

APPLICANT

Name (please print): Charles Hare Email Address: chare@tollbrothers.com		Phone # (425) 825-5319	
Street Address: 9720 NE 120th PL, Ste. 100	City: Kirkland	State: WA	Zip: 98034

BASIC PROJECT INFORMATION

Project / Development Name: Duvall Urban Village Division I – Amenity Center	Project / Development Location (including nearest intersections): Within the Duvall Urban Village – Division I plat area 500' north of Big Rock Rd., east of future 3rd Ave NE.

Description of Proposed Action: Site Plan Review Approval for Lot 77, including Lot 231 within the Walden property subject of a BLA application concurrent with this application

Assessor / Tax Parcel Numbers (include 10-digit parcel number for all parcels within project boundaries):

242606-9067		

Land Area of Project Site (sq. ft. & acres): Lot 77 is 27,833 SF & 0.639 acre. Lot 231 is 5,829 SF & 0.134 acre. Combined: 33,662 SF & 0.773 acre.	Zoning District: R-12	Comp Plan Designation: Same

Present use of property: Vacant	Are there Sensitive Areas on the property? No

OWNER (if other than applicant)

Name (please print): Toll WA LP Email Address: same		Phone #: 425-825-5319	
Street Address: 9720 NE 120th PL, #100	City: Kirkland	State: WA	Zip: 98034

AUTHORIZATION TO FILE APPLICATION (all persons with an ownership interest in property)

Name (please print): Kelley Moldstad ☒ Owner ☐ Contract Purchaser

Address: 9720 NE 120th PL, #100 ☐ Option Purchaser

Phone #: (425) 825-5337 Option Expiration Date:

Assessor Parcel Number(s): 242606-9067

I certify that the information and exhibits contained in and with this application is true and correct to the best of my knowledge and under the penalty of perjury by the laws of the state of Washington.

Signature:

Name (please print): ☐ Owner ☐ Contract Purchaser

Address: ☐ Option Purchaser

Phone #: ( ) Option Expiration Date:

Assessor Parcel Number(s):

Other Documents Required:
1. Application / Information for specific permit type.
2. SEPA Checklist.

I certify that the information and exhibits contained in and with this application is true and correct to the best of my knowledge and under the penalty of perjury by the laws of the state of Washington.

Signature: Kelley J Mo Date: 9/28/14

CONTINUED ON NEXT PAGE

APPLICANT NOTARY

I, the undersigned, state that to the best of my knowledge the above information is true and complete. It is understood that the City of Duvall may nullify any decision made in reliance upon information given on this application form should there by any willful omission of significant information or any misrepresentation or willful lack of full disclosure on my part.

Applicant's Signature _____

STATE OF WASHINGTON }
COUNTY OF KING } SS

On this 28th day of September, 2017, before me, the undersigned, a Notary Public in and for the State of Washington, duly commissioned and sworn, personally appeared Charles Hare, to me known to be the individual described in and who executed the within and foregoing instrument, and acknowledged that he signed the same as his free and voluntary act and deed, for the uses and purposes therein mentioned, and on oath stated that he/she was authorized to execute said instrument.

WITNESS MY HAND AND OFFICIAL SEAL THIS 28th day of September, 2017

_____
Notary Public in and for the State of Washington
residing at Lake Forest Park

ERIN I. HOPKINS
NOTARY PUBLIC
STATE OF WASHINGTON
COMMISSION EXPIRES
SEPTEMBER 25, 2019
Notary Seal Affixed Here

OWNER NOTARY (if other than Applicant)

I, the undersigned, state that to the best of my knowledge the above information is true and complete. It is understood that the City of Duvall may nullify any decision made in reliance upon information given on this application form should there by any willful omission of significant information or any misrepresentation or willful lack of full disclosure on my part.

Owner's Signature _____

STATE OF WASHINGTON }
COUNTY OF KING } SS

On this 28th day of September, 2017, before me, the undersigned, a Notary Public in and for the State of Washington, duly commissioned and sworn, personally appeared Kelley J. Nordstad, to me known to be the individual described in and who executed the within and foregoing instrument, and acknowledged that he signed the same as his free and voluntary act and deed, for the uses and purposes therein mentioned, and on oath stated that he/she was authorized to execute said instrument.

WITNESS MY HAND AND OFFICIAL SEAL THIS 28th day of September, 2017

_____
Notary Public in and for the State of Washington
residing at Lake Forest Park

ERIN I. HOPKINS
NOTARY PUBLIC
STATE OF WASHINGTON
COMMISSION EXPIRES
SEPTEMBER 25, 2019
Notary Seal Affixed Here

CONTINUED ON NEXT PAGE

Exhibit 3

Received Stamp	City of Duvall Small Town. Real Life.	Planning Department 15535 Main St. NE PO Box 1300 Duvall, WA 98019 (425) 788-2779 www.duvallwa.gov

Site Plan Review Permit Application

This form must be completed (clearly printed or typed) and submitted to the City to file an application, along with the Master Permit Application. Additionally, the applicant shall provide all information as required by the attached checklist, as well as all fees as determined by the Planning Director (see attached Fee Schedule). For questions, please contact the Planning Department at (425) 788-2779.

FOR STAFF USE ONLY		
File No.:	Received By:	Date Received:

Applicant Name: **Charles Hare c/o TOLL WA LP, 9720 NE 120th PL, #100, Kirkland, WA 98034**
Phone # **(425) 825-5319**

Signature: 11/7/2017

Project / Development Name: **DUV – Quarry House**

Street Address / Location of Site: **Big Rock Road at 3rd Ave NE alignment**

Assessor / Tax Parcel Number(s): **242606-9083**

Zoning: **R-12** | Comprehensive Plan Designation: **Multi-Family**

A. Justification

An applicant shall demonstrate that the site plan review application meets all criteria as defined in DMC 14.62.030, as well as provide the following information:

1. Provide a written description of the project.

   Lot 77 of the Duvall Urban Village Division I (DUV-I) Minor Modification to Preliminary Plat approved September 2017 designated as the community amenity site and containing a 3,635 SF± community building (Quarry House) with outdoor entertaining and recreation facilities on a 27,833 SF (0.64 Ac.) lot.

   The community amenity is intended to serve the 144 residential units of DUV-I and the proposed 252 residential units of the contiguous Walden Preliminary Plat application submitted 11/03/2017. Walden and DUV-I have common ownership.

   In addition to Lot 77 another 5,829 SF within Walden (Lot 231) will be incorporated by BLA as a prerequisite condition to issuance of certificate of occupancy for Quarry House. Portions of streets L and R not within DUV-I are subjects of a separate pending permit application and will be constructed within a Public Access and Construction easement established by the common ownership as a prerequisite to construction permit.

2. Provide written documentation that the project is consistent with the Comprehensive Plan and Unified Development Regulations.

   See DUV-I Minor Modification to Preliminary Plat approved September 12, 2017.

3. Discussion of how the proposed project is consistent with the City's development regulations in consideration of:
   a. The type of land use of the proposed project;
   b. The level of development, such as units per acres or other measures of density;
   c. Availability of infrastructure, including public facilities and services needed to serve the development;

d. The character of development, including compliance with DMC 14.34, Design Guidelines and all other provisions of this Title.

See DUV-I Minor Modification to Preliminary Plat approved September 2017.

4. Explain how the project conforms with the following principles set out in DMC 14.34.020:

a. A unifying organization that takes into account site conditions (e.g., topography, slopes, streams, wetlands) and adjacent uses;

This application is for a subset of a larger development known as DUV-I approved in 2010 and again in September 201 by Minor Modification. Further, DUV-I, when combined with the abutting Walden property application, will be a phase of a larger integrated community plan known as Walden at Big Rock (WABR). WABR is organized around public and private open spaces with vehicular and pedestrian connections inter-linking all elements of the community – residential neighborhoods, commercial areas, public facilities and open spaces.

b. Convenient and connected pedestrian and vehicular circulation, including a range of street types, pedestrian pathways, and trails that support a variety of street and frontage types;

See 4.a. above and the approved DUV-I Minor Modification of Preliminary Plat approved September 2017.

c. A variety of building types, with assorted floor plans and elevations that complement the village character of Duvall ad enhance adjacent uses and buildings;

The character of the development meets the purpose and design intent of DM14.34 by having a strong regional character through the use of timbers and stone cladding. The stone cladding gives the building a base, the horizontal siding defines the middle and the expressive roof form defines the top. Multiple gables, clerestories and chimneys add visual interest and successfully separate and balance roof plans. The interior and exterior spaces easily flow through large openings and the covered outdoor spaces provide opportunity for year round activity. The scale and massing of the building is appropriate for its residential setting but is unique enough to set it apart.

d. Façade designs, landscaping, usable open space and other common amenities that serve to organize the site, create points for community gathering, and incorporate screening, environmental mitigation, utilities, and drainage as positive amenities in the overall site design;

Both the site and building design respond to the site condition and topography as well as the context of the overall WABR community plan. The site may be entered from any direction, however the primary building entrance and main floor is at the highest elevation providing an attractive overview of the amenity site and nearby community. Indoor/outdoor relationships are strongly expressed by covered decks extending indoor rooms and a series cascading terraces starting with extended roof covered space adjacent the indoor rooms and yielding to increasingly soft outdoor space through a series of programmed and semi-programmed areas to an open manicured lawn area. The collective experience of building and site organization extends the perception of spacial relationships into the distance.

e. Where abutting developed land provides road stub-ours, easements, or other methods to provide the opportunity for future road connections, the interior street, sidewalk and trail network of new development shall be designed to link up to those connections and provide a clear public path of travel for both vehicles and pedestrians, unless there are sire constraints such as topography or sensitive areas that make such connections infeasible.

Not applicable to this application – see the DUV-I Minor Modification approved September 2017.

A.	**A Site Plan Checklist has been included in the application packet. It included all items that are required at time of submittal.**
B.	**Any other information deemed pertinent by the DRC, Planning Commission or City Council or required to be submitted with the site plan under other provisions of the Duvall Municipal Code.**

GENERAL NOTES

1. Contractor shall be governed by the currently adopted edition of all codes and regulations having jurisdiction over aspects of this construction project.

2. Written dimensions and existing conditions shall be verified in the field by the General Contractor and/or his Sub Contractors. Do not scale drawings. If further clarification is required, contact Architect and provide them with field dimensions as required to assist them with their clarification.

3. These drawings are the property and copyright of the Architect and shall not be used on any other work except by agreement with the Architect.

4. Duty of Cooperation: Release of these plans anticipates further cooperation among the Owner, Contractor, and Architect. Although the Architect and consultants have performed their services with due care and diligence, they cannot guarantee perfection. Any discovered discrepancies of, and/or relating to the Construction Documents shall be reported immediately to the Architect, prior to the commencement of any work. Failure to notify the Architect of such ambiguities, or discrepancies shall relieve the Architect of responsibility for all consequences arriving out of such actions. Changes from the plans made by the GC without consent of the Architect are unauthorized, and shall relieve the Architect of responsibility for all consequences arriving out of such changes.

5. Plans reflect final building and site configuration. Demolition, site clearing, ect. is to be performed as required. No inference is made that all existing conditions are shown or all demolition noted. Contractor is to field verify all existing conditions and dimensions indicated in layout of existing work. Prior to commencing work, carefully compare drawings for discrepancies in locations of work to be executed.

6. All products shall be installed per manufacturer's recommendations.

7. The General Contractor shall field verify all relevant dimensions of existing construction in place and its relation to new construction. Notify Architect for clarification if conflicts with the Construction Documents are discovered.

8. The Contractor shall include any work required to make the end result building operative and occupiable. If equipment, material and/or intent are not detailed in drawings or specifications but are obviously required as industrystandard for operative conditions, this work shall be included in base bid. If the Owner does not accept the Contractor's selection, the additional cost (to the Contractor) of that equipment or materials chosen by the Owner or Architect will be offset by Change Order.

9. Do not use cadmium or cadmium plated products or products containing cadmium for work in place.

10. Do not use asbestos or products which contain asbestos for work in place. Contractor shall not cut, drill, remove, or otherwise disturb any material, equipment, construction, etc., if it is thought to contain any hazardous material. If material, equipment, construction, etc., is encountered which appears to, or is likely to contain hazardous materials, notify Owner immediately.

11. Electrical equipment shall be certified as containing no PCB's.

12. Typographical errors or errors of spelling shall be brought to the Architect's attention for clarification. Interpretation of the meaning of mistyped or misspelled words without clarification from the Architect done by the Contractor with acceptance of responsibility for that interpretation and all consequences arriving therefrom.

13. Note: All dimensions to face of masonry, or face of stud, typ. u.n.o. All masonry dimensions indicated are nominal dimensions. Contractor shall be governed by the currently adopted edition of all codes and regulations having jurisdiction over aspects of this construction project.

14. Written dimensions and existing conditions shall be verified in the field by the General Contractor and/or his Sub Contractors. Do not scale drawings. If further clarification is required, contact Architect and provide them with field dimensions as required to assist them with their clarification.

15. General Contractor shall be responsible for coordination of all trades doing work under contract with the GC and coordination with Owner and Owner's sub-contractors regarding installation and provision for all equipment, materials and constructions indicated "by Owner" or "by others" on these documents.

16. All existing areas outside of contract limits are fully finished and beyond the jurisdiction of the Owner. Contractor shall take all precautions necessary to protect these areas from damage, debris, and any other deleterious effects caused by this construction shall be restored to original condition as required at completion of project.

17. The Contractor is responsible for protecting all existing items, utilities, or structures. The Contractor shall contact utility Owners or make exploratory excavations as necessary or as noted on the plans to determine the location of underground utilities and structures and the limits and character of soil and/or rock. If any item requires relocation, the Contractor shall notify the Owner of items well in advance of approach to the item and shall be responsible for making all arrangements with the item Owner for relocation of the item.

18. All building signage by Owner.

19. The work to be done under this Contract is to be performed in a workman like manor, to the satisfaction of the Architect, of the Work as shown, documented and set forth in the Contract Documents.

    If these documents or onsite job conditions make it impossible to produce first class work, or to warrant the work or its performance, or should discrepancies appear among the Contract Documents, it is the General Contractors responsibility to request interpretation, correction or clarification prior to proceeding with work. If the Contractor fails to make such request(s), work must be performed in a satisfactory manner and no request for added cost or extension of time will be considered.

    Should conflict occur in or between the Construction Documents and Specifications, the General Contractor is assumed to have estimated on the more costly method of doing the work unless he requests, and obtains in writing, a resolution to such conflict(s) before submission of Bid as to which method or materials will be required.

    The General Contractor represents that he fully understands the nature and extent of the work, all factors and conditions affecting or which may be affected by it and characteristics of its various parts and elements and their fitting together and functioning.

20. All Civil, Structural, Mechanical, Plumbing and Electrical design will be coordinated, and/or provided by Owner.

ACCESSIBILITY STANDARDS

GENERAL NOTES:

1. THE FIXTURES AND DEVICES INDICATED HERE ARE FOR EXAMPLE ONLY AND MAY NOT BE REPRESENTATIVE AND/OR PERTINENT TO THE PROJECT
2. MOUNTING HEIGHTS INDICATED ARE GENERAL IN NAUTRE AND MAY BE SUPERCEDED BY MORE SPECIFIC INFORMATION ELSEWHERE IN THIS SET OF DOCUMENTS
3. DIMENSIONS ARE TO FACE OF FINISHED SURFACE, TYP.
4. ALL DIMENSIONS SHOULD COMPLY WITH ICC/ANSI A117.1 - 2009
5. ALL DRAWINGS ARE SECTION/ELEVATION UNLESS OTHERWISE NOTED

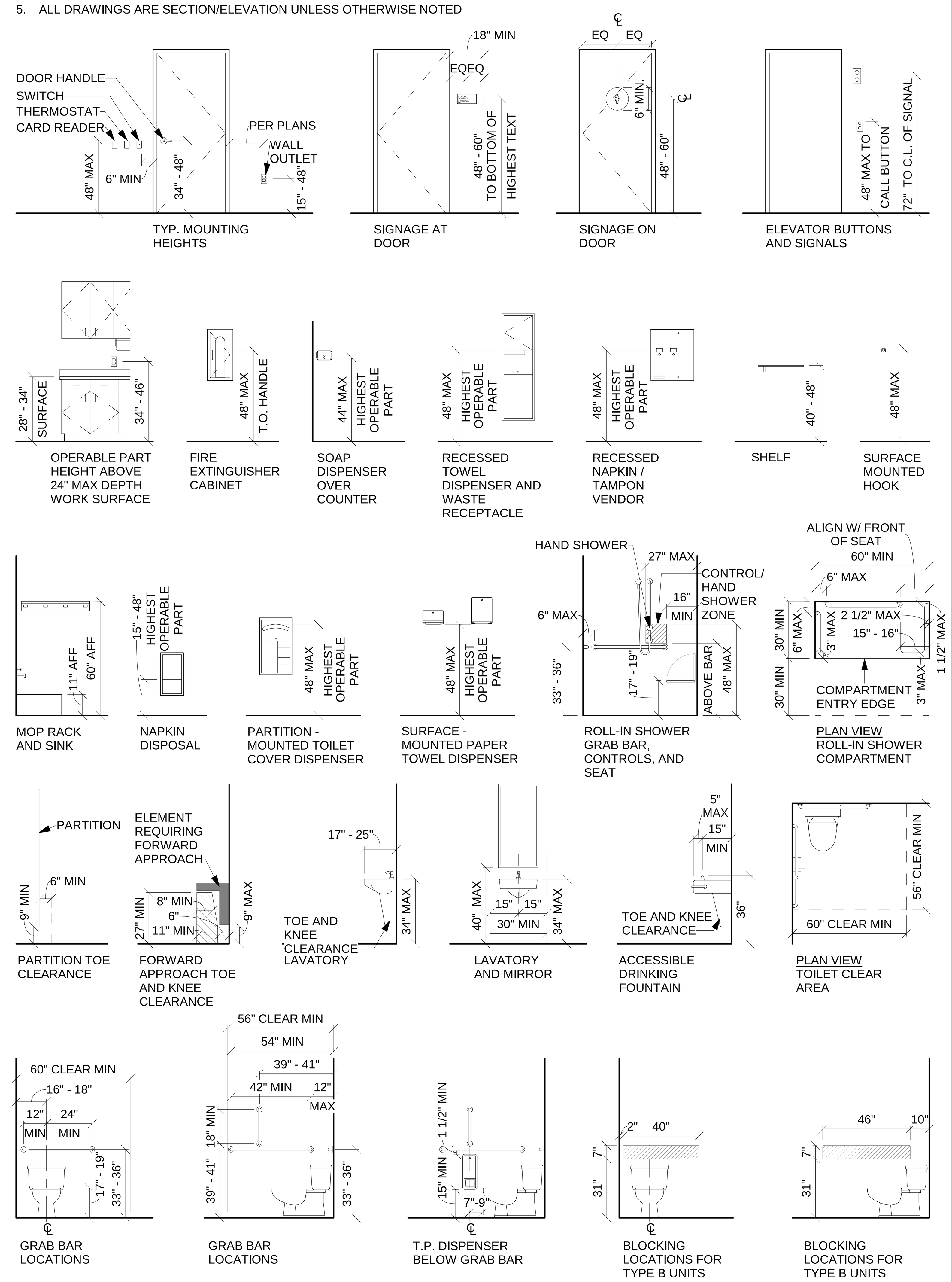

Exhibit 4

GRAPHICS STANDARDS

CONCRETE
UNDISTRIBUTED EARTH OR COMPACTED FILL
POROUS FILL
BRICK OR STONE MASONRY
BATT INSULATION
RIGID INSULATION
METAL
WOOD FINISH
ROUGH WOOD
PLYWOOD
GYP BOARD
GLASS (IN ELEVATION)

ROOM NAME OR **ROOM NAME** XXX CLG. — ROOM NAME/NUMBER

DRAWING NUMBER 2 / SHEET NUMBER A101 — ENLARGED DETAIL

DRAWING NUMBER 2 / SHEET NUMBER A101 — DETAIL TAG

DRAWING NUMBER 2 / SHEET NUMBER A101 — ELEVATION TAG

DRAWING NUMBER 2 / SHEET NUMBER A101 — WALL SECTION TAG

2 / A101 — DRAWING NUMBER 2 / SHEET NUMBER A101 — BUILDING SECTION TAG

2.2 GRID NUMBER — K GRID LETTER — STRUCTURAL GRID

? — KEYNOTE

XXXX — WINDOW TYPE

XXXX 1t — DOOR NUMBER

X — PARTITION TYPE

100'-0" T.O. SLAB — ELEVATION SYMBOL

DRAWING REFERENCE: SEE 2/A200 INDICATES REFER TO DRAWING 2 ON SHEET A200

WINDOW / DOOR REFERENCE:'3068' BY A DOOR INDICATES A 3'-0" WIDE BY 6'-8" HIGH DOOR. '2660" SH' BY A WINDOW INDICATES A 2'-6" WIDE BY 6'-0" HIGH WINDOW THAT IS A SINGLE HUNG.

SH = SINGLE HUNG — FX = FIXED GLASS
SLDR = SLIDER — SL = SLIDING GLASS DOOR
BP = BI-PASS CLOSET DOOR — TEMP = TEMPERED

ABBREVIATIONS

ACOUST	acoustic(al)
ACT	acoustic ceiling tile
ADJ	adjacent
AFF	above finish floor
ALT	alternate
ALUM	aluminum
APPROX	approximate
ARCH	architectur(al)
ASPH	asphalt
BD	board
BITUM	bituminous
BK	brick
BLDG	building
BLK	block
BLKG	blocking
BM	beam
BO	by others
BOT	bottom
BRG	bearing
BSMT	basement
BTWN	between
C/PV	concrete pavers
CAB	cabinet
CHNL	channel
CJ	control joint
CLG	ceiling
CL	centerline
CLR	clear(ance)
CMU	concrete masonry unit
COL	column
CONC	concrete
CONN	connection
CONST	construction
CONT	continuous
COORD	coordinate/coordination
CPT	carpet
CT	ceramic tile
CTSK	countersink
CUFT	cubic foot
DBL	double
DEPT	department
DF	drinking fountain
DIA	diameter
DIAG	diagonal
DIM	dimension
DN	down
DR	drain/door
DS	downspout
DTL	detail
DWG(S)	drawing(s)
EA	each
EIFS	exterior insulation finish system
EJ	expansion joint
ELEC	electrical
ELEV/EL	elevation
ENCL	enclosure
ENGR	engineer(ed)
EQ	equal
EQUIP	equipment
EXH	exhaust
EXP	expansion
EXPSD	exposed
EXIST	existing
EXT	exterior
FBGL	fiberglass
FC	fiber cement
FCU	fan coil unit
FD	floor drain
FDN	foundation
FF	finish floor
FGRG	fiberglass-reinforced gypsum
FIN	finish(ed)
FIXT	fixture
FLR	floor(ing)
FLSH	flush
FO	face of
FR	fire resistive
FRR	fire resistive rating
FRMG	frame(ing)
FRP	fiber-reinforced plastic
FT	foot/feet
FTG	footing
FUT	future
FWC	fabric wall covering
GA	gage/gauge
GAL	gallon
GALV	galvanized
GC	general contractor
GCT	glazed ceramic tile
GEN	general
GL	glass/glazing
GYP BD	gypsum board
HDWD	hardwood
HB	hose bib
HC	handicapped
HC	hollow core
HDBD	hardboard
HDR	header
HORIZ	horizontal
HT	height
HTG	heating
HTR	heater
ID	inside diameter
INCL	include(d)(ing)
INSUL	insulate(d)(ion)
INT	interior/intermediate
JST(s)	joists
JT(s)	joint(s)
KIT	kitchen
LAM	laminated
LAT	lateral
LAV	lavatory
LOC	location
LT	light
LTWT	light weight

MAS	masonry
MAX	maximum
MBR	member
MECH	mechanic(al)
MFG(R)	manufacture(r)(d)
MH	manhole
MIN	minimum
MISC	miscellaneous
MLD	molding/moulding
MPTN	movable partition system
MS	metal stud
MTD	mount(ed)
MTG	meeting
MATL	material(s)
MTL	metal
N/A	not applicable
NTS	not to scale
NIC	not in contract
NO	number
o/	over
OC	on center(s)
OCL	occupant load
OD	outside diameter
OFF	office
OH	overhang
OPNG	opening
OPP	opposite
OVHD	overhead
PARTBD	particle board
PC	precast
PC/TL	porcelain ceramic tile
PERP	perpendicular
PF	prefinished
PFAB	prefabricate(d)
PL	plate
PL	property line
PLAM	plastic laminate
PLUMB	plumbing
PLYWD	plywood
PR	pair
PT	paint
PTN	partition
QT	quarry tile
QTR	quarter
R	radius
RB	rubber base
RE	reference
REC	recommend(ations)
REINF	reinforced(ing)
RQD	required
RET	retaining
RFG	roofing
RM	room
RO	rough opening
ROW	right of way
RT	rubber tile
RTG	rating
S4S	sawn four sides
SAP	suspended acoustical panel
SAT	suspended acoustical tile
SC	solid core
SCHED	schedule
SEC	section
SF	square foot/feet
SHT	sheet
SIM	similar
SPDRL	spandrel
SPEC	specification(s)
SQ	square
SS	stainless steel
STA	station
STD	standard
ST/PT	stone pavers
ST/TL	stone tiles
STL	steel
STN	stain
STOR	storage
STRUCT	structural
SUPPL	supplied(er)
SUSP	suspended
SYM	symmetrical
SYST	system
T	tread
T&B	top and bottom
T&G	tongue and grove
TO	top of
TEL	telephone
TEMP	tempered
THK	thickness
THLD	threshold
TS	tube steel
TV	television
TYP	typical
UNF	unfinished
UNO	unless noted otherwise
UON	unless otherwise noted
VAR	varies
VCT	vinyl composition tile
VERT	vertical
VEST	vestibule
VIF	verify in field
VWC	vinyl wall covering
W	wide flange beam
W/	with
W/O	without
WC	water closet
WD	wood
WH	water heater
WSCT	wainscot
WT	weight
WWF	welded wire fabric
WWM	welded wire mesh

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LOT 77 - QUARRY HOUSE SITE
SITE PLAN REVIEW - 2ND SUBMITTAL
TOLL BROTHERS
CITY OF DUVALL, WASHINGTON

NOT FOR CONSTRUCTION

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PROJECT NO: 2016054
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SHEET TITLE:
GENERAL NOTES, ABBREVIATIONS, ACCESSIBILITY

SHEET NUMBER:
A001

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CODE SUMMARY

APPLICABLE CODES/STANDARDS:
2015 INTERNATIONAL BUILDING CODE (2015 IBC)
2015 INTERNATIONAL FUEL GAS CODE (2015 IFGC)
2015 UNIFORM PLUMBING CODE (2015 UPC)
2015 INTERNATIONAL MECHANICAL CODE (2015 IMC)
2014 NATIONAL ELECTRICAL CODE (2014 NEC)
2015 WASHINGTON STATE ENERGY CODE
ICC/ANSI A117.1-2009 ACCESSIBILITY STANDARDS

PROJECT DESCRIPTION:
The Amenity Center at Walden at Big Rock is an event center for the Walden at Big Rock Community. The Amenity Center will be composed of a main floor area including spaces for community and corporate events, a small kitchenette, mechanical room for included site amenities (splash play area and patio with BBQ equipment), and restrooms. A lower floor area will comprise office that the developer will use to meet with potential home purchasers and to conduct professional services. The two floors will not have an interior connection and are considered separate uses.

CHAPTER 3: USE AND OCCUPANCY CLASSIFICATION

GREAT ROOM:	A-3 (Primary use and basis for calculating allowable area and nonseparated uses)
COMMUNITY LIVING ROOM:	A-3 (Smaller gathering space that can be included with Great Room, or separated with moveable wall system per plan
OFFICES:	B (On the lower floor, business and professional activities will be conducted)
STORAGE:	S-1 (Accessory storage areas, and splash play area chemical storage)
MECHANICAL:	U (Mechanical equipment room)

CHAPTER 5: GENERAL BUILDING HEIGHTS AND AREAS

GROSS AREA

Level	NAME	INTERIOR AREA	EXTERIOR AREA	AREA CALCULATION TOTAL	IS INTERIOR AREA
Lower Level FF	LOWER LEVEL	1028 SF	0 SF	1028 SF	Yes
Lower Level FF		1028 SF	0 SF	1028 SF	
Main Level FF	COVERED EXTERIOR	0 SF	1185 SF	1185 SF	No
Main Level FF	MAIN LEVEL	2643 SF	0 SF	2643 SF	Yes
Main Level FF		2643 SF	1185 SF	3827 SF	
Building Total		3671 SF	1185 SF	4855 SF	

TABLE 504.3 - ALLOWABLE BUILDING HEIGHT
A-3 OCCUPANCY 60' ABOVE GRADE (SPRINKLERED)

TABLE 504.4 - ALLOWABLE NUMBER OF STORIES
A-3 OCCUPANCY 2 STORIES (SPRINKLERED)

TABLE 506.2 - ALLOWABLE AREA FACTOR
A-3 OCCUPANCY 18,000 SF TYPE V-B CONSTRUCTION, SPRINKLERED

SECTION 508: MIXED USE AND OCCUPANCY
SECTION 508.3 - NONSEPARATED OCCUPANCIES
508.3.1 - Occupancies are individually classified in accordance with section 302.1 as identified above - most restrictive occupancy allows V-B construction
508.3.1 - None of the restrictions in Chapter 9 apply to these uses (903.2)
508.3.2 - Most restrictive allowable building area and height are not exceeded - allows type V-B
508.3.3 - No separation required - Exceptions do not apply

CHAPTER 6: TYPES OF CONSTRUCTION

TYPE V-B, SPRINKLERED

TABLE 601 AND 602:
BELOW ARE FIRE RESISTANCE RATING REQUIREMENTS PER IBC TABLE 601 (BUILDING ELEMENTS) AND TABLE 602 (EXTERIOR WALLS) FOR TYPE V CONSTRUCTION

	TABLE 601	TABLE 602
STRUCTURAL FRAME	0 HR	
BEARING WALLS (EXTERIOR AND INTERIOR)	0 HR	
NON-BEARING WALLS - EXTERIOR (TABLE 602)	0 HR	0 HR WHERE x > 30' FIRE SEPARATION DISTANCE
NON-BEARING WALLS - INTERIOR	0 HR	
FLOOR CONSTRUCTION	0 HR	
ROOF CONSTRUCTION	0 HR	

CHAPTER 7: FIRE AND SMOKE PROTECTION FEATURES
705.2 - Projections: Exception for buildings on the same lot applies - not required to comply with this section
705.3 - Buildings on the same lot: Exception applies
705.8 - Openings: All exterior walls greater than 30' from property lines and assumed property lines, no opening protection required

CHAPTER 8: INTERIOR FINISHES
TABLE 803.9 REQUIRES THAT INTERIOR WALL AND CEILING FINISHES BE CLASS C RATED FOR FLAME SPREAD INDEX

CHAPTER 9: FIRE PROTECTION SYSTEMS
BASED ON THE THREASHOLDS IDENTIFIED IN SECTION 903, NO FIRE SPRINKLER SYSTEM IS REQUIRED
A-3: No fire sprinkler system required per Section 903.2.1.3
A-5: No fire sprinkler system required per Section 903.2.1.5
S-1: No fire sprinkler system required per Section 903.2.9
Specified building areas and hazards, no fire sprinkler system required per Section 903.2.11 (kitchen area is not a commercial cooking operation)

PORTABLE FIRE EXTINGUISHERS SHALL BE PROVIDED PER SECTION 906

BASED ON THE THREASHOLDS IDENTIFIED IN SECTIONS 907, 908, AND 909, FIRE ALARM AND DETECTION SYSTEMS, EMERGENCY ALARM SYSTEMS, AND SMOKE CONTROL SYSTEMS ARE NOT REQUIRED

CHAPTER 10: MEANS OF EGRESS

SECTION 1004: OCCUPANT LOAD
TABLE 1004.1.2

AREA OCCUPANCY LOAD SUMMARY

LEVEL	Name	OCCUPANT GROUP	AREA	IBC CHAPTER 10 EGRESS REQUIREMENTS	OCCUPANT LOAD FACTOR	DESIGN OCCUPANT LOAD
Lower Level FF	BUSINESS	B	770 SF	Business Areas	100	8
Lower Level FF	PATIO	B	485 SF	Business Areas	100	5
Lower Level FF	JANITOR	S-1	19 SF	Accessory storage area, mechanical equipment room	300	1
Lower Level FF			1274 SF			14
Main Level FF	KITCHENETTE	A-2	128 SF	Kitchens, commercial	200	1
Main Level FF	COMMUNITY GREAT ROOM	A-3	802 SF	Assembly without fixed seats - Unconcentrated (tables and chairs)	15	54
Main Level FF	COMMUNITY LIVING ROOM	A-3	608 SF	Assembly without fixed seats - Unconcentrated (tables and chairs)	15	41
Main Level FF	PATIO	A-3	925 SF	Assembly without fixed seats - Unconcentrated (tables and chairs)	15	62
Main Level FF	STORAGE	S-1	167 SF	Accessory storage area, mechanical equipment room	300	1
Main Level FF	MECHANICAL	U	160 SF	Accessory storage area, mechanical equipment room	300	1
Main Level FF			2789 SF			160
Total:			4063 SF			174

SECTION 1006: NUMBER OF EXITS AND EXIT ACCESS DOORWAYS

PER TABLE 1006.3.2(2):
A, B, AND U OCCUPANCIES WITH AN OCCUPANT LOAD GREATER THAN 49 REQUIRE MORE THAN 1 EXIT
S OCCUPANCIES WITH AN OCCUPANT LOAD GREATER THAN 29 REQUIRE MORE THAN 1 EXIT

	REQUIRED EXITS	PROVIDED EXITS
A (A-3)	2	2
B	1	2

SECTION 1014: EXIT ACCESS
PER TABLE 1014.3 - COMMON PATH OF EGRESS TRAVEL

A OCCUPANCY	75 FEET (WITHOUT AUTOMATIC SPRINKLER SYSTEM)
S OCCUPANCY	100 FEET (WITHOUT AUTOMATIC SPRINKLER SYSTEM)
U OCCUPANCY	100 FEET (WITHOUT AUTOMATIC SPRINKLER SYSTEM)

SECTION 1017: EXIT ACCESS TRAVEL DISTANCE
PER TABLE 1017.2 COMMON PATH OF EGRESS TRAVEL

A OCCUPANCY	200 FEET (WITHOUT AUTOMATIC SPRINKLER SYSTEM)
B OCCUPANCY	200 FEET (WITHOUT AUTOMATIC SPRINKLER SYSTEM)
S-1 OCCUPANCY	200 FEET (WITHOUT AUTOMATIC SPRINKLER SYSTEM)
U OCCUPANCY	300 FEET (WITHOUT AUTOMATIC SPRINKLER SYSTEM)

CHAPTER 12: INTERIOR ENVIRONMENT
BUILDINGS WILL BE MECHANICALLY VENTILATED - SEE MECHANICAL DRAWINGS

CHAPTER 29: PLUMBING SYSTEMS
SECTION 2902: MINIMUM PLUMBING FIXTURES
PER TABLE 2902.1:

SECTION 2902.6: SMALL OCCUPANCIES
Drinking fountains shall not be required for an occupant load of 15 or fewer

IBC CHAPTER 29 REQUIRED PLUMBING FIXTURE

	OCCUPANCY		WATER CLOSETS				LAVATORIES				DRINKING FOUNTATIN		
Level	OCCUPANT GROUP	LOAD	RATIO (1/X)	MALE	RATIO (1/X)	FEMALE	RATIO (1/X)	MALE	RATIO (1/X)	FEMALE	RATIO (1/X)	DRINKING FOUNTAINS	SERVICE SINK
Lower Level FF	B	8	25	0.16	25	0.16	40	0.1	40	0.1	100	0.08	1
Lower Level FF	B	5	25	0.1	25	0.10	40	0.0625	40	0.0625	100	0.05	1
Lower Level FF	S-1	1	100	0.005	100	0.01	100	0.005	100	0.005	1000	0.001	1
Lower Level FF		14		0.265		0.27		0.1675		0.1675		0.131	
FIXTURES PROVIDED				**1 UNISEX FIXTURE PROVIDED**				**1 UNISEX FIXTURE PROVIDED**			**NOT REQUIRED PER 2902.6**		**1 PER LEVEL**
Main Level FF	A-2	1	75	0.006667	75	0.01	200	0.0025	200	0.0025	500	0.002	1
Main Level FF	A-3	54	125	0.216	65	0.42	200	0.135	200	0.135	500	0.108	1
Main Level FF	A-3	41	125	0.164	65	0.32	200	0.1025	200	0.1025	500	0.082	1
Main Level FF	A-3	62	125	0.248	65	0.48	200	0.155	200	0.155	500	0.124	1
Main Level FF	U	1	100	0.005	100	0.01	100	0.005	100	0.005	1000	0.001	1
Main Level FF	S-1	1	100	0.005	100	0.01	100	0.005	100	0.005	1000	0.001	1
Main Level FF		160		0.644667		1.22		0.405		0.405		0.318	
FIXTURES PROVIDED				**2**		**2**		**2**		**2**			**1 PER LEVEL**

SITE & IMPERVIOUS AREAS

AREA BREAKDOWN	BUILDING	LANDSCAPE FEATURES (WALLS, PAVING, ETC.)	TURF	UNDERSTORY	TOTALS
Impervious Surface	3,082 SF	9,763 SF	N/A	N/A	12,845 SF
Pervious Surface	N/A	N/A	7,860 SF	12,950 SF	20,810 SF
Total Site Area					33,655 SF

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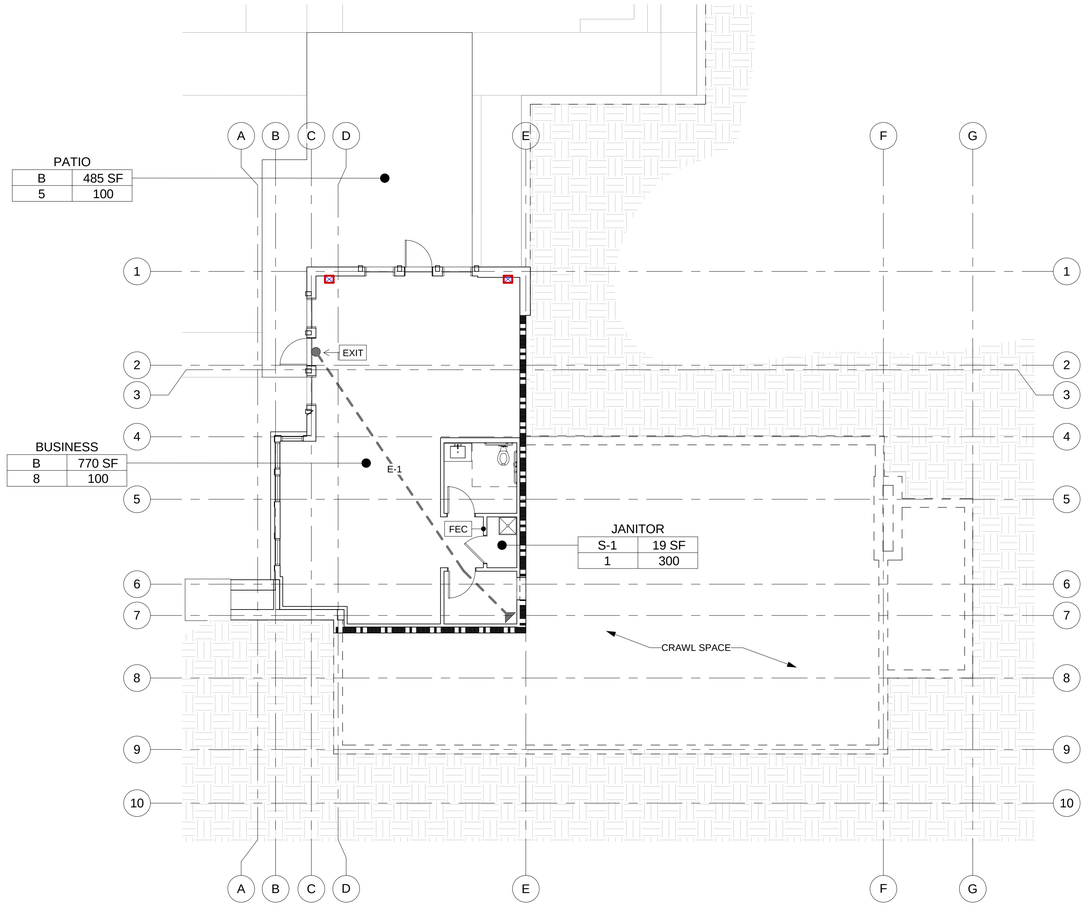
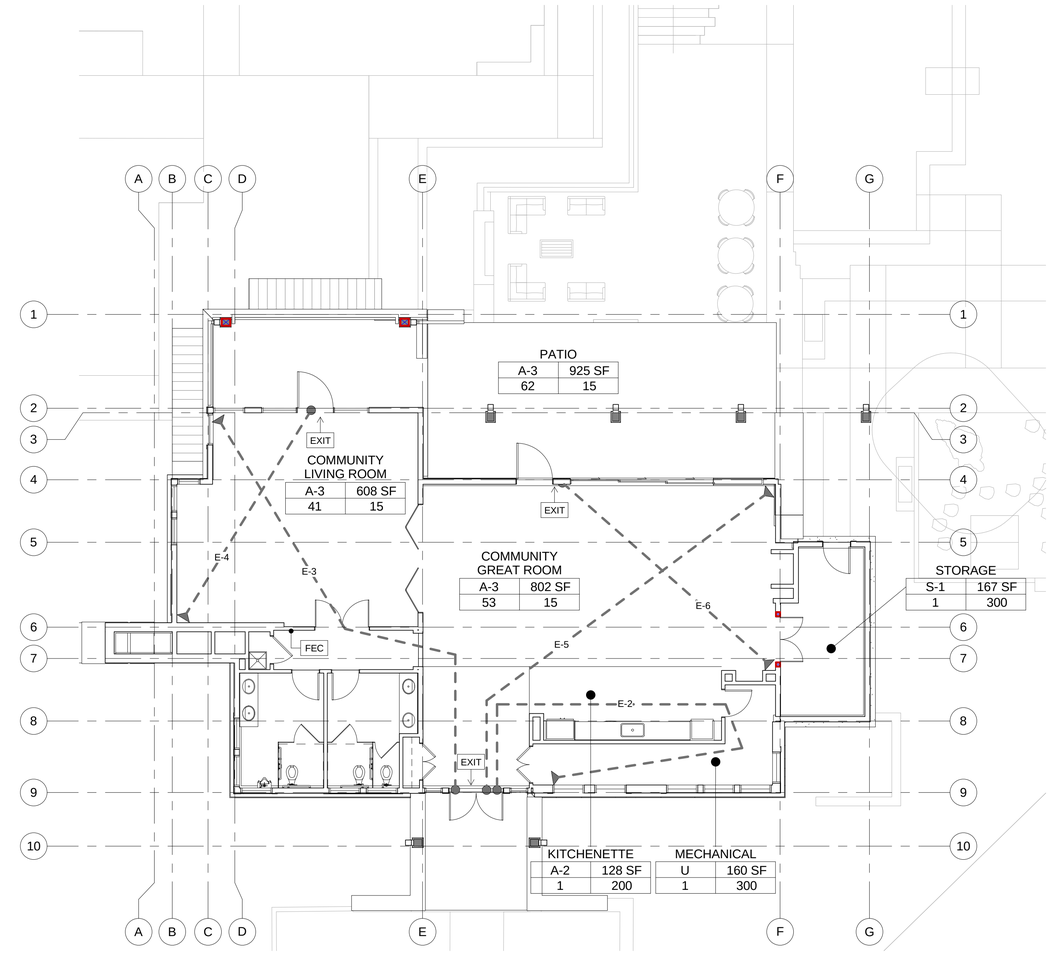


2 A003 LOWER LEVEL CODE PLAN

SCALE: 1/8" = 1'-0"



1 A003 MAIN LEVEL CODE PLAN

SCALE: 1/8" = 1'-0"

EXIT ACCESS TRAVEL DISTANCE	
OCCUPANCY	TRAVEL DISTANCE
E-1	36' - 9"
E-2	61' - 8"
E-3	55' - 1"
E-4	27' - 3"
E-5	49' - 2"
E-6	30' - 8"

CODE PLAN LEGEND

1BR+
R-2 950
5 200

OCCUPANCY GROUP
ROOM NAME
NOMINAL SQ. FT.
OCCUPANT LOAD FACTOR
NUMBER OF OCCUPANTS

SMOKE PARTITION
1-HOUR FIRE RESISTANCE
2HR FIRE RESISTANCE
3HR FIRE RESISTANCE
FEC FIRE EXTINGUISHER CABINET

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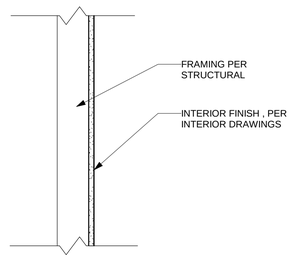
NOTES:

1. EXTEND FRAMING TO UNDERSIDE OF STRUCTURE ABOVE, UNLESS NOTED OTHERWISE.



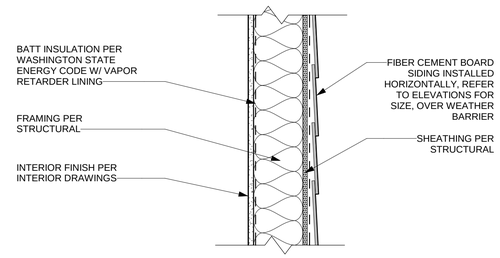
NON-RATED

J 2X4 INTERIOR PARTITION W/ GYP. ON ONE SIDE
SCALE: 1 1/2" = 1'-0"

EXTERIOR WALL SYSTEM 6.0
HORIZONTAL FIBER CEMENT BOARDS, INSTALL PER MANUFACTURER'S INSTRUCTIONS, REFER TO ELEVATIONS, o/ WEATHER BARRIER o/ SHEATHING PER STRUCTURAL o/ FRAMING PER STRUCTURAL. PNT, COLOR PER BUILDER SPECIFICATIONS.

NOTE:

1. SEE ELEVATIONS FOR LOCATIONS w/ WAINSCOT CONDITION.

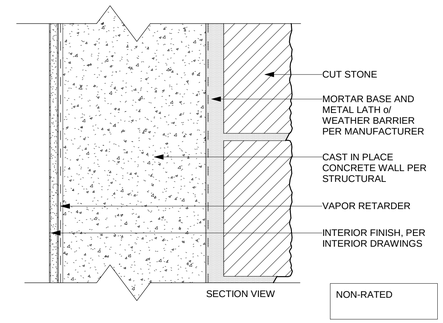


NON-RATED

F HORIZONTAL LAP SIDING EXTERIOR WALL ON 2X6
SCALE: 1 1/2" = 1'-0"

EXTERIOR WALL SYSTEM 3.0:

STONE w/ MORTAR BASE AND METAL LATH o/ WEATHER BARRIER o/ CAST IN PLACE CONCRETE WALL PER STRUCTURAL. STONE ATTACHMENT PER BUILDER SPECIFICATIONS.

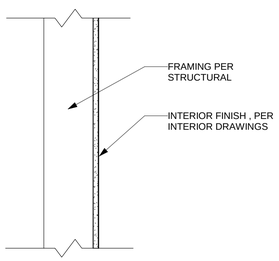


NON-RATED

C CAST IN PLACE WALL w/ STONE EXTERIOR
SCALE: 3" = 1'-0"

NOTES:

1. EXTEND FRAMING TO UNDERSIDE OF STRUCTURE ABOVE, UNLESS NOTED OTHERWISE.

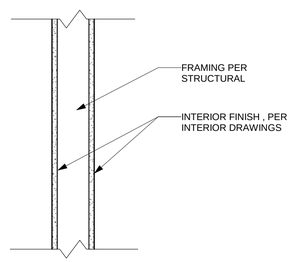


NON-RATED

L 2X6 INTERIOR PARTITION W/ GYP. ON ONE SIDE
SCALE: 1 1/2" = 1'-0"

NOTES:

1. EXTEND FRAMING TO UNDERSIDE OF STRUCTURE ABOVE, UNLESS NOTED OTHERWISE.

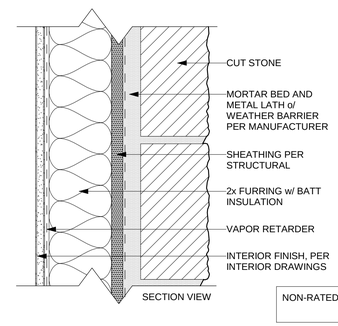


NON-RATED

H 2X4 INTERIOR PARTITION w/ GYP. ON BOTH SIDES
SCALE: 1 1/2" = 1'-0"

EXTERIOR WALL SYSTEM 5.0:

STONE w/ MORTAR BASE AND METAL LATH o/ WEATHER BARRIER o/ FRAMING PER STRUCTURAL. STONE ATTACHMENT PER BUILDER SPECIFICATIONS.

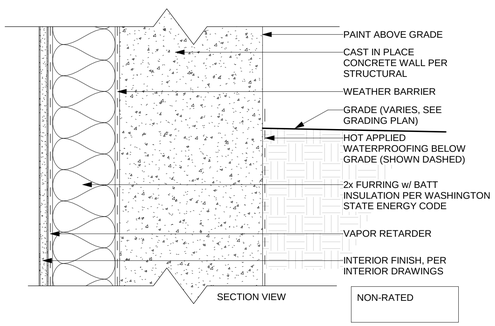


NON-RATED

E 2x EXTERIOR WALL w/ STONE EXTERIOR
SCALE: 3" = 1'-0"

EXTERIOR WALL SYSTEM 2.0:

CAST IN PLACE CONCRETE WALL PER STRUCTURAL o/ WEATHER BARRIER o/ FRAMING PER STRUCTURAL.

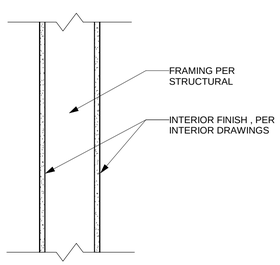


NON-RATED

B CAST IN PLACE WALL w/ 2x FURRING WALL
SCALE: 3" = 1'-0"

NOTES:

1. EXTEND FRAMING TO UNDERSIDE OF STRUCTURE ABOVE, UNLESS NOTED OTHERWISE.

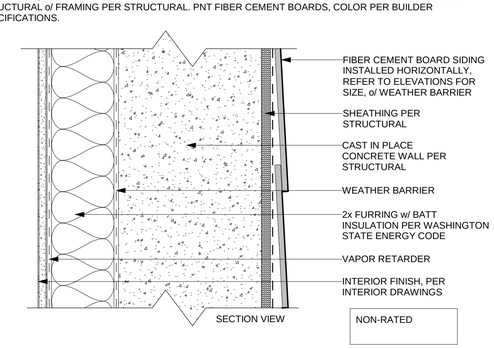


NON-RATED

K 2X6 INTERIOR PARTITION w/ GYP. ON BOTH SIDES
SCALE: 1 1/2" = 1'-0"

EXTERIOR WALL SYSTEM 7.0:

HORIZONTAL FIBER CEMENT BOARDS, INSTALL PER MANUFACTURER'S INSTRUCTIONS, REFER TO ELEVATIONS, o/ WEATHER BARRIER o/ SHEATHING PER STRUCTURAL o/ CAST IN PLACE CONCRETE PER STRUCTURAL o/ FRAMING PER STRUCTURAL. PNT FIBER CEMENT BOARDS, COLOR PER BUILDER SPECIFICATIONS.



NON-RATED

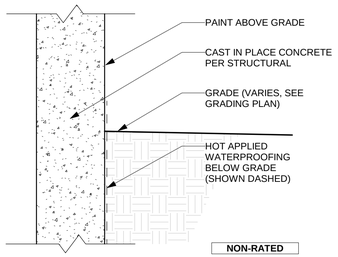
G CAST IN PLACE w/ FURRING WALL & LAP SIDING
SCALE: 3" = 1'-0"

EXTERIOR WALL SYSTEM 4.0:

CAST IN PLACE CONCRETE WALL PER STRUCTURAL.

NOTES:

1. EXTEND TO UNDERSIDE OF STRUCTURE ABOVE, UNLESS NOTED OTHERWISE.

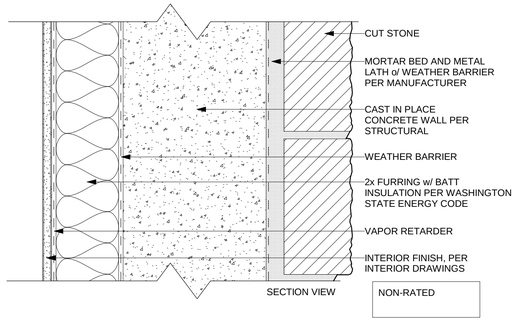


NON-RATED

D CAST IN PLACE WALL
SCALE: 1 1/2" = 1'-0"

EXTERIOR WALL SYSTEM 1.0:

STONE w/ MORTAR BASE AND METAL LATH o/ WEATHER BARRIER o/ CAST IN PLACE CONCRETE WALL PER STRUCTURAL o/ WEATHER BARRIER o/ FRAMING PER STRUCTURAL. STONE ATTACHMENT PER BUILDER SPECIFICATIONS.



NON-RATED

A CAST IN PLACE w/ 2x FURRING & STONE EXTERIOR
SCALE: 3" = 1'-0"

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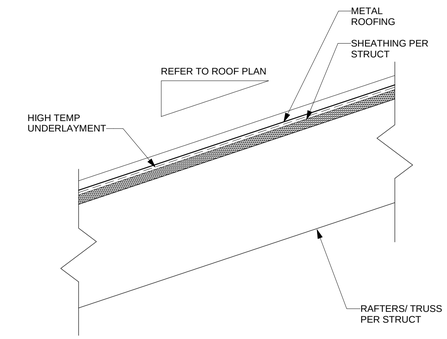
ROOF SYSTEM 2.0

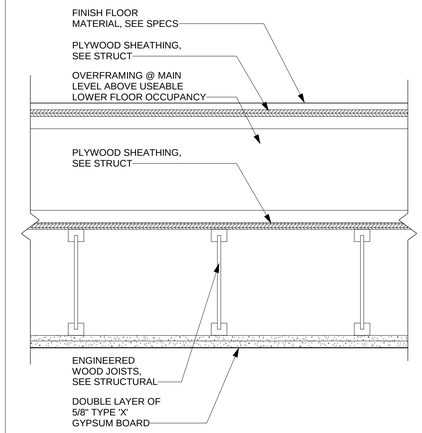
METAL ROOFING ON HIGH TEMP UNDERLAYMENT OVER PLYWOOD SHEATHING ON ROOF FRAMING PER STRUCTURAL



T STANDING SEAM METAL ROOF

SCALE: 3" = 1'-0"

FLOOR SYSTEM 3.0.
FINISH FLOOR, INSTALL PER MANUFACTURER'S INSTRUCTIONS o/ SHEATHING PER STRUCTURAL o/ JOISTS PER STRUCTURAL o/ SHEATHING PER STRUCTURAL o/ PERPENDICULAR JOISTS PER STRUCTURAL o/ (2) LAYERS OF 5/8" TYPE 'X' GYPSUM BOARD.

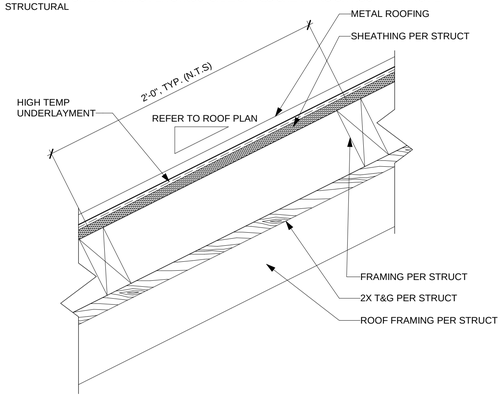


Q 1 HOUR FLOOR/CEILING ASSEMBLY

SCALE: 1 1/2" = 1'-0"

ROOF SYSTEM 1.0

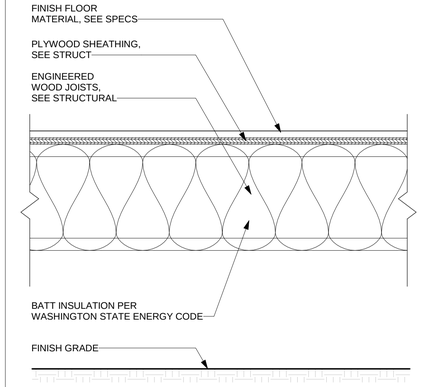
METAL ROOFING ON HIGH TEMP UNDERLAYMENT OVER PLYWOOD SHEATHING PER STRUCTURAL ON 2X FRAMING PER STRUCTURAL ON T&G SHEATHING ON ROOF FRAMING PER STRUCTURAL



S ROOF ASSEMBLY @ EXPOSED TRUSSES

SCALE: 3" = 1'-0"

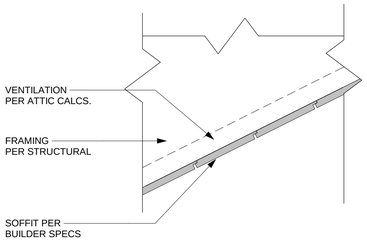
FLOOR SYSTEM 2.0.
FINISH FLOOR, INSTALL PER MANUFACTURER'S INSTRUCTIONS o/ SHEATHING PER STRUCTURAL o/ JOISTS PER STRUCTURAL.



P FLOOR FRAMING OVER CRAWLSPACE

SCALE: 1 1/2" = 1'-0"

SOFFIT SYSTEM 1.0.
ROOF SYSTEM PER PLAN o/ SHEATHING PER STRUCTURAL o/ FRAMING PER STRUCTURAL o/ SOFFIT PER BUILDER SPECIFICATIONS



SECTION VIEW

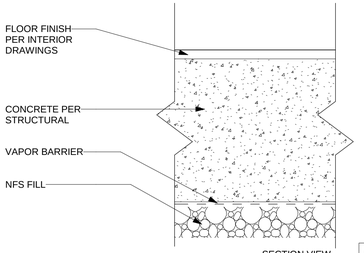
R SOFFIT

SCALE: 3" = 1'-0"

FLOOR SYSTEM 1.0.
FLOOR FINISH PER MANUFACTURER'S INSTRUCTIONS o/ CONCRETE SLAB PER STRUCTURAL o/ VAPOR BARRIER o/ NFS FILL.

NOTES:

1. CONFIRM UNDER SLAB PREP. w/ GEOTECHNICAL ENGINEER'S SOIL REPORT RECOOMENDATIONS



SECTION VIEW

NON-RATED

N SLAB ON GRADE FLOOR SYSTEM

SCALE: 3" = 1'-0"

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LOT 77 - QUARRY HOUSE SITE

SITE PLAN REVIEW - 2ND SUBMITTAL

TOLL BROTHERS

CITY OF DUVALL, WASHINGTON

DRAWN BY:	AJG
CHECKED BY:	DMP
PROJECT NO.:	2016054
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REVISIONS:	

SHEET TITLE:

ASSEMBLY TYPES

SHEET NUMBER:

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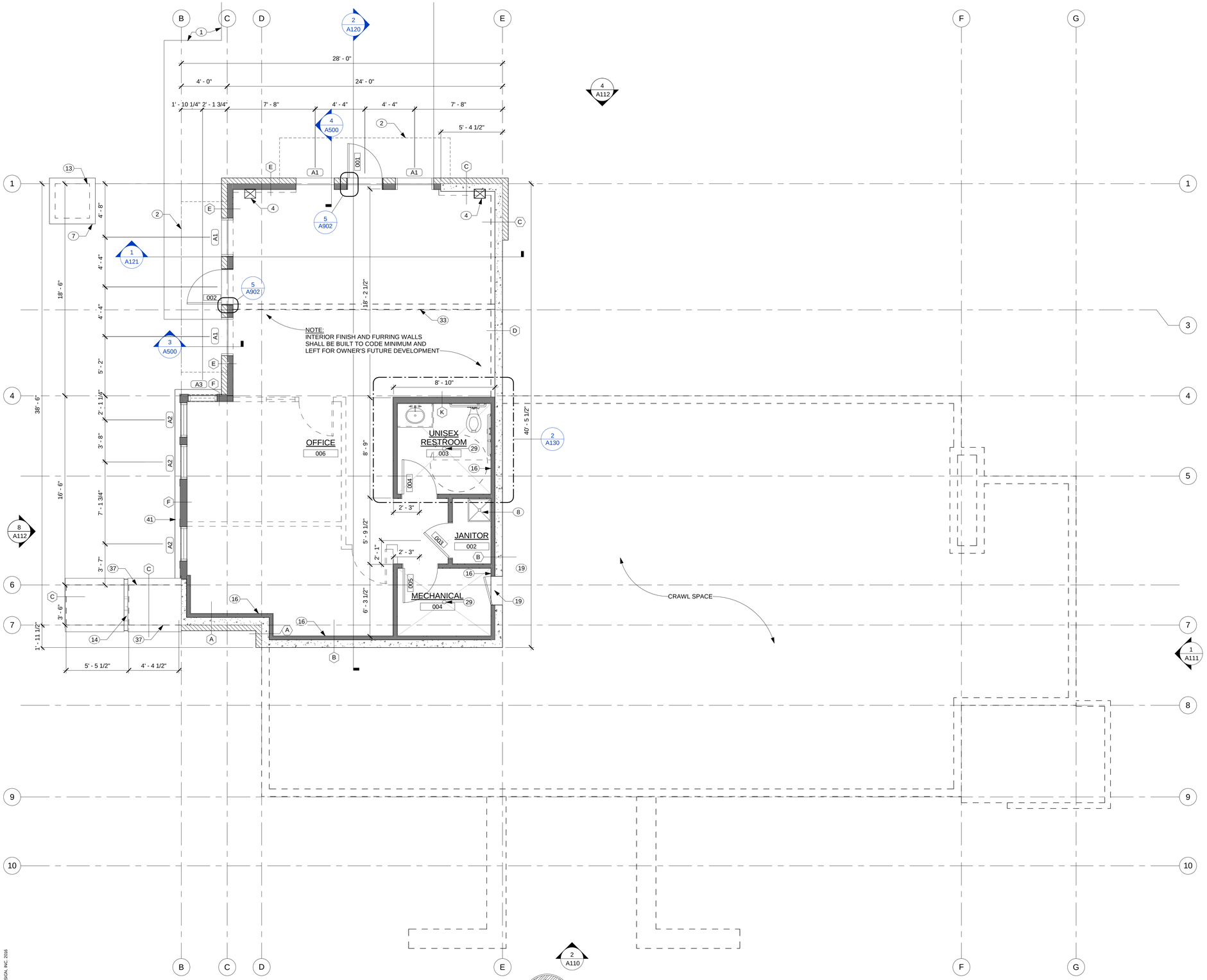

1 A100 LOWER FLOOR PLAN

SCALE: 1/4" = 1'-0"

PLAN NOTES

1. ALL DIMENSIONS INDICATED ARE TO FACE OF FRAMING OR STRUCTURE, UNO.
2. REFER TO STRUCTURAL DRAWINGS FOR ALL FOUNDATION AND CONCRETE SLAB SPECIFICATIONS.
3. EXTENTS OF CONCRETE FOUNDATION WALLS WILL VARY PER INDIVIDUAL SITE GRADING. REFER TO SITE SPECIFIC FOUNDATION PLANS.
4. ALL WINDOW DIMENSIONS ARE SHOWN TO CENTERLINE OF ROUGH OPENING.
5. ALL INTERIOR PARTITIONS TO BE 2X4, UNO.
6. ALL EXTERIOR WALLS TO BE 2X6, UNO.

PLAN KEYNOTES

1. EXTENTS OF PATIO, SEE LANDSCAPE DRAWINGS
2. EXTENTS OF ROOF OVERHANG ABOVE
3. FARMHOUSE KITCHEN SINK
4. WOOD POST, SEE STRUCTURAL
5. WOOD BEAM ABOVE, SEE STRUCTURAL
6. WOOD RAFTER ABOVE, SEE STRUCTURAL
7. CONCRETE PAD FOR A/C CONDENSER, SEE LANDSCAPE DRAWINGS FOR LOCATION
8. MOP SINK, WITH DRAIN
9. BASE CABINET AND COUNTERTOP, SEE INTERIOR DWGS
10. STONE HEARTH
11. A/V EQUIPMENT
12. GAS FIREPLACE, SEE SPECIFICATIONS
13. A/C CONDENSER, SEE MECHANICAL
14. SLOPED FIN WALL, SEE ELEVATIONS
15. STONE HEARTH
16. 2X4 WALL FURRING WITH SOUND BATTS
17. MOVEABLE 2-PIECE ISLAND
18. A/V DOCKING STATION
19. 18"X24" MINIMUM CRAWLSPACE ACCESS PANEL
20. REFRIGERATOR
21. COMBINATION MICROWAVE/OVEN WALL UNIT
22. COMPOSITION SHINGLE ROOF, PER SPECIFICATIONS
23. EXTENTS OF DORMER ROOF ABOVE
24. DISHWASHER
25. ARCHITECTURAL FIN WALL
26. GAS METER, SEE PLUMBING
27. ELECTRIC METER, SEE ELECTRICAL
28. FORCED AIR UNIT, SEE MECHANICAL
29. FLOOR DRAIN
30. CORROSION RESISTANT RAIN CHAIN DOWNSPOUT, REFER TO DETAIL 7/A902
31. EXTERIOR HOSE BIBB, SEE PLUMBING
32. FIRE EXTINGUISHER CABINET
33. LINE OF EXTERIOR WALL ABOVE
34. ATTIC ACCESS OVERHEAD
35. GRILL LOCATION PER LA
36. TRENCH DRAIN, REFER TO LA AND MEP DRAWINGS
37. FLUID APPLIED WATERPROOF MEMBRANE SHALL BE APPIED TO STRUCTURE OF THE FIN WALLS PRIOR TO INSTALLATION OF STONE VENEER
38. PROVIDE LED LIGHT ON CEILING OF DORMER, LIGHT SHALL BE TIED INTO ROOM BELOW LIGHT SWITCH, SEE ELECTRICAL DRAWINGS
39. LOW WALLS @ MECH. SLAB, SEE ELEVATIONS
40. DOWNSPOUT
41. STONE WAINSCOT, SEE ELEVATIONS

FLOOR PLAN LEGEND

EXISTING WALL

NEW FULL HEIGHT WALL

NEW PARTIAL HEIGHT WALL

EXISTING DOORS TO REMAIN (E)

NEW DOOR & FRAME RE: DOOR SCHED.

FIRE EXTINGUISHER. FINAL LOCATION PER FIRE DEPATMENT. (FX)

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SITE PLAN REVIEW - 2ND SUBMITTAL

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CITY OF DUVALL, WASHINGTON

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DRAWN BY:	AJG
CHECKED BY:	DP
PROJECT NO:	2016054
ISSUE DATE:	03/14/2018
REVISIONS:	

SHEET TITLE:

LOWER FLOOR PLAN

SHEET NUMBER:

A100

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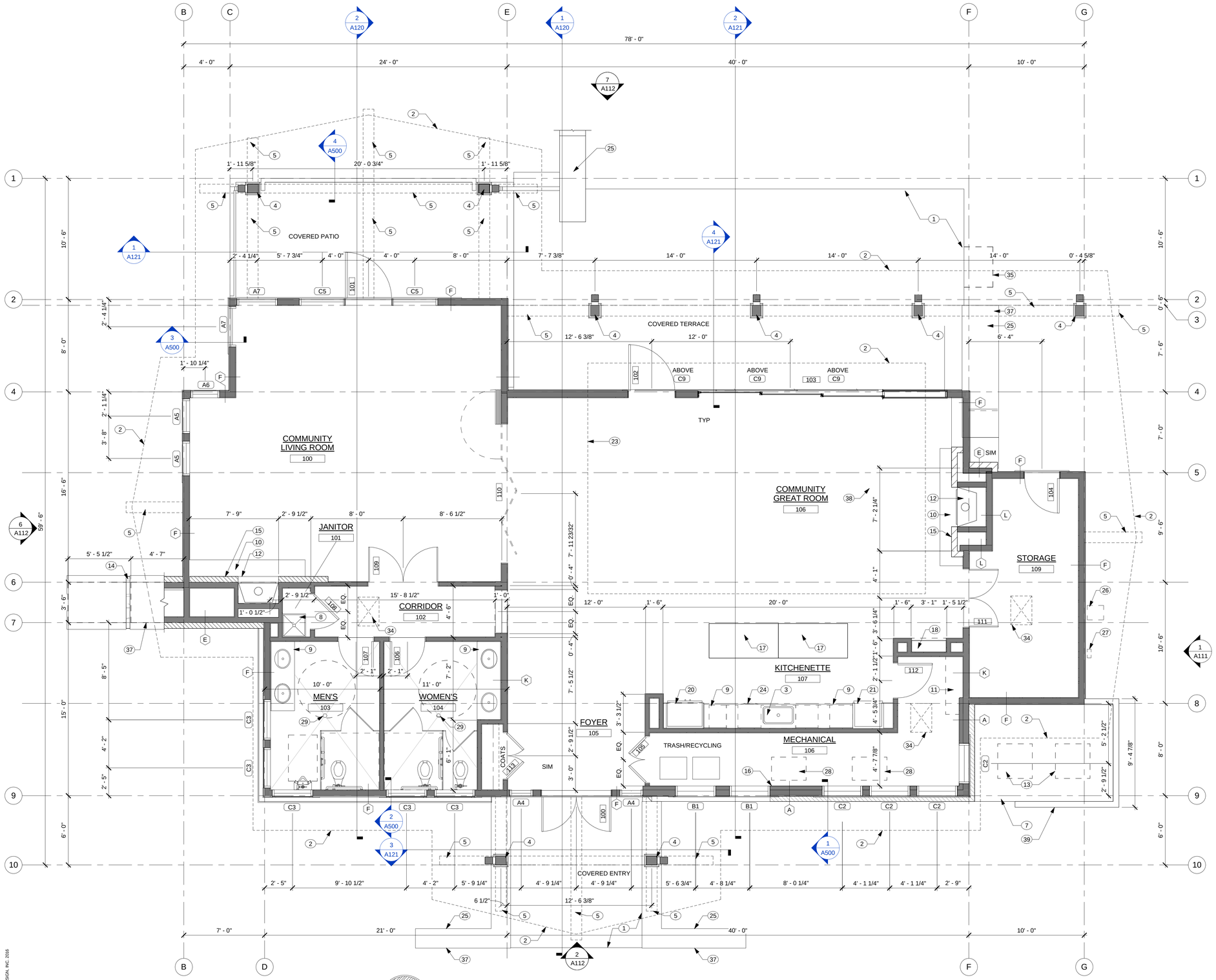

1 A102 MAIN FLOOR PLAN

SCALE: 1/4" = 1'-0"

PLAN NOTES

1. ALL DIMENSIONS INDICATED ARE TO FACE OF FRAMING OR STRUCTURE, UNO.
2. REFER TO STRUCTURAL DRAWINGS FOR ALL FOUNDATION AND CONCRETE SLAB SPECIFICATIONS.
3. EXTENTS OF CONCRETE FOUNDATION WALLS WILL VARY PER INDIVIDUAL SITE GRADING. REFER TO SITE SPECIFIC FOUNDATION PLANS.
4. ALL WINDOW DIMENSIONS ARE SHOWN TO CENTERLINE OF ROUGH OPENING.
5. ALL INTERIOR PARTITIONS TO BE 2X4, UNO.
6. ALL EXTERIOR WALLS TO BE 2X6, UNO.

PLAN KEYNOTES

1. EXTENTS OF PATIO, SEE LANDSCAPE DRAWINGS
2. EXTENTS OF ROOF OVERHANG ABOVE
3. FARMHOUSE KITCHEN SINK
4. WOOD POST, SEE STRUCTURAL
5. WOOD BEAM ABOVE, SEE STRUCTURAL
6. WOOD RAFTER ABOVE, SEE STRUCTURAL
7. CONCRETE PAD FOR A/C CONDENSER, SEE LANDSCAPE DRAWINGS FOR LOCATION
8. MOP SINK, WITH DRAIN
9. BASE CABINET AND COUNTERTOP, SEE INTERIOR DWGS
10. STONE HEARTH
11. A/V EQUIPMENT
12. GAS FIREPLACE, SEE SPECIFICATIONS
13. A/C CONDENSER, SEE MECHANICAL
14. SLOPED FIN WALL, SEE ELEVATIONS
15. STONE HEARTH
16. 2X4 WALL FURRING WITH SOUND BATTS
17. MOVEABLE 2-PIECE ISLAND
18. A/V DOCKING STATION
19. 18"X24" MINIMUM CRAWLSPACE ACCESS PANEL
20. REFRIGERATOR
21. COMBINATION MICROWAVE/OVEN WALL UNIT
22. COMPOSITION SHINGLE ROOF, PER SPECIFICATIONS
23. EXTENTS OF DORMER ROOF ABOVE
24. DISHWASHER
25. ARCHITECTURAL FIN WALL
26. GAS METER, SEE PLUMBING
27. ELECTRIC METER, SEE ELECTRICAL
28. FORCED AIR UNIT, SEE MECHANICAL
29. FLOOR DRAIN
30. CORROSION RESISTANT RAIN CHAIN DOWNSPOUT, REFER TO DETAIL 7/A902
31. EXTERIOR HOSE BIBB, SEE PLUMBING
32. FIRE EXTINGUISHER CABINET
33. LINE OF EXTERIOR WALL ABOVE
34. ATTIC ACCESS OVERHEAD
35. GRILL LOCATION PER LA
36. TRENCH DRAIN, REFER TO LA AND MEP DRAWINGS
37. FLUID APPLIED WATERPROOF MEMBRANE SHALL BE APPIED TO STRUCTURE OF THE FIN WALLS PRIOR TO INSTALLATION OF STONE VENEER
38. PROVIDE LED LIGHT ON CEILING OF DORMER, LIGHT SHALL BE TIED INTO ROOM BELOW LIGHT SWITCH, SEE ELECTRICAL DRAWINGS
39. LOW WALLS @ MECH. SLAB, SEE ELEVATIONS
40. DOWNSPOUT
41. STONE WAINSCOT, SEE ELEVATIONS

FLOOR PLAN LEGEND

EXISTING WALL

NEW FULL HEIGHT WALL

NEW PARTIAL HEIGHT WALL

EXISTING DOORS TO REMAIN

NEW DOOR & FRAME RE: DOOR SCHED.

FIRE EXTINGUISHER. FINAL LOCATION PER FIRE DEPATMENT. FX

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SHEET TITLE:

MAIN FLOOR PLAN

SHEET NUMBER:

A102

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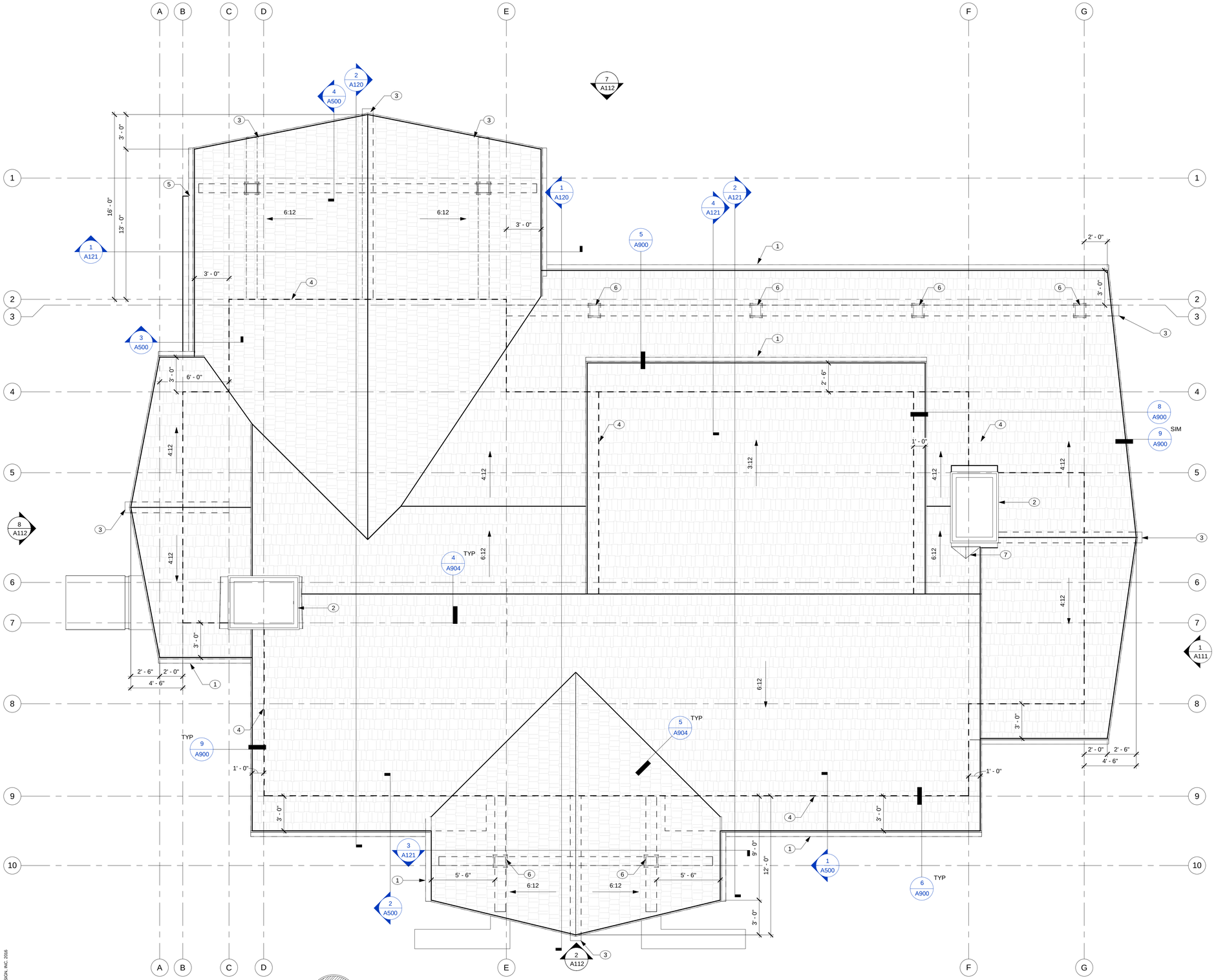

1 A104 ROOF PLAN
SCALE: 1/4" = 1'-0"

ROOF PLAN NOTES

1. DRAWINGS DEPICT DESIGN INTENT ONLY. SEE STRUCTURAL DRAWINGS FOR ROOF FRAMING PLANS AND TRUSS INFORMATION.
2. PROVIDE ATTIC DRAFT STOPS AS REQUIRED BY APPLICABLE CODES.
3. PROVIDE ATTIC ACCESS PANELS AS REQUIRED BY APPLICABLE CODES, 22"x30" MIN.
4. INSTALL "ICE & WATER SHIELD" AT ROOF PERIMETER AND VALLEYS.
5. ALL ROOF PENETRATIONS SHALL BE FLASHED AND SEALED PER MFR'S RECOMMENDATIONS.
6. VERIFY ALL GUTTER AND DOWNSPOUT LOCATIONS IN THE FIELD WITH BUILDER.
7. AT SHINGLES ON ROOF SLOPES LESS THAN 4:12, PROVIDE UNDERLAYMENT PER MANUFACTURER'S LOW SLOPE SPECIFICATIONS.
8. HIGH AND LOW ROOF VENTING TO BE PROVIDED PER CALCULATIONS.

ROOF NOTES

1. GUTTER AND DOWNSPOUTS
2. LINE OF CHIMNEY SHROUD
3. LINE OF BEAM BELOW
4. LINE OF WALL BELOW
5. ROOF BELOW
6. LINE OF COLUMN BELOW
7. ROOF CRICKET

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ROOF PLAN

SHEET NUMBER:

A104

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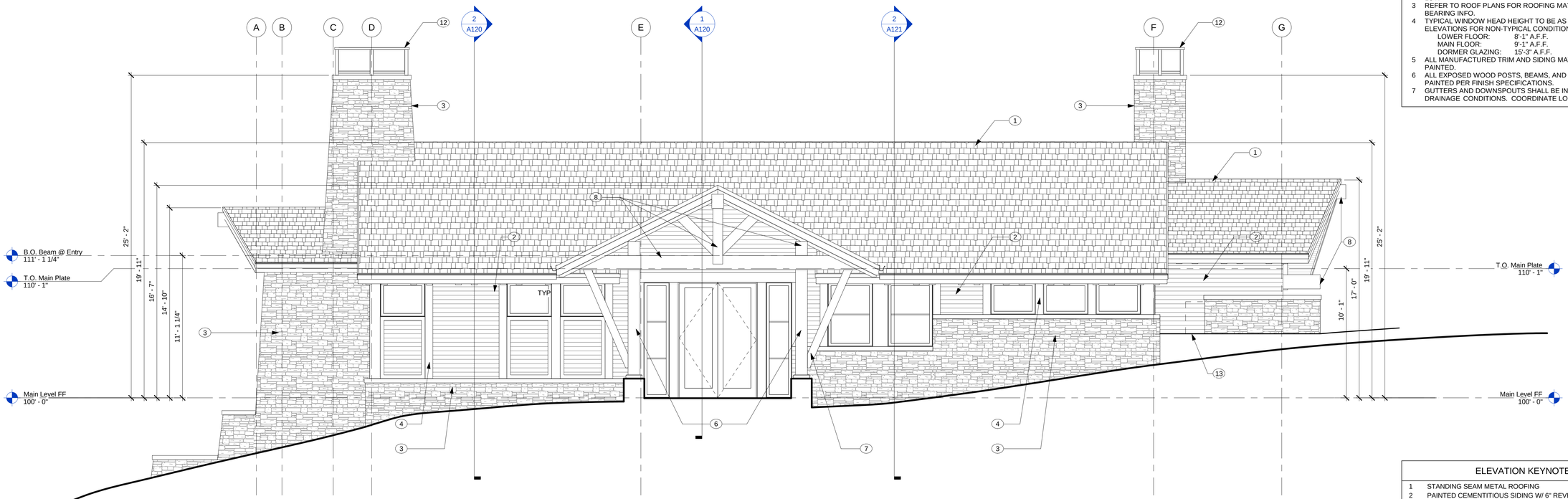
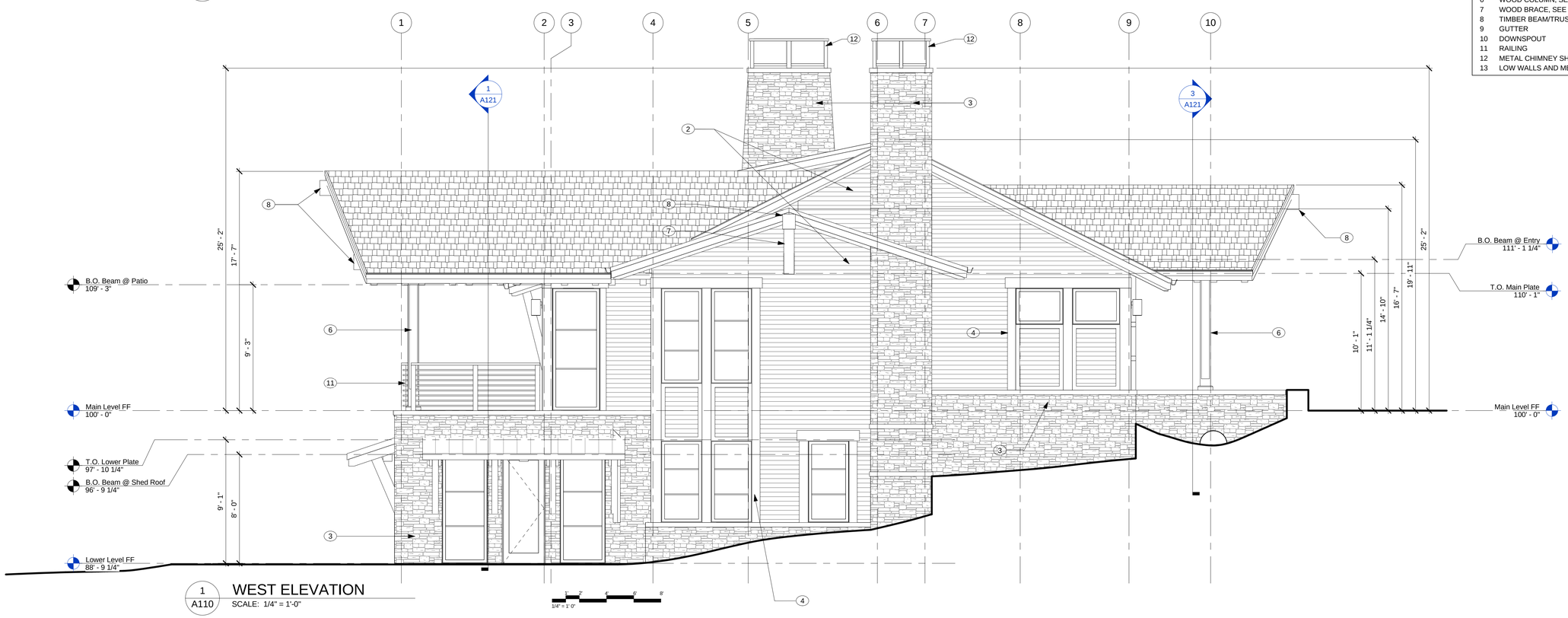
ELEVATION NOTES

1. ELEVATION DRAWINGS DEPICT DESIGN INTENT ONLY. SEE STRUCTURAL DRAWINGS FOR FOUNDATION AND FRAMING SPECIFICATIONS.
2. GRADE LINES INDICATED ARE APPROXIMATE. BUILDER TO COORDINATE SITE SPECIFIC GRADING AT EACH LOT. PROVIDE POSITIVE SLOPE GRADING AWAY FROM STRUCTURE AT EACH LOT.
3. REFER TO ROOF PLANS FOR ROOFING MATERIAL, SLOPE AND BEARING INFO.
4. TYPICAL WINDOW HEAD HEIGHT TO BE AS FOLLOWS, REFER TO ELEVATIONS FOR NON-TYPICAL CONDITIONS:
   - LOWER FLOOR: 8'-11" A.F.F.
   - MAIN FLOOR: 9'-1" A.F.F.
   - DORMER GLAZING: 15'-3" A.F.F.
5. ALL MANUFACTURED TRIM AND SIDING MATERIALS SHALL BE PAINTED.
6. ALL EXPOSED WOOD POSTS, BEAMS, AND TRIM SHALL BE PAINTED PER FINISH SPECIFICATIONS.
7. GUTTERS AND DOWNSPOUTS SHALL BE INSTALLED AT ALL ROOF DRAINAGE CONDITIONS. COORDINATE LOCATIONS w/ BUILDER.



2 A110 SOUTH ELEVATION
SCALE: 1/4" = 1'-0"



1 A110 WEST ELEVATION
SCALE: 1/4" = 1'-0"

ELEVATION KEYNOTES

1. STANDING SEAM METAL ROOFING
2. PAINTED CEMENTITIOUS SIDING W/ 6" REVEAL
3. STONE VENEER, RANDOM ASHLAR PATTERN W/ OFFSET FACE
4. PAINTED TRIM, SMOOTH FINISH
5. GABLE END VENT
6. WOOD COLUMN, SEE STRUCTURAL
7. WOOD BRACE, SEE STRUCTURAL
8. TIMBER BEAM/TRUSS, SEE STRUCTURAL
9. GUTTER
10. DOWNSPOUT
11. RAILING
12. METAL CHIMNEY SHROUD W/ PRE-FINISHED METAL CAP
13. LOW WALLS AND MECHANICAL SLAB, SEE FLOOR PLAN

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SHEET TITLE:

ELEVATIONS

SHEET NUMBER:

A110

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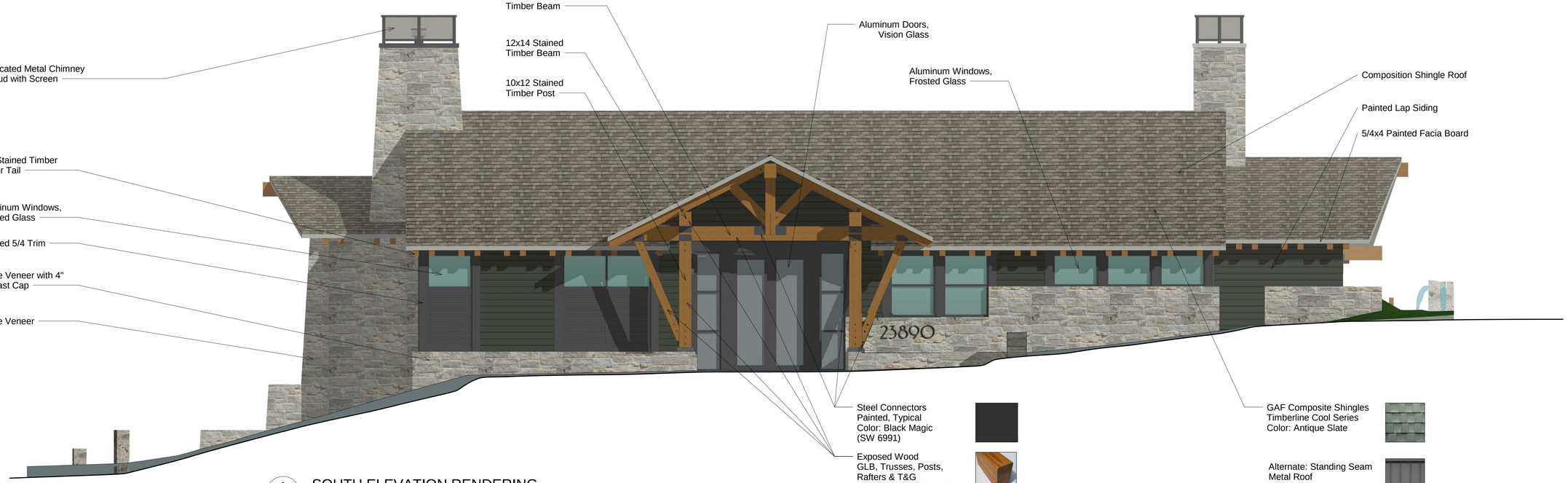

1
A110A
SOUTH ELEVATION RENDERING
SCALE: 1/4" = 1'-0"

1' 2' 4' 6' 8'
1/4" = 1' 0"

2
A110A
WEST ELEVATION RENDERING
SCALE: 1/4" = 1'-0"

1' 2' 4' 6' 8'
1/4" = 1' 0"

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ELEVATION RENDERINGS

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2. GRADE LINES INDICATED ARE APPROXIMATE. BUILDER TO COORDINATE SITE SPECIFIC GRADING AT EACH LOT. PROVIDE POSITIVE SLOPE GRADING AWAY FROM STRUCTURE AT EACH LOT.
3. REFER TO ROOF PLANS FOR ROOFING MATERIAL, SLOPE AND BEARING INFO.
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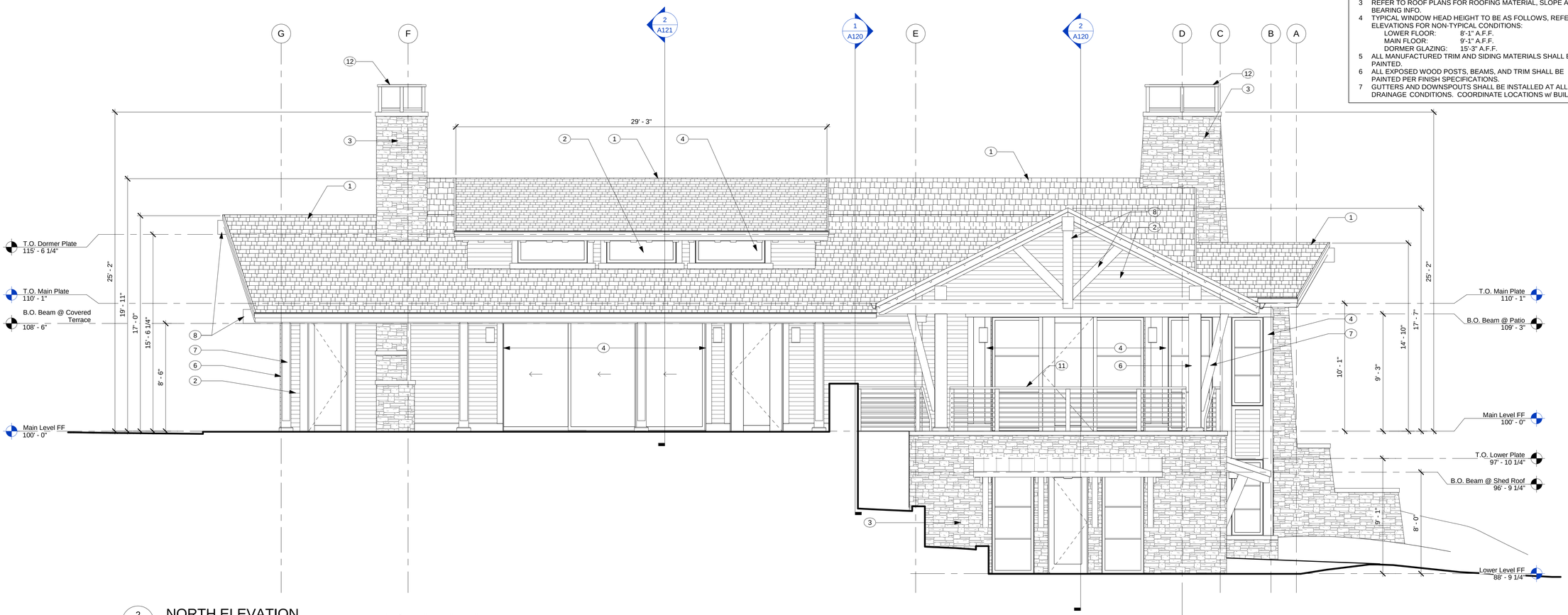
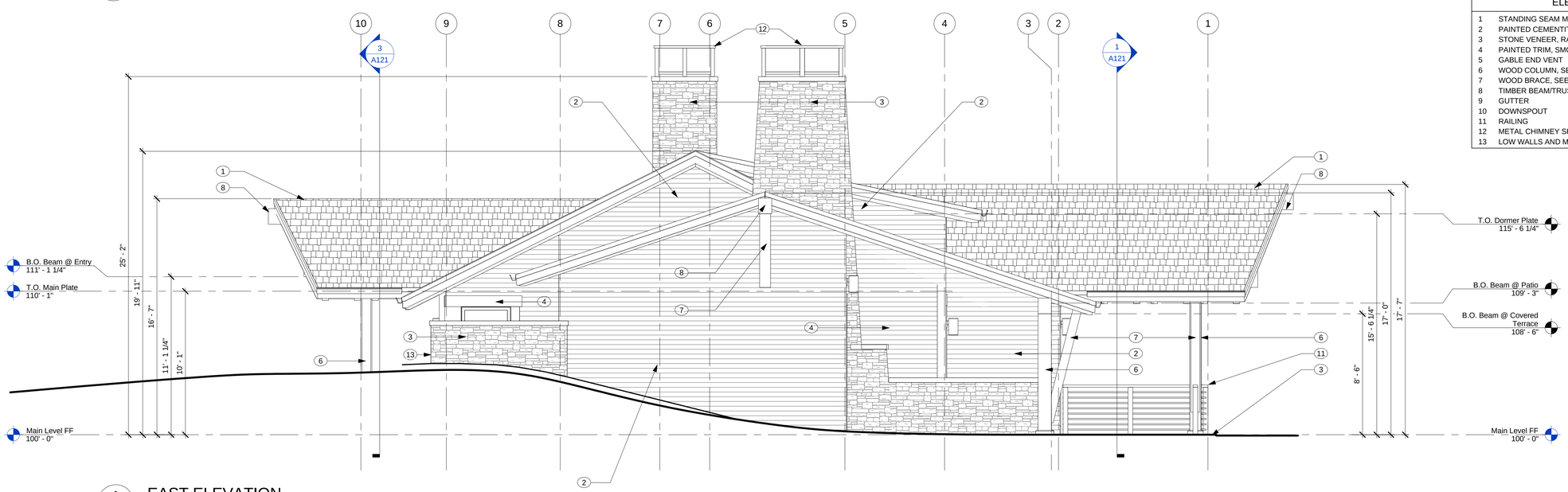
   - MAIN FLOOR: 9'-1" A.F.F.
   - DORMER GLAZING: 15'-3" A.F.F.
5. ALL MANUFACTURED TRIM AND SIDING MATERIALS SHALL BE PAINTED.
6. ALL EXPOSED WOOD POSTS, BEAMS, AND TRIM SHALL BE PAINTED PER FINISH SPECIFICATIONS.
7. GUTTERS AND DOWNSPOUTS SHALL BE INSTALLED AT ALL ROOF DRAINAGE CONDITIONS. COORDINATE LOCATIONS w/ BUILDER.



2 A111 NORTH ELEVATION
SCALE: 1/4" = 1'-0"

ELEVATION KEYNOTES

1. STANDING SEAM METAL ROOFING
2. PAINTED CEMENTITIOUS SIDING W/ 6" REVEAL
3. STONE VENEER, RANDOM ASHLAR PATTERN W/ OFFSET FACE
4. PAINTED TRIM, SMOOTH FINISH
5. GABLE END VENT
6. WOOD COLUMN, SEE STRUCTURAL
7. WOOD BRACE, SEE STRUCTURAL
8. TIMBER BEAM/TRUSS, SEE STRUCTURAL
9. GUTTER
10. DOWNSPOUT
11. RAILING
12. METAL CHIMNEY SHROUD W/ PRE-FINISHED METAL CAP
13. LOW WALLS AND MECHANICAL SLAB, SEE FLOOR PLAN



1 A111 EAST ELEVATION
SCALE: 1/4" = 1'-0"

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SHEET TITLE:

ELEVATIONS

SHEET NUMBER:

A111

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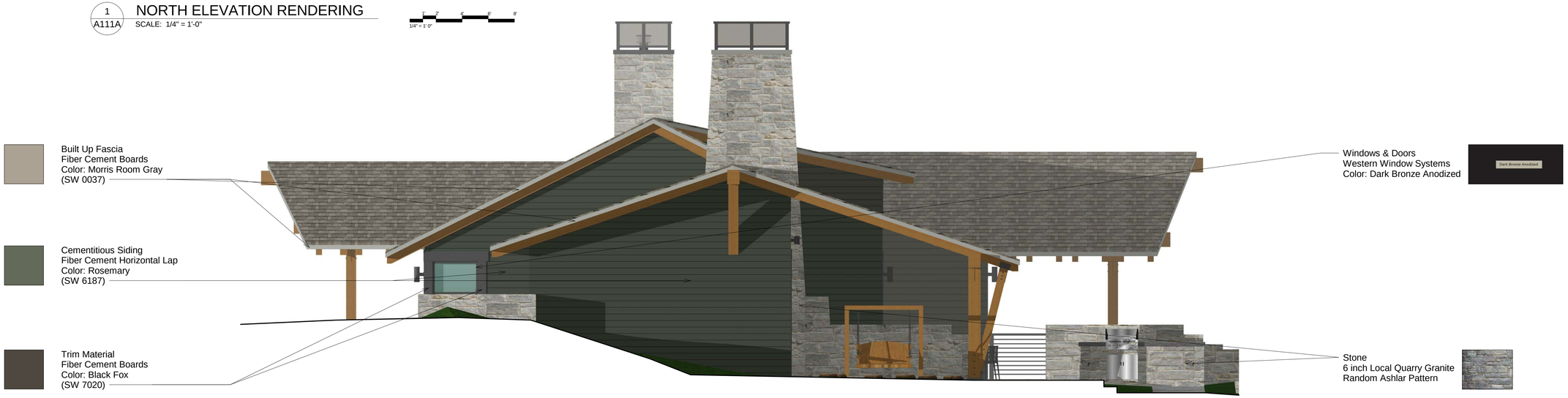
1 A111A NORTH ELEVATION RENDERING
SCALE: 1/4" = 1'-0"



2 A111A EAST ELEVATION RENDERING
SCALE: 1/4" = 1'-0"

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DRAWN BY:	AJG
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PROJECT NO:	2016054
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ELEVATION RENDERINGS

SHEET NUMBER:

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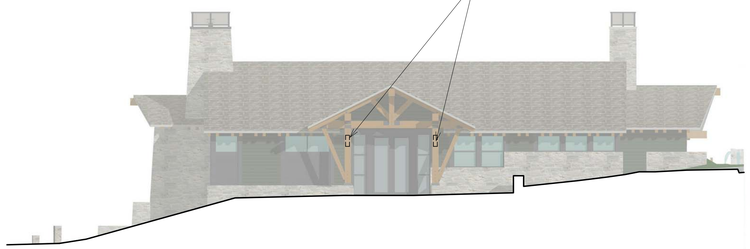
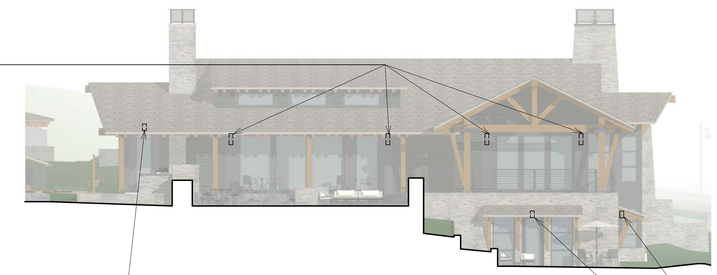


Exterior Lighting Sconces:
Progress Lighting
model # P5675-31/30K
color: black
dimensions: 5" wide x 14" tall

1 A114 SOUTH ELEVATION - LIGHTING EXHIBIT
SCALE: 3/32" = 1'-0"



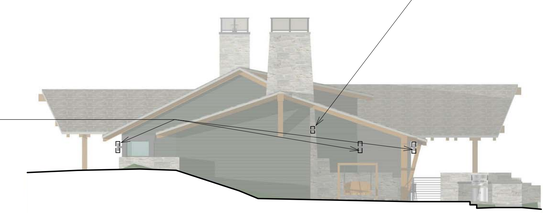
3 A114 NORTH ELEVATION - LIGHTING EXHIBIT
SCALE: 3/32" = 1'-0"

Exterior Lighting Sconces:
Progress Lighting
model # P5674-31/30K
color: black
dimensions: 5" wide x 7 1/2" tall

Exterior Lighting Sconces:
Progress Lighting
model # P5674-31/30K
color: black
dimensions: 5" wide x 7 1/2" tall

Exterior Lighting Sconces:
Progress Lighting
model # P5675-31/30K
color: black
dimensions: 5" wide x 14" tall

2 A114 WEST ELEVATION - LIGHTING EXHIBIT
SCALE: 3/32" = 1'-0"



4 A114 EAST ELEVATION - LIGHTING EXHIBIT
SCALE: 3/32" = 1'-0"

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LOT 77 - QUARRY HOUSE SITE

SITE PLAN REVIEW - 2ND SUBMITTAL

TOLL BROTHERS

CITY OF DUVALL, WASHINGTON

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REVISIONS:	

SHEET TITLE:

LIGHTING EXHIBIT

SHEET NUMBER:

A114

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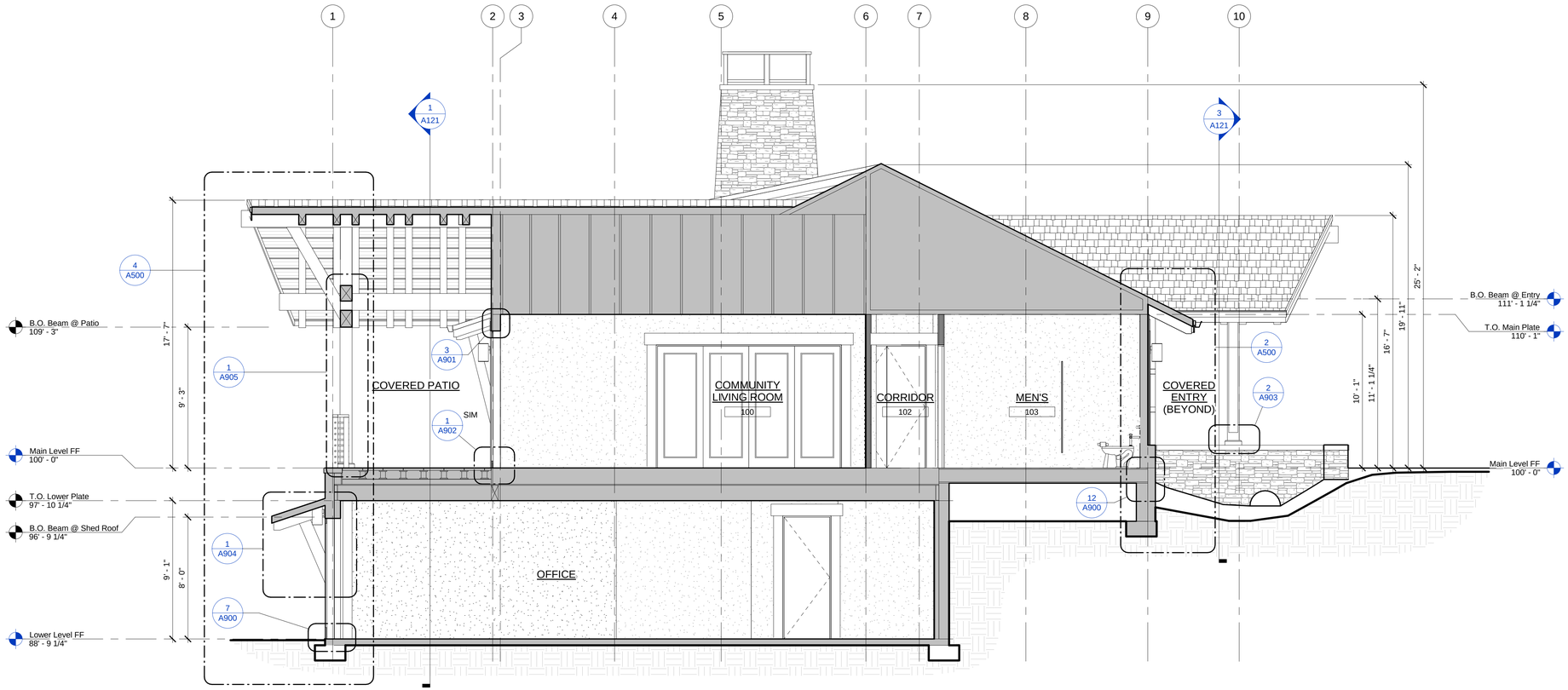
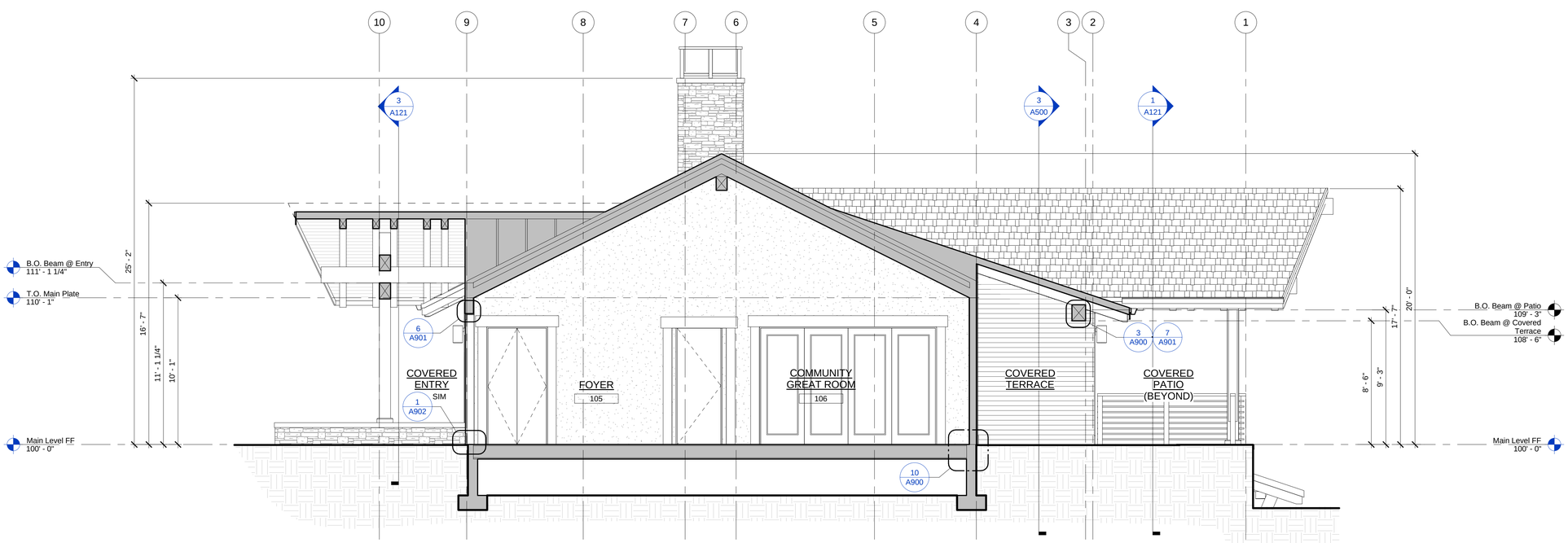


2 A120 BUILDING SECTION
SCALE: 1/4" = 1'-0"



1 A120 BUILDING SECTION
SCALE: 1/4" = 1'-0"

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BUILDING SECTIONS

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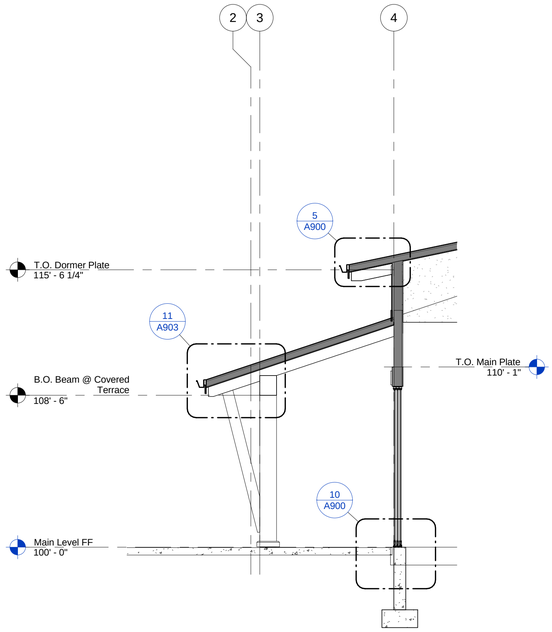
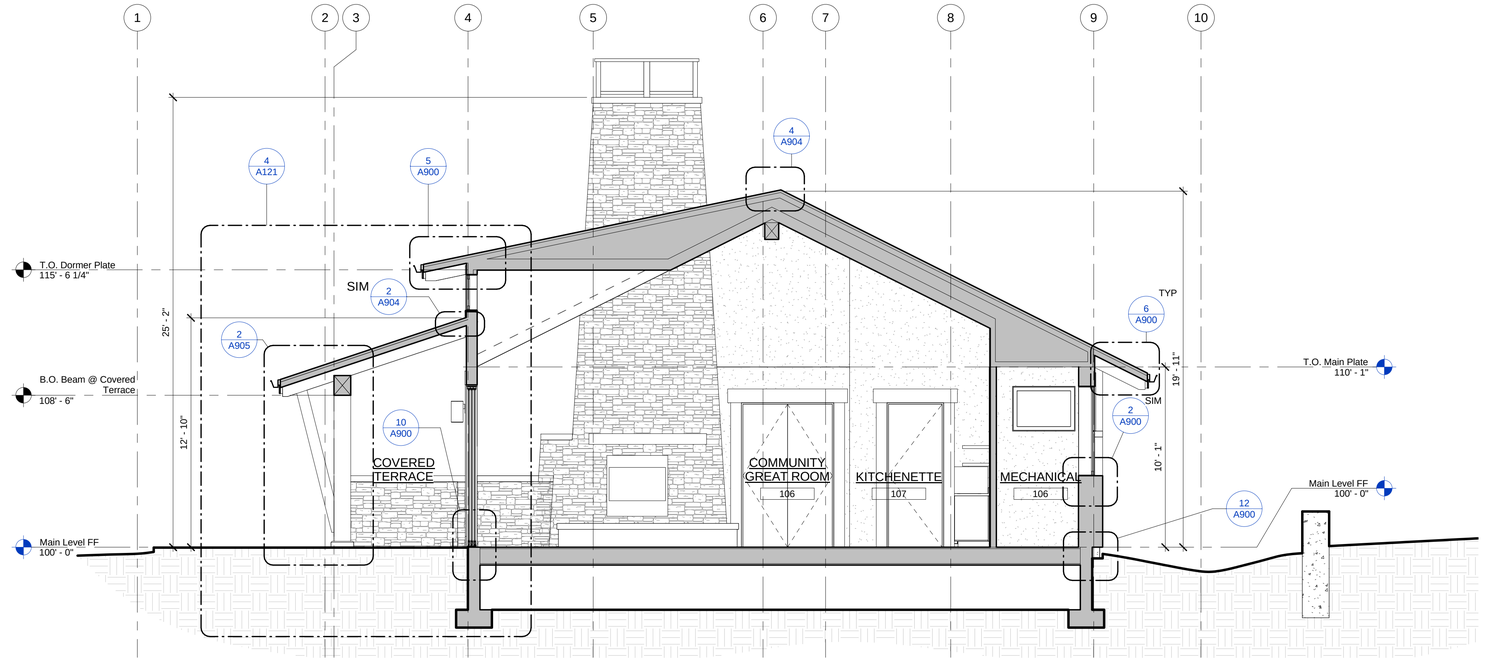


4 A121 PARTIAL BUILDING SECTION
SCALE: 1/4" = 1'-0"



2 A121 BUILDING SECTION
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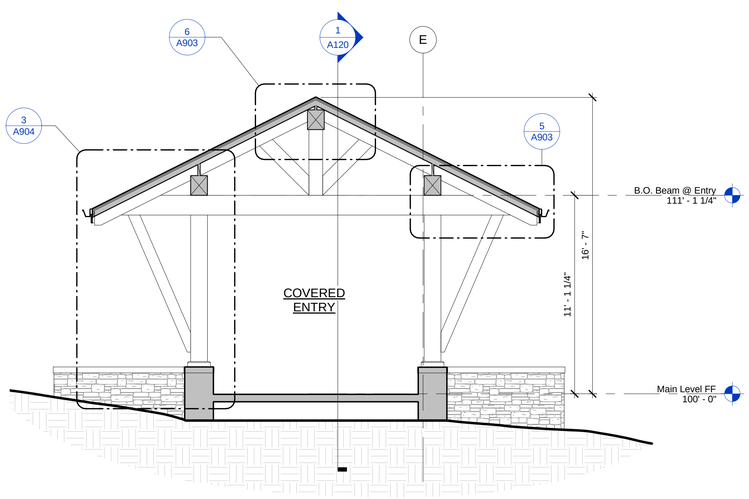
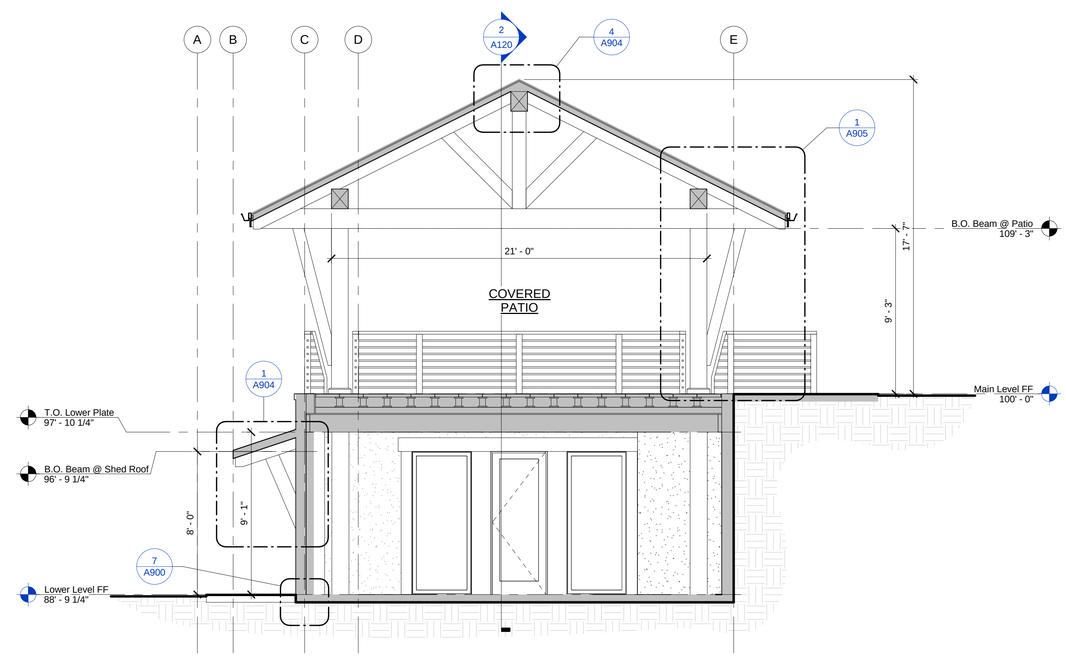


3 A121 PARTIAL BUILDING SECTION
SCALE: 1/4" = 1'-0"



1 A121 BUILDING SECTION
SCALE: 1/4" = 1'-0"

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BUILDING SECTIONS

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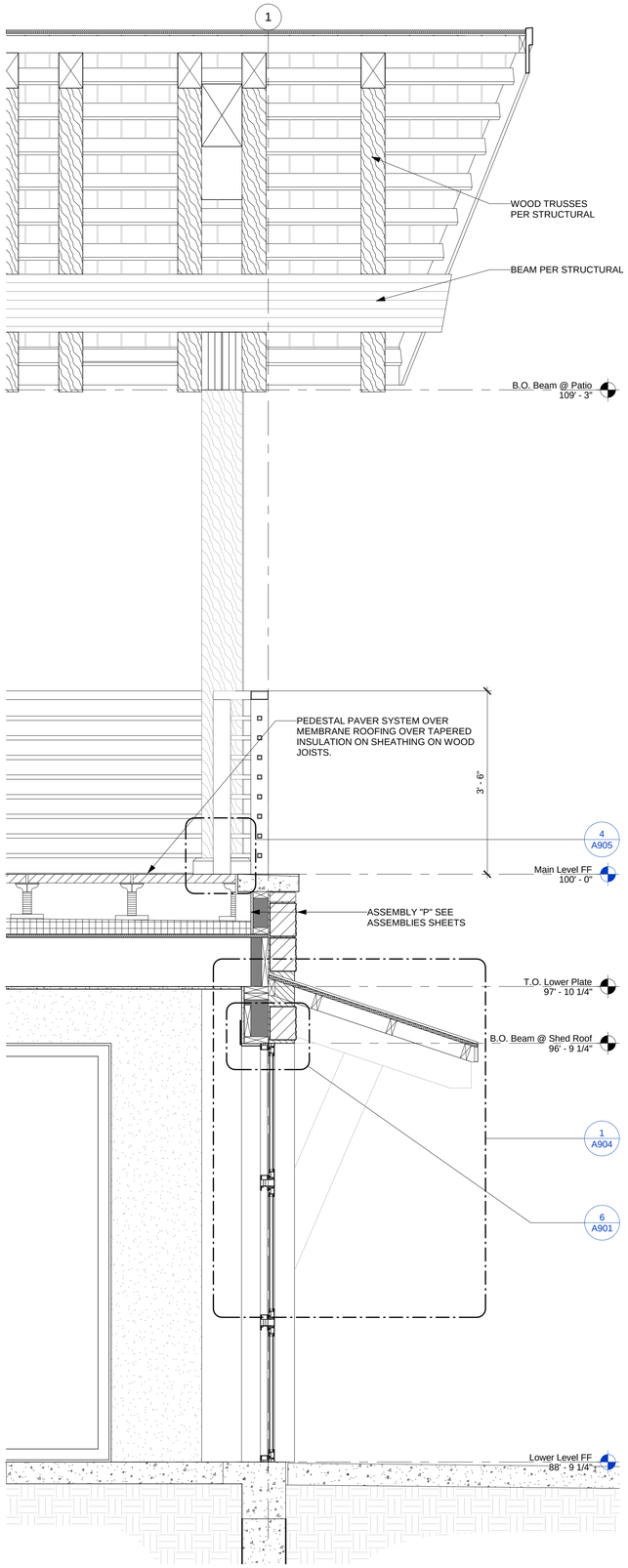
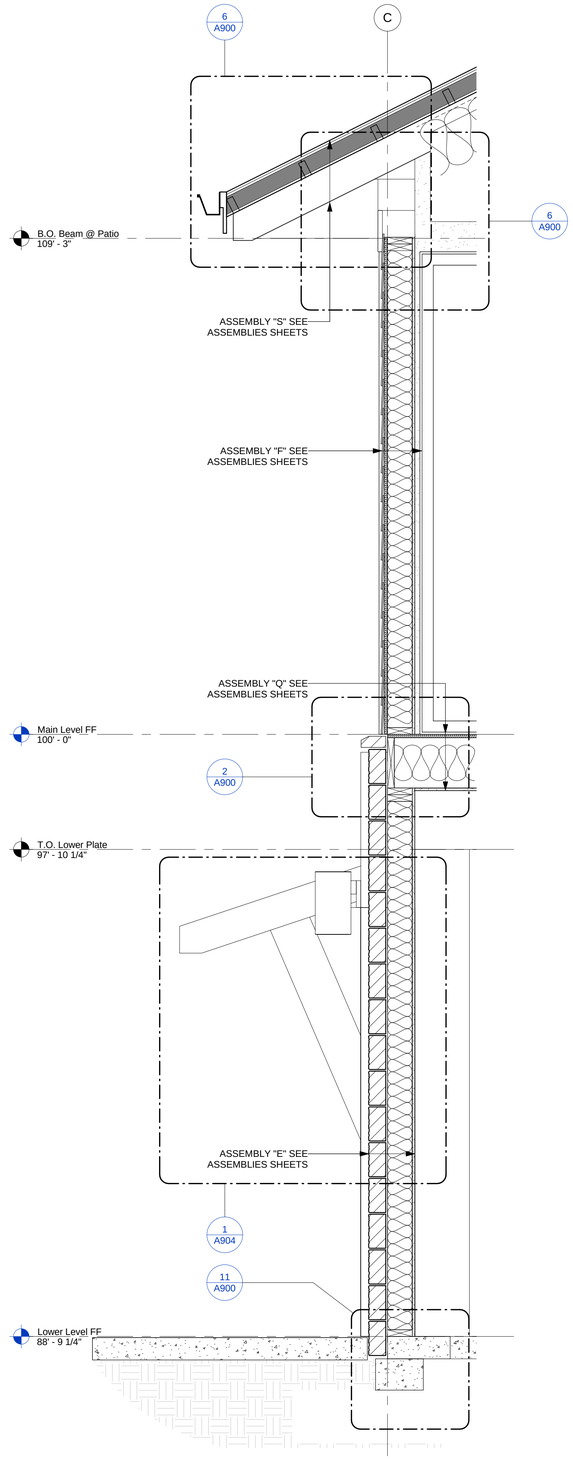
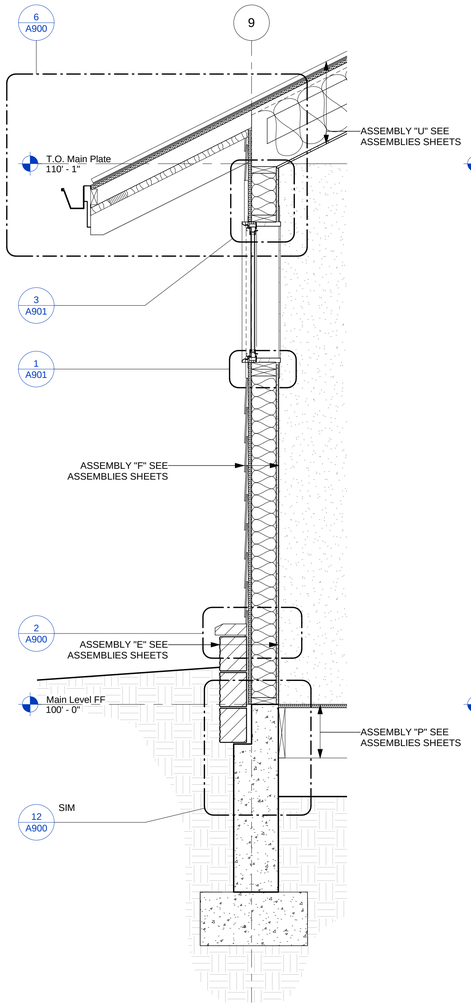


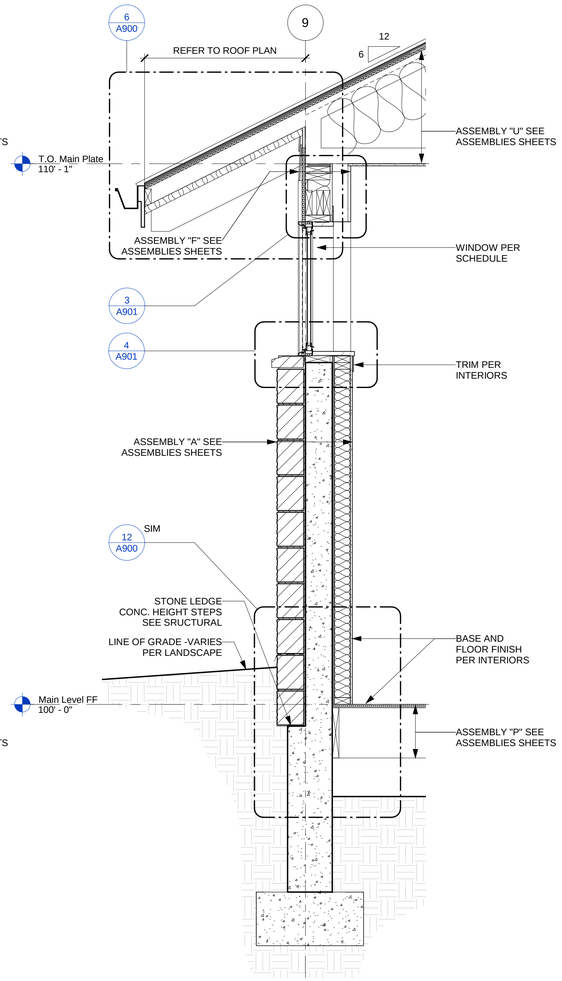
4 A500 WALL SECTION @ OFFICE/COVERED PATIO
SCALE: 3/4" = 1'-0"



3 A500 WALL SECTION @ OFFICE/COMMUNITY LIVING ROOM
SCALE: 3/4" = 1'-0"



2 A500 WALL SECTION @ WOMEN'S RESTROOM
SCALE: 3/4" = 1'-0"



1 A500 WALL SECTION @ MECHANICAL
SCALE: 3/4" = 1'-0"

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WALL SECTIONS

SHEET NUMBER:
A500

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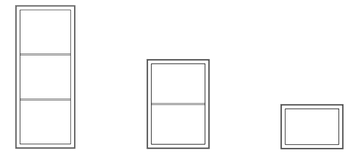
WINDOW SCHEDULE

TAG	TYPE	R. O. WIDTH	R. O. HEIGHT	MATERIAL	FINISH	GLAZING TYPE	COMMENTS
A1	FIXED	3' - 4"	8' - 0"	ALUM	FACTORY		TEMPERED GLAZING
A2	FIXED	3' - 0"	6' - 0"	ALUM	FACTORY		
A3	FIXED	2' - 6"	6' - 0"	ALUM	FACTORY		
A4	FIXED	2' - 0"	9' - 0"	ALUM	FACTORY		TEMPERED GLAZING
A5	FIXED	3' - 0"	7' - 0"	ALUM	FACTORY		
A6	FIXED	2' - 6"	7' - 0"	ALUM	FACTORY		
A7	FIXED	3' - 6"	9' - 0"	ALUM	FACTORY		TEMPERED GLAZING
B1	FIXED	3' - 6"	5' - 0"	ALUM	FACTORY		
C2	FIXED	3' - 6"	2' - 6"	ALUM	FACTORY		
C3	FIXED	3' - 6"	2' - 8"	ALUM	FACTORY		FROSTED GLASS
C5	FIXED	4' - 0"	9' - 0"	ALUM	FACTORY		TEMPERED GLAZING
C9		5' - 6"	2' - 0"	ALUM	FACTORY		



TYPE A
FIXED 3-PANEL
WESTERN WINDOWS
THERMALLY BROKEN

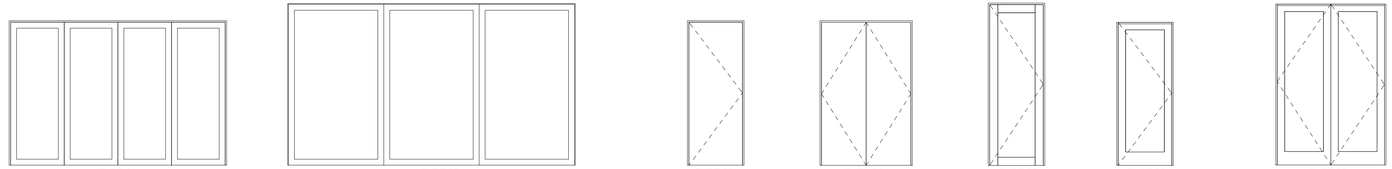
TYPE B
FIXED 2- PANEL
WESTERN WINDOWS
THERMALLY BROKEN

TYPE C
AWNING
WESTERN WINDOWS
SERIES 670
THERMALLY BROKEN

2 / A700 WINDOW TYPES
SCALE: 1/4" = 1'-0"

DOOR SCHEDULE

DOOR NO.	TYPE	DOOR WIDTH	DOOR HEIGHT	DOOR MATERIAL	DOOR FINISH	FRAME MATERIAL	FRAME FINISH	FIRE RATING	HARDWARE	COMMENTS
001	05	3' - 0"	8' - 0"	ALUM	ALUM FACTORY	ALUM	ALUM FACTORY		ENTRY	
002	05	3' - 0"	8' - 0"	ALUM	ALUM FACTORY	ALUM	ALUM FACTORY		ENTRY	
003	03	3' - 0"	8' - 0"	WD	STAIN FACTORY	WD	STAIN FACTORY		PASSAGE	
004	03	3' - 0"	8' - 0"	WD	STAIN FACTORY	WD	STAIN FACTORY		PASSAGE	
005	03	3' - 0"	8' - 0"	WD	STAIN FACTORY	WD	STAIN FACTORY		PASSAGE	
100	07	6' - 0"	9' - 0"	ALUM	ALUM FACTORY	ALUM	ALUM FACTORY		ENTRY	PANIC HARDWARE, INSTALL PER MANUFACTURER
101	06	4' - 0"	9' - 0"	ALUM	ALUM FACTORY	ALUM	ALUM FACTORY		ENTRY	PANIC HARDWARE, INSTALL PER MANUFACTURER
102	06	4' - 0"	9' - 0"	ALUM	ALUM FACTORY	ALUM	ALUM FACTORY		ENTRY	PANIC HARDWARE, INSTALL PER MANUFACTURER
103	02	16' - 0"	9' - 0"	ALUM	ALUM FACTORY	ALUM	ALUM FACTORY		ENTRY	POCKETING SLIDER
104	05	3' - 0"	9' - 0"	ALUM	ALUM FACTORY	ALUM	ALUM FACTORY		ENTRY	PANIC HARDWARE, INSTALL PER MANUFACTURER
105	04	4' - 0"	8' - 0"	WD	STAIN FACTORY	WD	STAIN FACTORY		PASSAGE	
106	03	3' - 0"	8' - 0"	WD	STAIN FACTORY	WD	STAIN FACTORY		PASSAGE	
107	03	3' - 0"	8' - 0"	WD	STAIN FACTORY	WD	STAIN FACTORY		PASSAGE	
108	03	3' - 0"	8' - 0"	WD	STAIN FACTORY	WD	STAIN FACTORY		PASSAGE	
109	04	6' - 0"	8' - 0"	WD	STAIN FACTORY	WD	STAIN FACTORY		PASSAGE	
110	01	12' - 0"	8' - 0"	ALUM	ALUM FACTORY	ALUM	ALUM FACTORY		PASSAGE	
111	08	5' - 0"	8' - 0"	WD	STAIN FACTORY	WD	STAIN FACTORY		PASSAGE	
112	03	3' - 0"	8' - 0"	WD	STAIN FACTORY	WD	STAIN FACTORY		PASSAGE	
113	04	4' - 0"	8' - 0"	WD	STAIN FACTORY	WD	STAIN FACTORY		PASSAGE	



TYPE 01
BI-FOLD

TYPE 02
FULL LITE
WESTERN
WINDOWS
SERIES 600

TYPE 03
FLUSH PANEL

TYPE 04
FLUSH PANEL-DOUBLE

TYPE 05
FULL LITE
WESTERN WINDOWS
SERIES 900
THERMALLY BROKEN

TYPE 06
FULL LITE
WESTERN WINDOWS
SERIES 900
THERMALLY BROKEN

TYPE 07
FULL LITE-DOUBLE
WESTERN WINDOWS
SERIES 900
THERMALLY BROKEN

1 / A700 DOOR TYPES
SCALE: 1/4" = 1'-0"

DOOR & WINDOW NOTES

1 PROVIDE TEMPERED GLAZING AT ALL HAZARD LOCATIONS AS DEFINED BY APPLICABLE CODES HAVING JURISDICTION OVER THIS PROJECT.
2 ALL EXPOSED METAL FLASHING ADJACENT TO ALUMINUM STOREFRONT SHALL BE PREFINISHED TO MATCH THE STOREFRONT COLOR.
3 EXTERIOR DOOR HARDWARE TO BE SCHLAGE ND SERIES CYLINDRICAL LOCK, OR EQUAL COMMERCIAL HEAVY DUTY GRADE PER OWNER APPROVAL, FUNCTION AS NOTED, WITH A COMPLETE HARDWARE PACKAGE TO INCLUDE, BUT NOT LIMITED TO, HEAVY DUTY HINGES, WEATHER SEALS, DOOR SWEEPS, THRESHOLD, PANIC BARS WHERE NOTED, AND OTHER COMPONENTS AS REQUIRED. REFER TO PROJECT SPECIFICATIONS FOR HARDWARE ALLOWANCE.
4 PROVIDE ELECTRONIC ENTRY HARDWARE WHERE NOTED.
5 ALUMINUM STOREFRONT ENTRIES HAVE MANUFACTURER'S RECOMMENDED HARDWARE

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SCHEDULES

SHEET NUMBER:
A700

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Perspective Looking Southwest

Perspective Looking Northeast

Community Amenity Parkside Perspective

Community Amenity Entrance Perspective

1
A950

ARCHITECTURAL PERSPECTIVES

SCALE: NOT TO SCALE

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ARCHITECTURAL PERSPECTIVES

SHEET NUMBER:

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Perspective Looking East

Perspective Looking West

Perspective Looking across Multi-Use Lawn to Amenity Building

Perspective Looking across Arrival Area to Amenity Building

View from Community Living Room

View from Community Great Room

1
A951

SITE PERSPECTIVES

SCALE: NOT TO SCALE

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SITE PERSPECTIVES

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Perspective Looking East

1
A952

SITE CONCEPTUAL PERSPECTIVE

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SITE CONCEPTUAL PERSPECTIVE

SHEET NUMBER:

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Perspective Looking Across Arrival Area to Amenity Building

1
A953

SITE CONCEPTUAL PERSPECTIVE

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SITE CONCEPTUAL PERSPECTIVE

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Exhibit 5

GRADING NOTES

NDSCAPE RELATED FINE GRADING ONLY - SEE ALSO LEGENDS, AND CIVIL PLANS)

Report
shall obtain and review the Summary Report and Recommendations prepared by the ngineers and fully understand the existing soil conditions encountered prior to submitting actor shall comply with all recommendations made by the geo-technical engineers, civil ctural engineers and Owner's Representative, as designated in the soil report, on these ified, or as directed during field observations and inspections.

tigation" on this project site has been performed it will be considered as a separate owner. (SEE CURRENT REPORT)

l Testing
operations will be subject to full inspection and regular testing by a qualified soils and eer and this Contractor shall be responsible to coordinate scheduling, notification and esults and documentation as required - see also specifications. The Contractor shall r's Representative of any subsoil conditions encountered, which vary from those found soil investigations and/or that may not have been known during design. Any failed tests retested will be at Contractor's expense.

work Operation
perations shall be conducted in strict compliance with the project specifications including o:
ting, investigation and protection of ALL existing utilities to remain.
l of any organic materials or debris
and stockpiling of all topsoil in approved location(s) - coordinate with Civil Plans.
transition from proposed grades to existing grades.
ment of topsoil after grading changes have been accomplished

ompaction
ly with, all specifications for depth of moisture density treatments, controls and uirements.

Existing
lefining proposed grades, existing grades, and designed grades for adjacent others. Contractor shall verify all existing grades to remain and all adjacent new ades for compliance with those shown, prior to bid and construction. All deviations or oposed work shall be reported immediately (with written follow-up) notice within 24 mer's Representative for direction to proceed, but will not be considered as basis for ent except as allowed in change order process per General Conditions and Conditions under the existing Owner-Contractor Agreements/Contracts".

chmarks
call for specific temporary benchmarks to be transferred to the site by a certified curately established on site as a part of this contract. Contractor shall verify all d information used in design and compare to existing conditions.

ge
tor's responsibility to provide proper positive drainage throughout this contract area. shall be verified in conjunction with the proposed elevations to ensure that adequate vided. Report deviations or conflicts to Owner's Representative.

opes
n planting areas shall not exceed a three horizontal (H): one vertical (V) slope in order sion potential and to make maintenance easier. Graded slopes planted with grass shall ur (H): one (V) slope. Planting areas shall be provided with adequate drainage. Slope ructures at a slope designated by Geotechnical Engineer.

tions shown are "finished grades" unless otherwise indicated. Contractors shall refer to s and specifications regarding depth of subgrade required to add improvement . - see also "typical earthwork sections" detail, if provided.

vation shall be saved and stockpiled in approved locations for future use. Topsoil shall ly, fertile, friable, and possess characteristics of the representative productive soils in all not be excessively acid or alkaline nor contain toxic substances which may be growth. Topsoil shall be without admixture of subsoil. It shall be reasonably free from es, stumps, debris, roots or similar substances two inches or more in diameter, or other ight be a hindrance to the plant growth. Topsoil shall meet the specifications of Duvall (Sec.14.38.130). Grass shall be installed on a minimum of six inches of topsoil, seventy-five (75) per-cent compacted. Groundcover shall be installed in a minimum of psoil, sixty-five (65) to seven-ty-five (75) percent compacted. In roadway landscape hall be amended by tilling the top twelve (12) inches and blending in six inches of il and then capping that with a minimum of four inches of three-way topsoil.

LANDSCAPE LAYOUT NOTES

(APPLY TO ALL LANDSCAPE RELATED LAYOUT REQUIRED FOR IMPROVEMENTS - SEE ALSO LEGENDS, SPECIFICATIONS AND SHEET NOTES)

1. Verify Survey Info
All shown control points, baselines, benchmarks, property lines, setbacks, existing conditions to remain, and newly built adjacent construction (by others) shall be verified by a professionally certified surveyor (PLS.) as a part of this contract. Any deviations from information shown or conflicts with proposed improvements shall require the Owner's Representative to be notified immediately with written follow up (within 24 hours), describing any deviation or variations from the proposed layout as described in these plans. Written approval to proceed must be obtained from the Owner's Representative prior to any demolition or new construction.

2. Field Staking
All work shown shall be field staked or otherwise denoted and subject to field verification, review, and approval by the Owner's Representative prior to any construction or demolition. Field staking of all proposed work and adjacent construction (even if future work by others) may be required by the Owner's Representative prior to approval of all improvements and adequate stakes shall be provided by this Contractor's Surveyor.

3. AutoCAD Design Files
To expedite the layout of the site, "layout coordinates and/or grids" may have been established as shown. For elements designed in CADD, DWG files will be provided to the surveyor for staking using surveyor established control points and benchmarks. These points shall be field staked by the surveyor as a part of this contract at the contractor's expense. The layout of these stakes shall accurately occur in locations as determined by the Owner's Representative and shall be maintained throughout the duration of this project. The establishment of these points shall be reviewed and approved by the Owner's Representative prior to any construction in those areas and will assist the Contractor in the layout of all site improvements as shown on drawing or otherwise.

4. Dimension Tolerances
The construction tolerances for this project are minimal and the dimensions shown are to be strictly adhered to.

5. Dimensions
Computed dimensions shall take precedence over scaled dimensions, and large scale over small scale drawings. Dimensions shown with (+/-) shall be the only layout information allowed to vary, and may only vary to the tolerances given or to +/-1" if no dimension is given.

6. Complete Project
The Contractor is responsible to provide "complete-in-place" systems and a complete project, and any intermittent or periodic approvals received for portions of work, stakes, grades, or forms (by the Owner's Representatives, architects, engineers, or others) shall not waive the Contractor's requirements to comply with the intent of any and all portions of this contract.

7. Staking
All locations for walks, roads, swales, walls, curbs, structures etc. shall be staked by a registered land surveyor. All layout information is based on "Ground Coordinates" and the Contractor shall meet with the Owner's Consulting Surveyors and Engineers to clarify all datum, benchmark, control point requirements, walk, wall and other specific site improvements. Centerline layout information will be provided to the contractor by the engineer/landscape architect in DWG format. See planting notes for tree staking.

8. Curvilinear Improvements
It is the intent and requirement of this contract to provide curvilinear walks, walls and curbs with smooth transitions and arcs (both horizontal and vertical). Straight segments and abrupt transitions will not be accepted unless shown as such on the plans. Wood curving forms may be required to obtain the proper effects. All walk, edgers, paving edges, and other curvilinear forms must be approved in field prior to installation.

LANDSCAPE GENERAL NOTES

(SEE ALSO ALL OTHER CONSULTANT/ENGINEER NOTES AND DOCUMENTS FOR ALL RELATED INFORMATION)

1. Owners Rep.
These drawings and documents are submitted to Toll Brother's (Owner of the project) for review and approval, prior to any release for bidding or construction. Contractors shall receive all bid information, instructions, bid forms, general terms and conditions, and all other required clarifications from the Owner's Authorized Representative administering this project. Unless otherwise indicated, the "Owner's Representative" for this project shall be a specifically designated by the owner. The contractor will also be required to coordinate and correspond with other landscape architects from DTJ Design and other key consultants involved on the project.

2. Project Manual Discrepancy
These drawings supplement the other contractual information contained in the "Project Manual" and/or Bid Instructions (Specifications), if provided. Anything mentioned in the Project Specifications and not the drawings, or vice-versa, shall be of like effect as if shown on or mentioned in both. In case of discrepancy in drawings or project specifications, the matter shall be immediately submitted to the Owner's Representative; without his decision, said discrepancy shall not be adjusted by the Contractor, save only at his own risk and expense. The Contractor shall not take advantage of any apparent error or omission on the drawings or in the specifications. In the event the Contractor discovers such error or omission, he shall immediately notify the Owner's Representative. The Owner's Representative will then make such clarification and interpretations as may be deemed necessary for the Contractor to fulfill the intent of the contract.

3. Complete Project Intent
The "intent" of these Improvements Drawings, details and associated specifications is that the Contractor provide the Owner with a complete, accurate, functionally and technically sound project as generally described in the documents. The drawings are diagrammatic. In most cases, unless explicitly noted otherwise, drawing symbols are used to represent complete-in-place systems to be provided, as part of base bid. All elements shown or implied by the drawings, if not specifically detailed or specified, shall be installed per Uniform Building Codes, manufacturers recommendations, State Highway Department Standards, City Standards and Specifications, standard industry practices, as approved by the Owner's Representative.

4. Conform to Codes
All work on this project shall conform to the current Duvall, Washington Building and Zoning Codes, Ordinances, Standards and Specifications for Construction of Public Improvements, as well as all other applicable governing regulations in effect.

5. Survey Control Points
All range points, ties, benchmarks or other survey control points which may be encountered during construction, must be preserved or modified/recorded by a registered surveyor at the contractor's expense. Immediately upon discovery, the Contractor shall notify the Owner's Representative of any survey control points found and obtain direction prior to proceeding.

6. Permits
The Contractor shall coordinate and obtain all permits which are necessary to perform the proposed work. Owner to pay for all construction permits unless otherwise indicated in the Contract Documents. Contractor shall obtain, at his expense, all specialty permits needed for specific items included with the work, unless otherwise indicated in the Contract Documents. Contractor shall comply with all notification and inspection requirements.

7. Testing
Unless specifically noted otherwise in the Contract Documents, the Contractor shall obtain and coordinate all technical tests and reports by a certified independent laboratory or agency as outlined in the specifications or these drawings. The Owner may, at the Owner's sole discretion, provide separate testing and/or inspection service, and the Contractor is required to fully coordinate with those consultants/contractors. Owner to pay for all soils and materials testing.

8. Existing Condition Survey
An Existing Condition Survey has been provided to the Owner by registered surveyors under separate contracts for the basis of design. It is not to be considered as part of these Design Development Documents. The survey information has been reformatted and included in this set for general information only and intended to assist the contractor in the general orientation of the site. The Contractor is required to visit the site, verify information, conduct any exploratory research, and become thoroughly familiar with all existing conditions as pre-requisite of this bid submittal. Without exception, any deviations or omissions found between these plans and existing site conditions shall immediately be brought to the attention of the Owner's Representative, but will not be considered as basis for additional payment except as allowed in change order process per General Conditions and Supplementary Conditions under the existing Owner-Contractor Agreements/Contracts".

9. Utility Locates
Existing (or proposed by others) utility information shown is approximate only and for general information only. It is not intended to depict exact locations of all utilities. The Contractor shall notify all utility companies to stake and field verify the locations including depths of all utilities (existing, proposed by others, or currently under construction), prior to commencing any related operations. Contractor shall maintain utility locations/structures during all remaining phases of work. The Contractor shall report to the Owner's Representative any utilities that may conflict with proposed work. This Contractor shall explore, understand, and coordinate (with subcontractors and others) all utilities impacts prior to submitting bid and shall be responsible for any modifications or damages to utility lines, structures or injuries therefrom. For existing utility information, contact Washington Utility Notification Center (Call 811) with minimum notice of three full business days in advance of location needs is required.

10. Safety, Means, Methods
These drawings do not specify safety materials, staffing, equipment, methods or sequencing, to protect persons and property. It shall be the Contractor's sole responsibility to direct and implement safety operations, staffing, procedures to protect the Owner and his representatives, new improvements, property, other contractors, the public and others.

11. Contractor/Owners Rep Meetings
The Contractor shall meet periodically with the Owner's Representative to determine marshalling areas, on-site storage, Contractor staff parking, security issues, construction sequencing/phasing, scheduling, and maintaining public, emergency, handicapped or operations access before starting the related work. The Contractor shall meet any "Construction Criteria" or requirements shown on any Contract Documents, construction documents, phasing plans or or any imposed plans by the Owner's Representative as a part of Base Bid.

12. Coordination with Other Work
Some of the work of this contract may occur concurrent with work by others. Phasing, sequencing and coordination, with work by others, and on-going facility operations in and around the site area is a part of this Contractor's responsibility. See other drawings, specifications, and discuss with the Owner's Representative for additional information.

13. Period of Performance
The Contractor will be required to complete all the work of this project according to these proposed drawings or subsequent clarification. A strict period of performance, including dates of substantial completion (for all and/or portions) and liquidated damages may be an integral element of this contract - see drawings and specifications.

14. Removal / Disposal
Any site improvements requiring removal under this contract shall be properly and legally disposed of off-site or, at the Owner's option, surrendered/stockpiled in an approved on-site location per the direction of the Owner's Representative.

15. As Built Drawings
The Contractor is required to maintain a complete and "up-to-date" set of all Contract Documents, including clarifications, change orders, etc., in good condition, at the construction site at all times. This set of documents will be made immediately available for review by the Owner's Representative and/or authorized Consultants upon request. Complete "As-Built" drawings and document submittals are also a requirement of this contract - see also specifications and City of Duvall, Washington and King County, Washington Standards, if provided.

16. Warranties
Maintenance, warranties and performance guarantees may be a requirement of this contract - see specifications. Notes and details on specific drawings shall take precedence over general notes and typical details. The Contractor shall refer to all other Division Notes, Sheets Notes, Drawings and Project Contract Documents for additional information.

17. Other Related Drawings
Contractor shall refer to "other related drawings" for all other related improvements that will impact this project and require coordination.

18.

N DESIGN NARRATIVE

rovide for a fully automatic irrigation system with controller. vill include a rain sensor to prevent over-watering and ter during periods of natural precipitation.

tie into a separate irrigation water meter.

will be irrigated with 4" to 6" pop up spray heads, with head acing. Head locations and the radius of the spray will be minimize overspray onto paved surfaces.

s will be irrigated with a dripline system with built in pressure ng emitters. Typically emitters are spaced 12-18" within the e lines are space 12-18" on center, depending on soil lines are set 2-3" below the soil surface and staked in place staples as necessary to hold them in place.

include a quick coupler for winterizing system with an air , to prevent freezing of lines.

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PROJECT NOTES

1. **ALL STRUCTURAL MEMBERS, CONNECTIONS, SIZES AND FOOTINGS ARE PENDING FINAL STRUCTURAL REVIEW.**
2. Engineering base information and survey information provided by Mead Gilman & Associates.
3. Grading to be approved prior to planting. All trees to be staked with wood lath and size and species noted for final field adjustment.
4. All hardscape materials to be approved in field by Landscape Architect prior to installation. Contractor to provide field mock-up samples for all flatwork, monuments, stone types, stone paving, concrete finishes, edger, gravel mulch, walls, fencing and lighting.
5. All concrete/metal edger to be staked/painted in the field for approval prior to installation.
6. All mulch to be Redwood Bark Mulch (provide sample for approval by Owner's Representative).
7. Stone Monument blocks to match monument block stones and are to be generally cubic in form - see Plans for specific forms and sizes.
8. All landscape materials to be located by planting plan in field prior to planting by contractor. Trees and planting areas may be adjusted in the field by the Landscape Architect to address unforeseen conditions.
9. Contractor to inspect site soil conditions. Assume amendment of 4.5 cy/1000 sf of compost for all planting areas and 4.5cy/1,000 sf for all turf areas. Contractor is responsible for soil blending with compost to create an improved planting mix.
10. All Enhanced Native Turf (Seed) Areas are to be hydroseeded: Application Rate: 150 lbs./acre; with a mix consistency of 10% Highland Colonial Bent, 50% Perennial Rye, and 40% Pennlawn Red Fescue; Mulch at 2,000 lbs./acre; Apply Fertilizer at 400 lbs./acre of 10-20-20 or 22.5-10-10 and in either case, slow-release fertilizers are preferred; and on slopes of 2:1 or greater, a binder shall be used at 40 lbs./acre, J-Track or equivalent.
11. Stone Paving to be Local Quarry Grey Granite. See Plans for Paving Types.
12. All manicured turf areas are to be sod, (COUNTRY GREEN TURF FARMS, "GREEN SPORT"). Incorporate 4" of topsoil with 2" or "planters mix compost" from Cedar Grove or incorporate 3" "planters mix compost" to native soils. Incorporate topsoil/compost to a depth of 6". Apply 50 lbs lime per 1000SF based on ph testing. The horizontal distance between trees and any site utilities or infrastructure shall be in compliance with codes of the local governing authority.
13. Contractor to be responsible for coordinating all stone types including stone veneer, stone blocks, and stone monuments. Provide samples of all types collectively for approval by Architect or Owner's Representative prior to ordering.

ABBREVIATIONS

B.O.F.	BOTTOM OF FOOTING
B.O.S.	BOTTOM OF STEP
B.O.W.	BOTTOM OF WALL
C.I.P.	CAST IN PLACE
℄	CENTERLINE
CLR	CLEAR
CJ	CONSTRUCTION JOINT
C.M.U.	CONCRETE MASONRY UNIT
CONT.	CONTINUOUS
DIA.	DIAMETER
EJ	EXPANSION JOINT
EJD	DOWELED EXPANSION JOINT
F.O.W.	FACE OF WALL
F.F.E.	FINISHED FLOOR ELEVATION
F.G.	FINISHED GRADE
F.V.	FIELD VERIFY
FL	FLOWLINE
GALV.	GALVANIZED
HC	HANDICAPPED
HP	HIGH POINT
I.D.	INSIDE DIAMETER
INV.	INVERT ELEVATION
JT	JOINT
LF	LINEAR FOOT
MAX	MAXIMUM
MIN	MINIMUM
MH	MANHOLE
N.I.C.	NOT IN CONTRACT
N.T.S.	NOT TO SCALE

OC	ON CENTER
O.D.	OUTSIDE DIAMETER
PA	PLANTING AREA
ℙ	PLATE
POB	POINT OF BEGINNING
PVMT	PAVEMENT
PVC	POLYVINYL CHLORIDE
P.L.	PROPERTY LINE
RAD	RADIUS
REINF	REINFORCEMENT
RD	ROOF DRAIN
RO	ROUGH OPENING
SCJ	SAW CUT JOINT
S.J.	SCORE JOINT
SFF	SQUARE FACE FOOT
SHT	SHEET
SPEC	SPECIFICATIONS
STD	STANDARD
STL	STEEL
T.O.B.	TOP OF BANK
T.O.C.	TOP OF CURB
T.O.R.	TOP OF ROCK
T.O.S.	TOP OF STEP
T.O.SL	TOP OF SLAB
T.O.W.	TOP OF WALL
TYP.	TYPICAL
V.I.F.	VERIFY IN FIELD
W.E.	WATER ELEVATION
WWM	WELDED WIRE MESH

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LOT 77 - QUARRY HOUSE SITE
SITE PLAN REVIEW - 2ND SUBMITTAL
TOLL BROTHERS
CITY OF DUVALL, WASHINGTON

NOT FOR CONSTRUCTION

DRAWN BY:	GGV
CHECKED BY:	GBW
PROJECT NO.:	2016054
ISSUE DATE:	03/14/2018
REVISIONS:	
	09/07/2017
	-
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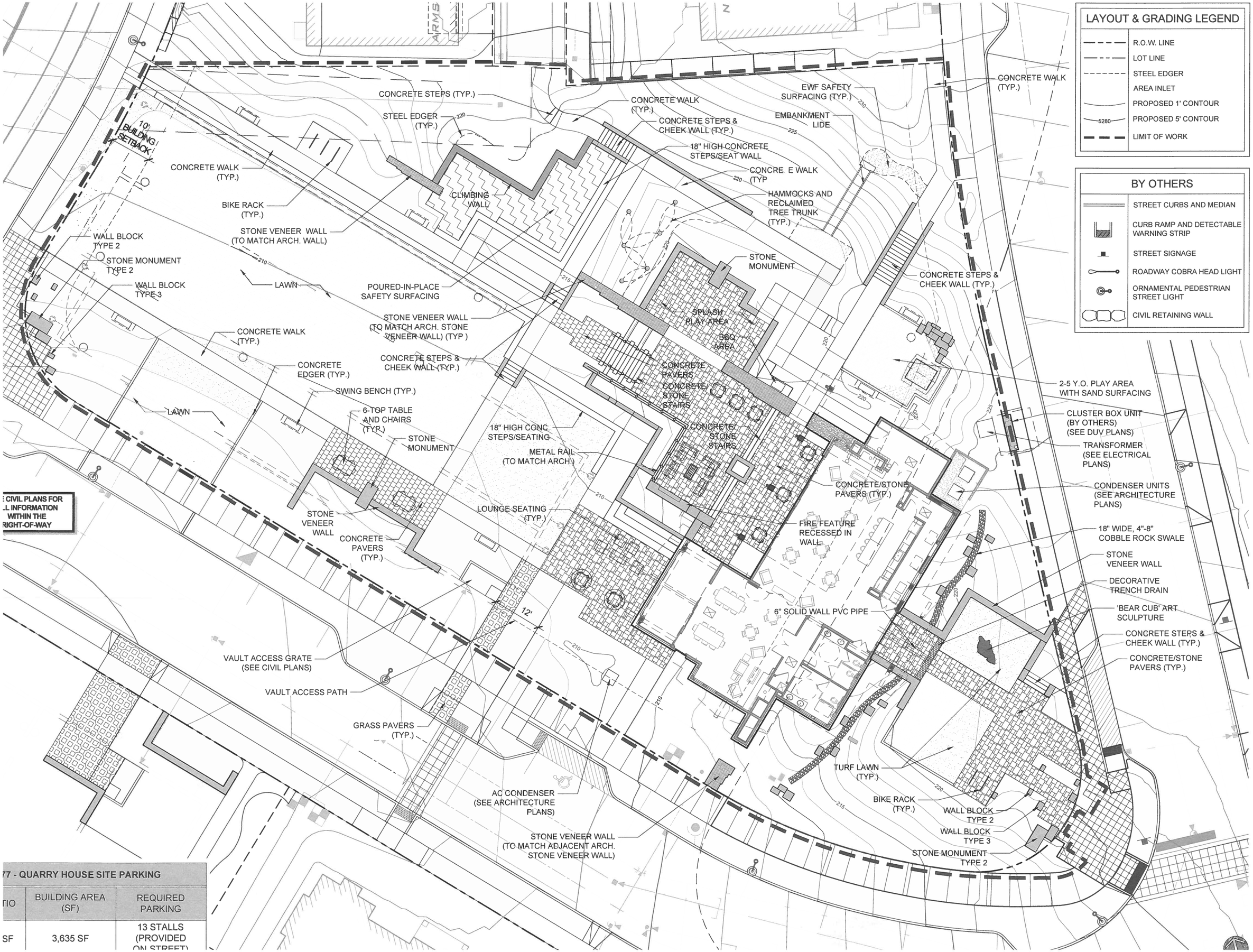
	-

SHEET TITLE:
LANDSCAPE GENERAL NOTES

SHEET NUMBER:
L-100



LAYOUT & GRADING LEGEND

	R.O.W. LINE
	LOT LINE
	STEEL EDGER
	AREA INLET
	PROPOSED 1' CONTOUR
5280	PROPOSED 5' CONTOUR
	LIMIT OF WORK

BY OTHERS

	STREET CURBS AND MEDIAN
	CURB RAMP AND DETECTABLE WARNING STRIP
	STREET SIGNAGE
	ROADWAY COBRA HEAD LIGHT
	ORNAMENTAL PEDESTRIAN STREET LIGHT
	CIVIL RETAINING WALL

77 - QUARRY HOUSE SITE PARKING

TIO	BUILDING AREA (SF)	REQUIRED PARKING
SF	3,635 SF	13 STALLS (PROVIDED ON STREET)

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	09/07/2017
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SHEET TITLE:

SITE PLAN

SHEET NUMBER:

L-101

LAYOUT & GRADING LEGEND

	R.O.W. LINE
	LOT LINE
	STEEL EDGER
	AREA INLET
	PROPOSED 1' CONTOUR
5280	PROPOSED 5' CONTOUR
	LIMIT OF WORK

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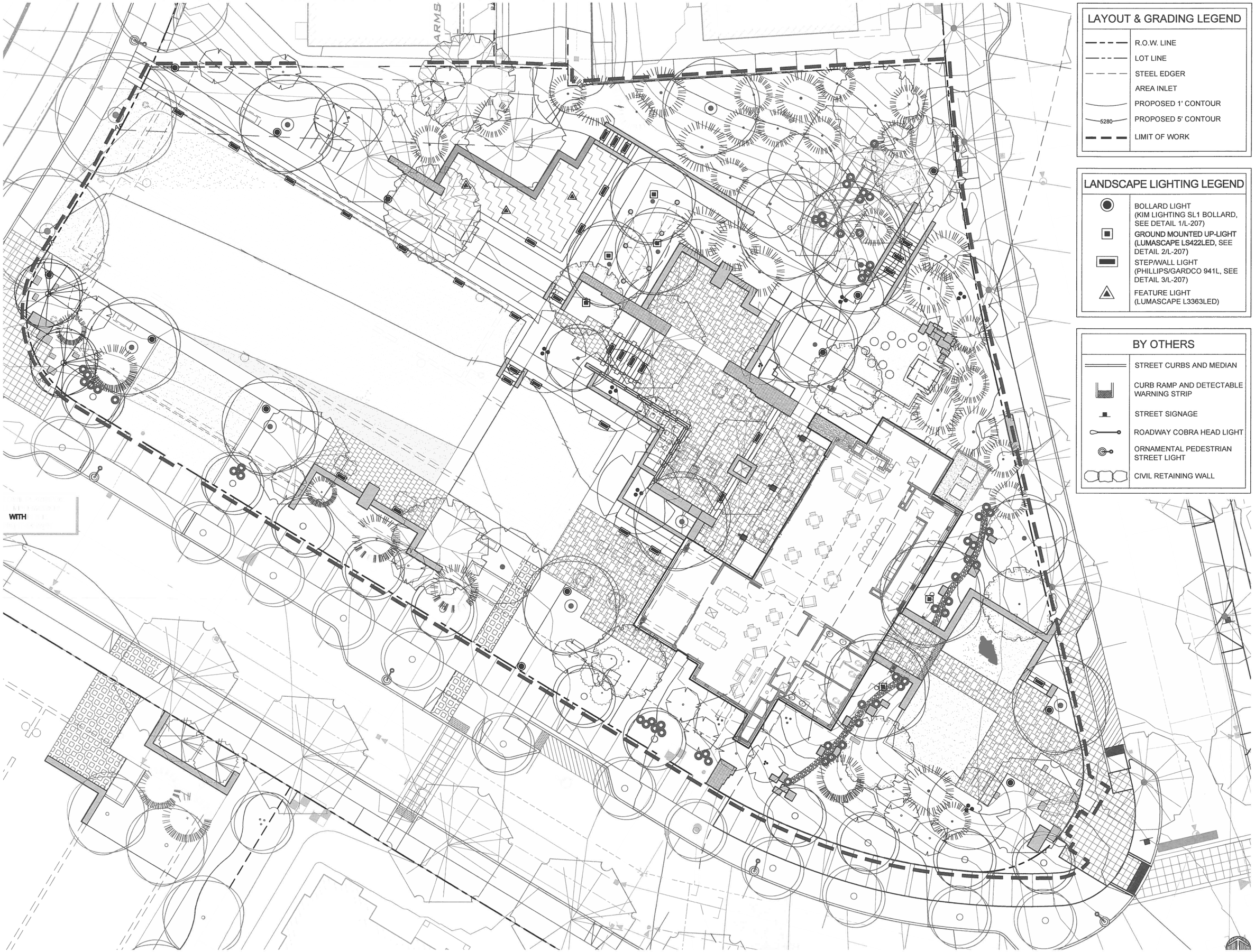
SHEET TITLE:

GRADING PLAN

SHEET NUMBER:

L-102



LAYOUT & GRADING LEGEND

- R.O.W. LINE
- LOT LINE
- STEEL EDGER
- AREA INLET
- PROPOSED 1' CONTOUR
- 5280 PROPOSED 5' CONTOUR
- LIMIT OF WORK

LANDSCAPE LIGHTING LEGEND

- BOLLARD LIGHT (KIM LIGHTING SL1 BOLLARD, SEE DETAIL 1/L-207)
- GROUND MOUNTED UP-LIGHT (LUMASCAPE LS422LED, SEE DETAIL 2/L-207)
- STEP/WALL LIGHT (PHILLIPS/GARDCO 941L, SEE DETAIL 3/L-207)
- FEATURE LIGHT (LUMASCAPE L3363LED)

BY OTHERS

- STREET CURBS AND MEDIAN
- CURB RAMP AND DETECTABLE WARNING STRIP
- STREET SIGNAGE
- ROADWAY COBRA HEAD LIGHT
- ORNAMENTAL PEDESTRIAN STREET LIGHT
- CIVIL RETAINING WALL

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SHEET TITLE:

LIGHTING PLAN

SHEET NUMBER:

L-103

LANDSCAPE LEGEND

— — —	LIMIT OF WORK
—·—·—	R.O.W. LINE
	LANDSCAPE PER SEPARATE PRICING PACKAGE
	AF-AUTUMN BLAZE MAPLE *Acer freemanii 'Autumn Blaze'*
	AT-PATTERN PERFECT MAPLE *Acer tataricum 'Patdell'*
	AL-SPRING FLURRY SERVICEBERRY *Amelanchier laevis 'JFS-Arb'*
	CA-PAGODA DOGWOOD *Cornus alternifolia*
	CC-AMERICAN HORNBEAM *Carpinus caroliniana*
	CJ-KATSURA TREE *Cercidiphyllum japonicum*
	LT-TULIP TREE *Liriodendron tulipifera*
	MEB-SOUTHERN MAGNOLIA *Magnolia grandiflora ' Edith Bogue'*
	PA-BLOODGOOD LONDON PLANETREE *Platanus x acerifolia 'Bloodgood'*
	PY-AKEBONO YOSHINO CHERRY *Prunus x yedoensis 'Akebono'*
	QR-RED MAPLE *Quercus rubra*
	ZS-GREEN VASE ZELKOVA *Zelkova serrata 'Greenvase'*
	PS-DWARF WHITE PINE *Pinus strobus 'Nana'*

NOTE: SEE PLANT LIST FOR QUANTITIES AND ADDITIONAL PLANT INFORMATION.

LANDSCAPE NOTES

1. FINAL PLANT MATERIAL WILL BE DETERMINED AT THE TIME OF CONSTRUCTION BASED ON INDUSTRY AVAILABLE PLANT MATERIAL.
2. GRADING TO BE APPROVED PRIOR TO PLANTING. ALL TREES ARE TO BE STAKED WITH WOOD LATH WITH SPECIES AND SIZE LABELS FOR APPROVAL BY LANDSCAPE ARCHITECT PRIOR TO INSTALLATION.
3. ALL CONCRETE AND STEEL EDGER TO BE STAKED /PAINTED FOR APPROVAL PRIOR TO INSTALLATION.
4. ALL TREES SHALL BE INSTALLED PRIOR TO SHRUB AND PERENNIAL MATERIAL.
5. THE HORIZONTAL DISTANCE BETWEEN TREES AND ANY SITE UTILITIES OR INFRASTRUCTURE SHALL BE IN COMPLIANCE WITH THE LOCAL GOVERNING AUTHORITY.
6. ALL MANICURED TURF AREAS ARE TO BE SOD, (COUNTRY GREEN TURF FARMS, "GREEN SPORT"). INCORPORATE 4" OF TOPSOIL WITH 2" OF "PLANTERS MIX COMPOST" FROM CEDAR GROVE OR INCORPORATE 3" "PLANTERS MIX COMPOST" TO NATIVE SOILS. INCORPORATE TOPSOIL/COMPOST TO A DEPTH OF 6". APPLY 50 LBS LIME PER 1000SF BASED ON PH TESTING.
7. ALL PLANTING MIX AREAS TO RECEIVE SOIL AMENDMENT OF 4.5 CY/1000 SF.
8. SOIL AMENDMENT TO BE BIOCOMP CLASS 1 COMPOST. TILL IN SOIL AMENDMENT TO DEPTH (SEE DETAIL 7/L-208)
9. STOCK TOPSOIL PER CIVIL PLANS.
10. ALL BEDS SHALL BE MULCHED AFTER PLANT INSTALLATION. ALL MULCH TO BE 3" REDWOOD BARK MULCH (PROVIDE SAMPLE FOR APPROVAL BY OWNER'S REPRESENTATIVE PRIOR TO INSTALLATION).
11. ALL LANDSCAPE AREAS SHALL HAVE A MINIMUM DIMENSION OF 5' EXCEPT FOR SPECIAL CONDITIONS.
12. STEEL EDGER TO BE ⅜" THICK, 6" HEIGHT, BLACK, RYERSON STEEL OR APPROVED EQUAL.
13. CONTRACTOR TO PROVIDE SLEEVE AND SUPPLY LINE FOR PLANTER POTS (PROVIDED BY OWNER). COORDINATE WITH OWNERS REP FOR SPECIFICS.

IRRIGATION NOTES

1. PLANS WILL PROVIDE FOR A FULLY AUTOMATIC IRRIGATION SYSTEM WITH CONTROLLER. CONTROLLER WILL INCLUDE A RAIN SENSOR TO PREVENT OVER-WATERING AND WASTING WATER DURING PERIODS OF NATURAL PRECIPITATION.
2. SYSTEM WILL TIE INTO SEPARATE IRRIGATION WATER METER.
3. LAWN AREAS WILL BE IRRIGATED WITH 4" TO 6" POP UP SPRAY HEADS, WITH HEAD TO HEAD SPACING. HEAD LOCATIONS AND THE RADIUS OF THE SPRAY WILL BE ADJUSTED TO MINIMIZE OVERSPRAY ONTO PAVEMENT.
4. SHRUB AREAS WILL BE IRRIGATED WITH A DRIPLINE SYSTEM WITH BUILT IN PRESSURE COMPENSATING EMITTERS. TYPICALLY EMITTERS ARE SPACED 12-18" WITHIN THE LINE, AND THE LINES ARE SPACE 12-18" ON CENTER, DEPENDING ON SOIL TYPE. DRIP LINES ARE SET 2-3" BELOW SOIL SURFACE & STAKED IN PLACE WITH 6" WIRE STAPLES AS NECESSARY TO HOLD IN PLACE.
5. SYSTEM TO INCL. QUICK COUPLER FOR WINTERIZING SYSTEM W/ AN AIR COMPRESSOR, TO PREVENT FREEZING OF LINES.

AREA CALCULATIONS

.F	7,860 SF
ANTING	12,950 SF

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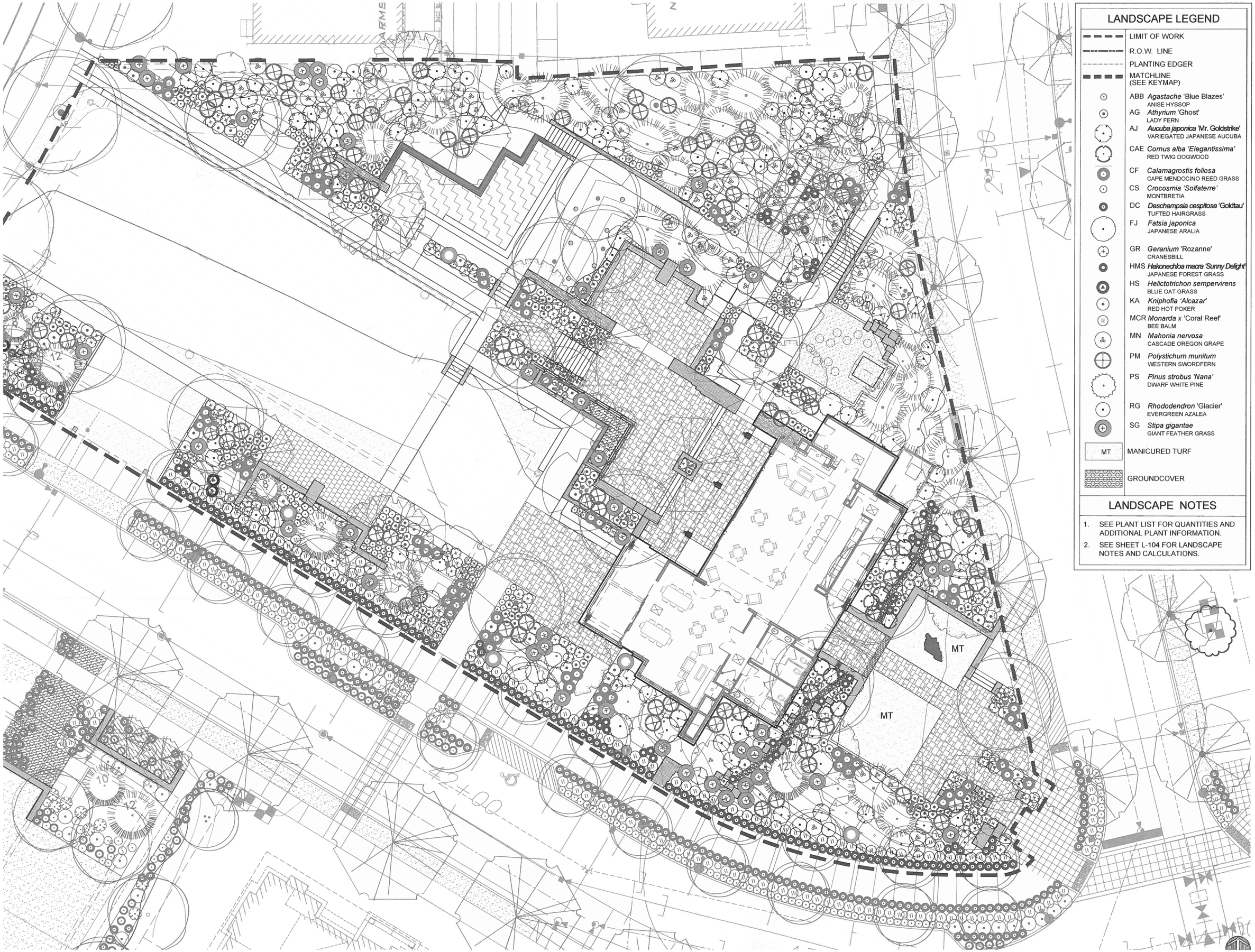
SHEET TITLE:

OVERSTORY LANDSCAPE PLAN

SHEET NUMBER:

L-104



LANDSCAPE LEGEND

	LIMIT OF WORK
	R.O.W. LINE
	PLANTING EDGER
	MATCHLINE (SEE KEYMAP)
ABB	*Agastache* 'Blue Blazes' ANISE HYSSOP
AG	*Athyrium* 'Ghost' LADY FERN
AJ	*Aucuba japonica* 'Mr. Goldstrike' VARIEGATED JAPANESE AUCUBA
CAE	*Cornus alba 'Elegantissima'* RED TWIG DOGWOOD
CF	*Calamagrostis foliosa* CAPE MENDOCINO REED GRASS
CS	*Crocosmia 'Solfaterre'* MONTBRETIA
DC	*Deschampsia cespitosa* 'Goldtau' TUFTED HAIRGRASS
FJ	*Fatsia japonica* JAPANESE ARALIA
GR	*Geranium* 'Rozanne' CRANESBILL
HMS	*Hakonechloa macra 'Sunny Delight'* JAPANESE FOREST GRASS
HS	*Helictotrichon sempervirens* BLUE OAT GRASS
KA	*Kniphofia 'Alcazar'* RED HOT POKER
MCR	*Monarda x* 'Coral Reef' BEE BALM
MN	*Mahonia nervosa* CASCADE OREGON GRAPE
PM	*Polystichum munitum* WESTERN SWORDFERN
PS	*Pinus strobus 'Nana'* DWARF WHITE PINE
RG	*Rhododendron* 'Glacier' EVERGREEN AZALEA
SG	*Stipa gigantae* GIANT FEATHER GRASS
MT	MANICURED TURF
	GROUNDCOVER

LANDSCAPE NOTES

1. SEE PLANT LIST FOR QUANTITIES AND ADDITIONAL PLANT INFORMATION.
2. SEE SHEET L-104 FOR LANDSCAPE NOTES AND CALCULATIONS.

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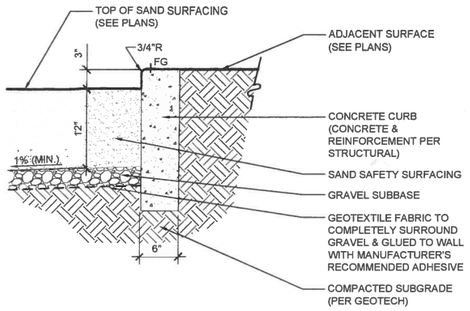
SHEET TITLE:

UNDERSTORY LANDSCAPE PLAN

SHEET NUMBER:

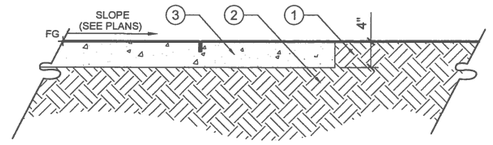
L-105



10 / L-201 CONCRETE CURB AT SAND PLAY AREA

1" = 1'-0" SECTION

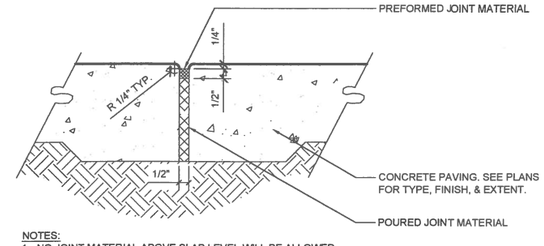
1. ADJACENT SURFACE (SEE PLANS)
2. COMPACTED SUBGRADE (PER GEOTECH)
3. 4" THICK CONCRETE PAVING. WITH INTEGRAL COLOR. FINAL COLOR AND LOCATION TO BE DETERMINED BY OWNER OR OWNER'S REPRESENTATIVE. SEE PLANS.
4. SEE LAYOUT PLANS FOR COLOR AND PAVING TYPES.



NOTES:
1. VERIFY CONDITIONS IN FIELD. PROVIDE MOCK-UP SAMPLES FOR FIELD REVIEW WITH LANDSCAPE ARCHITECT PRIOR TO CONSTRUCTION.
2. ADD SCORE JOINTS PERPENDICULAR TO AND EQUAL TO WIDTH OF WALK OR PER PLANS. ADD DOWELED EXPANSION JOINT PERPENDICULAR TO WALK AT 50' O.C. AND AS DIRECTED. SEE PLANS.
3. SEE GEOTECH FOR SPECIFICS OF CONCRETE & REINFORCEMENT
4. PROVIDE POSITIVE DRAINAGE OFF WALK AT ALL LOCATIONS. ADJUST ADJACENT GRADES AS REQUIRED TO PROPERLY DRAIN. SEE ALSO GRADING PLANS.

7 / L-201 CONCRETE WALK (INTEGRAL COLOR)

1" = 1'-0" SECTION

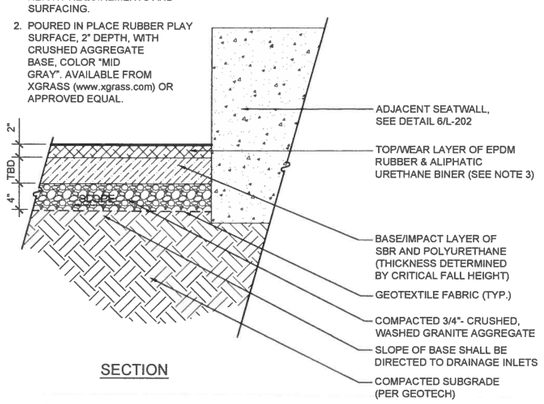


NOTES:
1. NO JOINT MATERIAL ABOVE SLAB LEVEL WILL BE ALLOWED.
2. NO EXPANSION JOINTS WIDER THAN 1/2" WILL BE ALLOWED.
3. PROVIDE EXPANSION JOINTS TO AVOID CRACKING OF PAVEMENT SURFACE TO BE FIELD REVIEWED OR PROVIDED WITH PRIOR APPROVAL BY OWNER'S REPRESENTATIVE

4 / L-201 EXPANSION JOINT (NON-DOWELED)

3" = 1'-0" SECTION

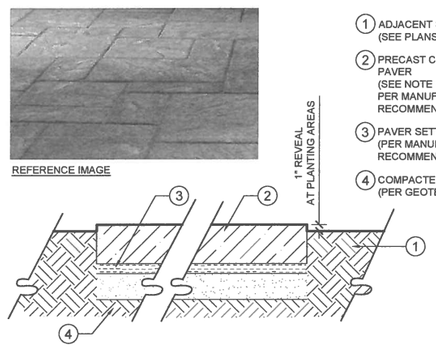
NOTES:
1. REFER TO PLAY MANUFACTURER'S SPECIFICATIONS FOR ADDITIONAL INFORMATION REGARDING FALL HEIGHT REQUIREMENTS AND SURFACING.
2. POURED IN PLACE RUBBER PLAY SURFACE, 2" DEPTH, WITH CRUSHED AGGREGATE BASE, COLOR "MID GRAY". AVAILABLE FROM XGRASS (www.xgrass.com) OR APPROVED EQUAL.



SECTION

2 / L-201 SEATWALL AT PIP

1" = 1'-0" SECTION



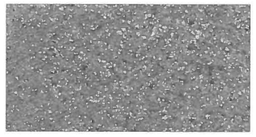
REFERENCE IMAGE

1. ADJACENT SURFACE (SEE PLANS)
2. PRECAST CONCRETE PAVER (SEE NOTE 1 & 2, INSTALL PER MANUFACTURER'S RECOMMENDATIONS)
3. PAVER SETTING BED (PER MANUFACTURER RECOMMENDATIONS)
4. COMPACTED SUBGRADE (PER GEOTECH)

NOTES:
1. BELGARD LAFITT RUSTIC SLAB, VICTORIAN COLOR, 3 PIECE PATTERN B. JOINTS SHALL BE SANDSWEPT ONE ADDITIONAL TIME AFTER PAVING SETTLES. CLEFT SHALL BE 1/4" MAX. PROVIDE POSITIVE DRAINAGE OFF ALL PAVING AREAS.
2. PROVIDE SMOOTH LEVEL TRANSITION BETWEEN PRECAST CONCRETE PAVER AND ADJACENT SIDEWALK PAVING (SEE PLANS) .

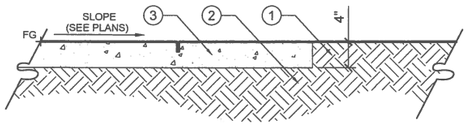
9 / L-201 PRECAST CONCRETE PAVER

1"=1'-0" SECTION



EXPOSED AGGREGATE CONCRETE CHARACTER

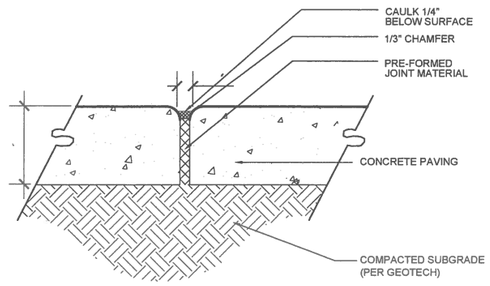
1. ADJACENT SURFACE (SEE PLANS)
2. COMPACTED SUBGRADE (PER GEOTECH)
3. 4" THICK LIGHT EXPOSED AGGREGATE CONCRETE. FINAL COLORS AND LOCATION TO BE DETERMINED BY OWNER OR OWNER'S REPRESENTATIVE.



NOTES:
1. VERIFY CONDITIONS IN FIELD. PROVIDE TWO 4' x 4' MOCK-UP SAMPLES WITH VARIABLE AGGREGATE SIZES FOR FIELD REVIEW WITH LANDSCAPE ARCHITECT PRIOR TO CONSTRUCTION.
2. ADD SCORE JOINTS PERPENDICULAR TO AND EQUAL TO WIDTH OF WALK OR PER PLANS. ADD DOWELED EXPANSION JOINT PERPENDICULAR TO WALK AT 50' O.C. AND AS DIRECTED. SEE PLANS.
3. SEE GEOTECH FOR SPECIFICS OF CONCRETE & REINFORCEMENT
4. PROVIDE POSITIVE DRAINAGE OFF WALK AT ALL LOCATIONS. ADJUST ADJACENT GRADES AS REQUIRED TO PROPERLY DRAIN. SEE ALSO GRADING PLANS.

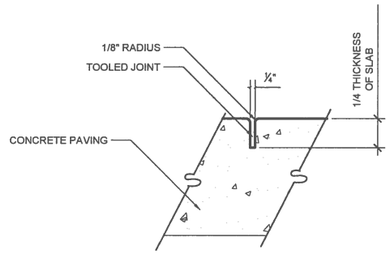
6 / L-201 EXPOSED AGGREGATE CONCRETE

1" = 1'-0" SECTION



3 / L-201 EXPANSION JOINT

3" = 1'-0" SECTION

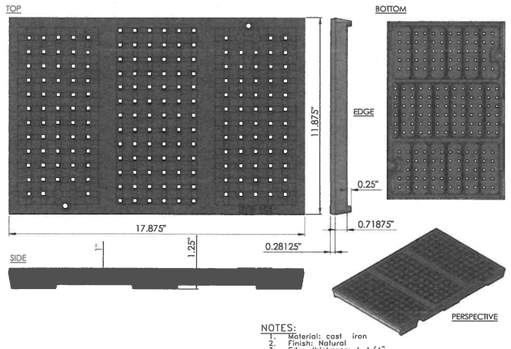


NOTES:
1. PROVIDE EQUAL INTERVALS TO WALK / PAVING WIDTH (MIN. 12' O.C.) OR AS DIRECTED BY OWNERS REPRESENTATIVE/LANDSCAPE ARCHITECT.

2 / L-201 CONTROL JOINT

3" = 1'-0" SECTION

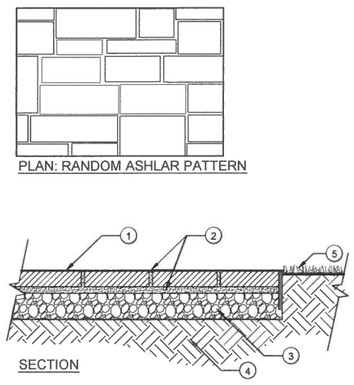
NOTES:
MANUFACTURER: IRON AGE DESIGNS
(www.ironagegrates.com; TEL: 206.276.0925)
MODEL: EXPLORA 12" X 18" HEELPROOF



NOTES:
1. Material: cast iron
2. Finish: Natural
3. Edge thickness: 1 1/4"
4. Fits custom 12" trench
5. Heelproof, No openings greater than 1/4"
6. Weight approx. 20lbs
7. Due to casting inconsistencies all dimensions are nominal

1 / L-201 DECORATIVE TRENCH DRAIN

1" = 1'-0" PLAN, SECTION & PERSPECTIVE



PLAN: RANDOM ASHLAR PATTERN

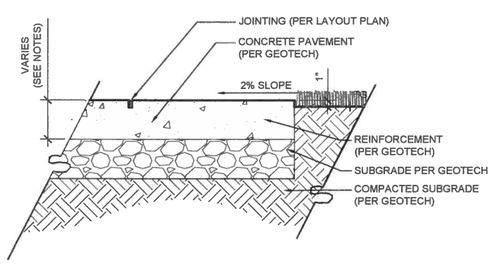
SECTION

1. LOCAL GREY GRANITE PAVING. RANDOM SIZES FROM 6" TO 12". NATURAL FACE, LIGHT GREY MORTAR JOINTS. SUBMIT SAMPLE FOR APPROVAL. PROVIDE DRY-LAID FIELD MOCK UP PRIOR TO INSTALLATION
2. MORTAR SETTING BED AND JOINTS
3. STRUCTURAL CONCRETE BASE PER GEOTECH. PROVIDE POSITIVE DRAINAGE
4. COMPACTED SUBGRADE (PER GEOTECH)
5. ADJACENT SURFACE (SEE PLANS)

NOTES:
1. VERIFY CONDITIONS IN FIELD. PROVIDE MOCK-UP SAMPLES FOR FIELD REVIEW WITH LANDSCAPE ARCHITECT PRIOR TO CONSTRUCTION.
2. PROVIDE POSITIVE DRAINAGE OFF WALK AT ALL LOCATIONS. ADJUST ADJACENT GRADES AS REQUIRED TO PROPERLY DRAIN. SEE ALSO GRADING PLANS.

8 / L-201 STONE PAVER

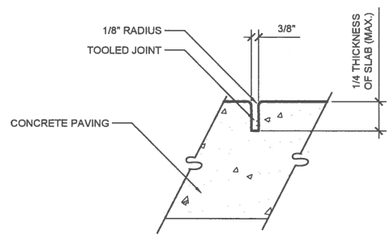
1" = 1'-0" SECTION



NOTES:
1. CONCRETE TO BE STANDARD MEDIUM GREY CONCRETE AND LIGHT BROOM FINISH PERPENDICULAR TO TRAFFIC FLOW (CONTRACTOR TO PROVIDE FINISH FOR REVIEW AND APPROVAL BY OWNER OR OWNER'S REPRESENTATIVE).
2. PROVIDE SCORE JOINTS AT INTERVAL EQUAL TO WALK WIDTH OR AS SHOWN ON THE DRAWINGS OR AS OTHERWISE DIRECTED BY OWNER REPRESENTATIVE/LANDSCAPE ARCHITECT. SEE 8/L-201.
3. EXPANSION JOINT PERPENDICULAR TO PAVING AT 50' O.C. AND AS DIRECTED BY OWNER'S REPRESENTATIVE/LANDSCAPE ARCHITECT.
4. PROVIDE POSITIVE DRAINAGE OFF WALKS/PAVING AT ALL LOCATIONS. ADJUST ADJACENT GRADES AS REQUIRED TO PROPERLY DRAIN. SEE ALSO GRADING PLANS (CIVIL ENGINEER).
5. ALL CONCRETE WALKS SHALL MEET CITY OF DUVALL PUBLIC WORKS STANDARDS & SPECS.
6. WALK THICKNESS SHALL BE AS FOLLOWS:
   - 4' WIDE WALKS SHALL BE 4" THICK
   - DESIGN PER GEOTECH REPORT

5 / L-201 CONCRETE WALK

1" = 1'-0" SECTION



NOTES:
1. PROVIDE EQUAL INTERVALS TO WALK / PAVING WIDTH (MIN. 12' O.C.) OR AS DIRECTED BY OWNERS REPRESENTATIVE/LANDSCAPE ARCHITECT.
2. PROVIDE MOCKUP FOR FIELD REVIEW TO BE APPROVED BY OWNER OR OWNER'S REPRESENTATIVE

1 / L-201 DECORATIVE SCORE JOINT

3" = 1'-0" SECTION

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LOT 77 - QUARRY HOUSE SITE

SITE PLAN REVIEW - 2ND SUBMITTAL

TOLL BROTHERS

CITY OF DUVALL, WASHINGTON

NOT FOR CONSTRUCTION

DRAWN BY:	GGV
CHECKED BY:	GBW
PROJECT NO.:	2016054
ISSUE DATE:	03/14/2018
REVISIONS:	
	09/07/2017
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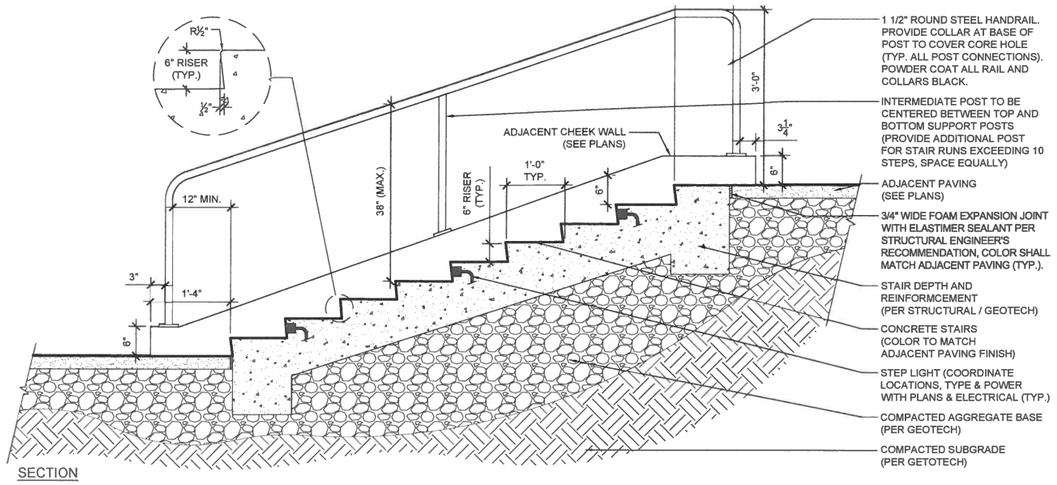
SHEET TITLE:

PAVING DETAILS

SHEET NUMBER:

L-201

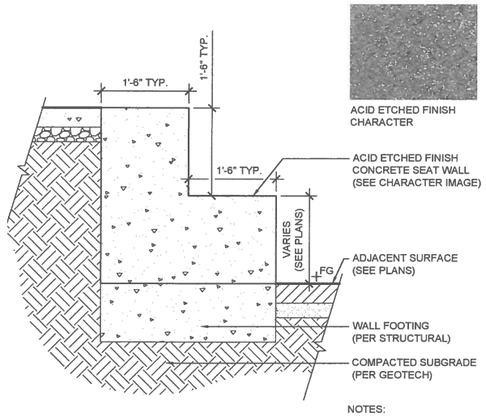


SECTION

3 / L-202 CONCRETE STEPS

3/4" = 1'-0"

SECTION

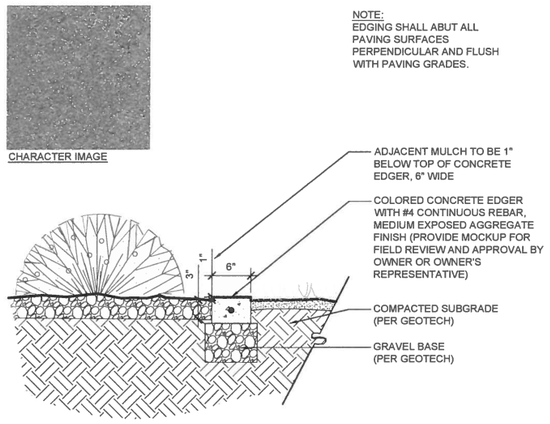


NOTES:
1. SEE SITE AND GRADING PLAN FOR NUMBER OF STEPS AND ADJACENT FINISH GRADES.

SEATWALL

3/4" = 1'0"

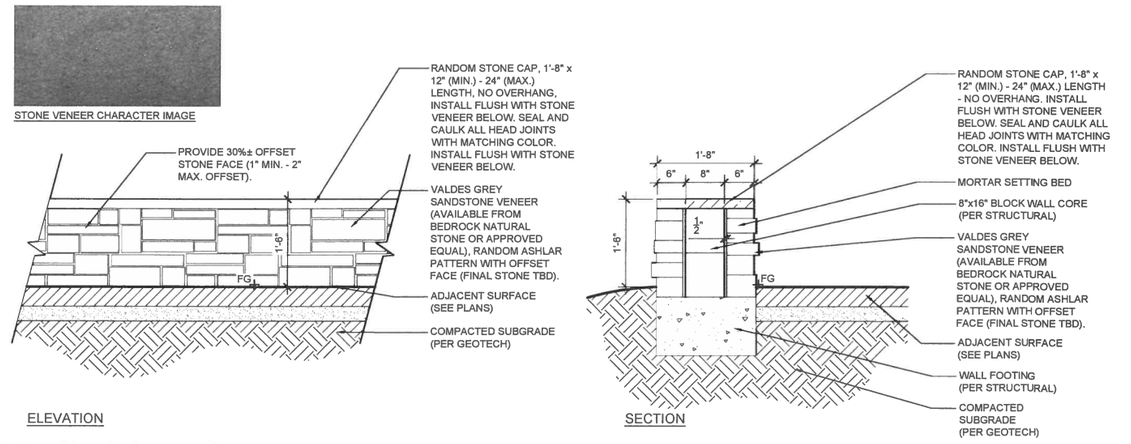
SECTION



NOTE:
EDGING SHALL ABUT ALL PAVING SURFACES PERPENDICULAR AND FLUSH WITH PAVING GRADES.

5 / L-202 CONCRETE EDGER

1" = 1'-0"

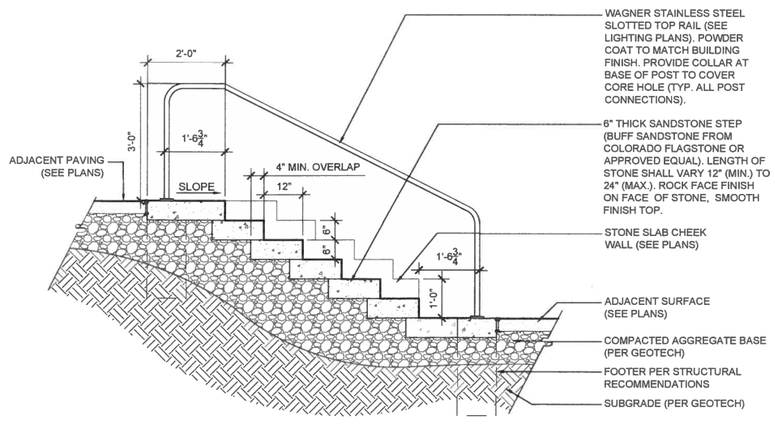


ELEVATION

SECTION

2 / L-202 STONE VENEER FREESTANDING SEAT WALL

3/4" = 1'0"

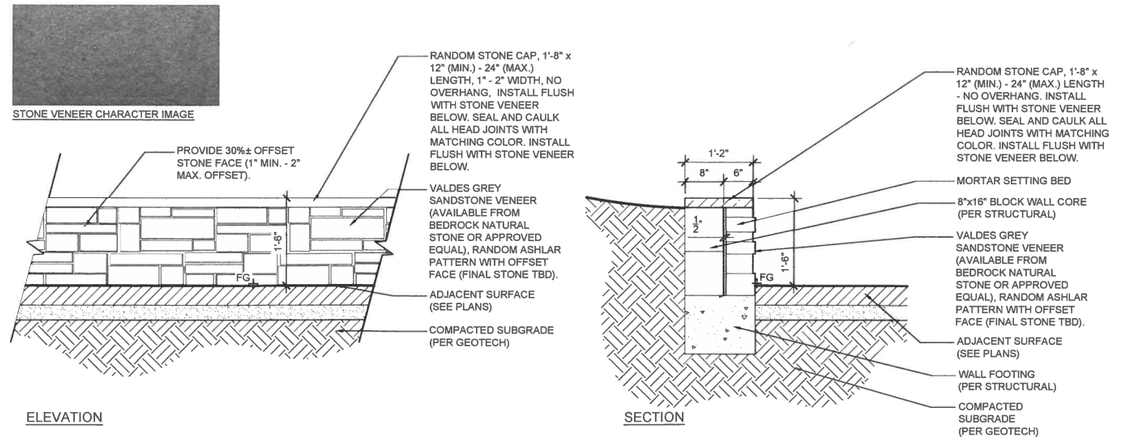


NOTES:
SEE PLANS FOR HORIZONTAL LAYOUT AND NUMBER OF RISERS PER LOCATION OF ALL STAIRS. PROVIDE SMOOTH, LEVEL TRANSITION FROM STAIR TO ADJACENT SURFACE.

STONE STEPS

1/2" = 1'-0"

SECTION



ELEVATION

SECTION

1 / L-202 STONE VENEER RETAINING SEAT WALL

3/4" = 1'0"

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SITE PLAN REVIEW - 2ND SUBMITTAL

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CITY OF DUVALL, WASHINGTON

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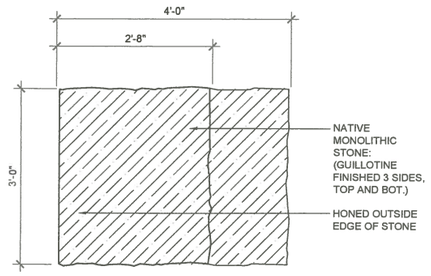
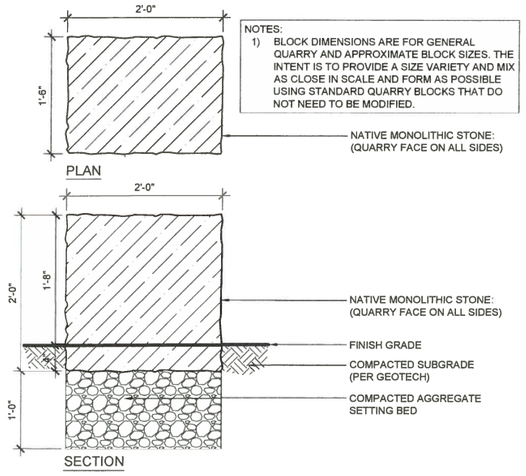
SHEET TITLE:

WALL & STAIR DETAILS

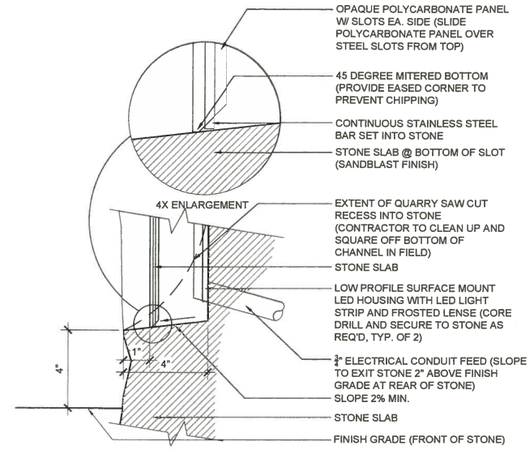
SHEET NUMBER:

L-202

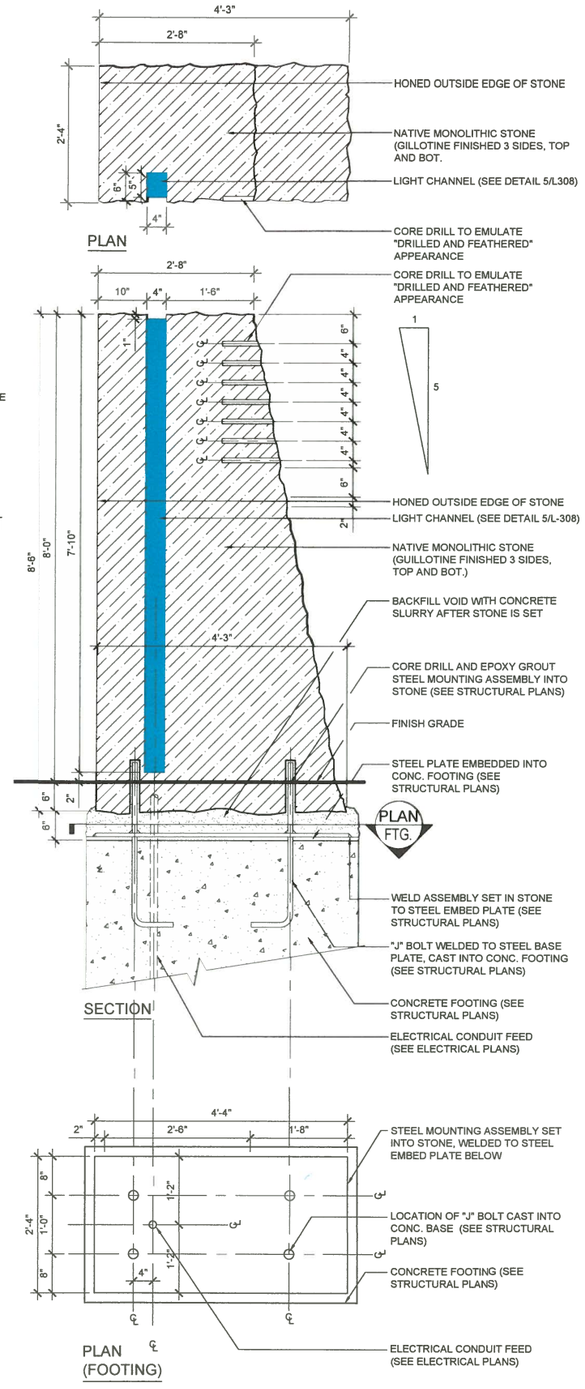




6 L-203 **STONE BLOCK TYPE 2**
1"=1'-0" PLAN & SECTION

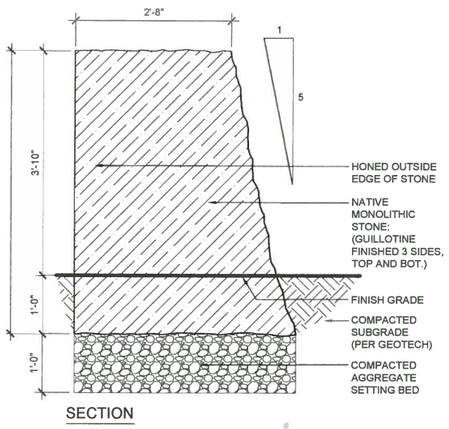


3 L-203 **SECTION AT CHANNEL BOTTOM**
3"=1'-0" PLAN, ELEVATION & SECTION

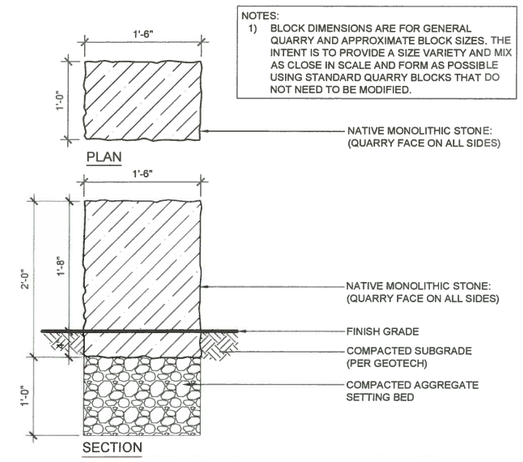


NOTES:
1) CONTRACTOR TO PROVIDE SHOP DRAWINGS FOR STEEL ASSEMBLY TO OWNER'S REPRESENTATIVE FOR REVIEW PRIOR TO FABRICATION.
2) SET HONED EDGE OF STONE PLUMB
3) COORDINATE LOCATION OF ELECTRICAL CONDUIT FEED THROUGH FOOTING WITH STONE CRAFTSMAN/FABRICATOR AND STRUCTURAL ENGINEER

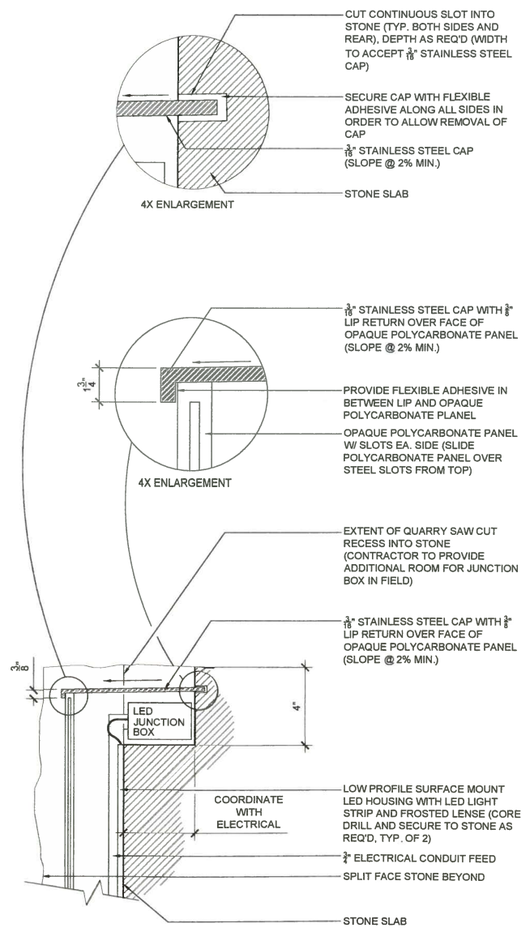
1 L-203 **STONE MONUMENT TYPE 2**
3/4"=1'-0" PLAN, ELEVATION & SECTION



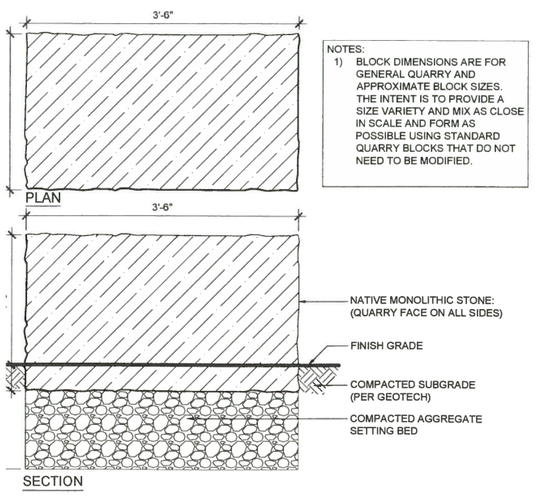
STONE WEDGE TYPE6
3/4"=1'-0" PLAN & SECTION



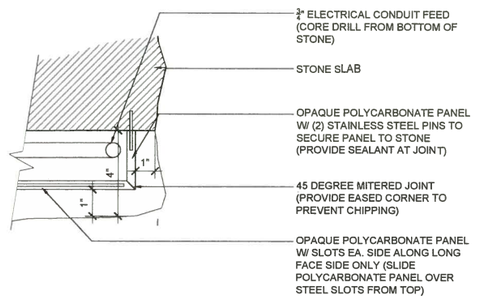
5 L-203 **STONE BLOCK TYPE 1**
1"=1'-0" PLAN & SECTION



2 L-203 **SECTION AT CHANNEL TOP**
3"=1'-0" PLAN, ELEVATION & SECTION



STONE BLOCK TYPE 3
1"=1'-0" PLAN & SECTION



4 L-203 **SECTION AT CHANNEL SIDE RETURN**
3"=1'-0" PLAN, ELEVATION & SECTION

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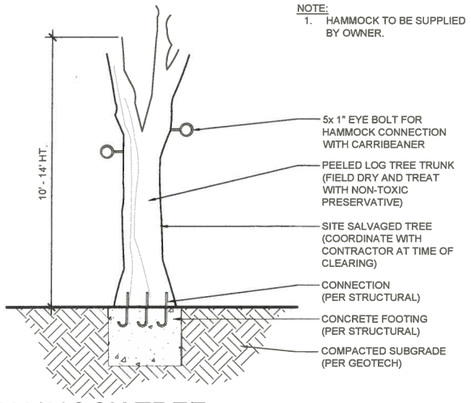
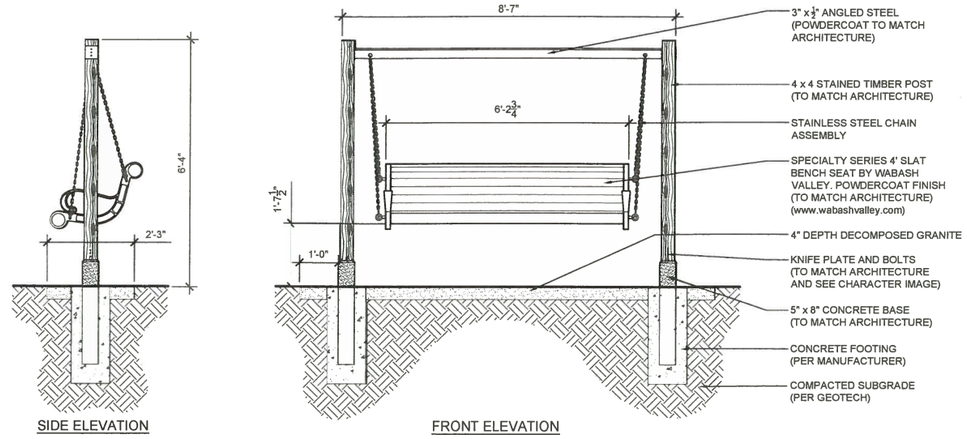
SHEET TITLE:
MONUMENTATION DETAILS

SHEET NUMBER:
L-203

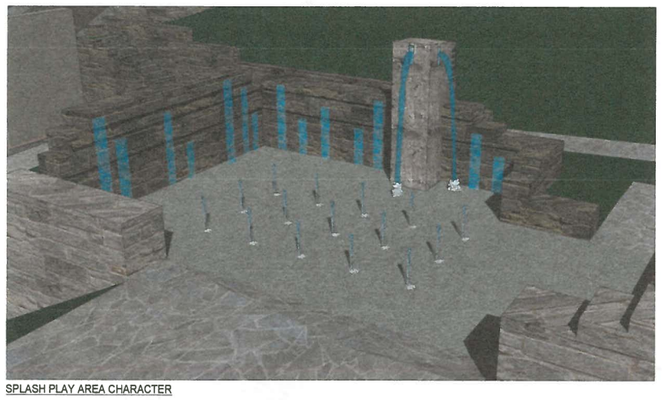


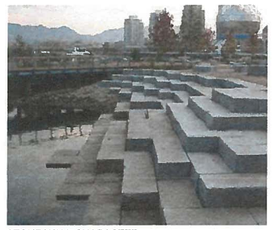
NOTE:
1. HAMMOCK TO BE SUPPLIED BY OWNER.

3 / L-204 HAMMOCK TREE
1/4"=1'-0" SECTION



2 / L-204 OUTDOOR SWING BENCH SEAT
1/2"=1'-0" SECTION & ELEVATION

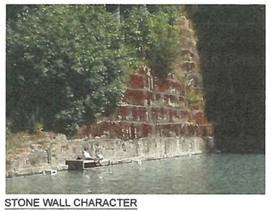

SPLASH PLAY AREA CHARACTER


STONE WALL CHARACTER

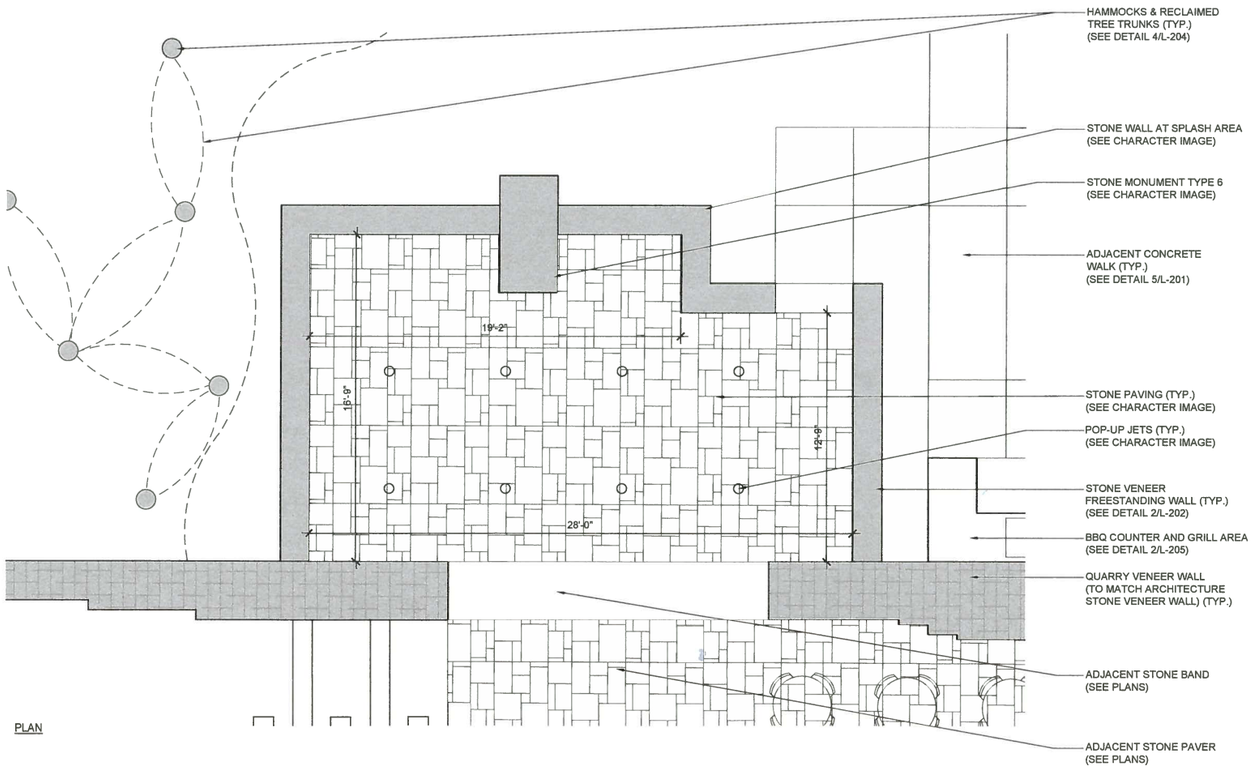
STONE PAVING CHARACTER

WATER WALL CHARACTER

POP-UP JETS CHARACTER


STONE WALL CHARACTER

NOTES:
1. SPLASH PLAY AREA = 450 SF
2. ALL STONE TO BE LOCAL QUARRY GRAY SANDSTONE (PROVIDE SAMPLES FOR APPROVAL)



PLAN

04 SPLASH PLAY AREA
1/4"=1'-0" PLAN

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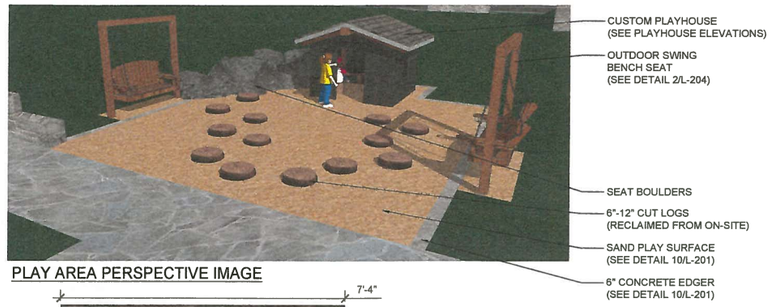
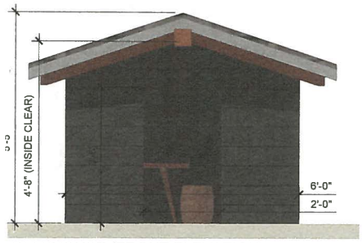
SHEET NUMBER:
L-204

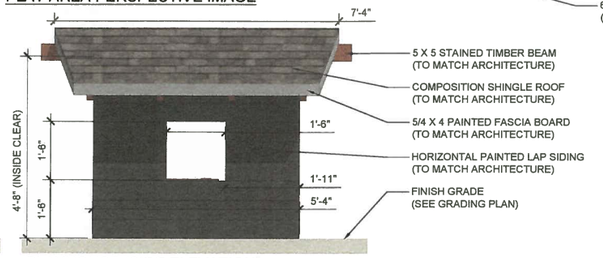
RECLAIMED CUT LOGS



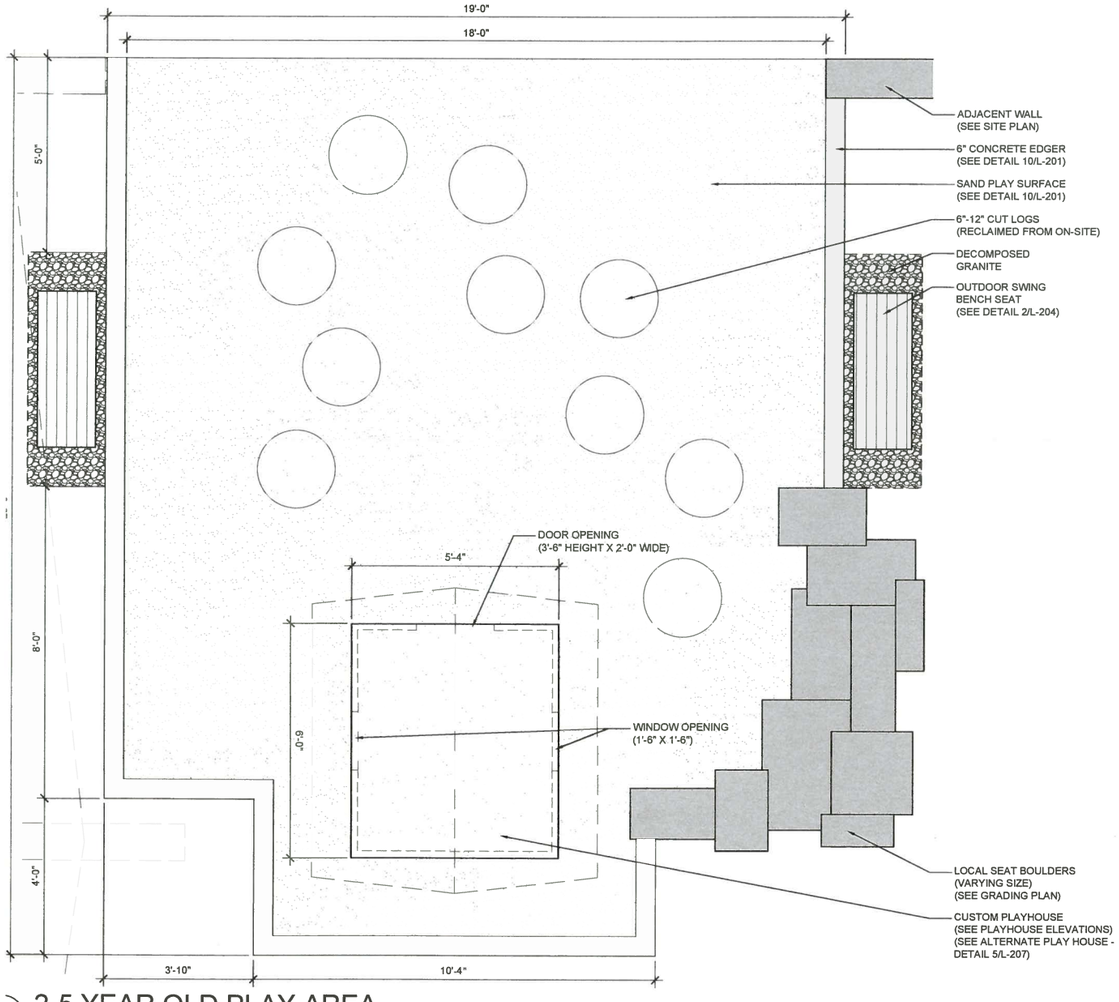
PLAY AREA PERSPECTIVE IMAGE



PLAYHOUSE (FRONT ELEVATION)



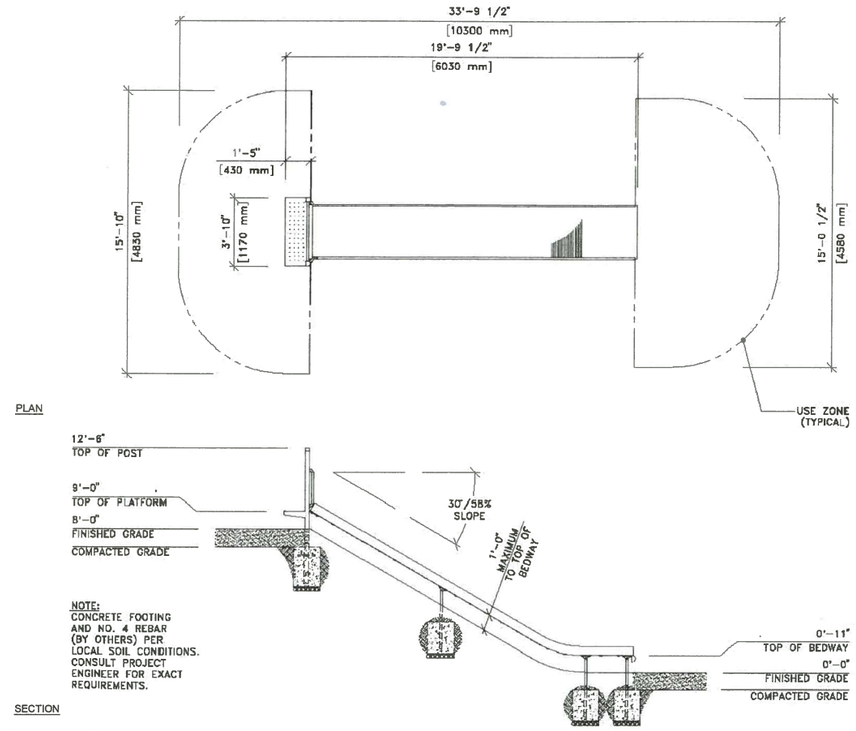
PLAYHOUSE (SIDE ELEVATION)



2-5 YEAR OLD PLAY AREA

05 1/2" = 1'-0"

PLAN



NOTE:
CONCRETE FOOTING AND NO. 4 REBAR (BY OTHERS) PER LOCAL SOIL CONDITIONS. CONSULT PROJECT ENGINEER FOR EXACT REQUIREMENTS.

EMBANKMENT SLIDE
MODEL: TIMBERFORM 1643-91-EMB
EMBANKMENT WIDE SLIDE CHUTE
(STAINLESS STEEL BEDWAY, 6" RAILS)

MANUFACTURER: COLUMBIA CASCADE COMPANY
CONTACT: WWW.TIMBERFORM.COM
503.223.1157

EMBANKMENT SLIDE

3 L-205 1/4" = 1'-0"

NOTE:
GAS SUPPLY LINE TO ORIGINATE FROM BUILDING

BBQ COUNTER AND GRILL

2 L-205 N.T.S

CHARACTER IMAGE

FIRE WALL FEATURE CHARACTER

1 L-205 N.T.S

CHARACTER IMAGE

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LOT 77 - QUARRY HOUSE SITE
SITE PLAN REVIEW - 2ND SUBMITTAL
TOLL BROTHERS
CITY OF DUVALL, WASHINGTON

NOT FOR CONSTRUCTION

DRAWN BY: GGV
CHECKED BY: GBW
PROJECT NO.: 2016054
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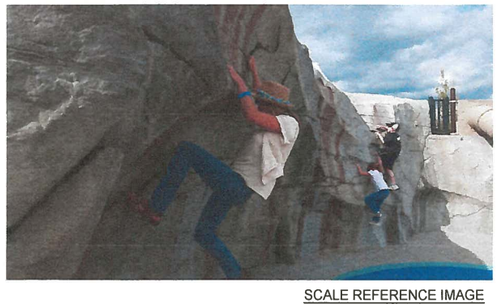
SHEET TITLE:
SITE & PLAY AREA DETAILS

SHEET NUMBER:
L-205

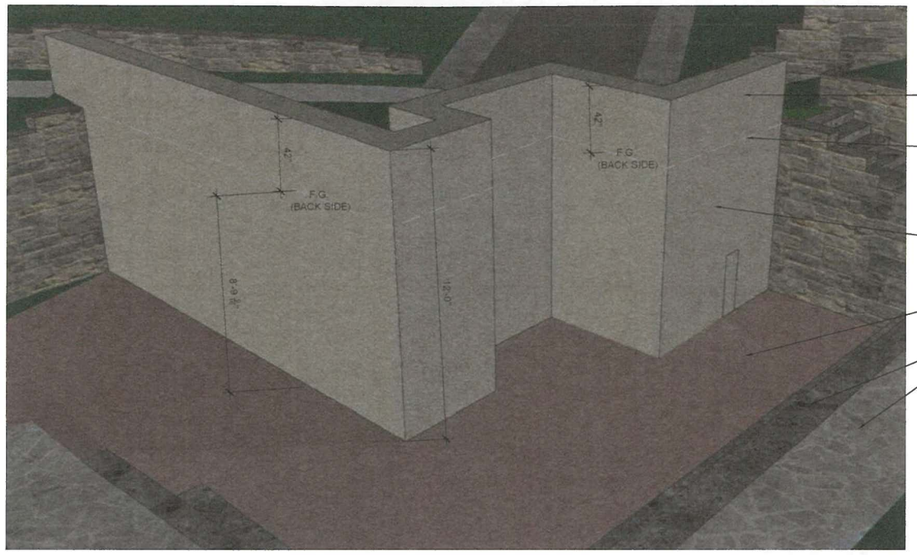
REGIONAL QUARRY REFERENCE IMAGE

REGIONAL QUARRY REFERENCE IMAGE

REGIONAL QUARRY REFERENCE IMAGE



SCALE REFERENCE IMAGE



42" FREESTANDING WALL (FROM FINISHED GRADE ON BACK SIDE)

FINISH GRADE BEYOND (SEE PLANS FOR SPOT ELEVATIONS AND WALL HEIGHTS)

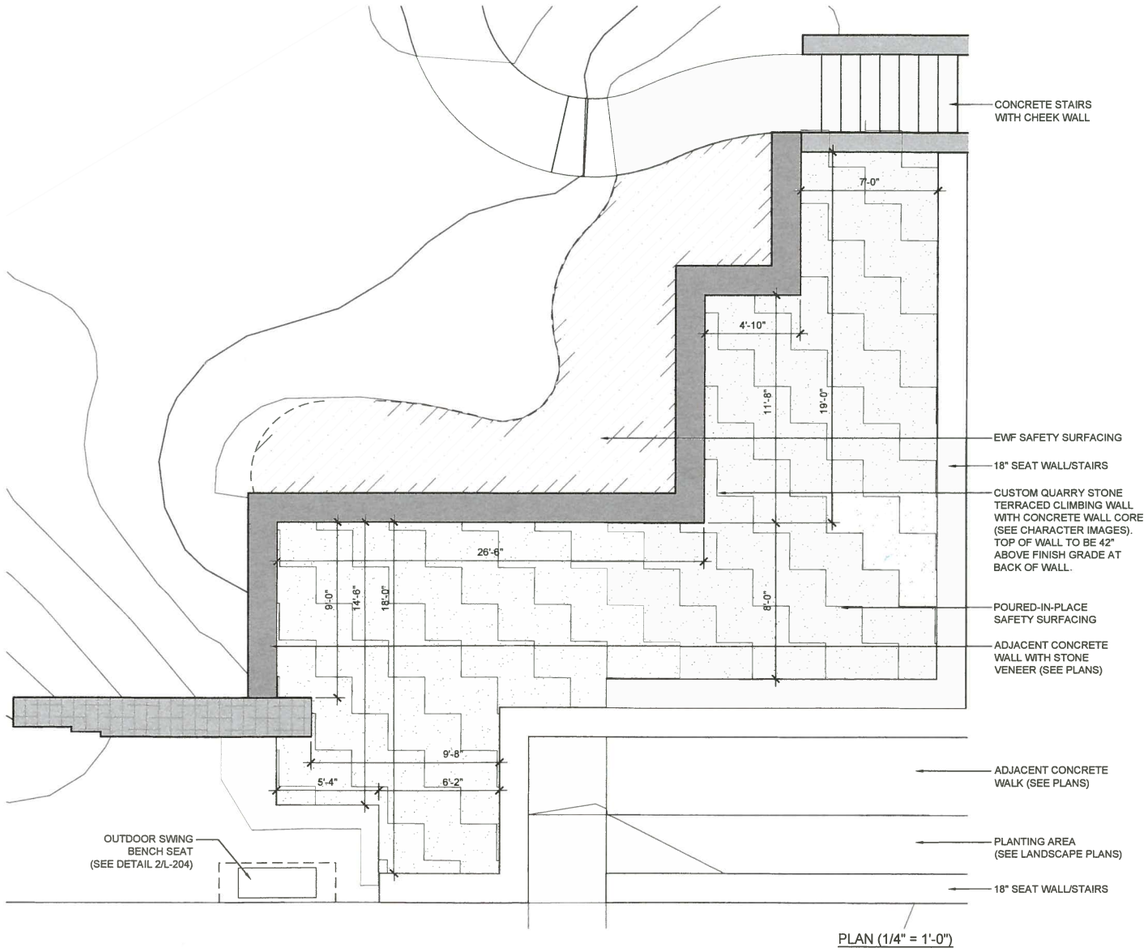
CUSTOM QUARRY STONE TERRACED CLIMBING WALL WITH CONCRETE WALL CORE (SEE CHARACTER IMAGES). (670 SFF CLIMBING WALL)

POURED IN PLACE SAFETY SURFACING (685 SF) (SEE DETAIL 11/L-201)

18" SEAT WALL/STAIRS

ADJACENT CONCRETE WALK (SEE PLANS)

GENERAL MASSING PERSPECTIVE



CONCRETE STAIRS WITH CHEEK WALL

EWF SAFETY SURFACING

18" SEAT WALL/STAIRS

CUSTOM QUARRY STONE TERRACED CLIMBING WALL WITH CONCRETE WALL CORE (SEE CHARACTER IMAGES). TOP OF WALL TO BE 42" ABOVE FINISH GRADE AT BACK OF WALL.

POURED-IN-PLACE SAFETY SURFACING

ADJACENT CONCRETE WALL WITH STONE VENEER (SEE PLANS)

ADJACENT CONCRETE WALK (SEE PLANS)

PLANTING AREA (SEE LANDSCAPE PLANS)

18" SEAT WALL/STAIRS

OUTDOOR SWING BENCH SEAT (SEE DETAIL 2/L-204)

PLAN (1/4" = 1'-0")

1 L-206 CLIMBING WALL CONCEPT
1/4"=1'-0"

PLAN & PERSPECTIVE

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	-
	-

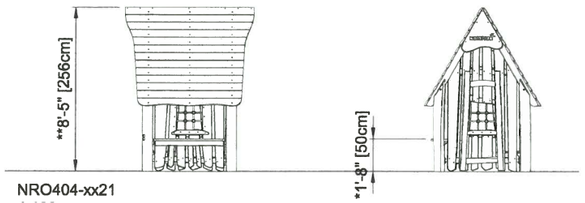
SHEET TITLE:

CLIMBING WALL DETAILS

SHEET NUMBER:

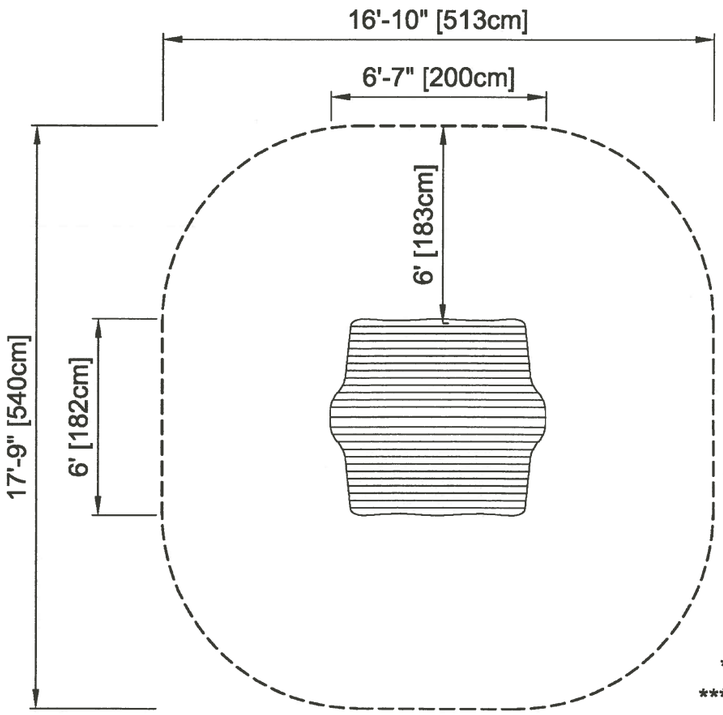
L-206

CHARACTER IMAGE



NRO404-xx21

ELEVATIONS

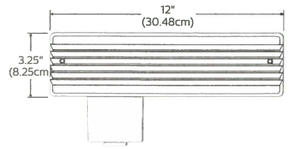


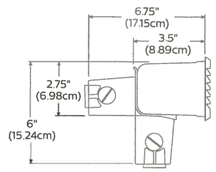
NRO404-xx21
* 1'-7" / 50cm
** 8'-5" / 256cm
***266.9ft² / 24.8m²
1/8" = 1'-0"

NOTES:
1. VILLAGE PLAY HOUSE BY KOMPAN DESIGN
2. SEE MANUFACTURER'S RECOMMENDATIONS FOR FOOTING DESIGN

PLAN

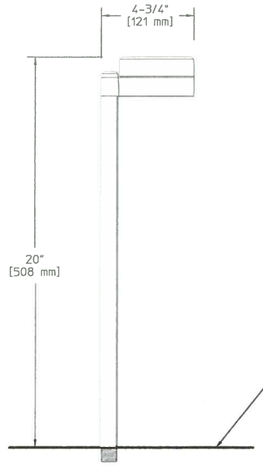
07 PLAYHOUSE ALTERNATE #1
1/4"=1'-0"





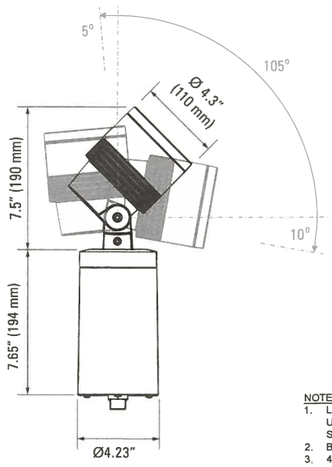
NOTES:
1. 941L LINE STEP LIGHT WITH LOUVER FACEPLATE BY PHILLIPS GARDCO
2. TEXTURED BLACK FINISH
3. 4000K COLOR TEMPERATURE

3 L-207 STEP LIGHT
3"=1'-0"



NOTES:
1. CPL12 LED PATH LIGHT WITH BY PHILLIPS HADCO
2. BLACK FINISH

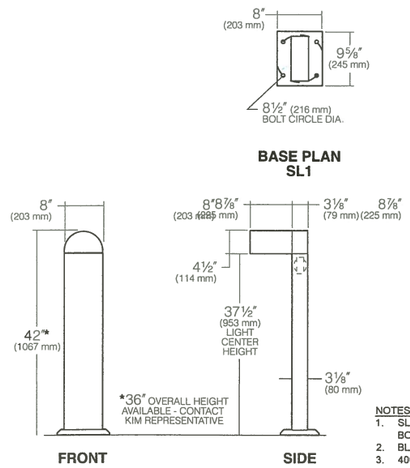
2 L-207 PATH LIGHT
3"=1'-0"



CHARACTER IMAGE

NOTES:
1. LS422LED CENTRIA LANDSCAPE UPLIGHT WITH GROUNDMOUNT STAKE BY LUMASCAPE
2. BLACK POWDERCOATED FINISH
3. 4000K COLOR TEMPERATURE

4 L-207 LANDSCAPE UPLIGHT
3"=1'-0"



NOTES:
1. SL1 SITE LANDFORMS BOLLARD BY KIM LIGHTING
2. BLACK FIXTURE FINISH
3. 4000K COLOR TEMPERATURE

1 L-207 BOLLARD LIGHT
3/4"=1'-0"

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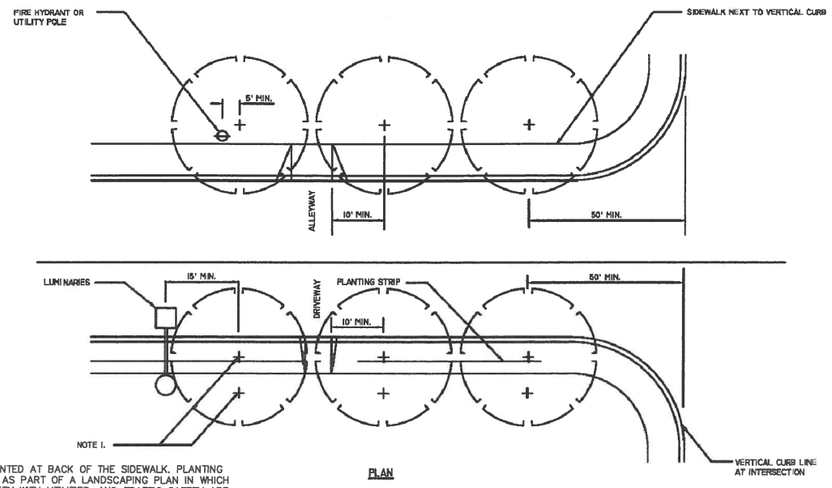
SHEET TITLE:

SITE LIGHTING DETAILS

SHEET NUMBER:

L-207



PLAN

NOTES:

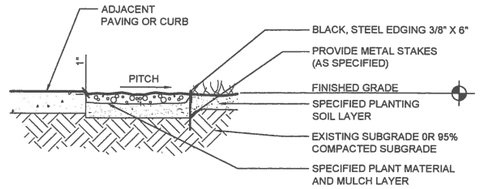
1. TREES SHALL BE GENERALLY PLANTED AT BACK OF THE SIDEWALK. PLANTING STRIPS WILL BE APPROVED ONLY AS PART OF A LANDSCAPING PLAN IN WHICH PLANT MAINTENANCE, COMPATIBILITY WITH UTILITIES, AND TRAFFIC SAFETY ARE DULY CONSIDERED.
2. IF PLANTING STRIPS ARE APPROVED:
   - 2.A. MIN. DISTANCE FROM CENTER OF ANY TREE TO NEAREST EDGE OF VERTICAL CURB SHALL BE 2 FEET.
   - 2.B. TREES SHALL BE STAKED IN A MANNER NOT TO OBSTRUCT SIDEWALK TRAFFIC.
   - 2.C. IN CASE OF BLOCK-OUTS, MIN. CLEAR SIDEWALK WIDTH SHALL BE 5 FEET IN RESIDENTIAL OR 8 FEET IN BUSINESS DISTRICTS.
3. ON BUS ROUTES, PLANS SHALL BE COORDINATED WITH METRO SERVICE PLANNING. PHONE 684-1622.
4. SEE SEC. 3-5.03.
5. STANDARD ROOT DEFLECTORS (ROOT BARRIER) SHALL BE INSTALLED AROUND ALL TREES WITHIN THE PUBLIC RIGHT OF WAY, OR WITHIN 5' FROM A STRUCTURE. ROOT DEFLECTORS SHALL BE RIGID HIGH IMPACT POLYPROPYLENE TREATED WITH UV INHIBITORS, MINIMUM 18" IN HEIGHT, W/ 1/2" RAISED VERTICAL RIBS ON CENTER, OR APPROVED EQUAL.
6. INSTALL 4" PERF. PIPE, FILLED WITH DRAIN ROCK. PIPE SHALL STAND VERTICALLY AND GO DOWN TO A MINIMUM 2" BELOW ROOT BALL.
7. SPACE BETWEEN BACK OF CURB AND SIDEWALK SHALL BE 2x ROOT BALL WIDTH.
8. LANDSCAPE MEDIAN TREES AND TREES WITHIN 20' OF A INTERSECTION CORNER SHALL BE MIN. 3" CALIPER AND LIMBED TO 6' HEIGHT FROM FINISH GRADE.

** PLACEMENT, SELECTION AND LOCATION OF STREET TREES IS GOVERNED BY THE DUVALL MUNICIPAL CODE, CHAPTER 14.

City of Duvall	
STREET TREE STANDARDS	REVISED 5/10/07
STANDARD PLAN	3-05-009

8/L-208 STREET TREE PLANTING

N.T.S. PLAN

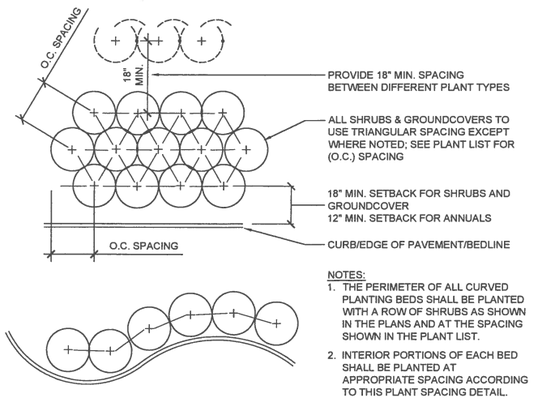


NOTES:

1. SET ALL EDGING 1" ABOVE FINISHED GRADE AS SHOWN. EDGING SHALL ABUT ALL PAVING SURFACES PERPENDICULAR AND FLUSH WITH PAVING GRADES. ALL JOINTS TO BE WELDED OR SECURELY STAKED.
2. DEPTH OF STEEL EDGING TO BE APPROVED BY OWNER'S REPRESENTATIVE - ADJUST AS DIRECTED.

6/L-208 STEEL LANDSCAPE EDGER

1" = 1'-0" SECTION

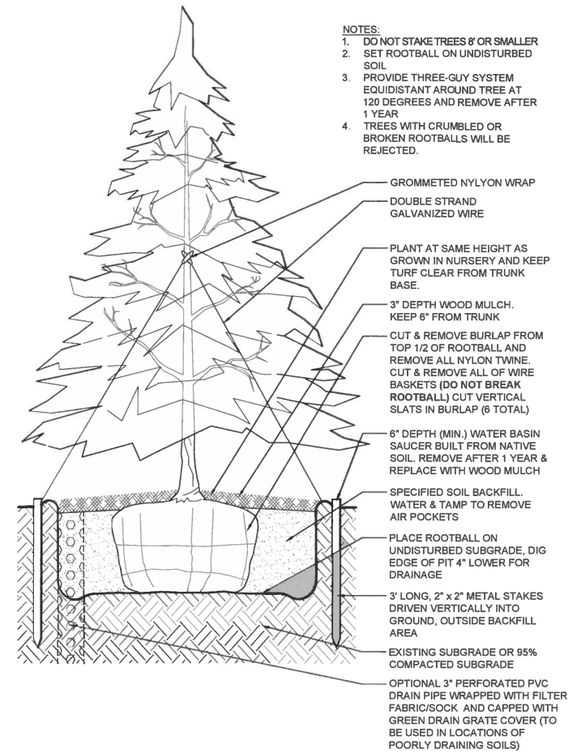


NOTES:

1. THE PERIMETER OF ALL CURVED PLANTING BEDS SHALL BE PLANTED WITH A ROW OF SHRUBS AS SHOWN IN THE PLANS AND AT THE SPACING SHOWN IN THE PLANT LIST.
2. INTERIOR PORTIONS OF EACH BED SHALL BE PLANTED AT APPROPRIATE SPACING ACCORDING TO THIS PLANT SPACING DETAIL.
3. NO WOOD MULCH IN GROUND COVER AREAS

5/L-208 SHRUB & GROUNDCOVER SPACING

1/2" = 1'-0" PLAN & SECTION

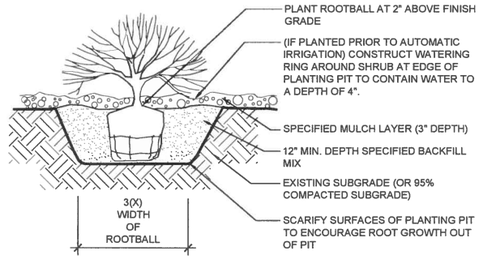


NOTES:

1. DO NOT STAKE TREES 8' OR SMALLER
2. SET ROOTBALL ON UNDISTURBED SOIL
3. PROVIDE THREE-GUY SYSTEM EQUIDISTANT AROUND TREE AT 120 DEGREES AND REMOVE AFTER 1 YEAR
4. TREES WITH CRUMBLED OR BROKEN ROOTBALLS WILL BE REJECTED.

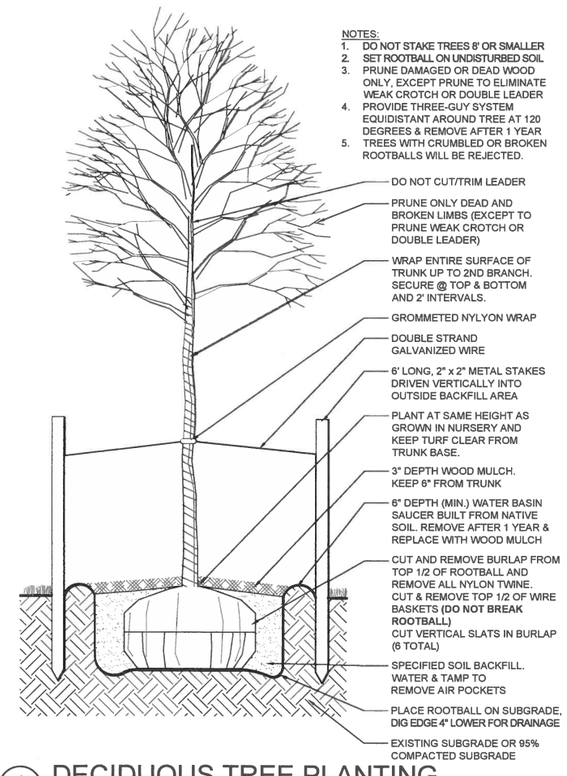
2/L-208 EVERGREEN TREE PLANTING

1 1/2" = 1'-0" SECITON



4/L-208 SHRUB PLANTING IN MULCH BED

1" = 1'-0" SECTION



NOTES:

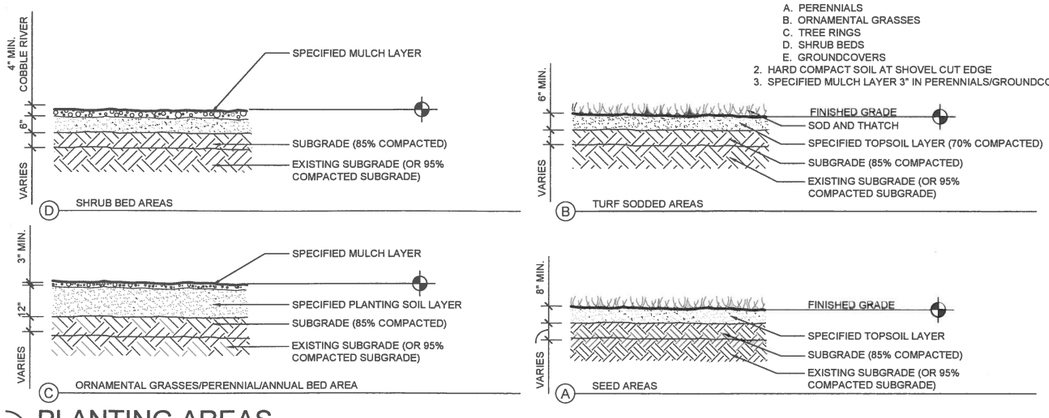
1. DO NOT STAKE TREES 8' OR SMALLER
2. SET ROOTBALL ON UNDISTURBED SOIL
3. PRUNE DAMAGED OR DEAD WOOD ONLY, EXCEPT PRUNE TO ELIMINATE WEAK CROTCH OR DOUBLE LEADER
4. PROVIDE THREE-GUY SYSTEM EQUIDISTANT AROUND TREE AT 120 DEGREES & REMOVE AFTER 1 YEAR
5. TREES WITH CRUMBLED OR BROKEN ROOTBALLS WILL BE REJECTED.

1/L-208 DECIDUOUS TREE PLANTING

1 1/2" = 1'-0" SECTION

MULCHING CONDITIONS:

1. PROVIDE SPECIFIED MULCH IN THE FOLLOWING:
   - A. PERENNIALS
   - B. ORNAMENTAL GRASSES
   - C. TREE RINGS
   - D. SHRUB BEDS
   - E. GROUNDCOVERS
2. HARD COMPACT SOIL AT SHOVEL CUT EDGE
3. SPECIFIED MULCH LAYER 3" IN PERENNIALS/GROUNDCOVER AREA

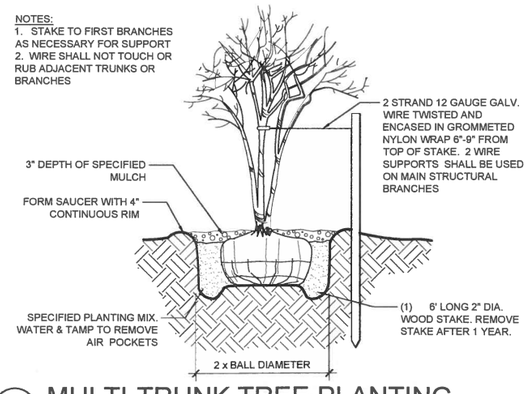


7/L-208 PLANTING AREAS

1" = 1'-0" SECTION

NOTES:

1. STAKE TO FIRST BRANCHES AS NECESSARY FOR SUPPORT
2. WIRE SHALL NOT TOUCH OR RUB ADJACENT TRUNKS OR BRANCHES



3/L-208 MULTI-TRUNK TREE PLANTING

1" = 1'-0" SECTION

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SHEET TITLE:

LANDSCAPE PLANT DETAILS

SHEET NUMBER:

L-208

KEY	BOTANICAL NAME	COMMON NAME	SIZE	MATURE HEIGHT	SPREAD	LIGHT	MOISTURE	QTY.
	LARGE DECIDUOUS TREES							**27**
AF	*Acer freemanii 'Autumn Blaze'*	Autumn Blaze Maple	2-1/2"	50'	40'	Full sun to part shade	Medium to Wet	8
CJ	*Cercidiphyllum japonicum*	Katsura Tree	2-1/2"	40'	40'	Full Sun to Part Shade	Medium	4
LT	*Liriodendron tulipifera*	Tulip Tree	2-1/2"	75'	40'	Full Sun	Medium	1
PA	*Platanus x acerifolia 'Bloodgood'*	Bloodgood London Planetree	2-1/2"	50'	40'	Full Sun	Medium to Wet	4
QR	*Quercus rubra*	Red Oak	2-1/2"	60'	45'	Full Sun	Medium to Dry	1
ZS	*Zelkova serrata 'Greenvase'*	Green Vase Zelkova	2-1/2"	45'	40'	Full Sun	Medium	9
	MEDIUM DECIDUOUS TREES							**7**
AT	*Acer tataricum 'Patdell'*	Pattern Perfect Maple	2-1/2"	25'	20'	Full sun to part shade	Medium to Dry	2
CC	*Carpinus caroliniana*	American Hornbeam	2-1/2"	25'	20'	Part Shade to Full Shade	Medium	5
	SMALL DECIDUOUS TREES							**6**
AL	*Amelanchier laevis 'JFS-Arb'*	Spring Flurry Serviceberry	2" (P.P.)	28'	20'	Full Sun to Part Shade	Medium to Wet	2
CA	*Cornus alternifolia*	Pagoda Dogwood	2" (P.P.)	25'	30'	Full Sun to Part Shade	Medium	4
	EVERGREEN TREES							**72**
AG	*Abies grandis*	Grand Fir	8'/10'/12' ht.	100'	35'	Shade Tolerant	Medium	24
PM	*Psuedotsuga menziesii*	Douglas Fir	8'/10'/12' ht.	100'	35'	Full Sun	Medium to Wet	24
TP	*Thuja plicata*	Western Red Cedar	8'/10'/12' ht.	100'	40'	Full Sun to Part Shade	Medium	24
	SMALL BROADLEAF EVERGREEN TREES							**3**
MGM	*Magnolia grandiflora ' Edith Bogue'*	Southern Magnolia	2"	25'	25'	Full Sun to part shade	Medium	3
	DECIDUOUS SHRUBS							**12**
CAE	*Cornus alba 'Elegantissima'*	Red Twig Dogwood	5 gal.	6'-8'	4'-6'	Full Sun to Partial Shade	Medium	12
	EVERGREEN SHRUBS							**190**
AJ	*Aucuba japonica* 'Mr. Goldstrike'	Variegated Japanese Aucuba	5 gal.	6'	10'	Light to Deep Shade	Medium to Dry	52
CV	*Ceanothus thyrsiflorus* 'Victoria'	Victoria California Lilac	5 gal.	9'	10'-12'	Full Sun	Medium	20
FJ	*Fatsia japonica*	Japanese Aralia		6'-16'	6'-16'	Part Shade to Full Shade	Medium	26
MN	*Mahonia nervosa*	Cascade Oregon Grape	5 gal.	24"	48"	Full Sun to Deep Shade	Medium	48
PS	*Pinus strobus 'Nana'*	Dwarf White Pine	2'-7' ht	2'-7'	3'-10'	Full Sun to Part Shade	Medium	8
RG	*Rhododendron* 'Glacier'	Evergreen Azalea	5 gal.	5'	5'	Full Sun to Light Shade	Medium	36
	FERNS							**84**
PM	*Polystichum munitum*	Western Swordfern	1 gal.	3'-6'	3'-6'	Part Shade to Full Shade	Medium	84
	GRASSES							**262**
DC	*Deschampsia cespitosa* 'Goldtau'	Tufted Hairgrass	1 gal.	24"	30"	Full to part sun	Medium	108
CF	*Calamagrostis foliosa*	Cape Mendocino Reed Grass	1 gal.	18"	18"	Full Sun	Medium	67
HMS	*Hakonechloa macra* 'Sunny Delight'	Japanese Forest Grass	1 gal.	18"	22"	Part Shade to Full Shade	Medium to Wet	43
HS	*Helictotrichon sempervirens*	Blue Oat Grass	1 gal.	36"	36"	Full Sun	Medium	3
SG	*Stipa gigantea*	Giant Feather Grass	1 gal.	6'-7'	48"	Full Sun	Medium	41
	PERENNIALS							**537**
ABB	*Agastache* 'Blue Blazes'	Anise Hyssop	1 gal.	36"	30"	Full Sun to Part Shade	Medium to Wet	66
AG	*Athyrium* 'Ghost'	Lady Fern	1 gal.	30"	24"	Part Shade to Full Shade	Medium	160
CS	*Crocosmia 'Solfaterre'*	Montbretia	1 gal.	36"	30"	Full Sun to Part Shade	Medium to Wet	70
GR	*Geranium* 'Rozanne'	Cranesbill	1 gal.	18"	24"	Full Sun to Part Shade	Medium	92
KA	*Kniphofia* 'Alcazar'	Red Hot Poker	1 gal.	36"	30"	Full Sun to Part Shade	Medium to Wet	55
MCR	*Monarda x 'Coral Reef'*	Bee Balm	1 gal.	35"	24"	Full Sun to Part Shade	Medium to Wet	94

1 / L-209 LANDSCAPE PLANT SCHEDULE

NTS

SCHEDULE

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LOT 77 - QUARRY HOUSE SITE
SITE PLAN REVIEW - 2ND SUBMITTAL

TOLL BROTHERS
CITY OF DUVALL, WASHINGTON

NOT FOR CONSTRUCTION

DRAWN BY: GGV
CHECKED BY: GBW
PROJECT NO.: 2016054
ISSUE DATE: 03/14/2018
REVISIONS:
09/07/2017
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SHEET TITLE:

LANDSCAPE PLANT SCHEDULE

SHEET NUMBER:

L-209

Exhibit 6

		Project: Sherlock Self-Storage		
Review Date:	4/10/18	Project Address:	TBD - North of the intersection of Big Rock Rd & 3rd Ave NE alignment	
Re-Review Date:	N/A	Project Name::	Duvall Urban Village Division I -Non-Block Lot	
			Townhome, Duet, Single Family Attached, Single Family Detached Review	
Reviewer:	ASK			
Kovach Architects		Parcel Number	242606-9067, 242606-9083	
2115 Colby Ave.		File Number	17015	
Everett, WA 98201		Current Zoning:	MU12 Mixed Use - commercial and residential and R8 Residential 8 units per acre	
andrew@kovacharchitects.com		Comprehensive Plan Designation:	CO Commercial and R8 Residential 8 units per acre	
		Review Type:	Peer (Design Review)	
		Regulatory Code:	City of Duvall Municipal Code	
		Section:	Unified Development Regulations	
		Chapter:	14.34 Design Guidelines	Version: UDR Update-February 6th, 2018
		Companion Documents:	Duvall Comprehensive Plan, Downtown Sub-area Plan, City Wide Visioning Plan.	
		Applicability:	Criteria 1. Proposed Development meets criteria for Design Review Process	
		Project Status:	First Checklist Review	
		Initial Review Date:	April 10th 2018	
		Second Review Date:		Note: New comments in blue type
		Conformance Rating	Category	Description
		I	Conforms	Fully meets intent and specific code requirements
		II	High Level of Conformity	Fully meets intent but not specific code requirements
		III	Moderate Level of Conformity	Mostly meets intent but not specific code requirements
		IV	Low Level of Conformity	Somewhat meets intent but not specific code requirements
		V	Non-Conforming	Does not meet intent or code requirements

	Section	Title	Summary	Analysis	Comments / Recommendations	Rating
		Design Guideline				
			Site Review is not part of this Checklist Review and Deferred to Planning			
	14.34.020	**Site Planning**				
	1		Site conditions			
	2		Circulation			
	3		Building variety		v	
	4		Positive site amenities			
	5		Linkage			
		Grading Storm Water Management				
	14.34.030					
		and Site Coverage				
	B.1					
	a.		Minimize cut and fill			
	b.		Terraced grades			
	c.		Minimize retaining walls			
	d.		Planted slope in lieu of retaining			
	e.		Daylight basements			
			Other methods			
	B.1					
	a.		Limited retaining wall height			
	b.		Retaining wall landscaping			
	c.		Retaining wall material			
	d.		"Ecology Block" walls			
	e.		Retaining wall fit			
	f.		Residential retaining wall			
	g.		Retaining wall landscape setback			
	h.		Departures			
		Storm Water Management				
	14.34.030					
		and Sensitive Areas				

	C.1	Open Stormwater ponds				
	a.		Stormwater ponds per standards			
	b.		Stormwater pond screening			
	C.2	Bioswales	Encouraged treatment method			
	D	Site coverage				
	1		Per specific zoning requirements			
	2		Preservation of native vegetation			
	3		Pervious surfaces encouraged			
	14.34.040	**Street Network**				
	A	Pedestrian Facilities				
	1	Purpose				
	2	Sidewalk and Pathway Development Standards				
	14.34.041	**Pedestrian Facilities**				
	B.1	Primary Pedestrian Corridors				
		Main Street frontage				
	a.		12 ft. minimum sidewalk			
	b.		Street trees @ 30 intervals in tree grates			
	c.		Street trees @ 30 intervals in planter strips			
	d.		12-14 ft. high pedestrian lighting			
	e.		Sidewalks not adjacent to public streets			
	B.2	Secondary Pedestrian Corridors				
		Stephens Street frontage				
	a.		10 ft. minimum sidewalk			
	b.		Street trees @ 30 intervals in tree grates or planters			
	c.		12-14 ft. high pedestrian lighting @ 40-60 ft. OC			
	d.		Sidewalks not adjacent to public streets min 8' wide			
	B.3	Interior pedestrian pathways	Minimum 5 ft unobstructed width			
	14.34.042	**New Streets**				
	B.1	Purpose				
	B.2	General Goals				
	a.		Safe and convenient network connected to surrounding area			
	b.		Connection to existing and proposed trail systems			
	c.		prototypical street template			
	d.		Duplicate parallel public/private streets discouraged			
	e.		Mid-block connections			
	f.		Calming strategies			
	g.		Signage			
	h.		Gated Community restrictions			
	i.		Sidewalks and Planters			
	14.34.050	**Lot Standards**				
	14.34.051	**Residential developments**				
	A					
	1	Purpose				
	2	Old Town				
	3	General Standards				
	a.		Variation			
	b.		Porches, stoops ,window projections			
	c.		Architectural Elements			
	d.		Setback Encroachments			
	4	Building Relationship with Street Grade.				
	a.		Finish floor elevations			
	b.		Down slope entries			

	5	Open Space Requirements				
	a.i		Private yards			
	a.ii		Minimum useable yard			
	a.iii		Private yard reduction			
	a.iv		Reciprocal use easement			
	a.v		Minimum open space			
	b.	Common Open Space Requirements				
	b.i	Purpose				
	b.ii (A)		Hierarchy of space			
	b.ii (B)		Distribution			
	b.ii (C)		Variety			
	b.ii (D)		Pathways and features			
	b.iii		25’ Minimum width			
	b.iv		Solar Orientation			
	b.v		Visibility			
	b.vi		Trail bonus			
	b.vii		Pedestrian entry bonus			
	b.viii		Tree preservation			
	b.ix		Ground floor access			
	c.	Reciprocal Use Easements				
	c.i		Recording			
	c.ii		Privacy walls			
	c.iii		Foundation protection			
	6	Parking, Garages, and Vehicular Access				
	a.	Front Loaded Garages				
	a.i		20’ Property line setback			
	a.ii		5’ Building facade setback			
	a.iii		2’ Tuck under setback			
	a.iv		50% Max width of ground level facade			
	a.iv (A)		Cul-de-sac exception			
	a.iv (B)		Steep slope exception			
	a.v		Detached garages			
	b.	Side Loaded Garages				
	b.i	20% Maximum per plat				
	b.i (A)		15’ Front yard setback			
	b.i (B)		Architectural design elements required			
	b.i (C)		Separation to entry access required			
	b.ii		Rear side load garage allowance			
	b.iii		Repeat restriction			
	b.iv		10’ separation requirement @adjacent side entry drives			
	c.	Shared Garages and Driveways.				
	c.i		Where permitted			
	c.ii		Permitted with special provisions			
	c.iii		Assignment of parking space			
	c.iv		44’ max ganged width			
	d.	Additional Driveway Standards.				
	d.i		SFR restrictions for multiple driveways			
	d.ii		Tandem parking allowance			
	d.iii		Alley Access			
	d.iv		20' maximum width			
	d.v		Shared driveways are encouraged			
	7	Utility Placement.				
	a.		Priority accommodations for street design elements			
	b.		Utility appurtenance to be screened/hidden to the furthest extent possible			
	c.		Underground utilizes to allow for street trees and lighting			
	d.		Vaults are prohibited from sidewalk areas			
	e.		Utility boxes to be grouped			
	8	Additional Standards for Multifamily Residential Developments.				
	a.		Primary building entry must face public or open space			
	b.		Individual ground floor entries must face public or open space			
	c.		Must include windows that face public streets or space			
	d.		Special provisions option			
	e.		10' min. residential setback from sidewalks			
	f.		36” high raised ground floor levels above street encouraged			
	g.		Fence setbacks and height limits.			
	9	Additional Standards for Old Town Neighborhood District				

	14.34.052	**Mixed Use and Non-Residential Developments**				
	B	General Site Design				
	1		Compliment adjacent structures			
	2		Environmental respect			
	3		Pedestrian features and interaction			
	4		Pedestrian safety			
	5		Overall Title compliance			
	C.1	Primary Pedestrian Corridors				
	a.		Pedestrian oriented facades			
	b.		Behind building parking			
	C.2	Secondary Pedestrian Corridors				
	a.		Main pedestrian entry			
	b.		Ground floor to be near grade of sidewalk			
	c.		Pedestrian oriented facades			
	d.		Behind building parking			
	e.		Landscape screening			
	f.		Abutting non-residential or mixed use zones			
			Two frontages			
	D	Main Street South of Old Town				
	E	Big Rock Road				
	F	All other streets not designated				
	G	Pedestrian Access				
	1		Sidewalk access			
	2		8 ft. minimum walk			
	3		Multiple buildings entry linkage			
	4		Future linkage opportunities			
	5		Internal elements linkage to public ROW's			
	6		Pedestrian linkage to existing offsite pedestrian ways			
	7		Linkage to City trail systems			
	8		Commercial / residential onsite linkage			
	9.a		Safe pedestrian passage through parking lots			
	b.		Minimum 5' walkways (exclusive of car overhang)			
	c.		Walkway design feature credit for DMC. 14.34.52.D			
	d.		Maximum 14 ft. high pedestrian lighting required			
	e.		Access shall accommodate ADA accessibility standards			
	f.		Articulated crosswalk designation may be required			
	H	Pedestrian-Oriented Spaces				
	1		Accessible public courtyards and plazas			
	2	Qualification				
	a.		Pedestrian access from street to building, parking and courts			
	b.		Concrete or unit pavers required			
	co.	(2-foot candles throughout the space)	Complimentary pedestrian lighting required			
	d.		Seating requirement			
	e.		Space must be located areas strategic to primary pedestrian ways			
	f.		Seasonal interest landscaping			
	3	Encouraged features				
	a.		Pedestrian amenities			
	b.		Pedestrian oriented facades			

	c.		Environmental factors for consideration			
	d.		Optional pedestrian related uses			
	e.		Movable seating			
	4	Prohibited features	Undesirable materials and elements			
	I.	Additional Landscaping Requirements	Main Street landscape screening			
	j.	Parking, Garages, and vehicular Access				
	1		Parking lots to be located behind buildings			
	2		Parking lots to be located behind buildings			
	3		Parking lots to be located away from intersections			
	4		Exceptions to location			
	5		Parking lot scale			
	6		Shared parking encouraged			
	7		Perpendicular aisle alignment to buildings encouraged			
	8		Shared parking access encouraged			
	9		Main Street special driveway regulations			
	10		Main Street access restrictions			
	11		Main Street shared driveways encouraged			
	14.34.060	**Building Design**				
	14.34.061	**Residential developments**				
		Residential Building Design				
	A	Purpose				
	B	General Provisions				
	1	Elevations and Models.				
	a.		Variation and modulation required	Appears to be in compliance.	Variation and modulation requirements have been met for all building types	I
	b.		Model repetition restrictions	Appears to be in compliance.	Model repetition requirements have been met for all building types	I
	c.		Elevation repetition restrictions	Appears to be in compliance.	Mix of unit variation / repetition lends a pleasing balance to overall block massing.	I
	d.		Color and material variation	Color pallets to be provided for review.	Finish material choices provide adequate variation and are overall pleasing	II
	e.		Architectural style variation	Appears to be in compliance.	There is substantial architectural variation throughout the models.	I
	f.		Significant floor plan and modulation variations	Only Crescent Lawn Models have varying floor plan layouts.	Floor plans vary little between building types	IV
	1		Floor plan configurations and massing	Elevational massing has variety	Massing forms are pleasing with a strong sense of variation but little plan variety	IV
	2		Roof Types	Appears to be in compliance.	Substantial variety in roof styles and compositions as proposed	I
	1		Finish Colors	Color palette not provided	Please provide appropriate color palettes	
	2		Siding styles	Appears to be in compliance.	Proposed siding materials are pleasing and complimentary to architectural styles	I
	3		Window configurations/detailing	Appears to be in compliance.	A substantial variety of window styles assemblies are proposed	I
	C	Massing and Composition			and are complimentary to the proposed architectural styles	I
	1		Clear pattern of massing and interest	Appears to be in compliance.	An orderly pattern of massing with plentiful variation and interest is evident	I
	2		Primary and secondary elements	Appears to be in compliance.	A well defined hierarchy of primary and secondary elements has been established	I
	D		One story porch height	Appears to be in compliance.	Pedestrian scale entries and associated elements are proposed	I
	E	Massing and Composition				
	1		Primary forms to be dominant	Appears to be in compliance.	A well defined hierarchy of primary and secondary elements has been established	I
	2		Secondary forms to be proportional	Appears to be in compliance.	Complimentary scale between primary and secondary elements is evident	I
	3		Primary porch to be one story and proportional to main structure	Appears to be in compliance.	Pedestrian scale entries and associated elements are proposed	I
	4		Multistory porches allowed if appropriate to building scale	N/A	None provided	
	F	Building Modulation				
	1	Multifamily Residential Buildings				
	a.		Modulation requirements	N/A		
	b.		Modulation options	N/A		
	c.		Dormers and interrupted rooflines	N/A		
	d.		Primary facade physical breaks	N/A		
	2	Attached and detached residential buildings				
	a.		Modulation requirements	Rear and side elevations are frequently non-conforming where visible per code definitions.	Please review non-conforming instances and propose remedial action.(1)	IV
	b.		Modulation locations	Rear and side elevations are frequently non-conforming where visible per code definitions.	Please review non-conforming instances and propose remedial action.(1)	IV
	c.		Change in materials/colors/details allowances	Rear and side elevations are frequently non-conforming where visible per code definitions.	Please review non-conforming instances and propose remedial action.(1)	IV
	d.		Number of joined units (8 max)	Appears to be in compliance.		I
	G	Entries			(1) Note: remaining elevations are in conformance	
	1		Covered porches and stoops required	Some models are in conformance others do not appear to be.	Please review non-conforming instances and propose remedial action.(1)	III
	2		Architectural design must be integrated	Appears to be in compliance.	All proposed porch's and stoops are well integrated	I
	3		Porch and stoop size	Some models are in conformance others do not appear to be.	Provide calculations for non-compliant instances	I
	a.	Porch	48 sq. ft min (6'w x 8'd)			
	b.	Stoop	30 sq. ft. min. (6'w x5'd)			

	4	Porches and stoops	To be raised 18” above grade	Appears to be in compliance.	Please confirm requirement is uniformly met or provide narrative for code deviation	II
			Wrap round porch on corner lots	Appears to be in compliance.		I
	H	Decks				
	1		To be architecturally integrated with main structure	Appears to be in compliance.		I
	2		To key into primary structure	Appears to be in compliance.		I
	a.		To be architecturally integrated with main structure	Appears to be in compliance.		I
	b.		To key into primary structure	Appears to be in compliance.		I
	c.		Minimum support thickness of 7.25” w10’ max unsupported height	Appears to be in compliance.		I
	d.		Covered deck structures to be architecturally integrated with primary roof	Appears to be in compliance.		I
	i	Roof Pitch	To be residential in character	Appears to be in compliance.		I
	1		Minimum 12” overhangs	Appears to be in compliance.		I
	J	Architectural Details				
	1	Doors				
	a.		Entry doors to match architectural style of building	Appears to be in compliance.		I
	b.		Panels or inset glass required on entry doors	Appears to be in compliance.		I
	c.		Sliding glass entry doors prohibited	Appears to be in compliance.		I
	d.		3 1/2” trim required at all entry doors	Additional Detail to be provided	Please confirm compliance or argument for proposed	
	2	Primary Windows				
	a.		Vertical orientation required	Appears to be in compliance.		I
	b.		Window trim required throughout	Appears to be in compliance.		I
	c.		Trim to be 3 1/2” min and complimentary to architectural style of building	Appears to be in compliance.		I
	d.		Vertical windows may be ganged	Appears to be in compliance.		I
	e.		Divided lite windows encouraged	Appears to be in compliance.		I
	3	Chimneys	Chimney’s to compliment architectural style of building	Appears to be in compliance.		I
	a.		20”x24” min. cross section above roof dimension	Appears to be in compliance.		I
	b.		Metal cap shrouds required	Appears to be in compliance.		I
	c.		Chimney shape and materials to compliment architectural style of building	Appears to be in compliance.		I
	4	Columns, Trim and Corner boards				
	a.		Trim detailing and materials to compliment architectural style of building	Appears to be in compliance.		I
	b.		Exposed 4x4 and 6x6 posts prohibited	Appears to be in compliance.		I
	c.		Metal or wood corner clips/boards required	Appears to be in compliance.	Where appropriate to the siding material	I
	d.		2 1/2” min corner board width	Appears to be in compliance.	Where appropriate to the siding material	I
	5	Architectural Detail and Features	To provide elements of human interest			
	a.		Shutters	Appears to be in compliance.	Where appropriate	I
	b.		Flower boxes	Appears to be in compliance.	Where appropriate	I
	c.		Knee braces	Appears to be in compliance.	Where appropriate	I
	d.		Columns	Appears to be in compliance.	Where appropriate	I
	e.		Trellises	Appears to be in compliance.	Where appropriate	I
	6	Trash and Recycling Containers				
	a.		Within garages or screened enclosures	Additional Detail to be provided		
	b.		Prohibited in front yards	Additional Detail to be provided		
	c.		Locate to minimize odor and visibility	Additional Detail to be provided		
	d.		To be easily accessed by residents	Additional Detail to be provided		
	e.		Enclosures to be made of wood/masonry. Chin link prohibited	Additional Detail to be provided		
	7	Mail and Newspaper Boxes.				
	a.		Design and materials to compliment architectural style of building	Additional Detail to be provided		
	b.		To be well lit, accessible and non obstructive to walkways	Additional Detail to be provided		
	c.		To be clustered and architecturally enhanced and complimentary with buildings	Additional Detail to be provided		
	8	Accessory structures				
	a.		Design and materials to compliment architectural style of building	Appears to be in compliance.	None Proposed	I
	b.		12’ max height/18’ max height w/ pitched roof	Appears to be in compliance.	None Proposed	I
	c.		Portable storage containers prohibited	Appears to be in compliance.	None Proposed	I
	K	Materials				
	1		Vertical material transitions to wrap corners	Appears to be in compliance.		I
	2		Horizontal material transitions to have separation trim	Appears to be in compliance.		I
	3		Acceptable materials	Appears to be in compliance.		I
	4		Trim requirement and materials	Appears to be in compliance.		I
	5		Finish materials to wrap corners	Appears to be in compliance.		I
	L	Color				
	1		Multiple colors to be used	Additional detail required.	Please provide appropriate color palettes	
	2		Muted colors to be dominant	Additional detail required.	Please provide appropriate color palettes	
	3		Grey's and beige colors to be secondary	Additional detail required.	Please provide appropriate color palettes	
	4		Color palettes to be submitted for approval	Additional detail required.	Please provide appropriate color palettes	
	14.34.062	**Mixed Use and Non-Residential Developments**		N/A (Residential Development)		

	B	Purpose and Design intent	Preserve and enhance village character in OT, foster			
			innovative yet regionally complimentary expression elsewhere			
	2	Applicability	Zones (includes OT)			
	3	Massing and Composition				
	a.		Clearly defined base, middle and top			
	b.		Primary entries require focal expression			
	c.		Multi-tenant buildings to express individual storefronts			
	d.		Primary uses to focus toward street frontage			
	e.		Buildings with split entries must establish a primary entry			
	f.	Parapets to avoid false front appearance				
	i		Parapets must be integrated with overall massing/design			
	ii		Back sides of parapets must not be visible to public areas			
	g.		Overhead balconies are encouraged but subject to review			
	h.		Roof slopes to be broken up by secondary building elements			
	4	Building Modulation				
	a.		50 ft. minimum building modulation			
	b.		75% fenestration required			
	c.		Pedestrian-oriented spaces to be integrated with building design			
	d.	Zone specific façade requirements	Including OT district			
	i		25 ft. lot rhythm required			
	ii		Design elements that enhance a 25 ft. rhythm required			
	iii		Rooflines to enhance a traditional building lot pattern			
	iv		Material/color changes to enhance a traditional building lot pattern			
	v		Modulation to enhance a traditional building lot pattern			
	vi		Other means available per Planning Director			
	5		Prominent cornice required &50 ft. max. roofline w/o modulation.			
	6		6/12 minimum roof slope			
	7		Hip roofs are discouraged			
	5	Blank Wall Treatments				
	1		Blank walls are prohibited			
	i		Doors and windows			
	ii		Display windows			
	iii		Landscape plantings			
	iv		Landscape trellis			
	v		Other methods			
	6	Building Details				
	a.		Requirements for new buildings to be substantially provided			
	i		Display Windows			
	ii		Transom windows			
	iii		Recessed windows			
	iv		Decorative weather protection features			
	v		Upper and lower level distinction			
	vi		Window bays			
	vii		Recessed entry			
	viii		Sills			
	ix		Pilasters			
	x		Landscape trellises			
	xi		Decorative light fixtures			
	xii		Decorative finish materials			
	xiii		Artwork			

	xiv		Other approved details			
	b.		Include decorative signage keeping with the style of the building			
	c.		6' wide protective awnings over all sidewalks			
	7	Building Materials and Colors				
	a.		High quality and durable			
	b.		Metal to be trimmed and in combination with other durable materials			
	c.		Concrete block restrictions			
	d.		Stucco restrictions			
	e.	Prohibited materials				
	i		More than 10% mirrored glass			
	ii		Plywood siding			
	iii		Stucco board			
	iv		Window film			
	f.		Bright colors are discouraged			
	g.		Color selections samples to be submitted for review			
	h.		Linear building lighting prohibited @ facades and rooflines			
	I.		Facades shall not be designed to resemble logos			
	8	Additional Commercial Building Standards				
	a.		Additional building modulation			
	b.		Significant focal elements			
	c.		Vertical modulation			
	d.		Roof modulation			
	e.		Finish material variety			
	f.		Accessories and features following rhythm of modulation			
	g.		Repetitive distinctive window patterns			
	h.		Other approved methods			
	9	Service areas				
		All utilities and service areas shall:				
	a.		Be enclosed and screened			
	b.		Have doors			
	c.		Compliment building design and materials			
	d.		Be practically located			
	e.		Shall not interfere with primary purpose of development			
	f.		Be sized to meet project needs			
	g.		Shall accommodate recycling			
	h.		Be approved by refuse purveyor			
	i.		Shall be landscaped on 3 sides			
	j.		Service and loading berths to not interfere with pedestrian ways			
	k.		Service areas shall be sited for convenient use and access			
	l.		Roof Mounted equipment to be located away from public view			
	m.		Roof Mounted equipment to be screened from public view			
	10	Non-Residential Signage				
		Shall be as follows:				
	a.		Compliment the character and scale of the project			
	b.		Be compatible to scale of the building design and adjacent signs			
	c.		Compliment the building colors			
	11	Non-Residential Lighting				
		Shall be as designed follows:				
	a.		To ensure safety and security, and encourage activity			
	b.		Lighting color selection restrictions			
	c.		Accent architectural and landscape lighting encouraged			
				End of Section		

Exhibit 7

14.62.035 - Planning commission criteria.

A. The planning commission shall review site plan applications to ensure that they are generally in compliance with DMC 14.34.060, Building design, and DMC 14.34.050.B.8, Pedestrian-Oriented Space. The director can also request planning commission review of additional site plan criteria.

B. Staff shall include a recommendation from the planning commission to the hearing examiner. Such recommendation shall be included in a staff report. Staff can agree or disagree with the planning commission's recommendation and should note their position in the staff report.

(Ord. No. 1107, § 2, 12-9-2010)

Exhibit 8

Chapter 14.34 - DESIGN GUIDELINES

Sections:

14.34.010 - Administration.

A. Authorization and Purpose. The following design guidelines are intended to:

1. Provide clear objectives for those embarking on the planning and design of projects in Duvall;
2. To implement the Duvall comprehensive plan, the downtown subarea plan and the city-wide visioning plan by promoting high quality design and development;
3. To provide a unique visual identity for the city and its neighborhoods;
4. To protect and enhance the city's pleasant environments for living, working, and shopping activities;
5. To implement the Duvall comprehensive plan, the downtown subarea plan and the city-wide visioning plan as they apply to site plan layout and building design;
6. Encourage flexibility and innovation in site design and development that promotes a neighborhood context in keeping with and enhancing Duvall's character;
7. To ensure that site layout and building design is properly related to their sites and surrounding sites and structures, taking into consideration the natural terrain; and
8. To ensure that streetscapes are adequately and attractively designed and landscaped.

B. Applicability. The design standards apply as listed below unless otherwise noted within a specific section.

1. All new developments and/or construction, including but not limited to projects that require the following land use permits: master development plan, site plan, long or short subdivision, conditional use permit, variance, development agreement, building permit, or a grading permit.
2. All remodels whose value exceeds fifty (50) percent of the value of the existing structure, as determined by the city of Duvall valuation methods, shall be designated as "major exterior remodels." All standards that do not involve repositioning the building or reconfiguring site development, as determined by the director, shall apply to major exterior remodels.
3. For minor exterior remodels with value less than fifty (50) percent of the building valuation ("minor exterior remodels"), the requirement is only that the proposed improvements meet the standards and do not lead to further nonconformance with these standards.
4. These standards do not apply to remodels that do not change the exterior appearance of the building. However, if a project involves both exterior and interior improvements, then the project valuation shall include both exterior and interior improvements.
5. Existing nonconforming structures shall not be made further nonconforming regardless of scope of work. Existing conforming structures may not be made nonconforming by way of exterior alterations.

C. Process.

1. These standards should be reviewed at the beginning of the planning or design process and are intended to make applicants aware of the design issues that warrant early consideration. Early informal presentations of preliminary design concepts and dialogue with city staff is encouraged.

2. This chapter is part of the unified development regulations in the Duvall Municipal Code (DMC). Where there is a conflict between this chapter and other provisions of the DMC, the most specific standard or regulation shall apply, as determined by the planning director.

3. All permit applications shall be reviewed in accordance with DMC Chapter 14.08, Permit Processing.

D. Intent and Standard Application. Each section of the design standards contains a list of purpose statements followed by standards. Purpose statements are overarching objectives, whereas the standards act as development regulations. They use words such as "shall," "must," "is/are required," or "is/are prohibited," and signify required actions. If a standard uses words such as "should" or "is/are recommended," it signifies that it is meant to be applied with some flexibility. Development projects must comply with all standards unless departures are granted by the planning director.

E. Departures. The planning director may require or allow departures from required standards in the following circumstances:

1. Where unique natural features or unique lot configuration makes it extraordinarily difficult to conform to the standards;

2. Where the project is equal or superior in design to that allowed under the general application of these standards and is consistent with the design standards, as well as all other city standards;

3. In each case above, the applicant must utilize other methods per the planning director's satisfaction that meet the intent of the applicable standard(s); and

4. Where departures involve site grading or other engineering issues, the departure shall be reviewed and approved by the planning and public works directors.

(Ord. 1056 § 1 Exh. A (part), 2007)

14.34.020 - Site planning—Principles.

A. Purpose. The purpose of this section is to provide general guidance in the layout of new developments to ensure that they provide a logical organization of streets, parking, landscaping, stormwater, parks, pedestrian connections, and other public spaces, and provide for the safe, convenient and attractive use of private and public parcels within the development.

B. General Site Planning Principles. All development shall submit a detailed site plan illustrating the proposed location and dimensions of new building blocks and lots, streets, alleys and other public rights-of-way, related parks and public spaces, and areas for utilities, storm ponds, vaults, or site infrastructure. The site plans shall be designed to result in the creation of a cohesive and integrated plan for the proposed uses, responding to adjacent land uses and organizing the site to use the public realm of streets, parks and other common areas to promote a sense of community and a unique sense of place. The detailed site plan shall demonstrate that the development includes the following elements:

1. A unifying organization that takes into account site conditions (e.g., topography, slopes, streams, wetlands) and adjacent land uses;

2. Convenient and connected pedestrian and vehicular circulation, including a range of street types, pedestrian pathways, and trails that support a variety of street and frontage types;

3. A variety of building types, with assorted floor plans and elevations that complement the village character of Duvall and enhance adjacent uses and buildings;

4. Facade designs, landscaping, usable open space and other common amenities that serve to organize the site, create points for community gathering, and incorporate screening, environmental mitigation, utilities, and drainage as positive amenities in the overall site design;

5. Where abutting developed land provides road stub-outs, easements, or other methods to provide the opportunity for future road connections, the interior street, sidewalk and trail network of new development shall be designed to link up to those connections and provide a clear public path of travel for both vehicles and pedestrians, unless there are site constraints such as topography or sensitive areas that make such connections infeasible.

(Ord. 1056 § 1 Exh. A (part), 2007)

14.34.030 - Grading, stormwater management and site coverage.

A. Purpose. The purpose of this section is to minimize soil disturbance, integrate new developments into the natural terrain, contain and manage stormwater runoff on-site, and minimize impermeable site area.

B. Grading and Retaining Walls.

1. Developments shall work with the site topography in determining the final grade for the site. Minimal grading is essential to developing sites that are integrated into the natural environment. If possible, roads should follow existing contours and grading should be minimized by the design of the structures. Filling and grading shall control stormwater runoff impacts to adjacent properties, and shall preserve existing significant trees wherever possible. Mass grading and clearing for the purpose of establishing flat building lots is not permitted. Techniques to accomplish this are as follows:

a. Sites shall be designed to blend into the existing topographic contours and shall minimize cuts and fills;

b. Divide large grade changes by a series of benches and landscaped terraces (see Figure 14.34.1); parking lots, for example, can be terraced and incorporate landscaping beds rather than creating one long sloped lot;

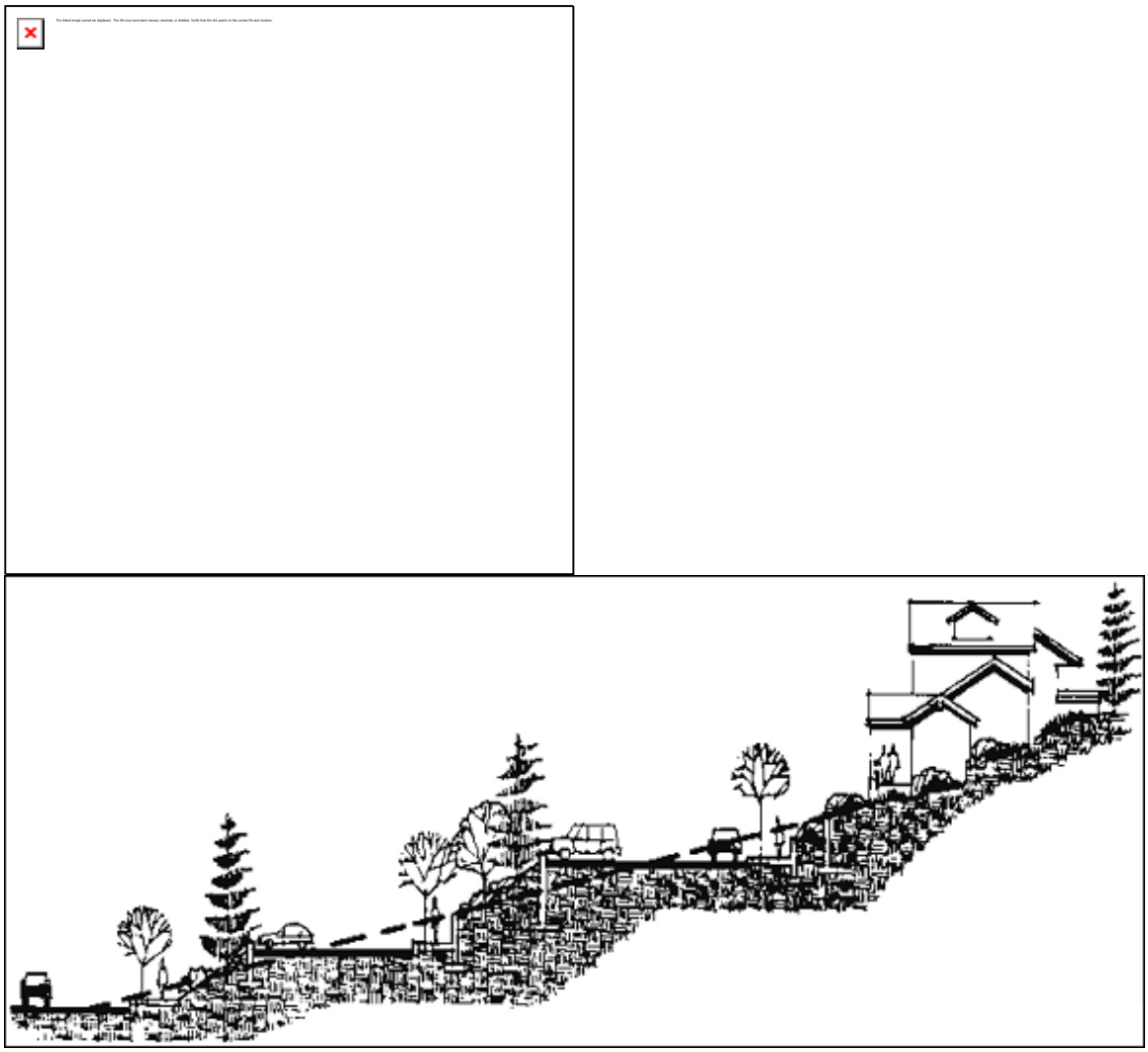


Figure 14.34.1: Terracing

c. Use a planted stable slope of not more than three horizontal to one vertical rather than a retaining wall, unless an exception is granted by the public works and planning directors;

d. On steeper sites, tuck-under garages and daylight basements are encouraged and may be required to integrate homes into existing topography and minimize mass grading (see Figure 14.34.2); or

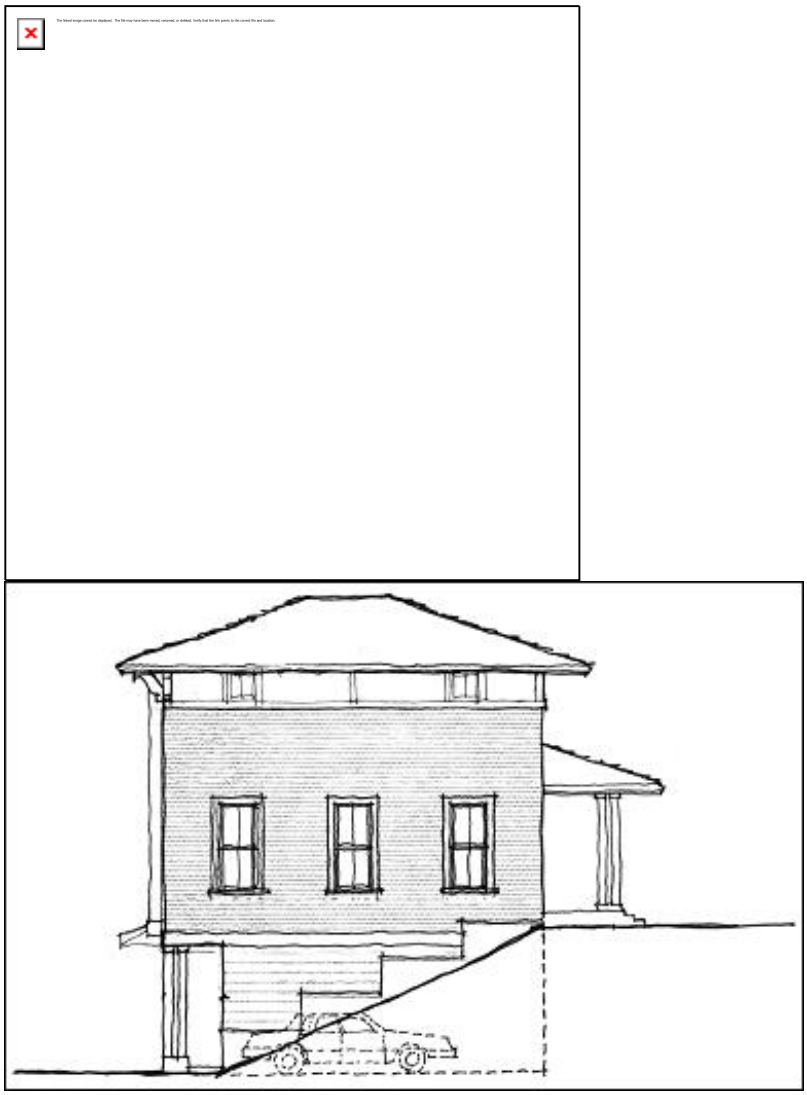


Figure 14.34.2: Tuck-under Garage

e. Other methods as approved by the public works and planning directors that meet the purpose of this chapter.

2. Retaining Walls. The following standards apply to all retaining walls greater than three feet in height:

a. Retaining walls shall be limited to no more than two four-foot terraced walls within one hundred (100) horizontal feet of one another.

b. Retaining walls shall be set back a minimum of three feet from adjacent public rights-of-way. The area between the right-of-way and the retaining wall shall be landscaped and maintained per city standards in DMC Chapter 14.38. If private agreements are reached with utility companies and written documentation is provided to the city, retaining walls can be located to the back of the right-of-way as determined by the public works and planning directors.

c. Retaining walls visible from a public right-of-way or adjacent property shall be rock, keystone-style, concrete or textured/patterned wall styles as approved by the city. Retaining walls shall be landscaped in accordance with DMC Chapter 14.38.

d. Large block walls (ecology block style) are not permitted where the retaining wall is visible from a public right-of-way.

e. Retaining walls shall be designed to fit their surroundings and complement existing conditions.

f. For residential lots, retaining walls shall be:

   i. Composed of brick, rockery, CMU or landscape block or a combination of either with a masonry product. Concrete may be used for retaining walls three feet in height or less. Other materials may be used with the approval of the planning and public works directors.

   ii. There shall be a minimum of ten (10) feet between the rear of a residential building and any retaining wall. To the greatest extent feasible, rockeries shall be located on property lines.

   iii. For residential lots, retaining walls and associated drainage shall be located on the down-slope lot unless otherwise approved.

g. On commercial lots, there shall be a minimum three-foot landscaped setback in front of a retaining wall.

h. Departures may be considered by the public works and planning directors if it is determined that no other solution is feasible.

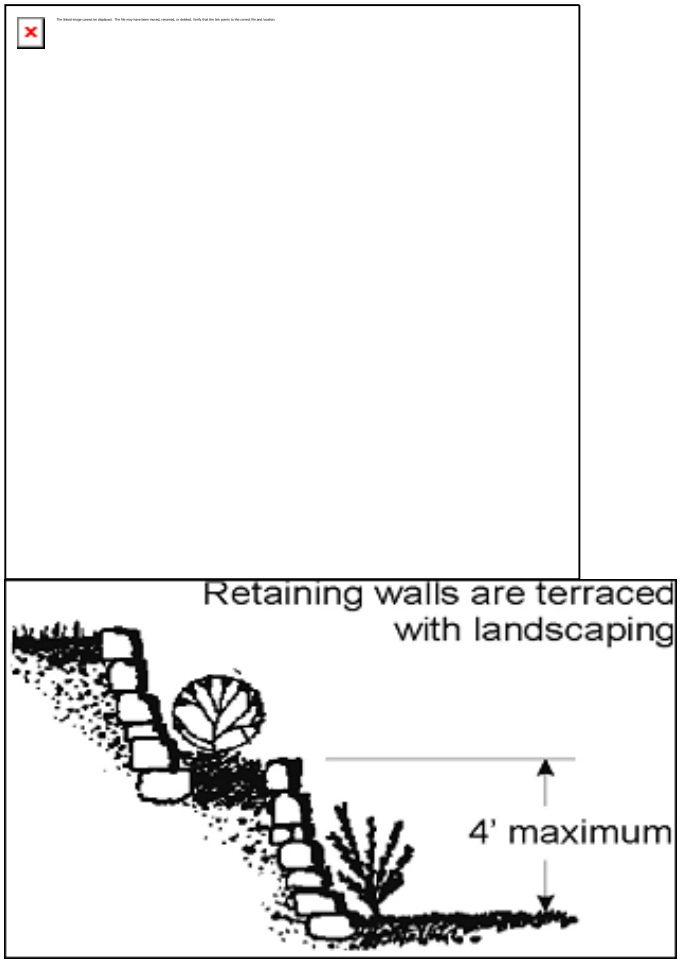


Figure 14.34.3: Recommended Retaining Wall Materials

C. Stormwater Management and Sensitive Areas.

1. Stormwater Ponds. Open stormwater facilities (ponds and bioswales) shall be designed as a landscape amenity and shall provide a natural appearance through layout, design and landscape treatment.

   a. Stormwater ponds shall be designed, constructed, and maintained per the city of Duvall design standards. When a fence is needed (where slopes are greater than 3:1) around the perimeter of a stormwater pond, solid board or chain link fence with slats are prohibited. A dark vinyl coated chain link fence or similar fence is acceptable. These fence types will allow vegetation to grow through and shall be used in conjunction with landscape screening described below. Rectangular fence layouts are discouraged.

   b. Stormwater ponds shall be screened in accordance with DMC Chapter 14.38, Landscaping.

2. Bioswales. Bioswales are encouraged throughout developments to treat runoff, improve water quality, and minimize or eliminate the size of detention ponds or vaults (see Figure 14.34.4). If used, bioswales shall be integrated into the overall site and landscape design, meet the city's design criteria for water quality treatment, and shall either be grassed lined or landscaped with appropriate species.

Figure 14.34.4: A Bioswale with Native Vegetation

D. Site Coverage. The layout of new developments shall minimize impervious surface area in order to maximize stormwater infiltration and reduce the amount of stormwater that is transferred off-site.

1. The maximum percentage of total impervious surface for developments shall be consistent with the requirements of the individual zone districts.

2. On-site native vegetation shall be preserved to the greatest extent possible to protect the aesthetic qualities of the region, to protect aquifers and provide wildlife habitat, and to prevent detrimental runoff to adjoining properties, streams, and other sensitive areas.

3. The use of pervious surfaces is encouraged. Porous concrete, porous paving stones, reinforced turf, crushed gravel with soil stabilizers, and paving blocks with planted joints are examples of acceptable materials that can be used for driveways, pathways, sidewalks, and patios. Use of these materials within the public right-of-way shall be subject to approval of the public works director.

(Ord. 1056 § 1 Exh. A (part), 2007)

14.34.040 - Street network.

A. Pedestrian Facilities.

1. Purpose. The purpose of this section is to establish minimum standards to achieve the following goals: improve and enrich the pedestrian environment by making it inviting, safer, and more comfortable to walk throughout the city; promote walking both as a social activity and an alternative to driving; improve pedestrian connections to and from transit stops; and enhance pedestrian access and the character of the street by establishing minimum sidewalk and pathway standards.

2. Sidewalk and Pathway Development Standards.

a. Primary pedestrian corridors are those streets and corridors that are intended for a concentration of pedestrian activity. Designated primary pedestrian corridors include Main Street; NE Stella Street between Railroad Avenue NE and Main Street, NE Richardson Street corridor, and Big Rock Road between Main Street and 275th Avenue NE (see Figures 14.34.7 and 14.34.8).

i. Twelve (12) foot minimum width sidewalk with eight feet of unobstructed width. Where rights-of-way are insufficient to provide the required widths, buildings shall be set back to meet sidewalk requirements (see Figure 14.34.5).

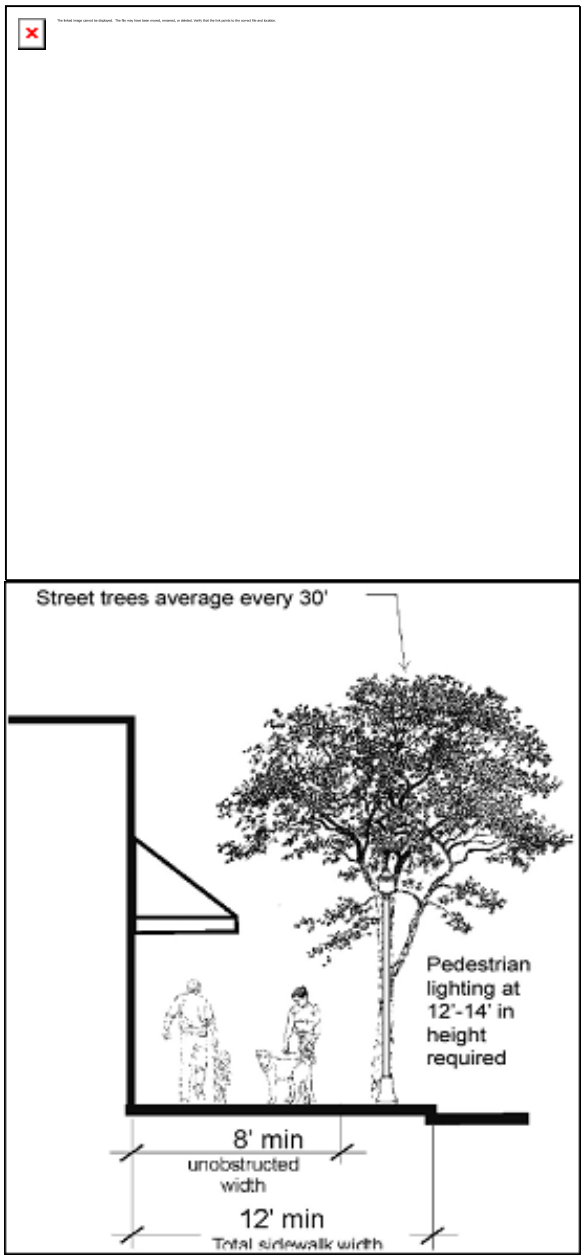


Figure 14.34.5: Sidewalk Requirements Primary Pedestrian Corridors

ii. Streetscape north of Coe Clemmons Creek. Street trees shall be placed at an average of thirty (30) feet on center and placed in tree grates. Consistent with the design of the site and integration of the landscaping, the planning director may allow trees and other landscaping materials on the site or in the right-of-way to be clustered.

iii. Streetscape south of Coe Clemmons Creek. Street trees shall be placed in landscape strips at an average of thirty (30) feet on center. Where space is available, landscape strip shall be a minimum width of eight feet to create a safe pedestrian environment.

iv. Pedestrian lighting at twelve (12) to fourteen (14) feet in height shall be required.

v. Sidewalks and pathways along the facade of mixed use and commercial buildings more than one hundred (100) feet in width (measured along the facade) that are not located

adjacent to a public street shall provide sidewalks that meet primary pedestrian corridor standards identified above.

b. Secondary pedestrian corridor are those streets in Old Town Mixed Use (OT), Midtown (MT), Uptown (UT-1), commercial (CO), Riverside Village (RIV), mixed use 12 (MU12), and Mixed Use Institutional (MUI) zoning districts that are not designated primary pedestrian corridors (see Figures 14.34.7 and 14.34.8) but that are intended for pedestrian activity at a lesser scale than that occurs on primary pedestrian corridors.

   i. Ten (10) foot minimum width sidewalks with six feet of unobstructed width. Where rights-of-way are insufficient to provide the required widths, buildings shall be set back to meet sidewalk requirements (see Figure 14.34.6).

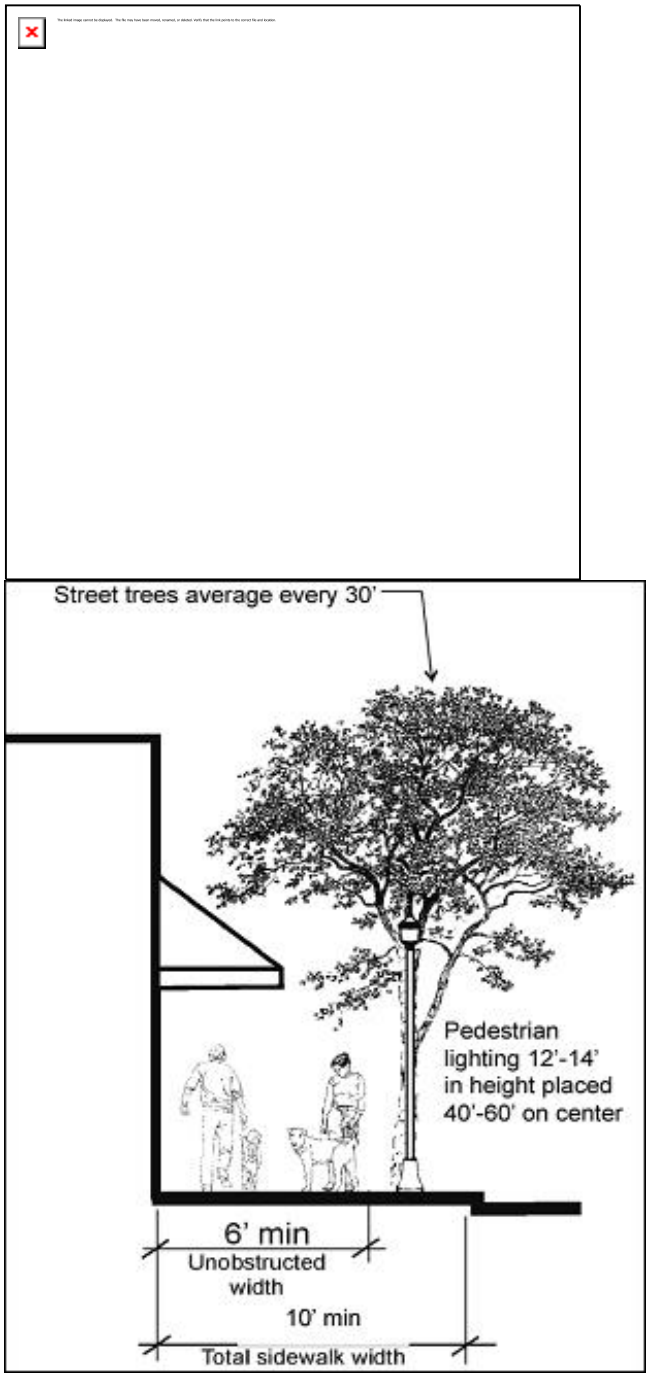
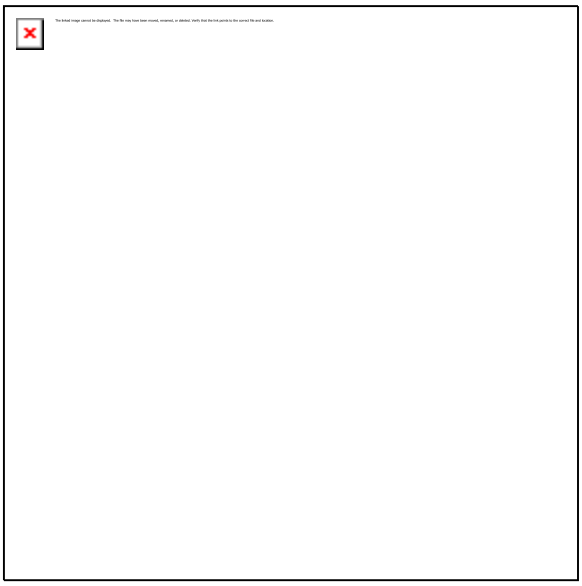


Figure 14.34.6: Sidewalk Requirements Secondary Pedestrian Corridors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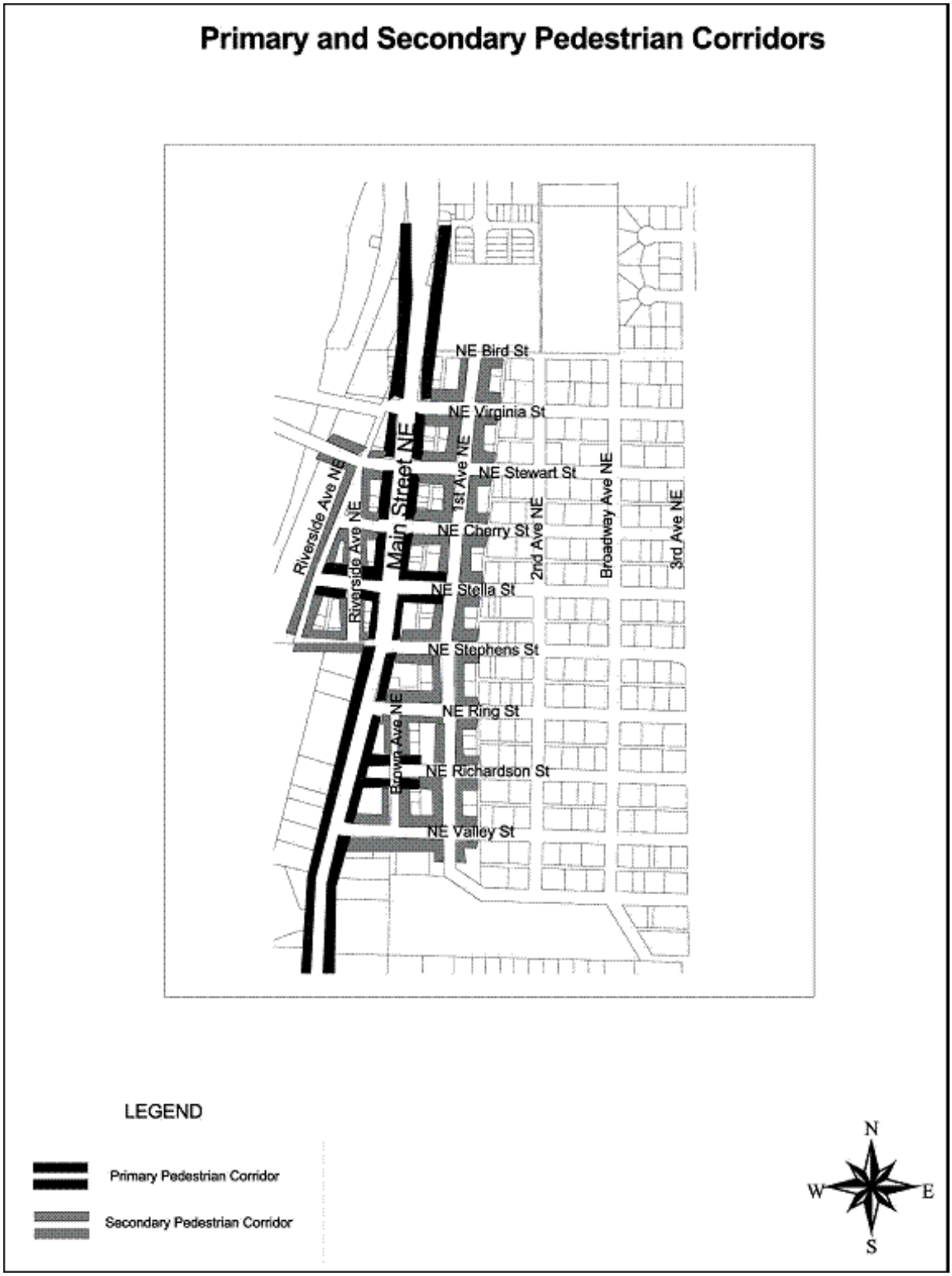

Figure 14.34.7: Primary and Secondary Pedestrian Corridors North of Old Town

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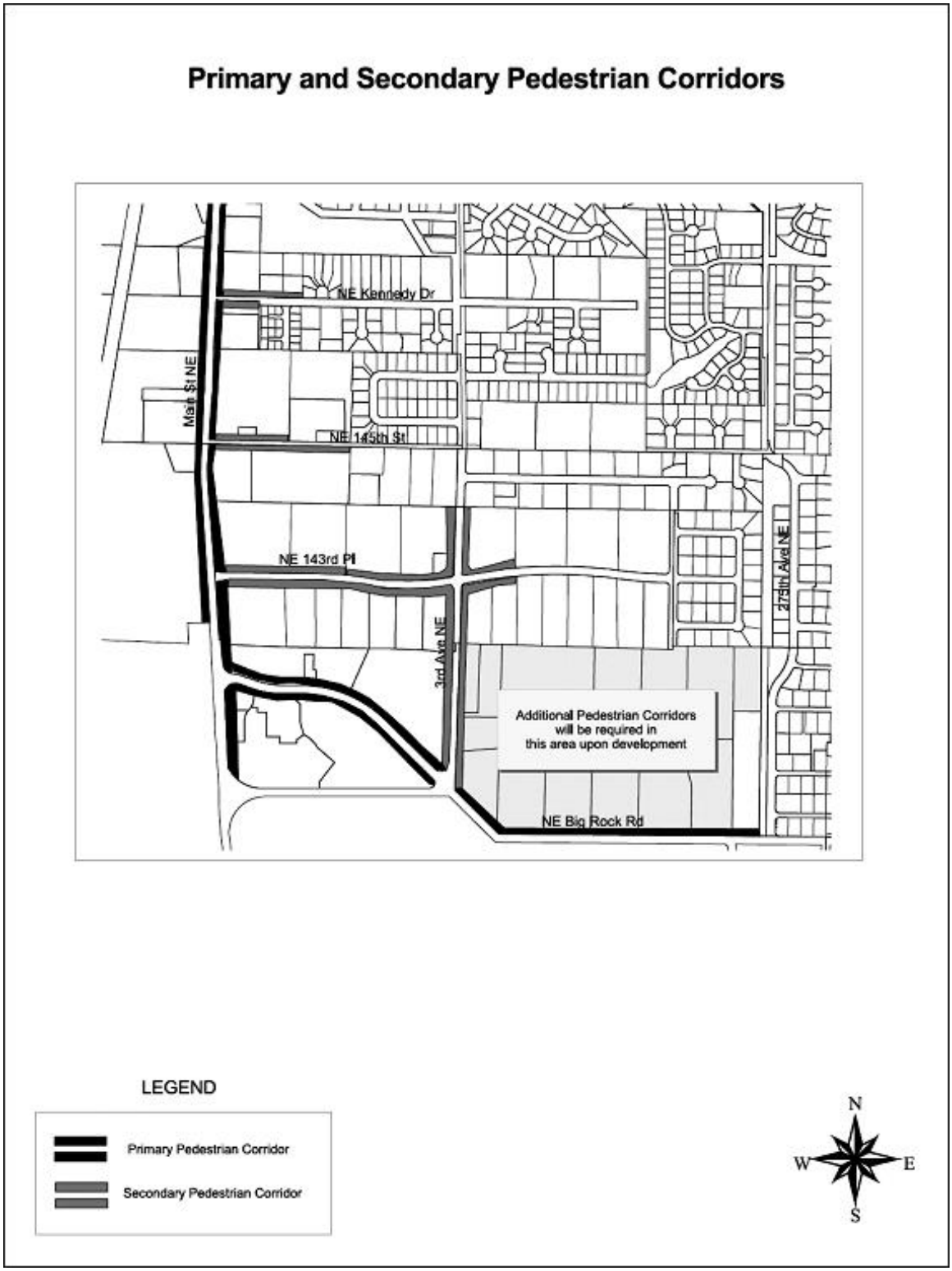


Figure 14.34.8: Primary and Secondary Pedestrian Corridors South of Old Town

ii. Street trees shall be placed at an average of thirty (30) feet on center. Trees must be in grates unless there is space for planting strips at least five feet in width. Consistent with

the design of the site and integration of the landscaping, the planning director may allow trees and other landscaping materials on the site or in the right-of-way to be clustered.

iii. Pedestrian lighting, twelve (12) to fourteen (14) feet in height, shall be placed forty (40) to sixty (60) feet on center, subject to approval of the planning and public works directors.

iv. For all other interior pathways, the applicant shall successfully demonstrate that the proposed walkway is of sufficient width to accommodate the anticipated number of users. At a minimum, walkways shall feature eight feet of unobstructed width and meet the surfacing standards of the public works development design standards. A two-foot reduction may be considered based on the design and orientation of the building.

c. For all other interior pathways, the applicant shall successfully demonstrate that the proposed walkway is of sufficient width to accommodate the anticipated number of users. At a minimum, walkways shall be a minimum unobstructed width of five feet and meet the surfacing requirements of the public works development design standards.

B. New Streets.

1. Purpose. The purpose of this section is to establish appropriate design principles for the layout and configuration of new streets. These guidelines are applicable to all new developments that include the development of new streets, public or private, and are constructed to serve new development.

2. General Goals. Where new development requires the creation of new rights-of-way to facilitate access to property, the development shall make use of a hierarchy of street types including neighborhood streets, private access drives, access lanes, and alleys and pedestrian pathways as described in Figure 14.34.9. New interior access roads are required to be designed as fully developed city streets, including curbs, sidewalks, lighting, street trees, and landscaping, and consistent with the city of Duvall's roadway design standards. In addition to technical engineering requirements, the design of new streets should strive to preserve public safety by encouraging a safe, attractive walking environment and incorporating traffic calming techniques into their design.

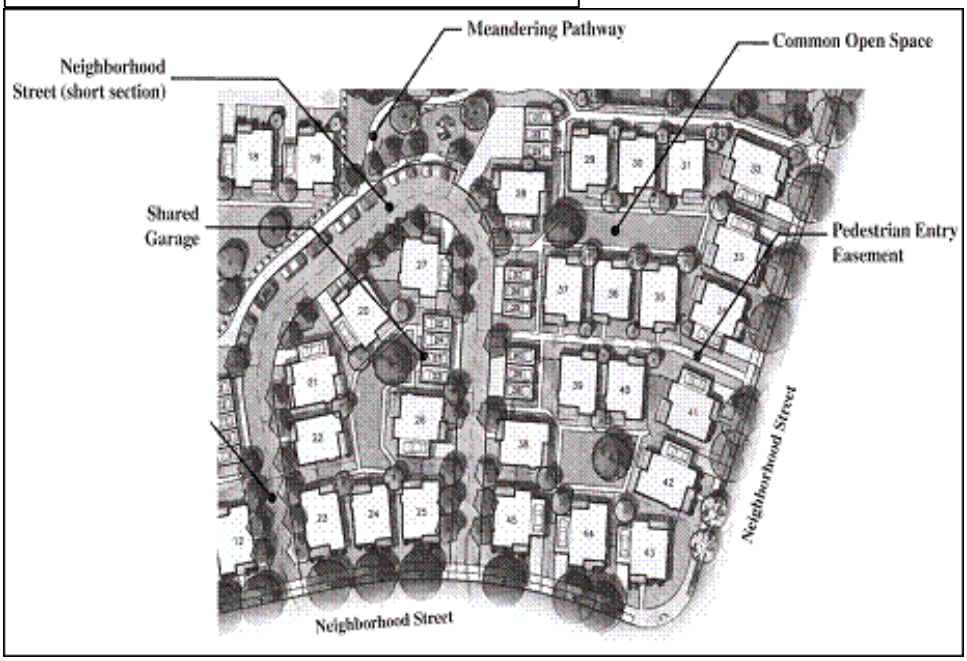
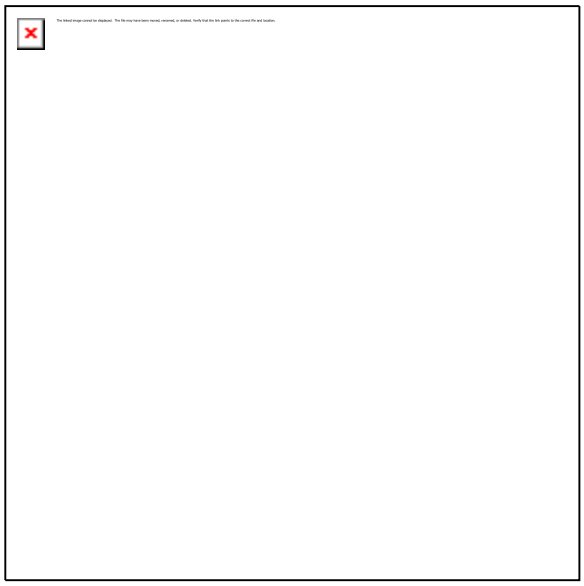


Figure 14.34.9: An Example of Development with a Good Hierarchy of Street Types

a. Developments shall provide a safe and convenient network of vehicular and pedestrian/bicycle circulation that connects to the surrounding road/access network, pedestrian/bicycle facilities and adjacent parcels.

b. New development is encouraged to provide pedestrian connections to facilitate access to existing and planned trail systems, especially the Snoqualmie Valley Trial.

c. The design of new streets should be based on the prototypical street sections described in Figure 14.34.10.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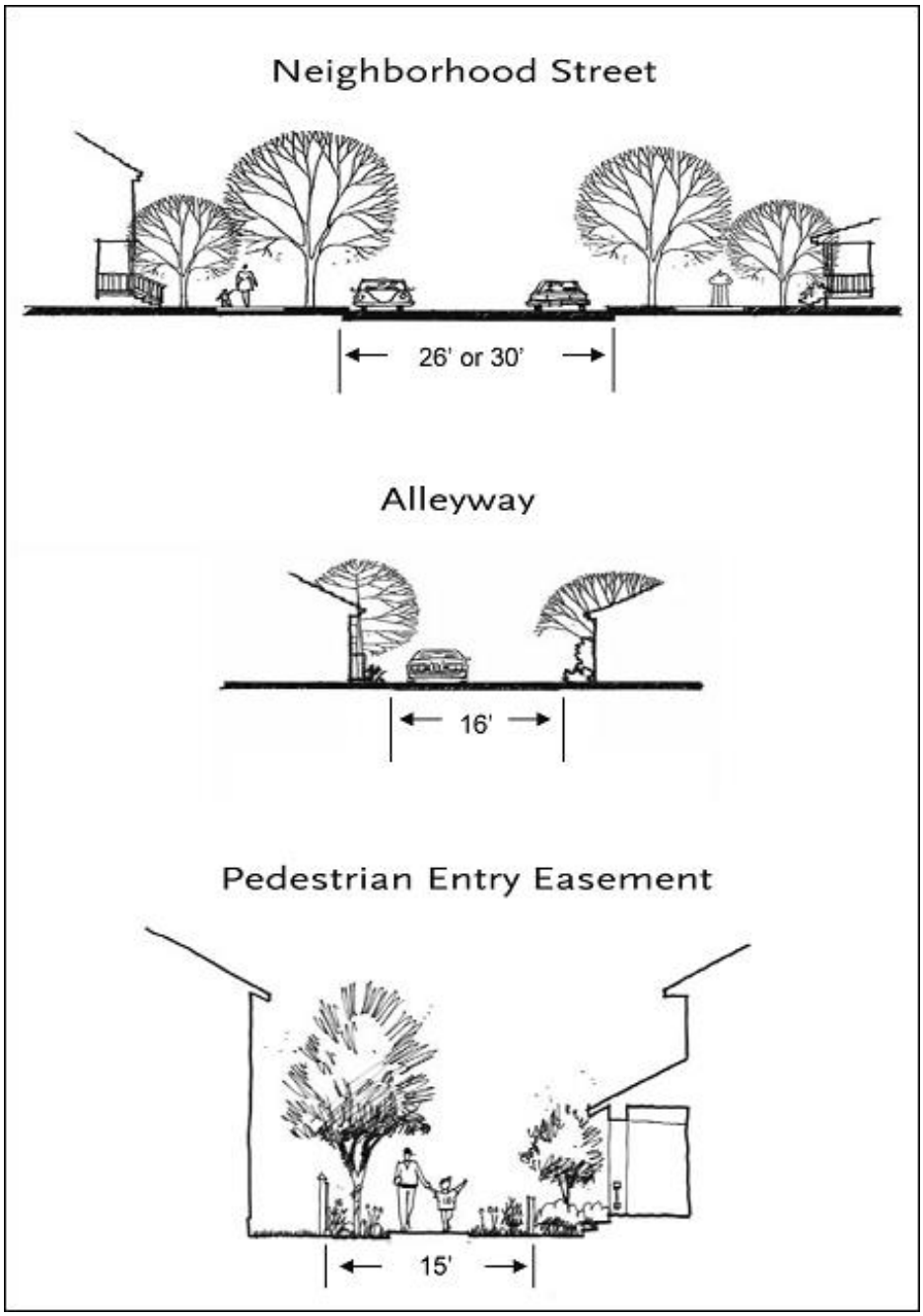


Figure 14.34.10: Street Types

d. Interior Streets. Interior access ways within a development shall not be located parallel to the adjacent public right-of-way unless parking or buildings are located between the public right-of-way and the interior road/driveway.

e. Block Length. Block lengths in excess of four hundred (400) feet shall be interrupted at midpoint with a pedestrian pathway or other pedestrian access or mid-block opening, as approved by the planning director.

f. Calming Strategies. To calm traffic and create shorter and safer crosswalks, bulb-outs shall be used at intersections and where pathways cross a neighborhood street. Driving lanes in

between bulb-outs must follow applicable city road design standards to allow a passageway for emergency vehicles.

g. Signage. All public roads shall have postings that clearly identify their names, where on-street parking is permitted or prohibited, and other relevant traffic information.

h. Gated Community. Gated communities are prohibited to maintain an integrated street network.

i. Sidewalk and planter strips are required on both sides of the street in subdivisions. The sidewalk and planter strip shall each be a minimum width of five feet.

(Ord. 1056 § 1 Exh. A (part), 2007)

14.34.050 - Lot standards.

A. Residential Developments. The following standards apply to residential buildings in the R4—R12, and MU12 zoning districts.

1. Purpose. The purpose of this section is to encourage an appropriate relationship between residential buildings and the public realm of streets, parks and other public spaces, to create public environments that encourage walking and informal use, to ensure an appropriate separation and privacy between buildings, to ensure that infill development blends with existing residential areas and that the character of existing neighborhoods is maintained, to provide usable open space for residents, and to encourage alternative development patterns such as cottages, clustered housing, and carriage units.

2. Old Town Neighborhood District. For purposes of this section, the Old Town Neighborhood District shall be defined as the area within the R6 and R8 zone districts bounded by NE Bird Street, 4th Avenue, NE Stephens Street, 3rd Avenue, NE Park Street, and the alley just east of 1st Street (see Figure 14.34.11). Infill development shall complement the historic character of the district in keeping with the 2003 city-wide visioning plan.

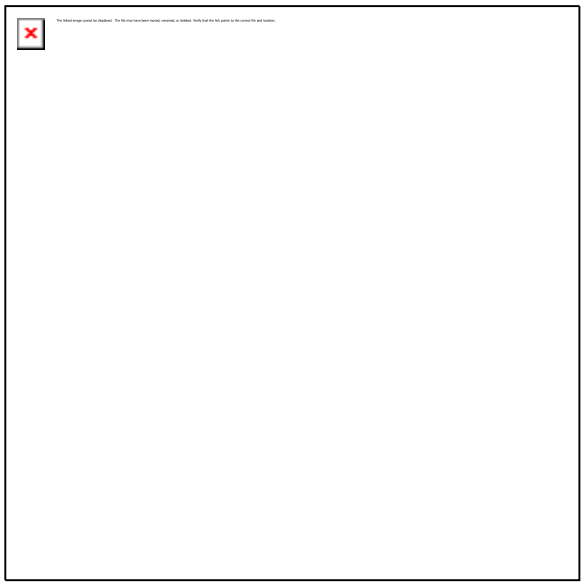
3. General Standards.

a. Variation in site design shall be achieved through the use of various site planning techniques such as variation in lot size and orientation, variation in setbacks, the use of shared driveways, and variation in dwelling unit size and type.

b. Where small lot development in the R12 and MU12 zones makes variation in setbacks impractical, porches, stoops, and window projections shall be used to provide modulation and visual interest to the front facade of individual homes. These elements, in conjunction with landscaping, shall be designed to maintain visual and functional consistency along the street.

c. Architectural Elements. Homes shall be sited in a logical way to maximize usable space while providing natural and architectural elements at key locations.

d. Structures and parking areas may encroach into required setbacks if it can be shown that such encroachment allows significant or landmark trees, to be retained. Encroachment shall be the minimum encroachment necessary to protect specified trees. In no case shall the yard be reduced to fifty (50) percent or more of the required setback upon approval by the public works and planning directors. Front yard setbacks are not eligible for this reduction. Any open space granted through this provision shall be permanently protected by a legal instrument acceptable to the city.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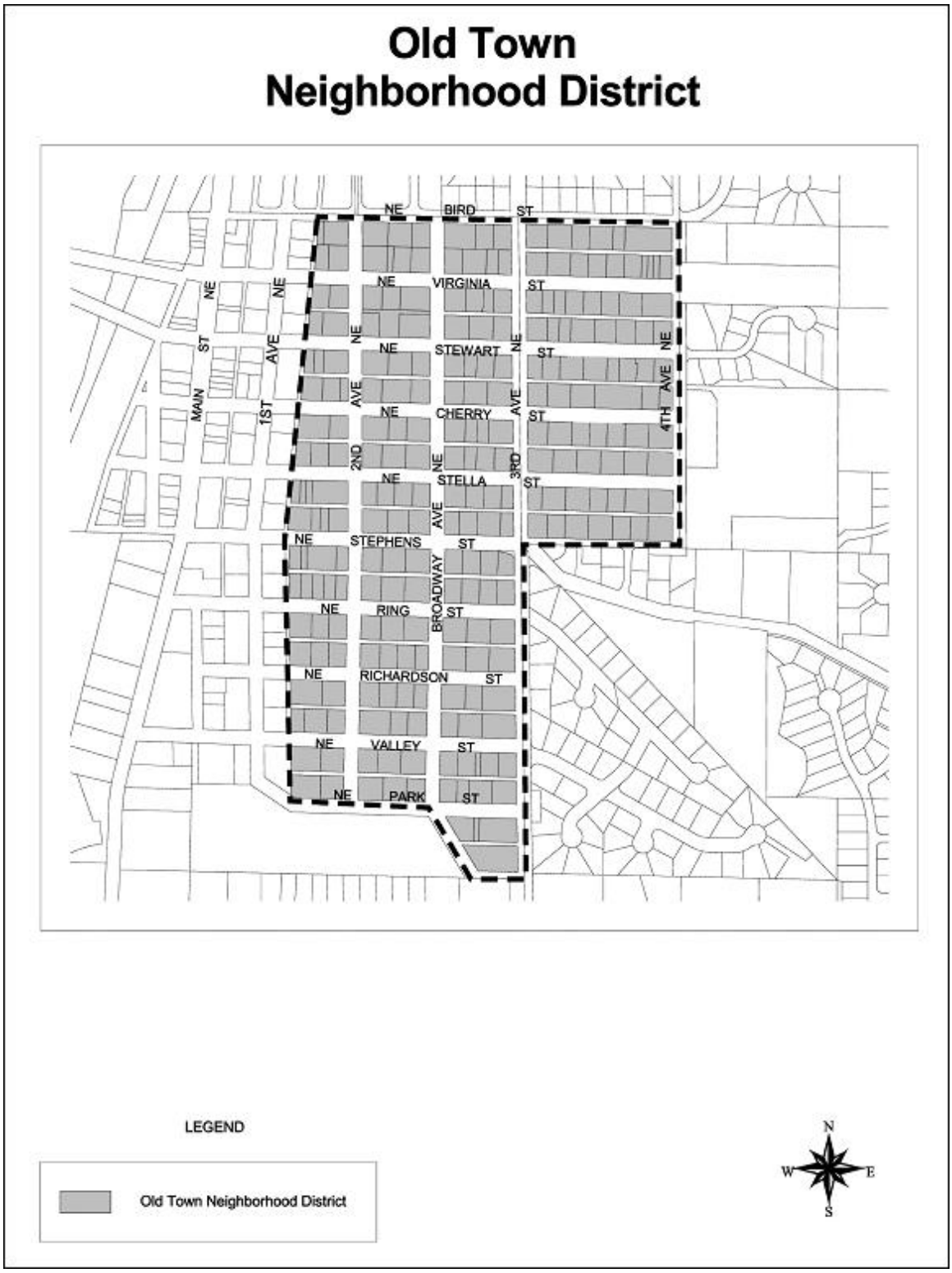


Figure 14.34.11: Old Town Neighborhood District

4. Building Relationship with Street Grade.

a. The first finished floor of all homes, including the porch, shall be raised a minimum of eighteen (18) inches from the grade of the front elevation.

b. On sites that slope down from street grade, structures shall be designed so that a strong visual connection between the front entry and street are maintained. Porches, stoops and front doors should maintain strong visual connection and sight lines to the street.

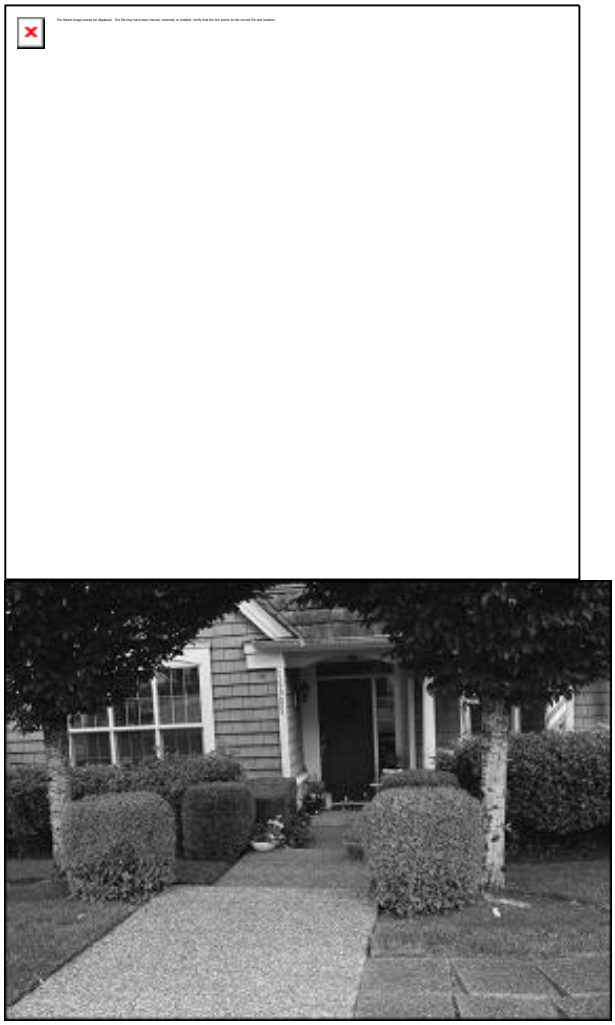


Figure 14.34.12: Appropriate Treatment for Downslope Sites

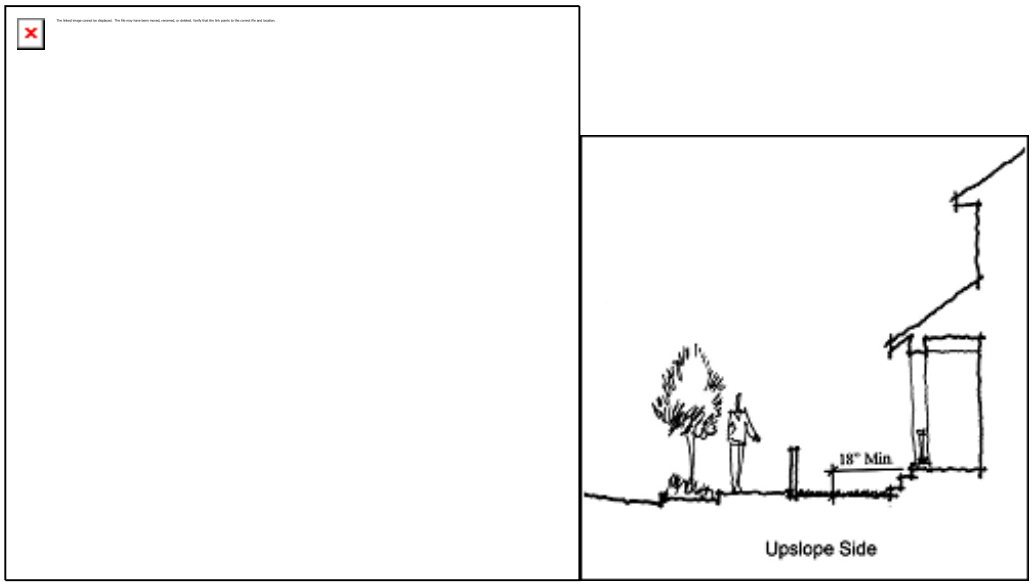


Figure 14.34.13: Building Relationships with Street Grade

5. Open Space Requirements.

   a. Private Yard.

      i. A private yard shall be located on each individual lot or individual unit.

      ii. Each detached or attached single-family unit shall have a minimum of two hundred fifty (250) square feet of contiguous usable yard with no dimension less than fifteen (15) feet in width. This may include private balconies, rear or side yards, landscaped front yards, and covered front porch areas. Balconies must be at least thirty-five (35) square feet with no dimension less than four feet to provide a space useable for human activity.

      iii. The private yard requirement can be reduced by up to fifty (50) percent only if that area is incorporated in the required common space. If this allowance is used, the minimum dimension of the private yard area may be reduced to no less than ten (10) feet in width.

      iv. Reciprocal use easements may be included in the calculation of private yard.

      v. Multifamily residential buildings must provide at least two hundred fifty (250) square feet of open space per unit. Carriage units shall provide at least one hundred (100) square feet of open space per unit. This open space may be applied to a common area, courtyard, or plaza as determined by the planning director and shall include amenities such as play structures, sport courts, or benches.

   b. Common Open Space.

      i. The purpose of these provisions is to offset the impacts of increased densities and to provide usable open space as an amenity in residential developments,

      ii. Ten percent of the net developable area (as defined in DMC Section 14.64.240) of all new development shall be set aside for the provision of common open space. This standard shall apply to all development, excluding infill development on short plats. Common open space shall meet the following design standards:

         (A) Provide a hierarchy or variety of open spaces throughout the neighborhood in the form of parks, common greens, pocket parks, and pedestrian easements.

         (B) Be distributed throughout the site.

(C) Common open spaces should provide for a variety of activities that accommodate a range of age groups, including play areas for children.

(D) Common open space shall have pathways, but also include such features as benches, sport court, or play structures.

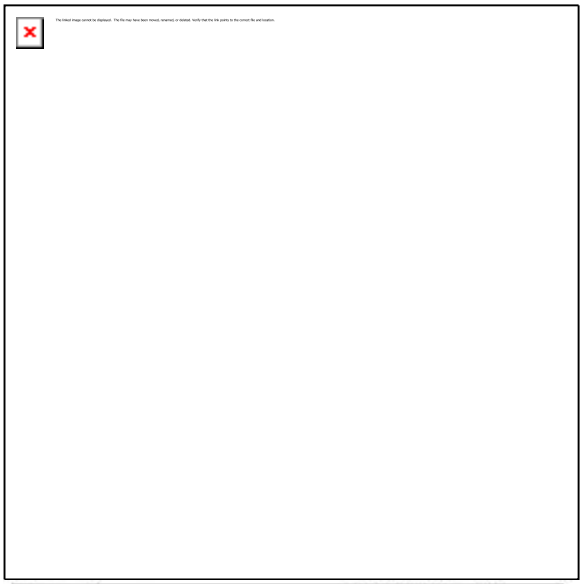


Figure 14.34.14: Examples of Common Open Space

iii. Common open space shall be a minimum of twenty-five (25) feet wide and be contiguous. Pedestrian easements shall be a minimum width of fifteen (15) feet.

iv. Common open space should be oriented to receive sunlight, facing east, west, or (preferably) south, when possible.

v. Common open space shall be visible from public areas, centrally located, and be easily accessible to adjacent uses. Common open spaces are not required to be public.

vi. Trails in the outer portion of sensitive area buffers can be used to meet up to ten (10) percent of the common open space requirements.

vii. A pedestrian entry easement can be used to meet common open space requirements if it has a minimum width of fifteen (15) feet with a minimum five-foot wide sidewalk.

viii. Common open spaces should be sited to preserve existing significant trees, and to use them as an amenity in the common open space design.

ix. To the extent possible, individual entries onto common open spaces should be provided from ground floor residential units. Small, semi-private open spaces for adjacent ground floor units that maintain visual access to the common area are strongly encouraged to enliven common open space.

c. Reciprocal Use Easements. Reciprocal use easements are allowed in residential districts to maximize usable open space in rear and side yards.

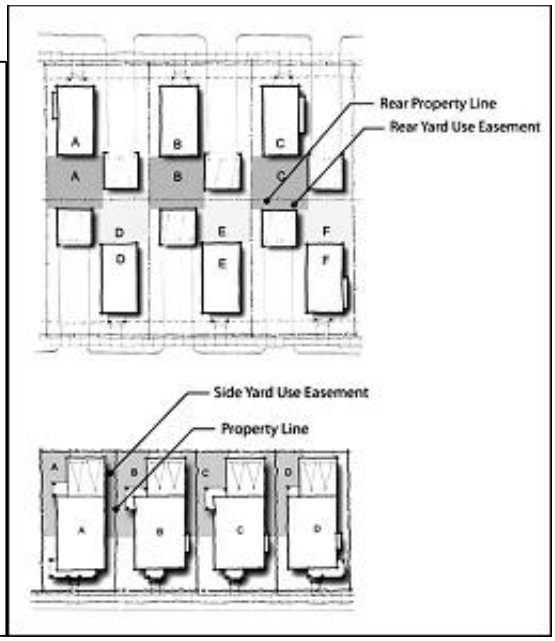


Figure 14.34.15: Reciprocal Use Easements

i. If used, reciprocal use easements shall be marked on the site plan and recorded against the subject properties.

ii. If a side yard easement is used, the wall facing the side yard shall be constructed as a "privacy wall." Privacy walls shall not have doors entering into the yard space of the adjacent home, nor have windows that are within five feet of ground level.

iii. The design of use easements should not negatively affect the building foundations. Given the intimate relationship between adjacent houses, it is extremely important to carefully site each home on its lot to maximize this outdoor space.

6. Parking, Garages and Vehicular Access. Design standards for parking, garages and vehicular access are necessary to mitigate parking and traffic impacts and preserve the aesthetic quality of homes, and to minimize the negative impacts of vehicular access and parking areas on the streetscape and pedestrian environment.

a. Front-loaded Garages.

i. Front-loaded garages must be setback a minimum of twenty (20) feet from the designated front property line/back of sidewalk except where the garage does not face the street (see Figure 14.34.16). This ensures sufficient space for cars to park in driveways without blocking sidewalks.

ii. Front-loaded garages shall be set back a minimum of five feet from the front building facade. Front-loaded tuck under garages may be permitted subject to planning director's approval on sites that slope downward from the street only if they reduce the

negative visual impact of the garage and where each garage entry is individually articulated.

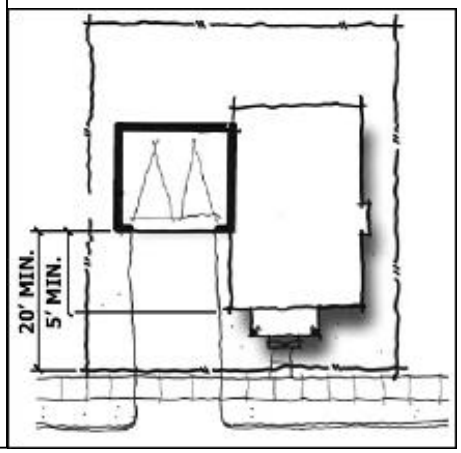


Figure 14.34.16: Front Loaded Garage

iii. Tuck under garages must be offset from the primary facade a minimum of two feet in lieu of the typical five-foot offset requirement (see Figure 14.34.17). Where used, tuck under garages and associated driveways shall provide sufficient width for a driver to comfortably maneuver a vehicle into and out of the garage.

Figure 14.34.17: Tuck Under Garage

iv. The garage face shall occupy no more than fifty (50) percent of the ground level facade facing the street, except as follows:

(A) Cul-de-sac lots. Additional design elements shall be included to reduce the mass of the garage as approved by the planning director.

(B) Lots that cannot meet this requirement due to steep slopes or other environmental constraints as approved by the planning director. Additional design elements shall be included to reduce the mass of the garage.

v. Detached garages shall be permitted in the rear yard only, and shall maintain the minimum separation required by the building code.

b. Side-Loaded Garages.

i. A maximum of twenty (20) percent of lots in a plat are permitted side-loaded garages where the garage is located between the street and the house.

(A) Side-loaded garages must be setback a minimum of fifteen (15) feet from the designated front property.

(B) The side of the garage facing the street must provide windows and architectural design elements that mimic the overall design of the home, as well as landscaping in front of or along the garage wall for a depth of at least three feet.

(C) Driveways shall be separated from the sidewalk and front entry (stoop or porch) with lawn or landscape beds. Pedestrian entries shall be from the street and may not be accessed from the driveway.

ii. Where side-loaded garages are located behind a house (see Figure 14.34.18), there is no limitation on their quantity in a plat.

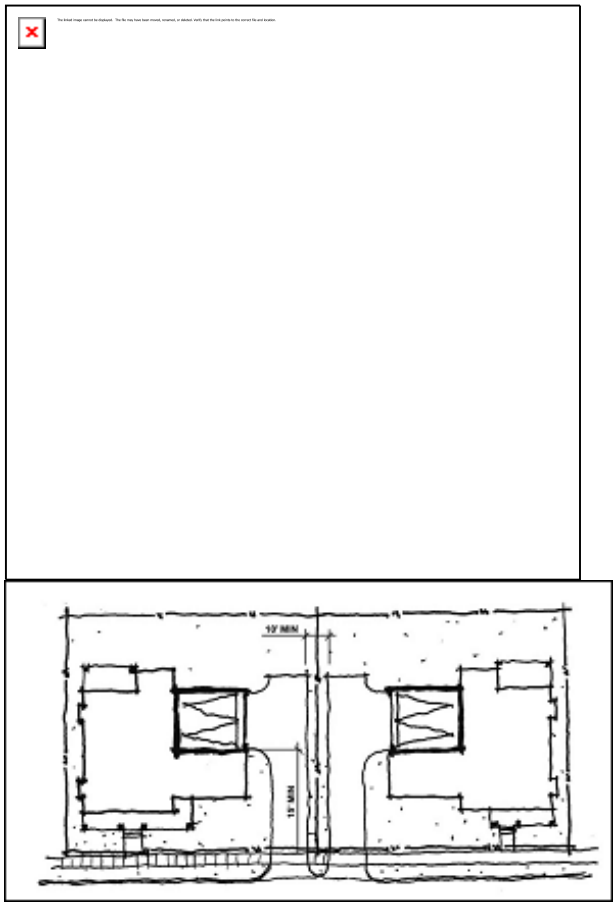


Figure 14.34.18: Side-Loaded Garage

iii. No more than two houses in a row are permitted side-loaded garages.

iv. Where side entry garages are located on adjoining lots, there shall be a minimum ten (10) foot landscape area between driveways with a maximum driveway width of ten (10) feet.

c. Shared Garages and Driveways.

i. Shared garages are permitted in the R12, MU12 and MUI districts.

ii. Shared garages are permitted in the R4, R6 and R8 districts only if built in conjunction with cottage or innovative housing developments.

iii. Each housing unit shall be assigned a garage space and may share the structure with other homes.

iv. Shared detached garages shall not exceed forty-four (44) feet in width and shall maintain a minimum eight-foot separation from adjacent dwellings. Where occupiable space is permitted above a shared garage, a maximum width of fifty (50) feet shall be permitted to allow for stair access.

d. Additional Driveway Standards.

i. Multiple driveways for a single-family detached dwelling lot are prohibited, except that the planning director may approve a second driveway where the street frontage exceeds one hundred (100) feet and/or unique site conditions require a second driveway. In such cases, both driveways shall be limited to twelve (12) feet in width.

ii. Tandem parking in garages is permitted for all housing types as long as spaces are identified for the exclusive use of occupants of a designated dwelling.

iii. Where lots abut an alley, the garage or off-street parking area must take access from the alley, unless precluded by steep topography. No curb cuts to the adjacent street shall be permitted unless access from the alley is precluded by steep topography.

iv. Driveway width shall be limited to the width of the garage door plus one foot on each side and to a maximum width of twenty (20) feet.

v. Share driveways and parking courts are encouraged to minimize curb cuts and reduce the visual impact on neighborhood streets.

7. Utility Placement. The purpose of this section is to provide guidelines for the placement of above and below-ground utilities to enhance the appearance of residential streetscapes and to avoid conflicts between utilities and streetscape elements (e.g., street trees and pedestrian lights) during the preparation of engineering construction plans.

a. In residential neighborhoods, the location of utilities shall take into account street trees, landscaping, and street and pedestrian lighting.

b. Utility boxes and meters shall be placed in alleyways, on the back of buildings, or be placed away from public gathering spaces and shall be screened with landscaping. Utility rooms and enclosures may be required where multiple tenants/uses are being served.

c. Underground utilities (e.g., water/sewer and electrical lines) that bisect landscape strips, and above ground utilities (e.g., fire hydrants) that are commonly placed in landscape strips shall take into account the placement of street trees and light poles.

d. Vaults shall not be allowed in sidewalks.

e. To the greatest extent possible, utility boxes shall be grouped together.

8. Additional Standards for Multifamily Residential Developments. The purpose of these standards is to address site-specific design elements for multifamily developments to ensure that multifamily

units have an appropriate relationship to the street, open spaces, and other amenities intended to serve residents.

Multifamily residential buildings, where allowed, must be oriented toward a public street, green or public spaces, rather than parking areas or adjacent properties. The siting and frontage design of multifamily buildings shall address the following standards:

a. The primary building entry shall face a public street, green, courtyard or other public space which is not primarily used for parking.

b. Buildings with individual ground floor entries should face the street, green, courtyard, or other public space to the greatest extent possible.

c. Buildings shall provide windows that face the street to provide "eyes on the street" for safety.

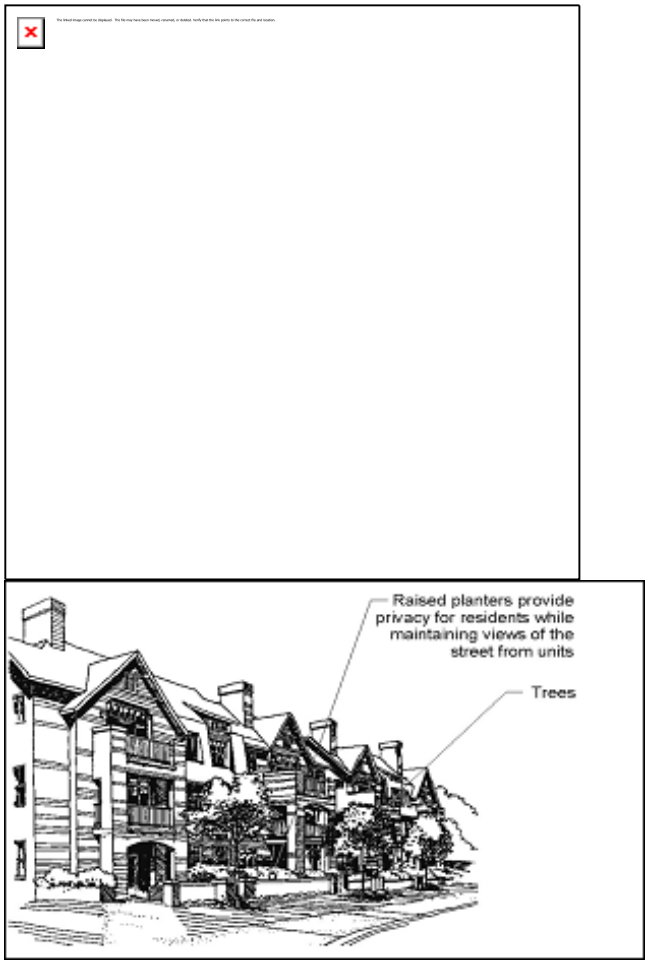


Figure 14.34.19: Appropriate Street-Front Treatments for Multifamily Uses

d. The planning director may consider alternative configurations as long as they meet the purpose of these standards. For example, alternative configurations may be more desirable to take advantage of special views or special environmental features.

e. Buildings containing street level residential uses shall be set back from the sidewalk a minimum of ten (10) feet and feature substantial landscaping between the sidewalk and the building. Maintaining views, however, between the dwelling units and the sidewalk is important for safety.

Figure 14.34.20: An Example of Appropriate Street Level Residential Uses

f. Residential developments with living areas located near the street are encouraged to raise the ground floor at least thirty-six (36) inches above the street level for resident's privacy.

g. Fences shall be setback three feet from any public right-of-way and shall be limited in height of thirty-six (36) inches within five feet of any property line adjacent to a public walkway.

9. Additional Standards for Old Town Neighborhood District. Rear Yards: to ensure a contextual approach to building layout and design in Old Town, the rear building wall for the primary structure may not exceed the average of the adjacent rear building wall(s) by more than twelve (12) feet. The adjacent rear building wall(s) shall be measured by: (a) in the case of a lot with one adjacent lot, drawing a line parallel with the rear property line from the rear building wall across the subject property, and (b) in the case of a lot with two adjacent lots, drawing a line that intersects the two adjacent rear building walls (see Figure 14.34.21).

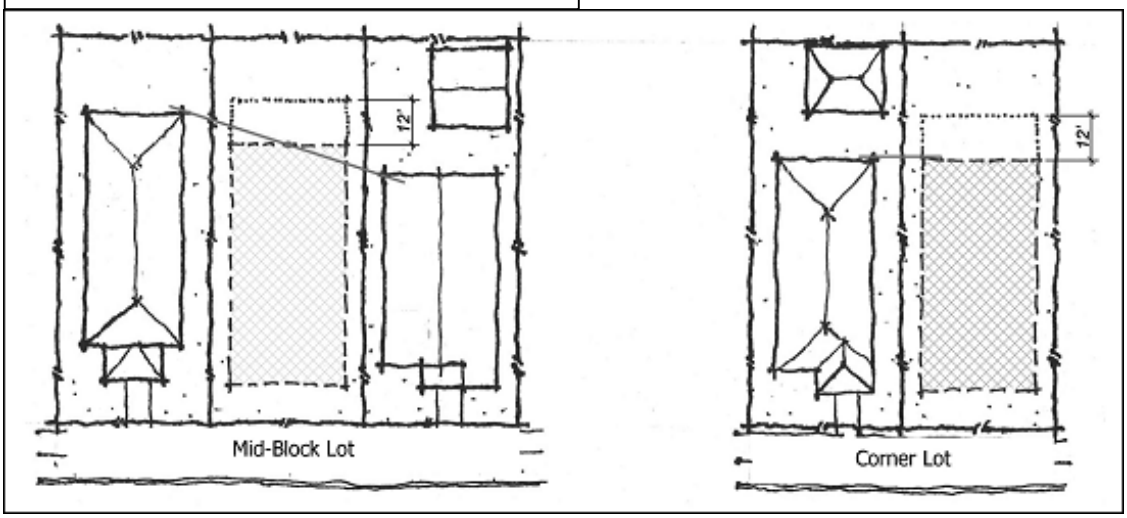


Figure 14.34.21: Rear Yard Averaging

B. Mixed Use and Nonresidential Developments. The following standards apply to buildings in the OT, RIV, UT-1, MT, CO, MU12, MUI, LI, and the PF zoning districts.

1. Purpose. The purpose of this section is to encourage a complementary relationship between mixed use and nonresidential buildings and the public realm of streets, parks and other public spaces, to create public environments that provide safe pedestrian access, encourage walking and informal use, to ensure an appropriate separation and privacy between buildings, and to provide pedestrian-oriented spaces. This section aims to encourage mixed use and nonresidential development that create a focal point and active gathering spaces for the surrounding community.

2. General Site Design. Mixed use and nonresidential developments shall be designed as follows:

   a. In a coordinated manner, complementing adjacent structures through placement, size and mass;

   b. To respect natural areas such as wetlands and creeks. These natural elements shall be integral design features (e.g., walking trails, viewing platforms, interpretive signage);

c. With pedestrians in mind and include sidewalks, public gathering spaces, and identifiable crossings in parking lots and across access drives;

d. Provide safe ingress and egress to public streets;

e. Meet all applicable standards of this title.

3. Primary and Secondary Pedestrian Corridors. The purpose of the following provisions is to improve and enrich the pedestrian environment by making it inviting and more comfortable to walk throughout the city; promote walking both as a social activity and an alternative to driving; to enhance pedestrian access; enhance connectivity between uses and properties; improve pedestrian connections to and from transit stops; enhance the quality of new development through design and pedestrian amenities; encourage the siting of buildings adjacent to the street and create an attractive and welcoming streetscape; increase the vitality of Duvall's business districts; provide a variety of pedestrian-oriented areas to attract shoppers to commercial areas; create inviting community gathering spaces; and increase privacy for residential uses located near the street.

a. Primary Pedestrian Corridors.

i. Buildings along primary pedestrian corridors shall be located adjacent to the sidewalk or pathway and feature pedestrian-oriented facades (see Figure 14.34.22). All buildings shall face the street and feature their main pedestrian entry along this facade. Building setbacks will be allowed for wider sidewalks and where space between the sidewalk and building meets the definition of pedestrian-oriented space. The ground level finish floor elevations shall be at or within 3 feet of adjacent sidewalk grade.

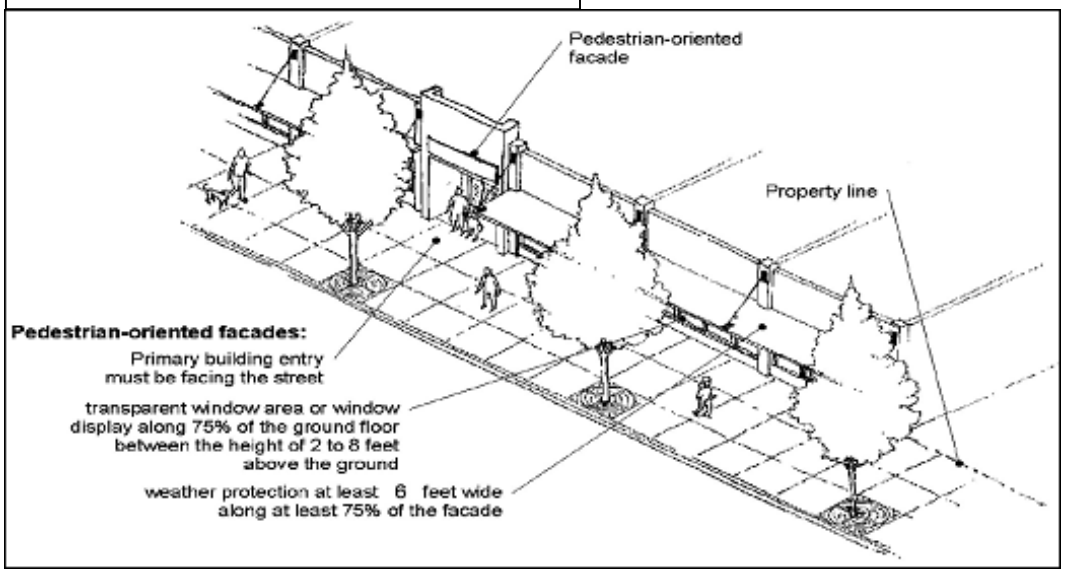


Figure 14.34.22: Pedestrian-Oriented Facades

ii. Parking lots shall be located behind buildings away from primary pedestrian corridors to the greatest extent possible. Where there are no alternatives, the director may allow parking to be located on the side of a building provided that no more than sixty (60) feet of frontage on a primary pedestrian corridor is occupied by parking areas. (See DMC Section 14.38.090 for landscaping requirements adjacent to street frontage).

b. Secondary Pedestrian Corridors.

i. All buildings fronting on secondary pedestrian corridors shall face the street and feature their main pedestrian entry along this facade (See Figure Section 14.34.22).

ii. Buildings ground level finish floor elevations abutting the sidewalks shall be at or within three feet of the adjacent sidewalk grade.

iii. Buildings may be located abutting the sidewalk as long as they feature pedestrian-oriented facades. Buildings that do not contain pedestrian-oriented facades facing the

street must provide at least five feet of landscaping between the building and the sidewalk.

iv. Parking lots must be located to the side or rear of the building.

v. When parking lots are located adjacent to a secondary pedestrian corridor, at least five feet of Type II landscaping shall be provided between the sidewalk and the parking area.

vi. Where a secondary pedestrian corridor abuts a noncommercial or mixed use zone, both sides of the corridor shall be designed to the same sidewalk and landscape standards.

vii. For sites that front on more than one secondary pedestrian corridor, the building shall front on at least one of the streets as per the planning director. In such instances, the planning director will consider goals and objectives from the downtown subarea plan and unique site conditions and constraints to determine the appropriate building location and orientation.

4. Main Street South of Old Town.

a. At least fifty (50) percent of the Main Street frontage in the commercial (CO), mixed use 12 (MU12), and midtown (MT) zoning districts must be occupied by buildings located adjacent to the sidewalk with pedestrian-oriented facades. Conversely, no more than fifty (50) percent of Main Street frontage can be occupied by parking area and/or vehicle access.

b. Sites with a portion of the frontage in sensitive areas in accordance with the city's sensitive areas ordinance must have at least fifty (50) percent of the remaining frontage occupied by buildings located adjacent to the sidewalk with pedestrian-oriented facades.

c. Drive-thru facilities are not allowed between Main Street and any building.

5. Big Rock Road.

a. At least fifty (50) percent of the Big Rock Road frontage in the commercial (CO), mixed use institutional (MUI) zoning districts must be occupied by buildings located adjacent to the sidewalk with pedestrian-oriented facades. Conversely, no more than fifty (50) percent of Big Rock Road frontage can be occupied by parking area and/or vehicle access.

b. Sites with a portion of the frontage in sensitive areas in accordance with the city's sensitive areas ordinance must have at least fifty (50) percent of the remaining frontage occupied by buildings located adjacent to the sidewalk with pedestrian-oriented facades.

c. Drive-thru facilities are not allowed between Big Rock Road and any building.

6. All other streets not designated as primary or secondary pedestrian corridors.

a. Nonresidential buildings may be placed up to the edge of the sidewalk of any street if they feature a pedestrian-oriented facade. Otherwise, developments must feature at least ten (10) feet of landscaping between the sidewalk or front property line and any building, parking areas, storage, or service area or a greater width as set out in DMC Chapters 14.18 through 14.32 and 14.38.

7. Pedestrian Access.

a. All buildings must have clear pedestrian access to the sidewalk. Where a building fronts two streets, access shall be provided from the road closest to the main entrance, and if required by the director, from both streets. Buildings with entries that do not face the street should have a clear and obvious pedestrian access way from the street to the entry.

b. Where internal walkways are adjacent to a building, they shall provide a minimum width of eight feet.

c. Pedestrian paths or walkways shall be provided connecting all businesses and the entries of multiple commercial buildings frequented by the public on the same development site.

d. When abutting vacant or underdeveloped land, new developments shall provide for the opportunity for future connection to its interior pathway system through the use of pathway stub-outs, building configuration, and/or parking lot layout. The proposed location of future pedestrian connections shall be reviewed in conjunction with applicable development approval.

e. Developments shall include an integrated pedestrian circulation system that connects buildings, open spaces, and parking areas with the adjacent street sidewalk system. Residential and commercial developments shall not be isolated enclaves separated from each other by fences, walls, and parking lots.

f. Pedestrian connections to existing or proposed trails/pedestrian routes on adjacent properties shall be provided unless there are physical constraints such as sensitive areas that preclude the construction of a pedestrian connection.

g. New development is encouraged to provide pedestrian connections to facilitate public access to existing and planned trail systems. The design of these connections should reflect the importance of trails as a destination within the community by providing lighting, seating, focal elements, and or other features to enhanced visibility and safety. Pedestrian pathways shall include landscaping, lighting, and other amenities to enhance their safety and appearance.

i. In the RIV zoning district, new development shall facilitate public access to the Snoqualmie Valley Trail from either NE Stewart, Cherry, and Stella street corridors, with the most important of these being NE Stella Street. The design of this connection should reflect this importance.

h. In the MU12 zone, pedestrian linkages shall be provided between the commercial and residential portions of the site. This shall be achieved through the provision of pedestrian-oriented amenities such as pathways and public gathering spaces.

i. Parking lots shall be designed to provide safe and efficient pedestrian access.

   i. A paved walkway or sidewalk must be provided for safe walking areas through parking lots greater than one hundred fifty (150) feet long (measured either parallel or perpendicular to the street front). Walkways shall be provided for every two aisles/parking width (see DMC Section 14.44.130(A)). Such access routes through parking areas shall be separated from vehicular parking and travel lanes by use of contrasting paving material which may be raised above the vehicular pavement. Speed bumps may not be used to satisfy this requirement. Paved walkways or sidewalks may be required perpendicular to other walkways if the director determines necessary.

   ii. Walkways shall be a minimum width of five feet exclusive of vehicle overhang areas (typically two feet) and landscaping. Landscaping shall be provided on at least one side of the walkway and can consist of planting beds or trees in tree grates.

   iii. Design features associated with such walkways or sidewalks may be used in meeting pedestrian-oriented space goals in subsection (B)(8) of this section.

   iv. Pedestrian-scaled lighting (maximum fourteen (14) feet in height) shall be used to clearly define pedestrian walkways or other pedestrian areas within parking areas.

   v. Access shall be usable by mobility-impaired persons and shall be ADA-compliant.

   vi. A crosswalk shall be required when a walkway crosses a driveway or a paved area accessible to vehicles drive aisle. The developer may be required to continue a sidewalk or walkway pattern and materials across the driveway or drive aisle for increased pedestrian safety.

8. Pedestrian-Oriented Spaces.

a. Nonresidential buildings and developments shall provide pedestrian-oriented space (public plaza or courtyard), at a minimum of one percent of the total lot area plus one percent of the nonresidential building footprint.

b. To qualify as a pedestrian-oriented space, an area must have:

   i. Pedestrian access to the abutting structures from the street, access drive or drive aisle, plaza or courtyard;

   ii. Paved walking surfaces of either concrete or approved unit paving. Other surfaces shall only be approved if they are an integral part of the design;

   iii. Pedestrian-scaled lighting (no more than fourteen (14) feet in height) at a level averaging at least two-footcandles throughout the space. The design and color of light standards shall complement the design of the pedestrian space as well as nearby buildings;

   iv. At least two feet of seating area (bench, ledge, etc.) or one individual seat per sixty (60) square feet of plaza area or open space;

   v. Spaces shall be located in areas with significant pedestrian traffic to provide interest and security-ideally adjacent to a building entry or a major pedestrian path of travel such as a sidewalk; and

   vi. Landscaping components that add seasonal interest to the space.

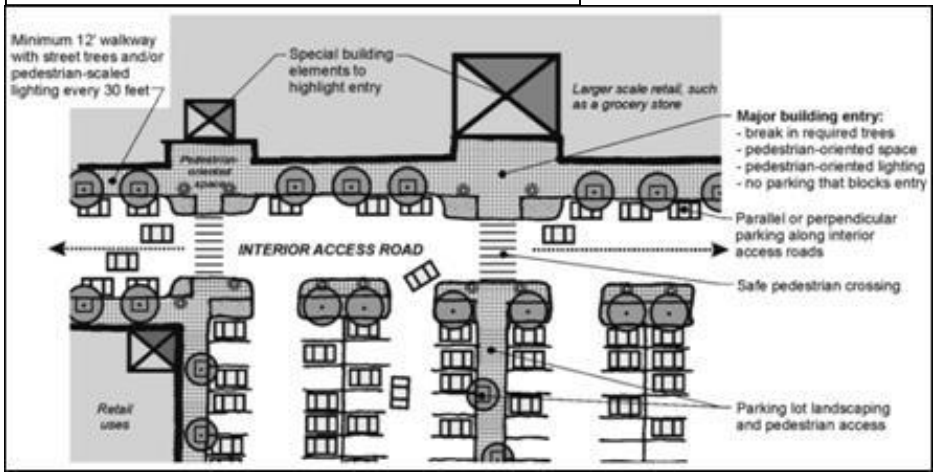


Figure 14.34.23: Pedestrian-Oriented Space Requirements

c. The following features are encouraged in pedestrian-oriented space and may be required by the planning director:

   i. Pedestrian amenities such as a water feature, drinking fountain, tables, and/or distinctive paving or artwork;

   ii. Pedestrian-oriented building facades on some or all buildings facing the space;

   iii. Consideration of the sun angle at noon and the wind pattern in the design of the open space;

   iv. Transitional zones along building edges to allow for outdoor eating areas and a planted buffer; or

   v. Movable seating.

Figure 14.34.24: Example of Good Pedestrian-Oriented Space

d. The following features are prohibited within or adjacent to pedestrian-oriented space: asphalt or gravel pavement unscreened parking lots; chain link fencing; blank walls; dumpsters or service areas; outdoor storage or retail sales that do not contribute to the pedestrian environment. Required walkways do not count as pedestrian-oriented space; however, the planning director may allow those portions of walkways widened beyond minimum requirements to count towards the required pedestrian-oriented space as long as such space includes pedestrian-oriented elements.

9. Additional Landscaping Requirements. Development of sites adjacent to Main Street must provide at least ten (10) feet of Type I landscaping between the sidewalk and any passive ground floor use such as parking, storage, service area, building utilities or other use as determined by the planning director.

10. Parking, Garages and Vehicular Access. The purpose of these provisions is to create a safe, convenient, and efficient network for vehicular circulation and parking; upgrade the appearance of interior access roads; minimize negative impacts of vehicular access and parking areas on the streetscape and pedestrian environment; promote shared parking between compatible uses.

    a. Parking lots shall be located to the rear or side of buildings on primary and secondary pedestrian corridors as set forth in subsection (B)(3) of this section.

    b. Parking lots should be located to the rear or side of buildings to the extent possible on all other streets.

    c. Parking lots shall not be located adjacent to intersections.

    d. Off-street parking areas for streets that are not primary or secondary pedestrian corridors should be located to the rear or side of buildings to the extent possible. Exceptions may be granted by the director where:

        i. Unique site conditions make street-front buildings difficult or undesirable and the applicant proposes alternative design treatments such as special landscaping and architectural components that enhance the visual character and the pedestrian environment of the street; and

        ii. Where the project meets all other applicable design standards.

    e. Large parking lots shall be broken into smaller areas to the greatest extent possible. Where feasible, parking lots should be varied in grade, bermed, and/or differentiated with planting materials to reduce large expanses and visible extent of continuous surfaces.

    f. Applicants of multiple building commercial developments must successfully demonstrate how they have organized parking in a manner that provides for shared parking between uses on the site.

    g. Parking lot aisles should be aligned perpendicular to commercial, retail and office-building entries to provide protected walking spaces and visual focus on the entries.

    h. Shared driveways and parking courts are encouraged to minimize curb cuts and reduce the visual impact of parking on adjacent streets.

    i. Projects adjacent to Main Street must comply with the city's access management regulations. Applicable regulations address the number and width of driveways.

    j. Projects adjacent to Main Street and located on corner lots must take access from the applicable side street.

    k. Developments are encouraged (and may be required) to share driveways, particularly along Main Street and arterials streets.

(Ord. 1056 § 1 Exh. A (part), 2007)

14.34.060 - Building design.

A. Residential Building Design.

1. Purpose. The purpose of this section is to encourage residential building design that enhances Duvall's traditional village character, foster creative, high-quality architectural design, and ensure new development that adds value to the existing community. All new development shall include complete architectural detailing on all building frontages with a consistent visual identity and a similar quality of materials, detailing and window placement. Abrupt ending of architectural details shall be avoided with no radical change in details, features or materials.

2. General Provisions.

   a. Elevations and Models. Elevations and models are required to ensure that new developments provide a diverse streetscape with a variety of floor plans and frontage character.

      i. Residential buildings shall avoid a uniform appearance by providing variation in building architecture and elevations using methods such as building modulation, primary and secondary building forms (e.g., covered porches, dormers, window bays), and changes in exterior materials, colors, windows, doors and trim.

      ii. No more than two of the same model and elevation shall be built on the same block frontage (four hundred (400) feet) or across a public right-of-way. Where longer blocks are approved by the city, a four hundred (400) foot interval shall be used for purposes of this section. Where curvilinear roads are used, the city may consider an increase to three of the same model and elevation if they meet the intent of this section.

      iii. The same model and elevation shall not be built next to each other.

      iv. To differentiate the same models and elevations, different colors and materials shall be used.

      v. Each model shall have at least two architectural styles and a variety of color schemes.

      vi. Different models are defined as having significant variations in the floor plans, which allows for variety in the massing of the home. The following major elements must be substantially different (see Figure 14.34.25):

Figure 14.34.25: Variation in Elevations and Models

(A) Floor plan/building configuration/massing;

(B) Roof type (gable, hip, shed, etc.).

The following minor features must be substantially different:

(A) Finish color (siding, roofing, or trim);

(B) Siding style;

(C) Window configuration, architectural detailing or elements.

3. Massing and Composition.

   a. A clear pattern of massing changes and modulation of building forms and composition is required to create architectural variety and interest.

   b. Primary building forms shall be the dominating form while secondary formal elements shall include porches, dormers, or other significant features.

4. The primary porch height shall be one story to encourage pedestrian scale elements along the street or pedestrian; heights are encouraged adjacent to pedestrian access.

5. Massing and Composition. A clear pattern of massing changes and modulation of building forms and composition is required to create architectural variety and interest.

   a. Primary building forms shall be the dominating form while secondary formal elements shall include porches, dormers, or other significant features.

b. Secondary roof forms, such as dormers, shall be proportional to the primary roof form.

c. The primary porch height shall be one story to encourage pedestrian scale elements along the street or pedestrian; heights are encouraged adjacent to pedestrian access routes.

d. Multi-story porches are permitted if massing is appropriate to the building style.

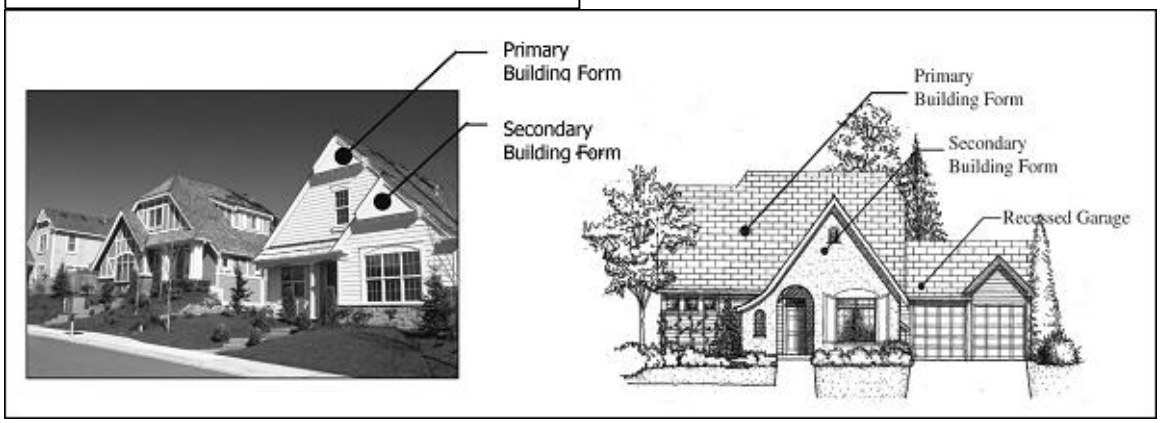


Figure 14.34.26: Building Form Examples

6. Building Modulation. Building modulation is required to avoid monotonous repetition of elevations, reduce bulk and mass, and provide pedestrian scale elements adjacent to the streetscape. Buildings shall have a consistent visual identity on all sides, with an emphasis on elevations visible to the public realm (e.g., public/private streets, sidewalks, and common areas). This should be achieved by providing similar levels of materials, detailing and window placement. Unless otherwise approved by the planning director in accordance with DMC Section 14.34.010, the following standards shall apply:

   a. Multifamily Residential Buildings.

      i. All building elevations shall have modulations or changes in plane. Modulations shall be a minimum of an eight-foot horizontal modulation for each fifty (50) feet of horizontal dimension. The minimum depth of modulation shall be two feet, and where appropriate, shall extend vertically from the ground plane to the roof (e.g., when there is an offset in the building foundation).

ii. Modulation can be achieved by an offset in the building foundation, projecting window bays, connecting an open porch to the building, a dormer facing the street, a variety of roof forms, a well-defined entry element, or other features that provide architectural variation and reduce the bulk and mass of a multifamily building.

iii. Dormers or intersecting rooflines shall be used to break up continuous sloped roofs.

iv. A physical break in the primary facade, ideally a pedestrian passage or other usable space, shall be provided for every six units.

b. Attached and Detached Residential Buildings.

i. Elevations visible from public or private streets, sidewalks, and common areas shall have at least one modulation or change in plane. Modulations shall be a minimum of an eight-foot horizontal modulation for each twenty-five (25) feet of plan dimension. The minimum depth of a modulation shall be eighteen (18) inches, and where appropriate, extend from the ground plane to the roof.

ii. Modulation can be an offset in the building foundation, primary and secondary building forms, projecting window bay, the connection of an open porch to the building, a dormer facing the street, a variety of roof forms, a well-defined entry element, or other features that provide architectural variation and reduce the bulk and mass of attached and detached single-family buildings.

iii. Where modulation is difficult to achieve along side yards due to small lot sizes and/or minimum setbacks, elevations shall be treated with change in materials, colors, wrapped windows, or modulations with reduced profiles or elements.

iv. The maximum number of attached units is eight, as measured along a horizontal plane.

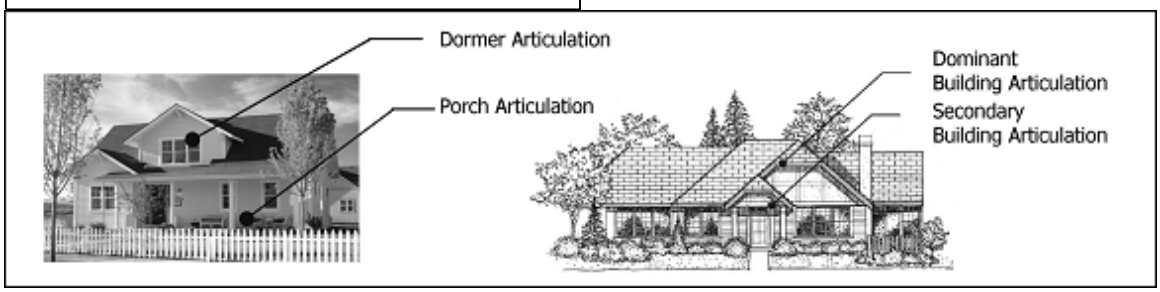


Figure 14.34.27: Building Articulation

Figure 14.34.28: Side Elevations

7. Entries.

   a. Covered porches or stoops are required on all homes. The primary door to the house shall be located in that entry and shall be oriented to and clearly visible from a street, green or other common open space.

   b. The design of porches and stoops shall be architecturally integrated into the design of the structure.

   c. Porch and stoop sizes shall be:

      i. Porches (minimum forty-eight (48) square feet):

   Minimum width: eight feet;

   Minimum depth: six feet.

      ii. Stoops (minimum thirty (30) square feet):

   Minimum width: six feet;

   Minimum depth: five feet.

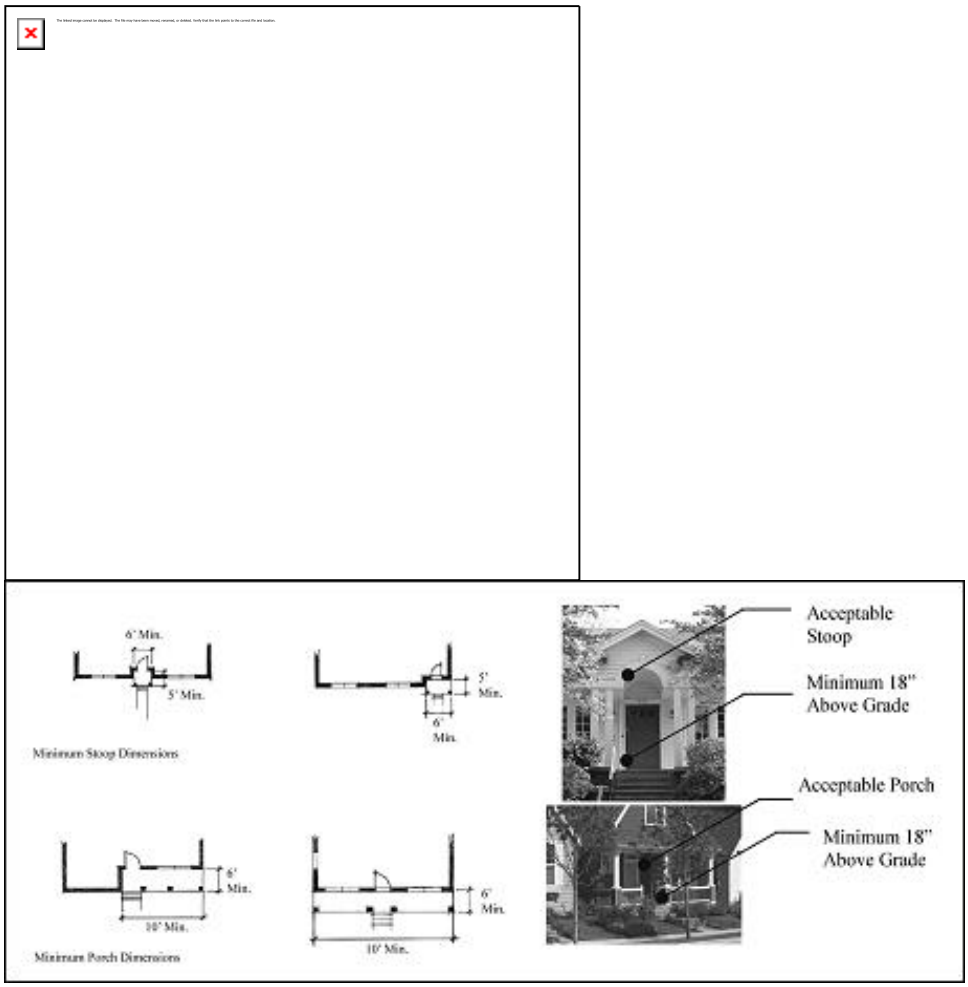


Figure 14.34.29: Porch and Stoop Dimensions

d. Porches and stoops shall be raised above the grade at the front elevation, ideally a minimum of eighteen (18) inches, except where accessibility (ADA) is required. An accessible route may also be taken from a front driveway.

e. Where a home is located on a corner lot, i.e., at the intersection of two roads or the intersection of a road and common open space, a wrapped porch is preferred to reduce the perceived scale of the house and engage the street or open space on both sides (see Figure 14.34.30).

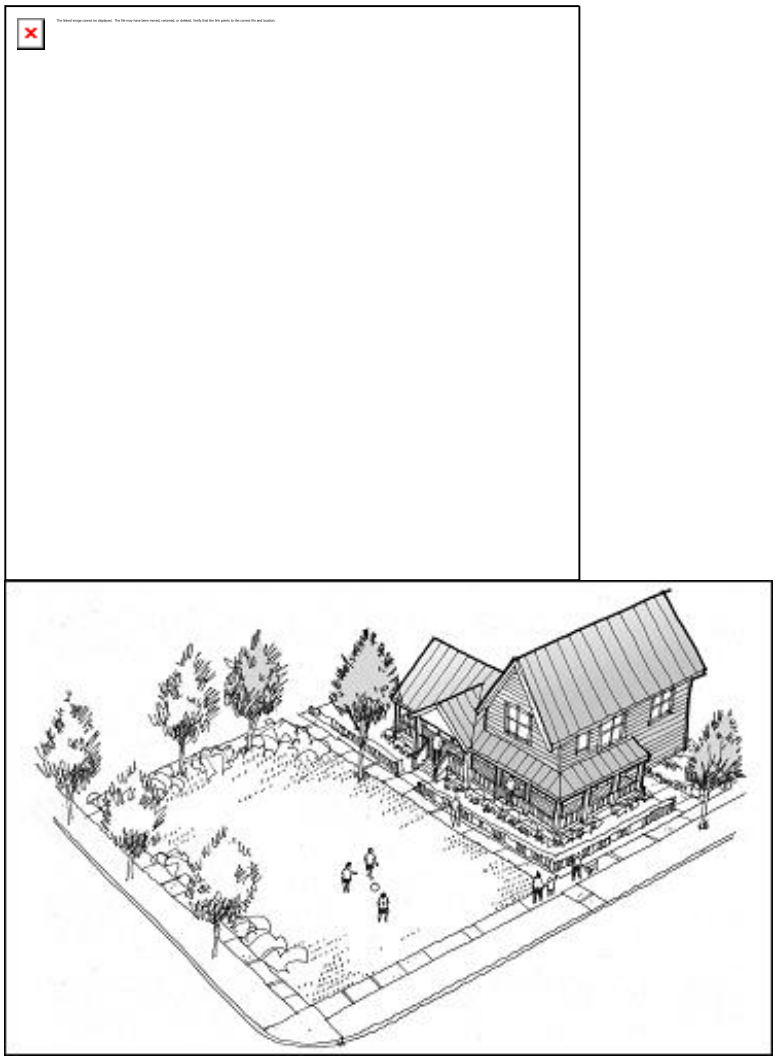


Figure 14.34.30: Wrapped Porch Example

8. Decks. All decks visible from the public realm, including large landscape views to the Snoqualmie Valley, public rights-of-way, trail systems or other areas accessible to the general public shall meet the following criteria:

    a. Decks shall be an architecturally integrated component of building design. Decks that have the appearance of looking like an afterthought and non-integrated due to the use of dissimilar finishes, materials, or style shall be avoided. Proportionally weak support columns or connections to the ground, unresolved under story and lack of a physical connection with the main structure are discouraged.

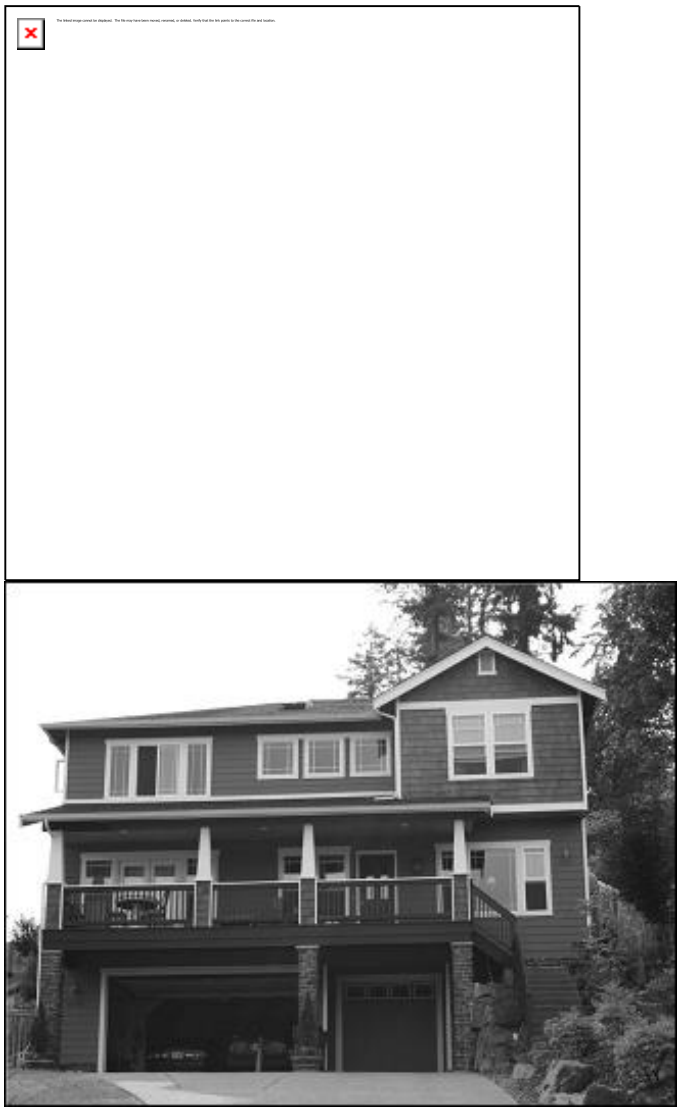


Figure 14.34.31: Example of a Well-Integrated Deck

b. The following design criteria must be met:

   i. Exhibit similar detailing, use of materials or color schemes that either compliment or match the main structure;

   ii. Linked to the main structure through the uses of recess, alcoves, indentation, or wrapping with a minimum overlap dimension of eighteen (18) inches;

   iii. Provide minimum support column face dimension of seven and one-fourth inches parallel the length of the deck; additionally, the maximum uninterrupted vertical height of any deck support column is ten (10) feet; columns in excess of ten (10) feet are to include additional detailing such as side trimmers, arbor elements, knee braces, or wing walls that include elements of the main structure such as siding, stone cladding, or other finishes;

   iv. Where covered decks are constructed, roof articulation should be provided that includes a major portion of the deck under the eaves for weather protection, shade, and integration between the deck and the main structure.

9. Roof Pitch. Roof pitches shall be in keeping with the architectural design and character of a residential structure and the surrounding neighborhood. For example, steeper roof pitches (e.g., 6:12, 8:12) are appropriate in the Old Town Neighborhood District (see Figure 14.34.11) to reflect the historic character of the older homes. Secondary roof pitches shall be designed in relation to the primary roof pitch.

   a. Roof Overhangs. Roof overhangs shall be a minimum of twelve (12) inches (excluding gutter). Overhangs and eaves should be detailed and proportioned to complement the architectural style of the home. Exceptions may be permitted subject to the planning director's approval when the applicant demonstrates that a reduced overhang is in keeping with the architectural design of the structure.

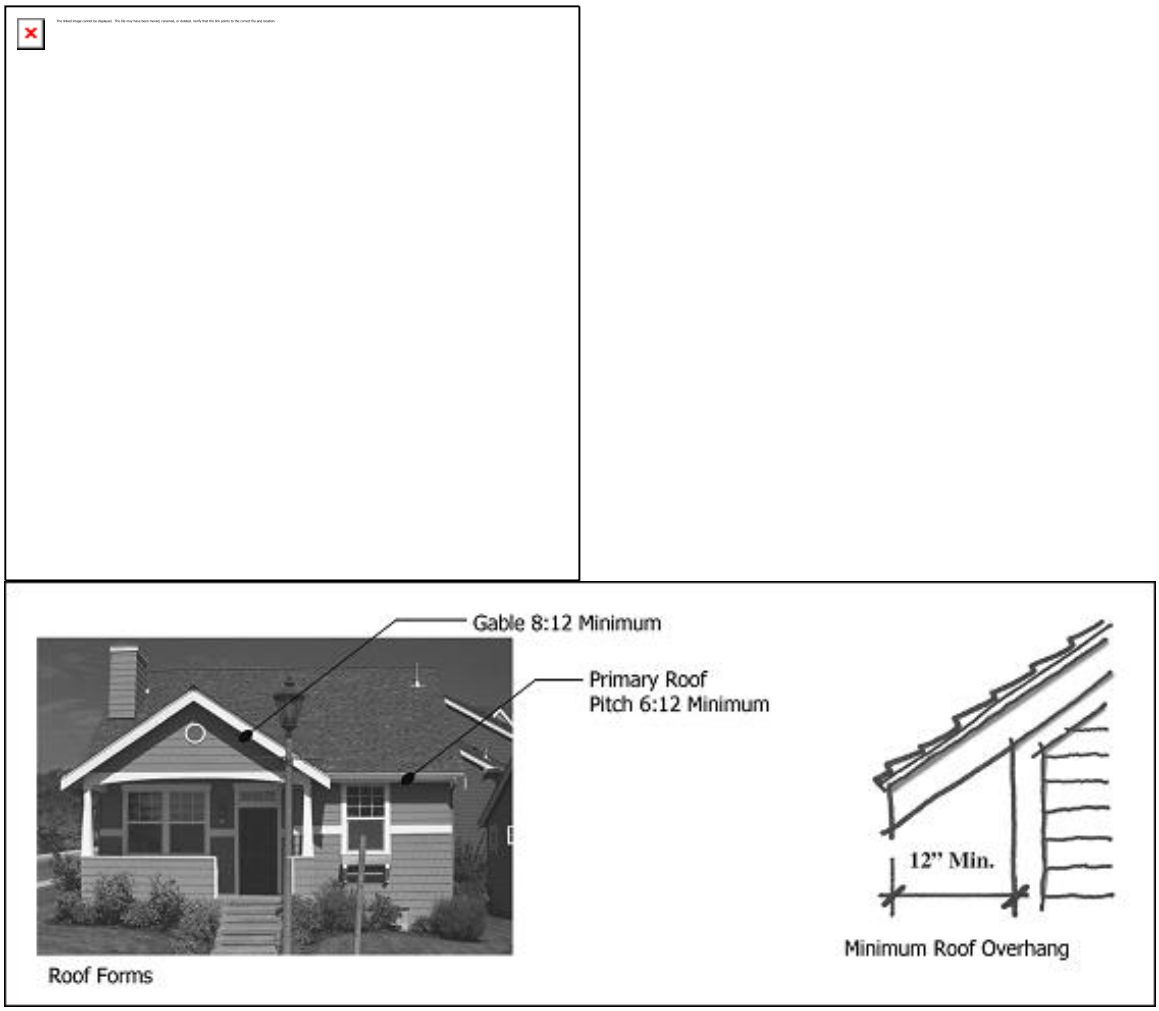


Figure 14.34.32: Roof Pitch and Overhang

10. Architectural Details.

   a. Doors.

      i. Front doors shall be in keeping with the architectural style of the structure.

      ii. Front doors shall be paneled or have inset windows (see Figure 14.34.33).

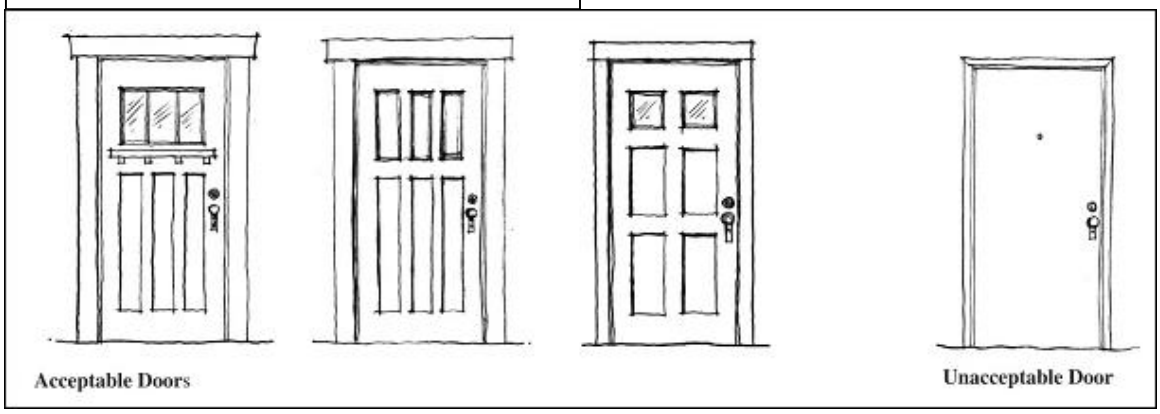


Figure 14.34.33: Acceptable Doors

iii. Sliding glass doors are not permitted along frontage elevations or where a primary elevation faces a pedestrian easement.

iv. A three and one-half inch minimum head and jamb trim is required around all doors.

b. Primary Windows.

i. Primary windows shall be proportioned vertically rather than horizontally (see Figure 14.34.34).

ii. Windows are required to have a trim on all four building facades.

iii. Trim must be appropriate to the architectural character of the home and be a minimum of three and one-half inches wide.

iv. Vertical windows may be combined together to create a larger window area.

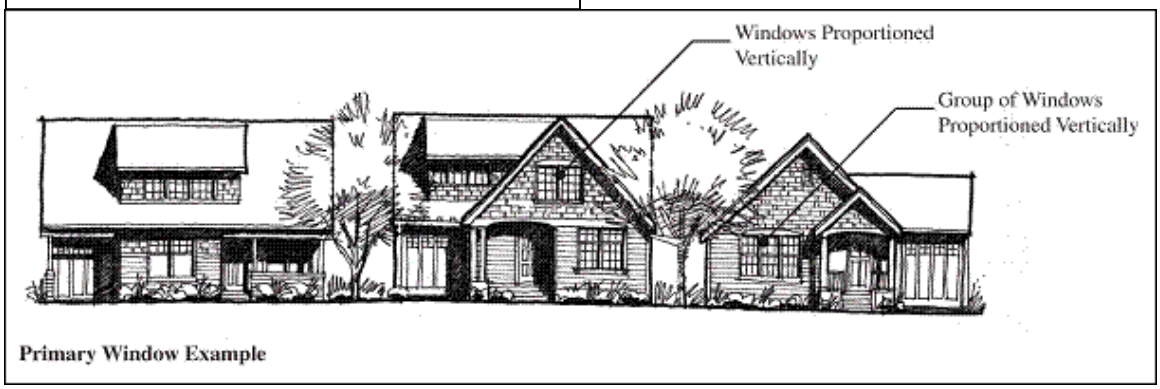


Figure 14.34.34: Window Proportions

v. Divided light windows are encouraged. They must either be true divided light or have properly proportioned mullions applied to the window. Individual panes must be vertically proportioned or square (see Figure 14.34.35).

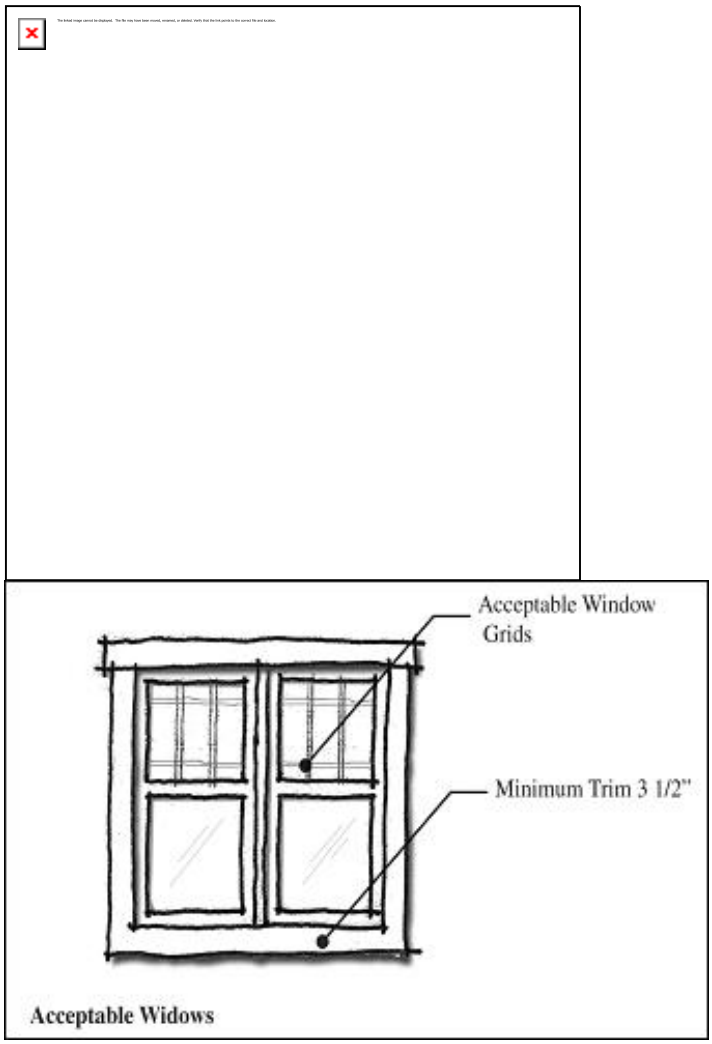


Figure 14.34.35: Acceptable Windows

C. Chimneys. Chimneys shall be designed to be in keeping with the architectural style of a residential structure.

   i. Chimneys above the roof should be at least twenty (20) inches by twenty-four (24) inches as measured in plan.

   ii. Wood-framed chimney enclosures are permitted; however metal termination caps shall not be left exposed. These tops shall be shroud in a metal chimney surround.

   iii. Chimney shape and profile should appropriately reflect the stylistic direction of the rest of the house.

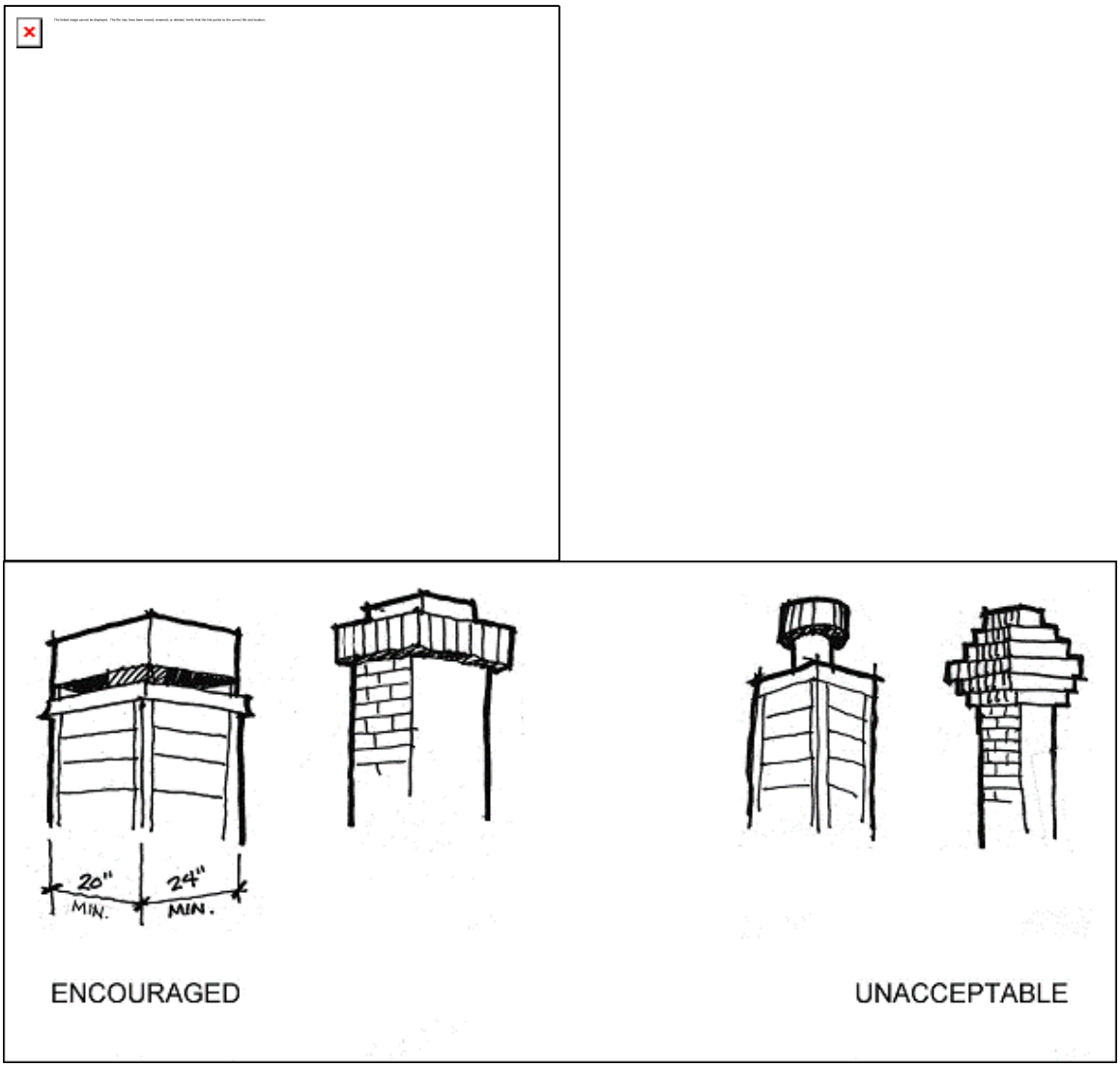


Figure 14.34.36: Chimney Examples

d. Columns, Trim and Corner Boards.

i. Character columns shall be strongly related to a home's architectural style (e.g., round, square, or tapered).

ii. Exposed four by four and six by six-inch posts are prohibited (see Figure 14.34.37).

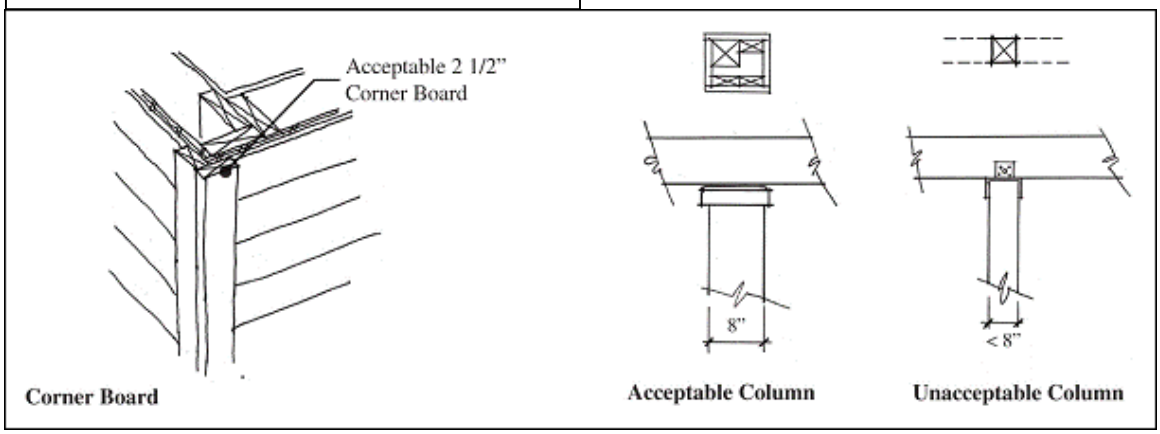


Figure 14.34.37: Corner Boards

iii. Metal corner clips or corner boards are required at corners where siding is used.

iv. Corner boards shall be a minimum of two and one-half inches in width.

e. Architecture Detail and Features. To ensure the appropriate scale and to provide elements of human interest, at least one of the following features shall be used in residential buildings. These elements shall follow the home's architectural style.

i. Shutters (proportional to window);

ii. Shutters (proportional to window);

iii. Flower boxes;

iv. Knee braces;

v. Columns;

vi. Trellises.

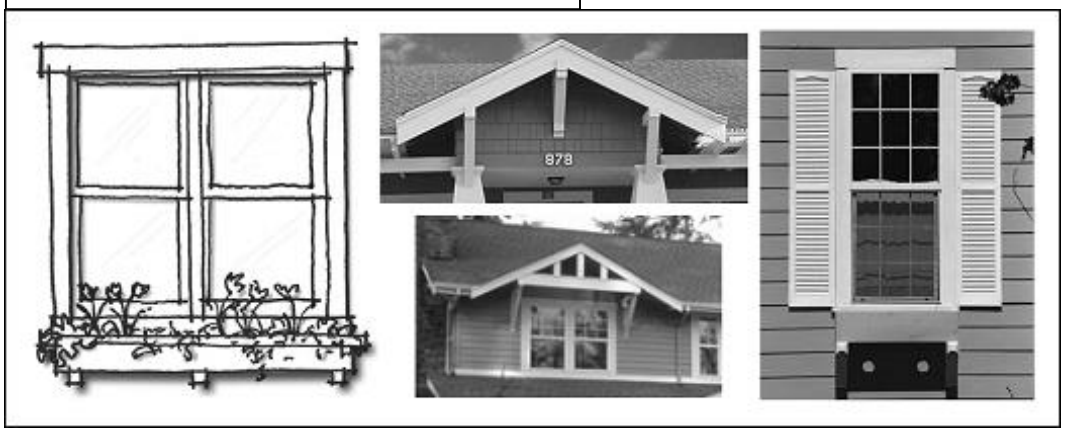


Figure 14.34.38: Examples of Architectural Details

f. Trash and Recycling Containers.

   i. Containers shall be kept within garages or a screened enclosure.

   ii. Containers shall not be stored within front yards.

   iii. Trash and recycle enclosures shall be located to minimize odor to habitable areas, as well as be screened to the public realm.

   iv. Trash and recycle locations should be easily accessible to each resident.

   v. Trash and recycle containers should be made of wood or masonry materials. Chain link is prohibited.

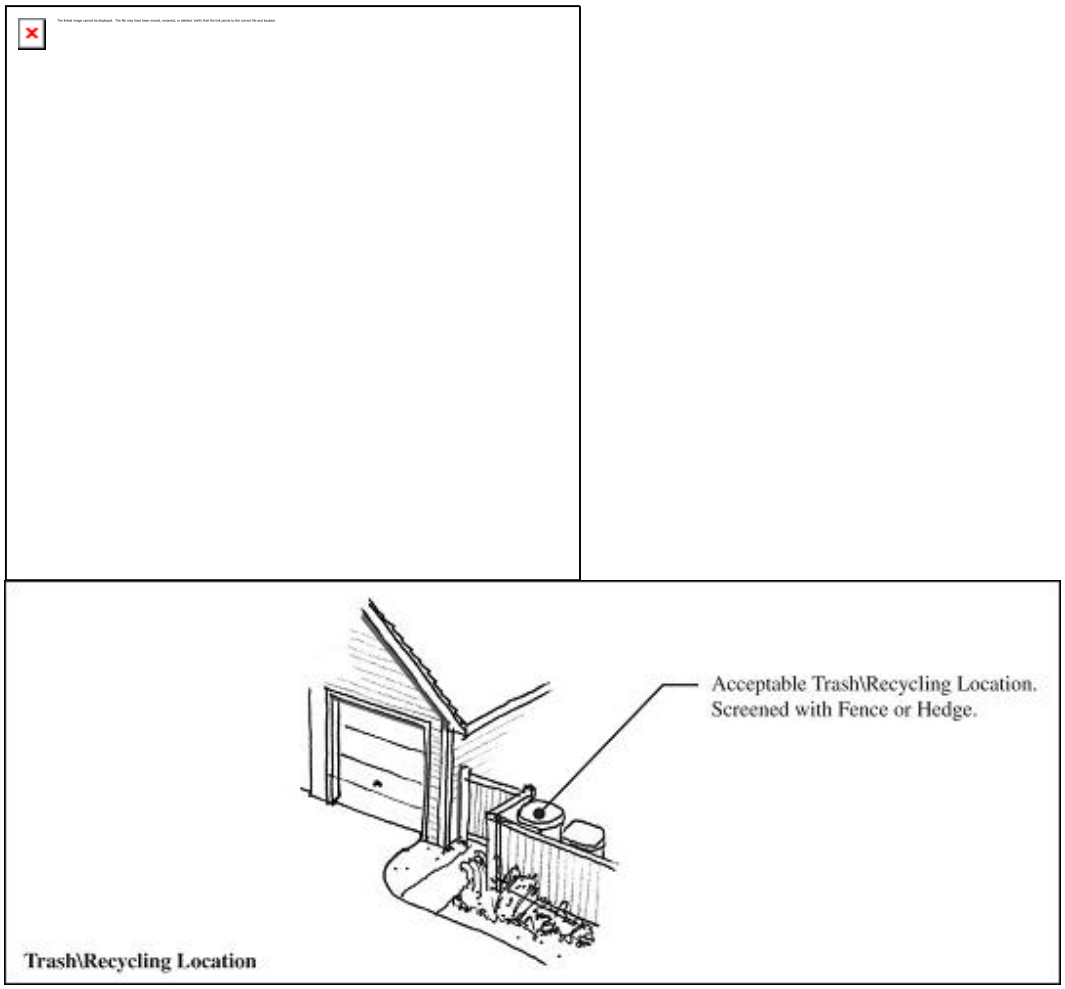


Figure 14.34.39: Trash and Recycling Containers

g. Mail and Newspaper Boxes.

i. The design of mailbox shelters should be compatible with the design of the primary structures on the site. This may include similar materials, architectural form, and/or design details.

ii. Mail and newspaper box locations shall be well lit and pedestrian accessible via an appropriate walkway. Mailbox shelters must not obstruct a walkway.

iii. All mailboxes shall be clustered and lockable consistent with USPS standards. Clustered mailboxes shall be architecturally enhanced with materials and details typical of the home's architecture and carefully placed to not adversely affect the privacy of residents and serve the needs of the U.S. Postal Service.

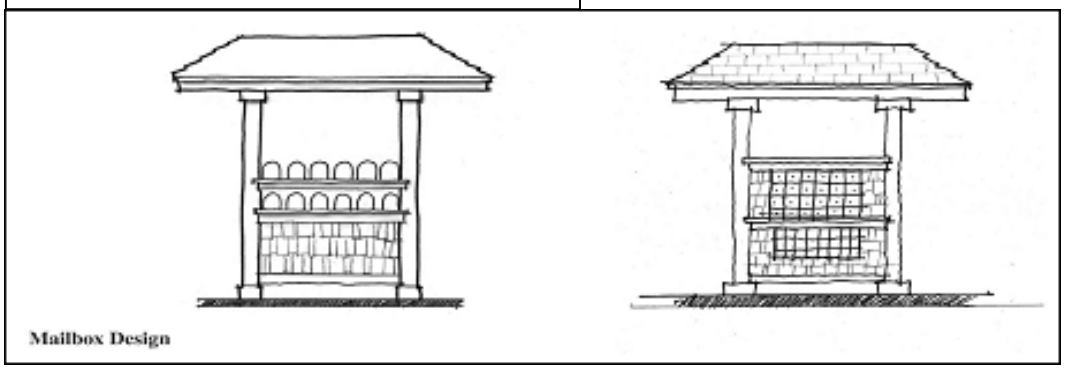


Figure 14.34.40: Acceptable Grouped Mailbox

h. Accessory Structures.

i. Accessory structures such as detached garages, studios, home offices, and workshops shall be design to be architecturally consistent with the principal structure.

ii. Accessory buildings shall not exceed twelve (12) feet in height, except that the maximum height for accessory buildings with pitched roofs with slopes of at least 4:12 is eighteen (18) feet.

iii. Portable storage containers shall not be considered as an accessory building and are prohibited in all residential zoning districts.

11. Materials.

a. Vertical Changes. Changes in materials in a vertical wall, such as from brick to wood, hall wrap the corners in accordance with subsection (A)(4) of this section.

b. Horizontal Changes. Transition in material on a wall surface, such as shingle to lap siding, shall have a material separation, such as a trim band board (see Figure 14.34.41).

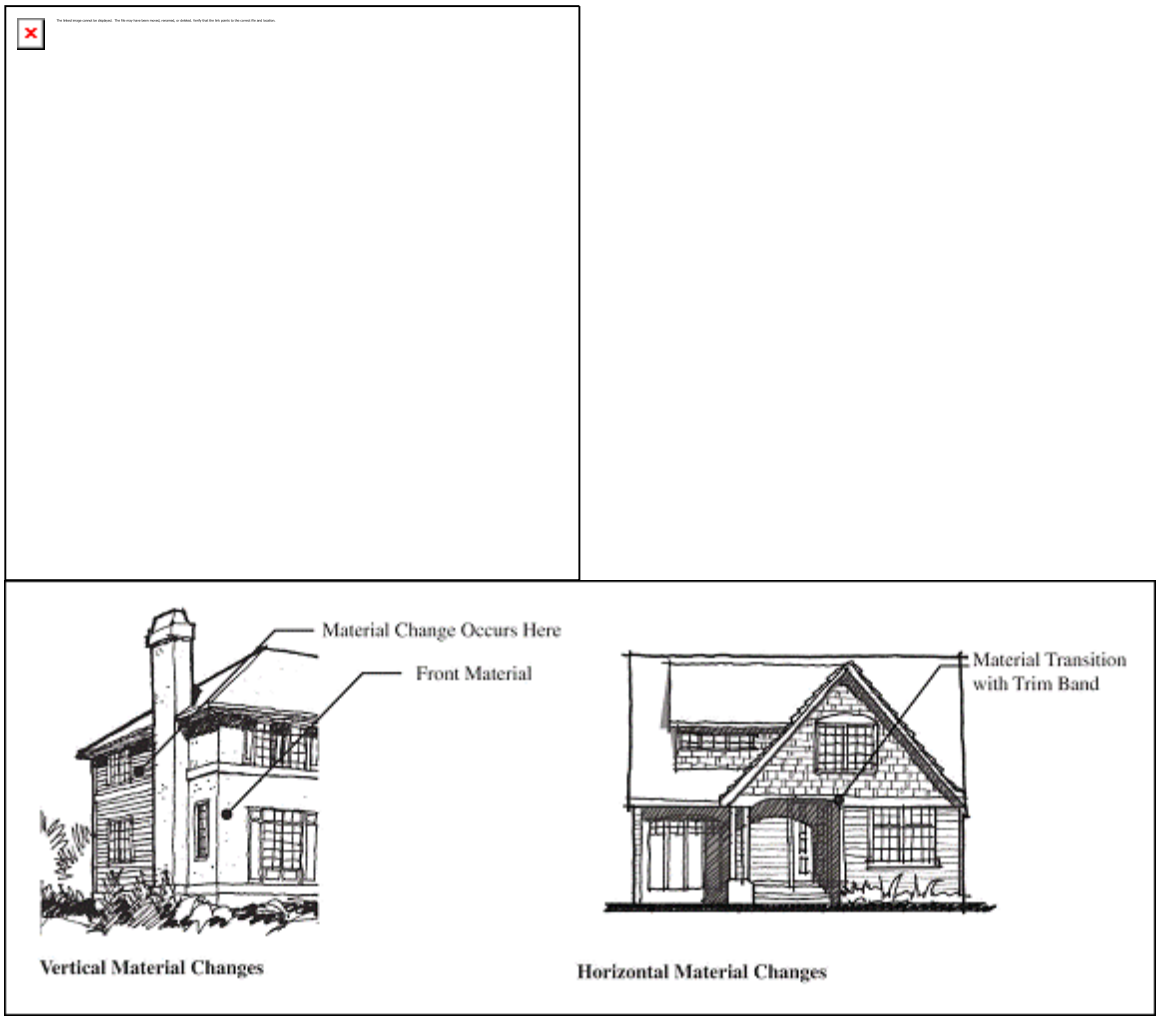
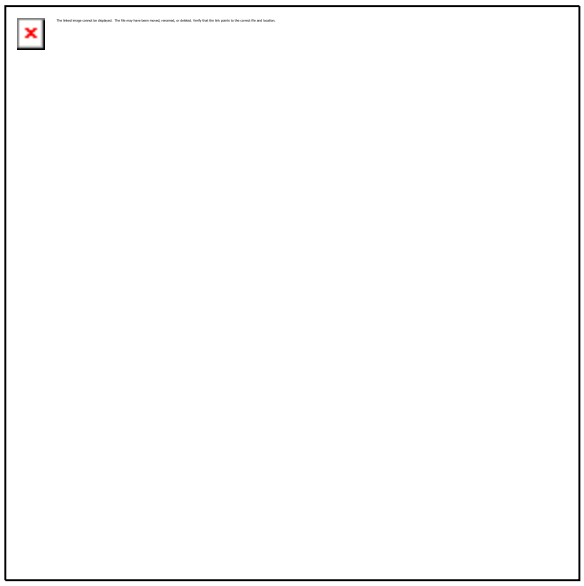


Figure 14.34.41: Material Changes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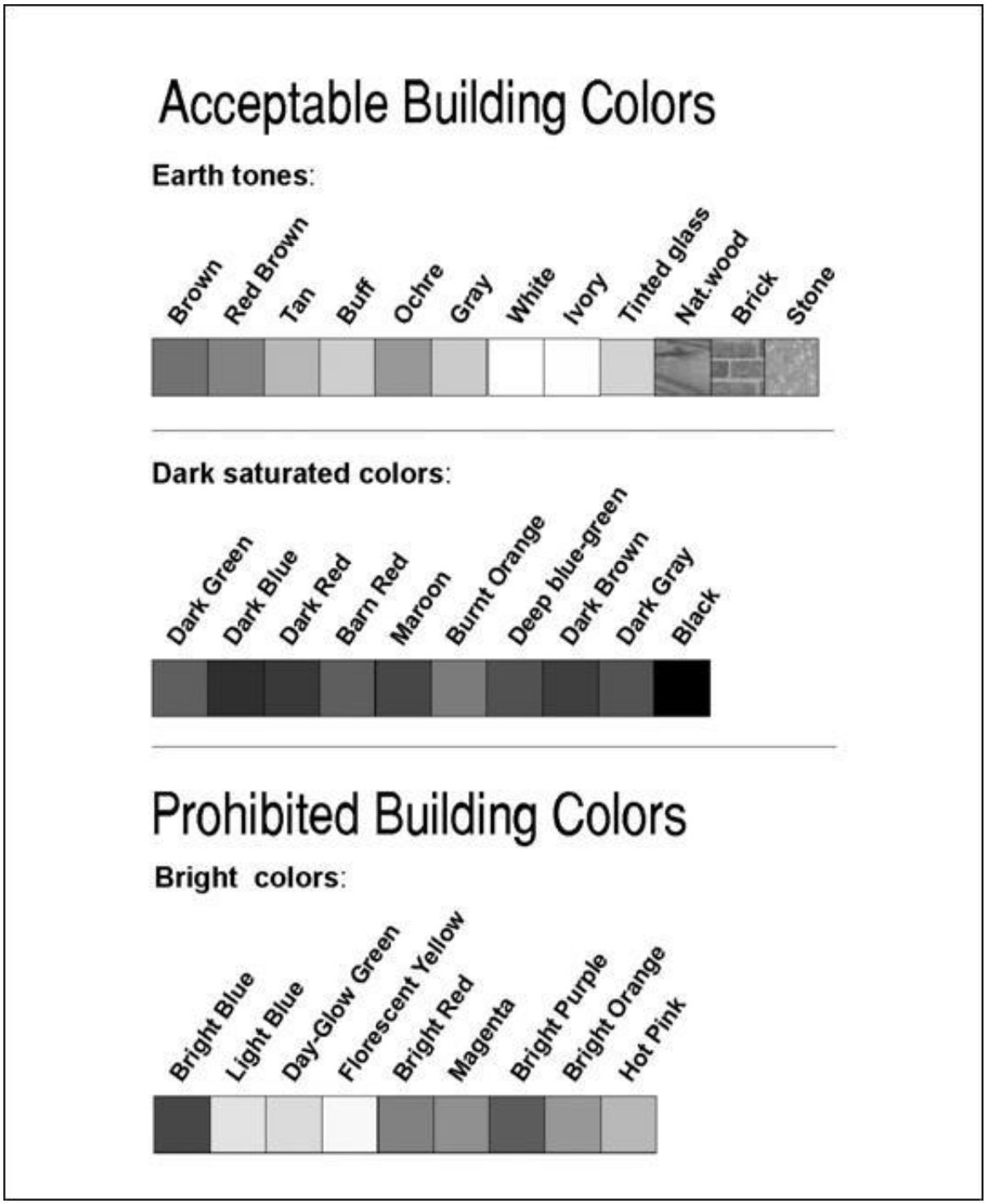

Figure 14.34.42: Building Colors

c. Acceptable Exterior Wall Material. Wood, cement fiberboard, stucco, brick, and stone may be used. Simulated stone, wood, stone, or brick may be used to detail homes.

d. Trim may be wood, cement fiberboard, stucco, or stone materials. Trim is required around all doors and windows. The trim must be three and one-half inches minimum and be used on all elevations.

e. Where a finish material meets a corner, that material shall wrap the corner until it meets a vertical element such as a chimney or window, or for a minimum of twenty-four (24) inches.

12. Colors.

a. Provide multiple colors on buildings to reflect material changes and individuality of the residence.

b. Muted deeper tones, as opposed to vibrant primary colors, shall be the dominant colors.

c. Although grey and beige are not excluded, the use of these colors shall not be the dominant color used on homes or other structures within the development.

d. Color palettes for all new buildings in the R12, MU12 zone districts, and in cottage/innovative housing developments in the residential zone districts, coded to the home elevations, shall be submitted to the city for approval. Colors shall be consistent with the building architecture and shall unify the character of projects within these zone districts.

B. Mixed Use and Nonresidential Building Design.

1. Purpose and Design Intent. The purpose of this section is to encourage building design that achieves two primary outcomes. In Old Town, new development should preserve and enhance Duvall's traditional village character, foster creative, high quality architectural treatments, and ensure new development that adds value to the existing community. In other areas, new development should have a clear architectural expression and reflect the physical and cultural context of its setting, with more flexibility for contemporary architectural styles, materials and detailing. Throughout Duvall, new nonresidential development should provide architectural variety, pedestrian scale, and features that enhance its connection to the natural environment.

2. Applicability. The following standards apply to the CO, OT, UT1, RIV, MU12, MT, LI, PF and MUI districts.

3. Massing and Composition. A strong overall building composition, along with a clear pattern of massing changes and modulation of building forms is required to create interest and to support the buildings integration into the overall context. The following standards are required:

a. Buildings shall have a clearly defined base middle and top, with a well-defined cornice line and banding that differentiates the ground floor from upper floors. For buildings with ground floor retail uses, awnings and other building elements or projections shall be used to emphasis this banding.

b. Primary building entries shall be clearly expressed in the building's overall massing. Secondary entries to ground floor retail and other uses shall be distributed along the facade and shall relate proportionally to upper story projections such as bay windows and balconies.

c. Multi-tenant buildings shall be designed to create the appearance of individual storefronts.

d. Building massing shall be focused on the primary street front, with primary uses oriented to this frontage. Service uses, parking and utilities should be accessed from non-primary facades and fully screened.

e. Where a building has a double frontage (e.g., street on side, parking on the other), primary and secondary facades shall be established.

f. Building parapets shall be designed to avoid false fronts and include the following design elements:

i. Parapets and other enclosed projections on all exterior facades shall be integrated into the overall massing and design of the building.

ii. The back sides of parapets shall not be visible from the public realm, and shall include returns and other architectural treatments to ensure their integration into the building's overall massing.

Figure 14.34.43: Examples of Good Building Massing and Articulation

g. Upper level balconies on buildings over two stories are encouraged, but subject to design review and approval by the planning director.

h. Secondary building forms or intersecting rooflines shall be used to break up continuous sloped roofs.

4. Building Modulation.

a. Building facades must include modulation at least every fifty (50) feet to reflect a human-scaled pattern of traditional building lots.

b. On ground floor retail frontages, at least seventy-five (75) percent of the facade shall be fenestrated from two to eight feet above the finished floor height. Retail glazing shall be at least sixty (60) percent transparent to the street and may not use mirrored glass.

c. Where pedestrian-oriented spaces are provided in accordance with DMC Section 14.34.050(B)(2), the building's architecture and massing should enhance those spaces with unique building elements such as landmark entries, additional fenestration, decorative materials and other details that enhance the space's character and usability.

d. Building facades in the OT, UT-1, MU12 and RIV zoning districts must include further modulation and other features to reflect the pattern and the city of Duvall's traditional building lot pattern. The following standards must be met:

i. Use of windows, entries and other features that create a regular rhythm of twenty-five (25) foot storefront spaces, linking ground floor and upper stories.

ii. Use of awnings, weather protection, and architectural features that reinforce a regular pattern of twenty-five (25) foot storefronts. For example, for a business that occupies three lots, use building and roofline modulation, change in materials/colors, and awnings to break down the scale of the storefronts (see Figure 14.34.44).

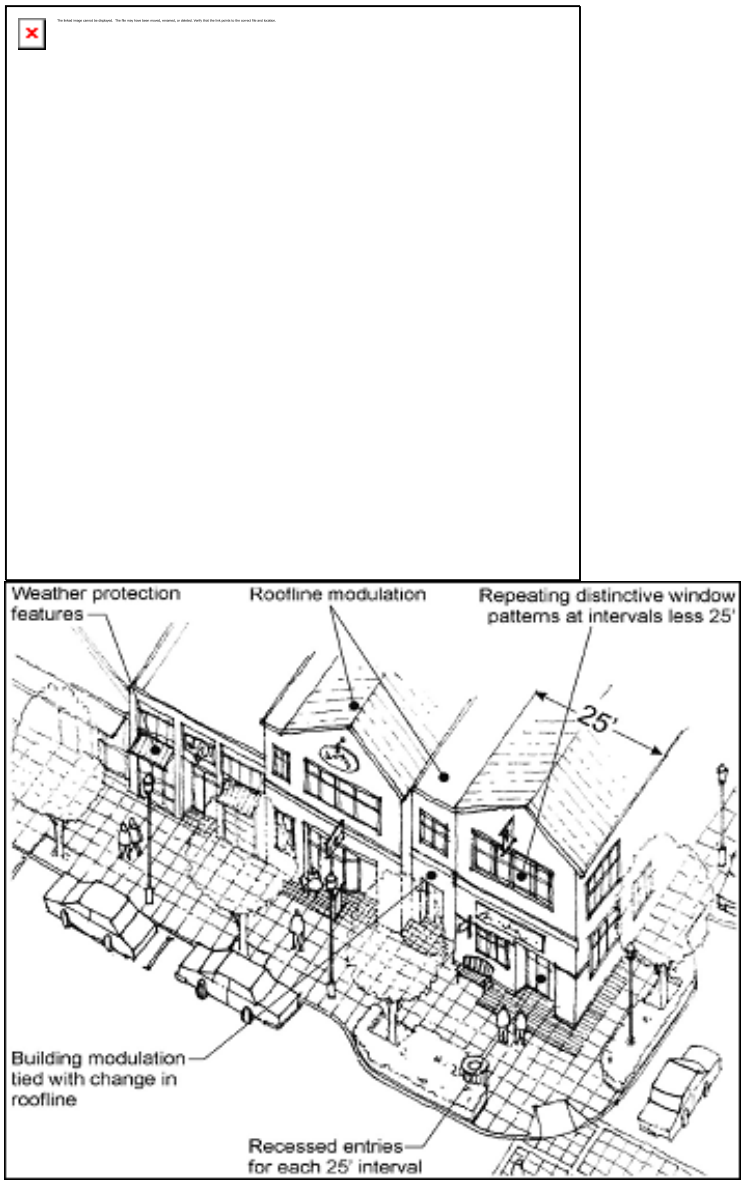

Figure 14.34.44: Examples of Building Articulation

iii. Change of roofline.

iv. Change in building material or siding style (coordinated with change in building color where appropriate).

v. Horizontal building modulation (depth at least two feet and preferably tied with to roofline modulation).

vi. Other methods as determined by the planning director.

e. Rooflines of all buildings shall include a prominent cornice design that integrates all elements of the building's massing and articulation. Dormers, chimneys, stepped roofs, gables and other accents to the roofline are permitted and encouraged. The width of any continuous flat roofline should extend no more than fifty (50) feet without modulation. Modulation should consist of a change in elevation of the visible roofline of at least four feet. The director may

reduce or eliminate these requirements where other treatments are successfully used to meet the intent of the standard.

f. A sloped or gabled roofline segment of at least twenty (20) feet in width and no less than four feet vertical in twelve (12) feet horizontal six feet vertical in twelve (12) feet horizontal if within the OT zoning district.

g. Hipped roof forms are less effective than gabled roof forms in reducing the apparent scale of buildings and thus are discouraged and may be prohibited by the director.

5. Blank Wall Treatments.

a. Blank walls as defined in DMC Section 14.06.028, visible from a public street, common open space, plazas, courtyards, sidewalks, trails, or interior pathways, are prohibited. Design treatments to eliminate blank walls shall include:

i. Transparent windows or doors;

ii. Display windows that open into the interior of the building (poster type window frames not permitted);

iii. Landscape planting bed at least five feet wide or a raised planter bed at least three feet wide in front of the wall. Such planting areas must include planting materials that are sufficient to obscure or screen at least sixty (60) percent of the wall's surface within three years;

iv. Installing a vertical trellis in front of the wall with climbing vines or plant materials sufficient to obscure or screen at least sixty (60) percent of the wall's surface within three years. For large areas, trellises should be used in conjunction with other blank wall treatments;

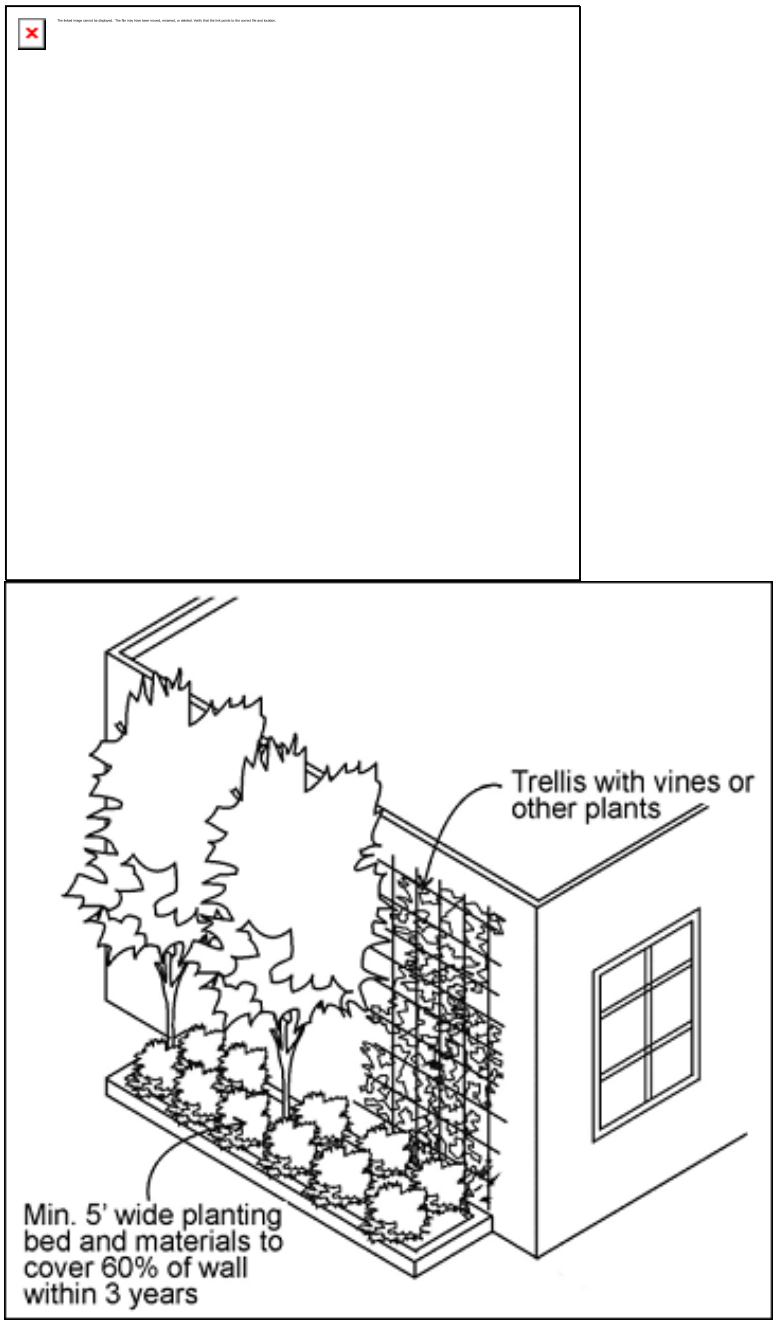

Figure 14.34.45: Blank Wall Treatments

v. Other methods such as murals or special building material treatments that meet the intent as approved by the director.

6. Building Details.

a. All new buildings shall substantially include the following elements on their primary facades subject to planning director approval. Items used to meet DMC Section 14.34.050(B) or (C), or other sections of this chapter, shall not be used to meet this requirement. Treatments that create a false sense of historicism are discouraged.

i. Display windows divided into a grid of multiple panes. Display windows can vary between storefronts to avoid uniform appearance on multi-tenant buildings;

ii. Transom windows;

iii. Recessed windows;

iv. Decorative weather protection feature(s);

v. Material distinctions between ground and upper level;

vi. Window bays;

vii. Recessed entry;

viii. Sills;

ix. Pilasters;

x. Landscaped trellises or other decorative element that incorporates landscaping near the building entry (element must be integrated into the building and not a simple potted plant);

xi. Decorative light fixtures;

xii. Decorative building materials and/or trim work. This could include decorative stone, tile, or woodwork, decorative kick plates, or other methods as approved by the planning director;

xiii. Artwork incorporated into the building facade or entry area;

xiv. Other details as approved by the planning director.

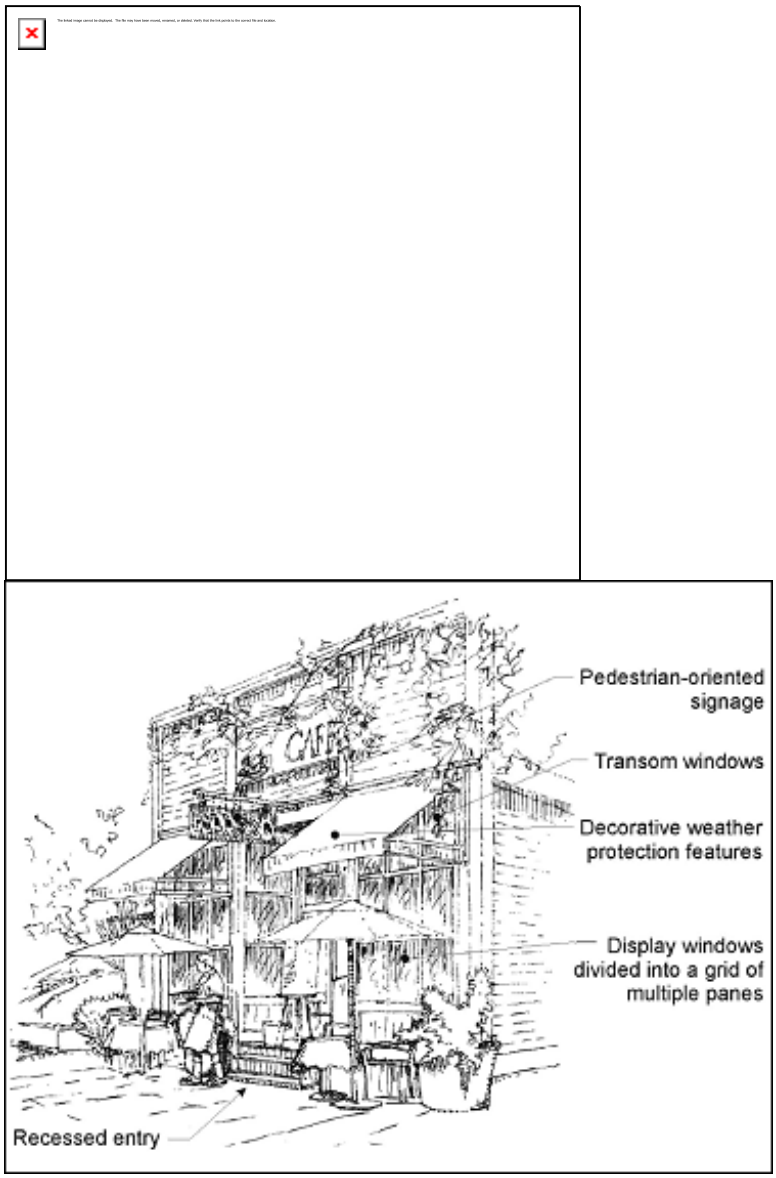

Figure 14.34.46: Examples of Acceptable Facade Details

b. All new or remodeled (per Section 14.34.010(A)(2)) buildings in the OT zoning district shall include decorative pedestrian-oriented signage and be in keeping with the character of the building.

c. All new or remodeled buildings shall include protective awnings or canopies over all sidewalks with a minimum width of six feet. Canopies and awnings shall meet all clearance requirements set forth by the city.

7. Building Materials and Color. Building materials and color shall unify the overall architecture and facade detailing of the building and complement the character of Duvall.

a. High quality, durable building materials that add visual interest, detail, and are easily maintained shall be used. Materials and finishes should repeat the textures, scales, and rhythms common to early 20th Century construction typical to Duvall. This includes vertical and horizontal wood clapboard siding, shingle and batten boards, brick and masonry, and ribbed metal roofing. Contemporary materials that emulate or enhance these textures and

characteristics are acceptable and encouraged. Treatment of building materials that creates a false sense of historicism in new buildings is strongly discouraged.

b. If metal siding is used, it must have visible corner moldings and trim, and shall incorporate masonry or other impact and stain resistant material at the base of the building. Height to be proportional to overall building height.

c. Concrete blocks used for the facade of any building must be split or rock-faced and limited to twenty (20) percent of the facade areas. The planning director may allow a higher percentage through the use of specialized textures and/or colors used effectively with other building materials and details in a way that meets the intent of the standards.

d. Stucco and similar troweled finishes must be trimmed in wood or masonry and should be sheltered from extreme weather by roof overhangs or other methods. Weather exposed horizontal surfaces must be avoided. Masonry is required at the base of the building and shall be proportional to overall building height.

e. The following materials are prohibited unless specifically approved by the planning director:

   i. Mirrored glass covering more than ten (10) percent of the exterior of the building;

   ii. Textured or scored plywood (including T-111 or similar plywood);

   iii. Stucco board;

   iv. Window film, unless specifically approved by the planning director.

f. Bright building or trim colors are discouraged with the exception of decorative tile-work, artwork, and signage that shall be reviewed by the director to ensure consistency with the intent of this section. Desirable colors for buildings include natural earth tones, muted, and dark saturated colors (see Figure 14.34.42).

g. Color palettes for all new structures, as well as changes in color on existing buildings, coded to the building elevations, shall be submitted to the city for approval.

h. Neon tubing and/or linear building lighting along facades and/or rooflines shall not be permitted.

i. Building facades shall not be designed and/or painted to resemble a business logo and/or sign. This section does not preclude signs in accordance with the sign code.

8. Additional Standards for Commercial and Industrial Buildings. Building facades of large-scale buildings such as commercial, office, industrial, or institutional buildings where the building is multi-story or wider than sixty (60) feet (measured along the primary facade) shall substantially include the following modulation and other features:

   a. Two building modulations for every one hundred twenty (120) feet of linear distance with a minimum depth of two feet. Building modulation shall extend from ground plane to the roof;

   b. Significant building elements such as a focal point at a corner or mid-building;

   c. Vertical building modulation in the form of window bays, pilasters, or other treatments;

   d. Roof modulation through changes in height, pitch (i.e., flat to sloped), material, overhangs or roof cap detail (banding, cornice treatment etc.);

   e. Change in building material or siding style (perhaps coordinated with a change in building color);

   f. Provision of lighting fixtures, trellis, trees, or other landscape feature within each interval;

   g. Repeating distinctive window patterns at intervals less than the modulation interval;

   h. Other methods as approved by the director.

9. Garbage and Recycling Facilities, Service Areas and Mechanical Equipment. All building utilities and service facilities shall be designed as follows:

   a. Be enclosed and screened around their perimeter by a wall or fence at least six feet high;

   b. Have doors;

   c. Such enclosures should be made of masonry, ornamental metal or wood, or some combination of the three that is complementary to other building architecture on the site;

   d. Such enclosures shall be located in an area that is accessible to the hauling company;

   e. Enclosures shall be sited so that they do not interfere with the primary purpose of the site but are accessible to tenants and/or owners. A walkway and/or sidewalk to the enclosure shall be required;

   f. Enclosures shall be sized at a minimum to accommodate the number of garbage and recycling facilities as determined to be necessary by the hauling company to serve the site;

   g. If applicable, enclosures shall be sized to accommodate cardboard compaction/recycling facilities;

   h. All aspects of the siting, design, and number of facilities related to enclosures shall be approved by the refuse company in writing prior to site plan and/or subdivision approval;

   i. If the enclosure is abutting a public street, sidewalk, or interior pathway, a landscaped planting strip, minimum five feet wide, shall be located on three sides of such facility;

   j. Service areas, loading berths and storage areas should be located and designed to minimize impacts on the pedestrian environment and adjacent uses (see Figures 14.34.47 and 14.34.48);

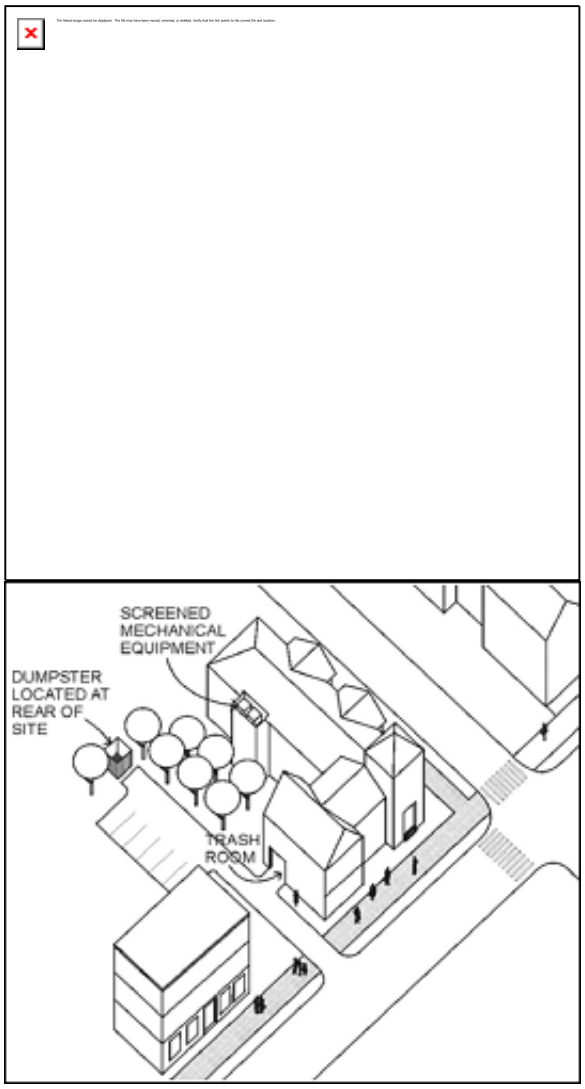

Figure 14.34.47: Service Enclosure

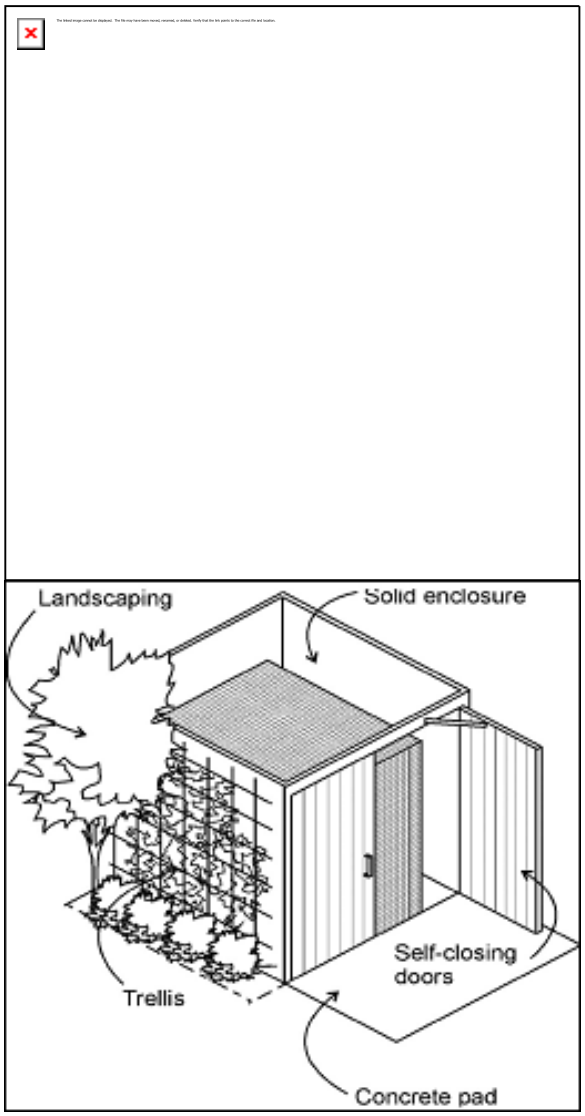

Figure 14.34.48: Service Elements

k. Services elements should generally be concentrated and located where they are accessible to service vehicles and convenient for tenant use (See Figure 14.34.48);

l. Roof-mounted mechanical equipment shall be located so as not to be visible from the street, public open space, parking areas, or from the ground level of adjacent properties;

m. Roof-mounted mechanical equipment that is visible from the street or from an adjacent property shall be screened. Screening features shall blend with the architectural character of the building and are typically a three-sided facility that integrates the mechanical equipment into the building design.

10. Signage. Signage in mixed use, nonresidential projects shall be designed as follows:

a. Signs shall be designed to complement the character, and be appropriate in scale for the project;

b. Signs shall be compatible in scale and proportion with building design and adjacent signs;

c. Sign colors shall be complementary to, and coordinated with, building colors.

11. Lighting. Lighting in mixed use, nonresidential projects shall be designed as follows:

    a. Lighting shall be designed to ensure safety and security, enhance and encourage evening activities, and provide distinctive character to a project;

    b. The color of light shall be considered in lighting design. Metal halide is recommended for general usage at building exteriors, parking areas, and pedestrian walkways, plazas and courtyards. Low pressure sodium, which casts a yellow light, is discouraged;

    c. Accent lighting on architectural and landscape features is encouraged.

(Ord. 1056 § 1 Exh. A (part), 2007)

Exhibit 9

City of Duvall

Small Town. Real Life.

April 16, 2012

Marsha Martin
CamWest Development LLC
9720 NE 120th Place, Suite 100
Kirkland, WA 98034

RE: City of Duvall/Wonderland Holdings/Toll Development Agreement

Dear Marsha,

Enclosed please find three signed original Development Agreements. I have notarized Mayor Ibershof's signature. Would you please return one signed original to me after it has been signed and notarized by your parties.

Thank you.

Sincerely,

Jodee Schwinn

Jodee Schwinn
City Clerk
City of Duvall

cc: file

Public Hearing (3-22-12)
DEVELOPMENT AGREEMENT BETWEEN
THE CITY OF DUVALL, WONDERLAND HOLDINGS, LLC AND TOLL WA LP

Pursuant to the authority granted by RCW 36.70B.170 through .210, the City of Duvall, an Optional Municipal Code City ("City"), Wonderland Holdings LLC, a Washington limited liability company ("Wonderland"), and Toll WA LP, a Washington limited partnership ("Toll") enter into the following agreement ("Development Agreement") dated **March 22, 2012** to govern the development and use of that real property described on **Exhibits A-2** and **B-2** hereto. The City, Wonderland and Toll are also referred to individually as a "Party" and collectively as the "Parties".

RECITALS

A. Wonderland owns certain real property located within the City of Duvall consisting of two parcels which are more fully described on **Exhibit A-1** attached hereto and incorporated herein. After recording of Ordinance 1119 (vacation of 3rd Ave. NE) and associated boundary line adjustment the Wonderland property will consist of two parcels totaling approximately 19.02 acres, which are more fully described on **Exhibit A-2** attached hereto and incorporated herein and depicted on **Exhibits C-1** and **C-2** attached hereto and incorporated herein. The Wonderland property as described on **Exhibit A-2** and depicted on **Exhibits C-1** and **C-2** is referred to herein as the "Wonderland Property" and is the property that is subject to this Development Agreement. The Wonderland Property is zoned Mixed-Use 12 ("MU-12").

B. Toll is the successor in interest to CamWest Duvall LLC ("CamWest"), a Washington limited liability company, as owner of certain real property located within the City of Duvall consisting of one parcel which is more fully described on **Exhibit B-1** attached hereto and incorporated herein. After recording of Ordinance 1119 (vacation of 3rd Ave. NE) and associated boundary line adjustment the Toll property will consist of one parcel totaling approximately 3.09 acres, which is more fully described and depicted on **Exhibit B-2** attached hereto and incorporated herein and depicted on **Exhibits C-1** and **C-2**. The Toll property as described on **Exhibit B-2** and depicted on **Exhibits C-1** and **C-2** is referred to herein as the "Toll Property" and is the property that is subject to this Development Agreement. The Toll Property is zoned R-12 and MU-12.

C. The Wonderland Property and the Toll Property collectively are referred to as Duvall Urban Village Division I or DUV I.

D. Wonderland and CamWest submitted a complete application to the City for preliminary plat approval for DUV I on December 22, 2008 (the "Preliminary Plat") which set out commercial and residential lots, open space/recreation tracts and a park to be developed as part of DUV I and which included a conceptual master plan dividing the development into seven phases. The Preliminary Plat was approved on June 16, 2010. In order to make it economically viable to develop DUV I, Wonderland and Toll wish to record the final plat ("Final Plat") in phases over the term of this Development Agreement as set out generally in the Preliminary Plat application and more fully in this Development Agreement.

E. DMC 14.18.060 requires that a development agreement be approved by the City if a developer proposes development of the commercial portions of property zoned MU-12 in phases. RCW 36.70B.170-.210 authorizes cities to enter into development agreements.

F. CamWest entered into a Development Agreement with the City dated December 14, 2007 to develop certain real property then owned or controlled by CamWest located to the east of the

proposed DUV I. The property is now owned or controlled by Toll WA LP and is referred to herein as the Toll Development. The Development Agreement for that property is referred to herein as the Toll Development Agreement. The Toll Development property and other properties were annexed to the City on August 9, 2007. Prior to the annexation CamWest and the City entered into a Pre-Annexation Agreement. The Pre-Annexation Agreement and the Toll Development Agreement created certain obligations to construct infrastructure improvements, including the construction of 3rd Avenue improvements in either its former or current right-of-way alignment, and the construction of 2.9 acres of park. Toll as successor in interest to CamWest must file and obtain approval of an amendment to the Toll Development Agreement because property subject to the Toll Development Agreement is located within DUV I, and DUV I provides for development of a one (1) acre park intended to satisfy a portion of the park obligations of the Toll Development Agreement. Toll, as successor in interest to CamWest, is currently in the process of preparing a preliminary plat application for the Toll Development for submittal to the City.

G. The Preliminary Plat for DUV I depicts the 3rd Avenue right-of-way in an alignment to the west of its original location. The City approved the vacation of that portion of the 3rd Avenue right-of-way adjacent to the Preliminary Plat in Ordinance 1119 and in consideration for such vacation Wonderland, Toll and CamWest will dedicate right-of-way to the City for 3rd Avenue in the alignment generally set out in the Preliminary Plat.

H. Wonderland and Toll wish to vest development of the Wonderland Property and the Toll Property as allowed by RCW 36.70B.180 to the comprehensive plan polices, zoning and other applicable standards and regulations for the term of this Development Agreement as provided herein.

NOW, THEREFORE, in consideration of the mutual promises, benefits and obligations set forth herein, the City, Wonderland and Toll enter into the following Development Agreement:

1. TERM AND VESTING

1.1 Term. The term of this Development Agreement shall be twelve (12) years commencing from the date of execution by all Parties. Extensions may be granted by the City Council if agreed upon by both Parties.

1.2 Vesting to Regulations and Standards. Except as otherwise provided herein, this Development Agreement, and all substantive zoning, building and development regulations and standards set out in the 2006 Comprehensive Plan and amendments thereto, the Duvall Municipal Code ("DMC"), including but not limited to the Uniform Development Regulations adopted in DMC Title 14, the Development Design Standards (July 2007 Update), the 2005 King County Surface Water Design Manual, the November 2008 Park, Trails and Open Space Plan, and the transportation concurrency regulations, SEPA regulations and substantive SEPA policies, and other applicable standards and regulations, laws, ordinances and policies governing land development (cumulatively referred to as "Plans, Regulations and Standards") in effect as of the date of the submittal of the complete Preliminary Plat application (December 22, 2008 or "Vesting Date") shall govern the development of the Wonderland Property and the Toll Property so long as any application required for development (including site plan review approval or if that process is no longer used, the equivalent review process at the time of development and building permit applications) is filed during the term of this Development Agreement. Except as otherwise provided herein, or by county, state or federally mandated laws preempting the City's authority to vest regulations under this Agreement, and excluding impact fees, general facilities charges, revisions to permit processing fees and plan review fees, and procedural regulations and changes thereto, any amendments or additions made during the term of this Development Agreement to the Plans, Regulations and Standards shall not apply to or affect the conditions of development of the Wonderland Property and the Toll Property; provided that pursuant to RCW 36.70B.170(4) the City reserves authority to impose new or different officially adopted regulations of general applicability, but only if, and to the

extent required by a serious threat to public health and safety, as reasonably determined by the Duvall City Council after notice and an opportunity to be heard has been provided to Wonderland and Toll; and, provided further, that the Parties may mutually agree to the application of subsequently adopted Plans, Regulations and Standards.

2. PHASED RECORDING OF FINAL PLAT

2.1 Recording of Final Plat in Phases. The approved Preliminary Plat includes (74) seventy-four single family lots, (5) five lots to be developed with (101) one-hundred-one condominiums or other multifamily units, (1) one lot to be developed with (6) six live-work units, (4) four commercial lots, two Native Growth Protection Area tracts, and a park lot which will be improved and dedicated to the City. Wonderland and Toll contemplate the development of DUV I in phases. In order to create an economically viable project, the Parties agree that the Final Plat may be recorded in phases over the term of this Development Agreement as generally set out in **Exhibit D-1** (the "Phasing Plan") and depicted on **Exhibit D-2** ("Phasing Map") attached hereto and incorporated herein. The Parties acknowledge that the order of development of the phases will be based on market conditions and other factors, many of which may be beyond the control of the Parties. During the term of this Development Agreement a Final Plat may be approved for any phase or combination of phases in any order, provided that the conditions for Final Plat approval applicable to that phase as set out in the Preliminary Plat approval and the provisions of this Development Agreement have been met.

2.2 Completion of Improvements in Accordance with Phasing Plan. In order to obtain Final Plat approval for a phase or phases, the road and utility infrastructure associated with that phase, as set out in the Phasing Plan and the Phasing Map, must be completed and applicable fees due at Final Plat paid to the City for that phase(s).

2.3 Preliminary Plat Approval Valid for Term of Development Agreement. The Preliminary Plat approval issued on June 16, 2010 shall be valid for a period that is co-terminus with the twelve year term of this Development Agreement. Extensions may be granted by the City Council if agreed upon by both Parties.

2.4 Minor Modifications to Phasing Plan and Phasing Map. In order to provide for flexibility, minor modifications may be made to the Phasing Plan and Phasing Map prior to Final Plat approval for any phase(s) that has not yet received Final Plat approval, including modifications to phasing boundaries. Such changes under this paragraph 2.4 shall relate only to the Phasing Plan and Phasing Map and not the Preliminary Plat approval. If a change in phase boundaries is proposed, the associated infrastructure (streets, sidewalks, utilities etc.) to be constructed for the revised phase for Final Plat approval shall be adequate to support the revised phase. Minor modifications, including a proposed modification of phasing boundary lines, shall be approved administratively.

3. RESIDENTIAL DEVELOPMENT IN MU-12 AND R-12

3.1 Maximum and Minimum Density. The maximum allowed residential density for DUV I is two-hundred-six (206) residential units, provided that residential units constructed above ground floor commercial that otherwise meet applicable Duvall Municipal Code requirements are not counted towards maximum density. The minimum allowed residential density for DUV I is one–hundred forty-three (143) units. Sixty per cent (60%) of the residential units in the MU-12 zone must be attached. The Preliminary Plat approves one-hundred-eighty-one (181) residential units seventy-four (74) single family lots which will be developed with a mix of attached and detached dwelling units, five (5) lots to be developed with one-hundred-one (101) attached condominiums or other multi-family units and one (1) lot to be developed with six (6) live-work dwelling units. The precise number and types of attached and detached residential dwelling units will be determined during the development review process, subject to the conditions of Preliminary Plat approval, the required percentage of attached units and

compliance with minimum and maximum density requirements.

3.2 Condominium/Multi-family Lots. Condominiums or other multi-family development proposed for Lots 3, 80 and 82-84 (as numbered on the approved Preliminary Plat) will require review through the site plan review process set out in DMC 14.62. In the event that Wonderland wishes to create additional single family lots on those lots for which condominium or other multi-family development is now contemplated, they shall be required to submit and obtain approval of a subdivision application. Such development must maintain the overall project's MU-12 sixty per cent attached unit requirement and minimum density requirements. Any such applications filed during the term of this Development Agreement shall vest to and be considered under the laws and regulations in effect as of the Vesting Date, except as otherwise provided in paragraph 1.1 herein. When reviewing any such application, the City will not impose conditions different from those set out in the conditions of the Preliminary Plat approval, except and only to the extent necessary to address an impact(s) not addressed as part of the Preliminary Plat approval process.

4. COMMERCIAL DEVELOPMENT IN MU-12

4.1 Commercial and Mixed Use Development. The approved Preliminary Plat provides for the creation of four commercial lots (Lots 1, 2 4 and 5) for the development of office, commercial, retail and/or mixed uses. In addition, one lot (Lot 81) is proposed for development with six live-work units. Wonderland will develop the commercial and live-work lots through the site plan review process. Wonderland will submit an application for at least one (1) mixed use building (defined as a building with two or more uses, including live-work units if the live-work units are subject to a recorded covenant on the face of the plat limiting the ground floor to office or other commercial uses) or other commercial building within five years after the Final Plat recording of the first phase of residential development, unless market conditions warrant an extension to ensure successful commercial development in which case the City Council is authorized to modify the timing for development of the mixed use and/or commercial building. Upon approval of all permits for the mixed use or commercial building, construction shall commence within the time period set out in the City's code after applicable permits for such a building are issued. Wonderland shall construct a minimum of fifty thousand square feet (50,000 SF) of office or other commercial uses on the four commercial lots and Lot 81. Each Lot shall have a minimum square footage of office or other commercial uses as follows: Lot 1 - 7,000 SF; Lot 2 - 16,338 SF; Lot 4 - 7,699 SF; Lot 5 - 16,750 SF; and Lot 81 - 2,213 SF. Provided that the minimum commercial square footage required in aggregate has been met (i.e., 50,000 square feet) on developed lots, then the minimum square footages on any remaining undeveloped lots (as set out above) shall not apply provided that the minimum square footage required by Code on each undeveloped lot is met. Furthermore, if Wonderland wishes to reallocate the minimum square footage on any lots as set forth above, Wonderland may submit a request for such modification to the City Council for approval, provided that the minimum commercial square footage required per lot by the Code is met.

5. SEPA PROCESS

5.1 SEPA Threshold Determination and Studies. A SEPA threshold determination was made as part of the Preliminary Plat review process based upon the reports and studies submitted as part of the application. Those reports and studies address sensitive areas, transportation (including analysis of full build-out of the Wonderland and Toll Properties), and a water system analysis for the development area. At the time of submission of site plan permit application for a multi-family, mixed multi-family-single family or commercial development phase of DUV I an environmental checklist will be submitted. The threshold determination shall adopt or incorporate the applicable portions of the MDNS issued for the Preliminary Plat. New MDNS conditions shall be included only to mitigate new environmental impacts not previously analyzed and mitigated by the Preliminary Plat MDNS and conditions of approval. Updates to reports submitted as part of the Preliminary Plat and new reports will be required only to the extent required to address potential environmental impacts not addressed

in the Preliminary Plat process or prior site plan and plat environmental review for the commercial and multi-family lots.

6. AFFORDABLE HOUSING

6.1 Affordable Housing Requirements. Wonderland agrees to provide a minimum of five percent (5%) of housing units at one hundred percent (100%) of the King County Median Income in the Duvall Urban Village Division I development. "King County Median Income" means the income level for King County as defined in the annual Housing Assistance Plan issued by the King County Department of Community and Human Services. Specific median income levels vary according to household size. In the event that King County stops issuing the Housing Assistance Plan, the City and Wonderland will mutually select an alternative standard for determining "median income". Such housing units may be multi-family units or single family units, and for-sale or for-rent, at Wonderland's discretion. These housing units shall be scattered throughout the development, provided that up to three (3) units may be located in any one phase in order to allow for the flexibility to design and construct the units in a manner which maximizes their affordability. Prior to the sale or rental of any affordable units Wonderland will work with the City to develop a mutually acceptable system for assuring that such units are sold or rented as affordable units for at least twenty years after occupancy.

7. TRANSPORTATION IMPROVEMENTS, IMPACT FEES AND IMPACT FEE CREDITS

7.1 Timing of Road Improvements. The nature, scope and timing of construction of transportation improvements shall be in accordance with the conditions of Preliminary Plat approval, the Phasing Plan set out in **Exhibit D-1** and as set out herein. The improvements to Big Rock Road, 3rd Avenue, Old Big Rock Road adjacent to commercial lot 1 (as depicted on the Preliminary Plat drawings) and the roads internal to the Preliminary Plat shall be constructed prior to final plat approval for the phase in which such improvements are required by the Phasing Plan, or a security shall be provided to the City in accordance with the DMC 14.66.080. Wonderland shall satisfy all conditions relating to all other Old Big Rock Road improvements by making a payment to the City as provided herein and it shall become the responsibility of the City to construct such improvements. Except as set forth below with respect to Phases B and F, Wonderland shall pay the City the sum of one hundred seventy five thousand dollars ($175,000.00) ("OBRR Payment") within ten (10) business days after the issuance of the certificate of occupancy for the one-hundred-twenty-fifth (125th) residential dwelling unit. Each single family detached home, attached home and each unit within a multi-family building shall be counted as one residential unit. If Wonderland fails to make the required payment when due, the City shall not issue any additional certificates of occupancy for residential units until such payment has been made. If Phases B and/or F are proposed for final plat prior to the issuance of a certificate of occupancy for the 125th residential unit, Wonderland shall make an OBRR Payment to the City in the amount of $75,000. Such payment shall be a condition of the City's issuance of final plat approval for Phases B and F if they are jointly submitted for final plat approval at the same time and if submitted separately shall be a condition of final plat approval for the first of those two phases. Such payment shall satisfy all requirements of DMC 14.66.080 for the final plat for both Phase B and Phase F. The remaining OBBR Payment of $100,000.00 shall be made to the City within ten (10) business days after the issuance of the certificate of occupancy for the 125th residential dwelling unit. If Wonderland fails to make the required payment to the City, the City shall not issue any additional certificates of occupancy for residential units until such payment has been made. The OBRR Payment shall be adjusted at the time the OBRR Payment is due based upon the percentage increase in the Consumer Price Index for All Urban Consumers Seattle-Tacoma-Bremerton – All Items ("CPI") for the period nearest to the date of this Agreement ("Base Period") and the CPI for the period nearest to the date the OBRR Payment is due ("Payment Period"). For example, if the CPI for the Base Period is 225 and the CPI for the Payment Period is 240, the percentage increase to be applied to the OBRR Payment then due is 6.7% (rounded to the nearest tenth of a per cent) calculated as follows:

CPI Base Period	= 225
CPI Payment Period	= 240
Index Point Change	= 15
% Change	= 6.66% [(15 ÷ 225) x (100) = 6.66] rounded to 6.7%

7.2 3rd Avenue Relocation. The Preliminary Plat provides for realigning 3rd Avenue to the west of its original location. The City approved vacation of that portion of the 3rd Avenue right-of-way abutting DUV I in Ordinance 1119 and in consideration for such vacation Wonderland and Toll will dedicate right-of-way for 3rd Avenue in the new alignment as generally set out in the Preliminary Plat.

7.3 Party Responsible for Constructing Road Improvements. Wonderland and Toll shall jointly be responsible for the construction of the realigned 3rd Avenue road improvements. All other road improvements in any given phase shall be the responsibility of the Party or Parties seeking Final Plat Approval for that phase in accordance with the requirements of the Phasing Plan set out in **Exhibit D-1**.

7.4 Payment of Transportation Impact Fees. Transportation impact fees shall be paid at the time of building permit issuance for each single family housing unit, each multi-family building and each commercial building. The amount of the fee per single family unit, per multi-family building and per commercial building shall be the applicable amount set out in the impact fee schedule in effect at the time of building permit issuance for the unit or building, subject to the impact fee credit provisions of paragraph 7.5.

7.5 Transportation Impact Fee Credits. Pursuant to State law and the City's Code, a credit shall be applied against transportation impact fees for the value of land dedicated and costs incurred to improve or construct a road identified in the City's capital facilities plan if the improvement is required as a condition of a development approval. The approval for DUV I is conditioned upon the construction of three road improvements identified on the City's capital facilities plan - 3rd Avenue, 2nd Avenue and Big Rock Road. The Pre-Annexation Agreement and the Toll Development Agreement also require the construction of 3rd Avenue as a condition of building the Toll Development. Transportation impact fees are paid at the time of issuance of a building permit and transportation impact fee credits may only be applied as an offset to transportation impact fees at the time of payment of the fees. Transportation impact fee credits for 3rd Avenue, 2nd Avenue and Big Rock Road shall be calculated and applied as set forth in subparagraphs 7.5.1 through 7.5.10. The Toll Development shall be eligible for impact fee credits as set out below after approval of a preliminary plat, binding site plan or boundary line adjustment for the Toll Development as these two projects share the improvement obligation and current ownership of the adjacent properties.

7.5.1 Costs Eligible for Impact Fee Credits. At the time of payment of transportation impact fees a credit shall be applied as an offset for the eligible costs ("Eligible Costs") incurred and paid for the design and construction of 3rd Avenue, 2nd Avenue and Big Rock Road transportation improvements ("Improvement" or collectively "Improvements") as set out in subparagraphs 7.5.2 through 7.5.10 below. Eligible Costs shall include design and engineering costs for the road (curb, gutter, sidewalk, landscape strip, road/sidewalk storm drainage and lighting); and construction costs (the costs of grading, soil import/export, roadbed preparation/paving, road/sidewalk storm drainage and the portion of the detention facilities serving the Improvements, landscaping; irrigation and street lighting). Eligible Costs shall also include the value of property dedication required for construction of the Improvements for 2nd Avenue, and for the value of property dedication required for construction of the Big Rock Road Improvements. Eligible Costs shall not include the value of that portion of 3rd Avenue dedicated to the City by Wonderland and Toll as consideration for the vacation of the existing 3rd Avenue right-of-way, but shall include the value of any additional right-of-way acquisition if needed to construct the 3rd Avenue Improvements. The amount of Eligible Costs shall be based on invoices or other cost documents and the value of dedicated land shall be based upon a

valuation of $15 per square foot as set out in **Exhibit E** attached hereto and incorporated herein. Separate records shall be kept for each Improvement and such records shall be provided to the City on a quarterly basis. No credit shall be given for right-of-way dedication and unit costs in excess of those amounts set out in **Exhibit E** attached hereto and incorporated herein, except to account for annual inflation for the period between 2009 and the date such Eligible Costs were incurred.

7.5.2 2nd Avenue. In accordance with the Preliminary Plat approval, if 2nd Avenue is removed from the City's TIP and the road stub connection to the north is not required, then there shall be no impact fee credit for 2nd Avenue and Wonderland shall be allowed an additional lot.

7.5.3 Percentage of Eligible Costs allowed for Credit. Impact fee credits for Eligible Costs shall be applied in accordance with the City's 2009 transportation impact fee methodology as set out in **Exhibit E** in the percentages set out below.

(i) A credit of seventy-six percent (76%) shall be given for Eligible Costs incurred for 3rd Avenue within the right-of-way dedicated to the City as part of the vacation of the existing 3rd Avenue right-of-way. There is an excess of 8,802 square feet of right-of-way being vacated to the applicant and the value of the excess 8,802 square feet will be subtracted from the total credit available for the 3rd Avenue NE improvements.

(ii) A credit of twenty-one percent (21%) shall be given for Eligible Costs incurred for that portion of Big Rock Road directly abutting the Duvall Urban Village Division I property.

(iii) A credit of the eighty-three percent (83%) shall be given for Eligible Costs incurred for that portion of 2nd Avenue within the Duvall Urban Village Division I property.

(iv) A credit of one-hundred (100%) shall be given for Eligible Costs incurred to design and construct any part of the 2nd Avenue and Big Rock Road Improvements that do not directly abut the Duvall Urban Village Division I property ("Off-Site Improvements"), including the costs to acquire additional right-of-way if needed to construct those Improvements. A credit of one-hundred (100%) shall also be given for Eligible Costs incurred for any part of 3rd Avenue located outside of the proposed project boundaries, including the cost to acquire additional right-of-way if needed to construct the Improvements.

7.5.4 Commencement of Transportation Impact Fee Credits. Transportation impact fee credits for Eligible Costs incurred and paid for are "earned" commencing from the date construction drawings have been approved by the City for an Improvement to be constructed as part of a phase (as set out in the Phasing Plan) and may be applied to offset transportation impact fee payments made after that date as set out in paragraphs 7.5.5 through 7.5.7. In no event shall transportation impact fee credits exceed the amount of transportation impact fees owing as provided herein. Transportation impact fee credits shall be available as provided herein until the Improvements have been fully constructed and all impact fee credits for Eligible Costs have been fully expended.

7.5.5 Allocation of Available Credits for 2nd Avenue and Big Rock Road Improvements. Only Wonderland and its successors in interest in Phases A, B, C, D, F and G are entitled to transportation impact fee credits for Eligible Costs for the 2nd Avenue and Big Rock Road Improvements to offset impact fees owing for those Phases. No credits may be transferred to property outside of DUV I. The impact fee credits shall be applied as an offset to transportation impact fees paid at the time of issuance of a building permit (in the order received) for those Phases until such time as all available credits for Eligible Costs for those Improvements have been utilized.

7.5.6 Allocation of Available Credits for 3rd Avenue Improvements. Both Wonderland and Toll are entitled to fifty percent (50%) each of the transportation impact fee credits for

Eligible Costs for the 3rd Avenue Improvements. Transportation impact fee credits for 3rd Avenue may only be used to offset transportation impact fees paid for DUV I and the Toll Development and shall be applied as follows:

(i) Fifty percent (50%) of transportation impact fee credits for the Eligible Costs for the 3rd Avenue Improvements shall be allocated to Wonderland and its successors in interest, if any, for Lots 1-5 and 24-84 (as numbered on the approved Preliminary Plat). The impact fee credits shall be applied as an offset to transportation impact fees paid at the time of issuance of a building permit (in the order received) for those Lots until such time as all available credits for Eligible Costs for those Improvements have been utilized.

(ii) Fifty percent (50%) of transportation impact fee credits for the Eligible Costs for the 3rd Avenue Improvements shall be allocated to Toll for Lots 6-23 (as numbered on the approved Preliminary Plat) and to the future Toll Development which is also subject to an obligation to construct the 3rd Avenue Improvements, as set out in the Toll Development Agreement and Pre-Annexation Agreement. The impact fee credits available to Toll shall be applied as an offset to transportation impact fees paid at the time of issuance of a building permit (in the order received) for Lots 6-23 of DUV I and the Toll Development, as described in the Toll Development Agreement (excluding the lot to be conveyed to the City unless such lot is acquired by or re-conveyed to Toll or a successor in interest in the Toll Development property) and any amendment thereto, until such time as all available credits for Eligible Costs for the 3rd Avenue Improvements have been utilized.

7.5.7 Reallocation of Impact Fee Credits. Wonderland and/or Toll, and their successors and assigns may jointly request that the City Council approve a reallocation of the percentage of their respective impact fee credits by jointly submitting the reallocation formula to the City in writing, provided that the credits attributable to the 2nd Avenue and Big Rock Improvements may only be used to offset DUV I transportation impact fees, and the credits allocated for the 3rd Avenue Improvements may only be used by Wonderland to offset transportation impact fees paid for DUV I and by Toll to offset impact fees paid for DUV I and for the Toll Property. If approved by the City Council the reallocation shall be implemented by the City no later than 30 days after such approval. Any such reallocation shall not be considered an amendment to this Development Agreement, but shall be recorded with King County and a copy kept at Duvall City Hall and made available to anyone requesting review or a copy.

7.5.8 Recordkeeping by Wonderland and Toll. Accurate records of all Eligible Costs and payments therefore shall be maintained by Wonderland and Toll for each Improvement. Separate records shall be kept for each Improvement. Eligible Costs associated with any offsite portion of an Improvement shall be segregated from costs associated with that part of an Improvement directly abutting the DUV I property. Such records shall be provided to the City on a quarterly basis.

7.5.9 Recordkeeping by the City. The City shall maintain accurate records to reflect Eligible Costs for each road Improvement ("Transportation Impact Fee Credit Accounts"). Eligible Costs associated with any offsite part of an Improvement shall be segregated from Eligible Costs associated with that part of the Improvement directly abutting the DUV I property. The City shall maintain separate records and separate Transportation Impact Fee Credit Accounts for 2nd Avenue and Big Rock Road from which Wonderland and its successors and assigns may draw. There shall be two Transportation Impact Fee Credit Accounts for 3rd Ave. The Wonderland 3rd Ave Transportation Impact Fee Credit Account and the Toll 3rd Ave Transportation Impact Fee Credit Account.

7.5.10 Misapplication of Impact Fee Credits by the City. The City shall use its best efforts to allocate impact fee credits to the proper Party as provided above, but shall have no liability to Wonderland or Toll for credits issued in error unless the City intentionally issues the credit to the wrong Party or was grossly negligent.

8. PARK AND PARK FEES

8.1 Construction of Park. A one acre park to be dedicated to the City upon completion of construction was included in the DUV I Preliminary Plat (Tract 989) as part of Phase E (as depicted on **Exhibit D-2**). The park will be developed by Toll. The park was not counted towards the open space and park requirements of DUV I. A conceptual park design and park amenities have been reviewed by the City and found to be consistent with the City's Parks, Trails and Open Space Plan, including Appendix E ("Park Plan"). A recordable form of the conceptual park design is set out in **Exhibit F-1** and a list of park amenities is set out in **Exhibit F-2** which are attached hereto and incorporated herein. A color copy of the conceptual park design with additional detail is on file with the City. The Parties agree that the final design and improvements to the Tract 989 Park shall be substantially similar to the conceptual park design and amenities set out in **Exhibit F-1** and **Exhibit F-2** and the more detailed copy on file with the City. Because the final design is subject to an additional City review and approval process the Parties agree that although the park shall be substantially similar to the conceptual park design and amenities set out in **Exhibit F-1** and **Exhibit F-2** there must be flexibility on the part of both Parties as to the final design. For example, in order to achieve the design set out in **Exhibit F-1**, the City must grant modifications to the design standards that limit the height and spacing of retaining walls. Other modifications may be required such as allowing grades of 2:1 or 2.5:1 in appropriate areas or allowing angle or head in parking along the park frontage instead of parallel parking. Therefore, the City agrees that it will grant modifications to wall height and grades and such other modifications as are necessary for Toll to achieve the design set out in **Exhibit F-1**. Additionally the City will evaluate the fiscal impacts to the City of owning and maintaining the park amenities. In particular the City will evaluate the fiscal impacts of running and maintaining the water play feature, and, in its discretion, may decide that this amenity should be replaced by an alternative amenity. In the event the City determines that the water play area should be eliminated, an amenity may be substituted provided that the substituted amenity is determined to be feasible for both Parties and the cost does not exceed the cost of the water play area being replaced.

8.1.1 Land Credit if Final Design of Tract 989 Park is Substantially Similar to Conceptual Design. If the final design is substantially similar to **Exhibits F-1** and **F-2** and any revisions thereto as provided in paragraph 8.1 and agreed to by Toll and the City, then Toll shall have fully satisfied its obligations under this paragraph and a one hundred per cent (100%) land credit shall be given towards the 3 one-acre park requirement of the Toll Development Agreement, leaving an obligation to construct 2 one-acre parks in the Toll Development.

8.1.2 Process if Final Design Not Substantially Similar to Conceptual Design. In the event that the Parties do not reach agreement on a final design of the park that is substantially similar to the conceptual design on file with the City and **Exhibits F-1 and F-2** and revisions thereto as provided in paragraph 8.1, or if an alternative design is presented and the City determines that it fails to comply with the provisions set out herein and it does not provide sufficient amenities to grant a land credit of one hundred per cent (100%) to the Toll Development, the City will so advise Toll and provide Toll with an additional opportunity to revise the design. In the event that the City and Toll still do not agree the City shall determine the land credit to be granted based upon the usability of the park and compliance with the City's Park Plan, including Appendix E thereto and the deficit in amenities as compared to the conceptual design on file with the City and as set out in **Exhibits F-1 and F-2**. Toll will add up to a maximum of one-half (1/2) of an acre of park contiguous to one of the parks Toll will construct in the Toll Development based upon the City's determination of the deficit in useable amenities. For example, if the City determines that 75% of the Tract 989 park is useable and compliant with the Park Plan and 25% is not compliant, Toll will add one-quarter (1/4) acre to one of the two parks in the Toll Development. If the City determines it is 50% compliant and useable, then Toll will add one-half (1/2) acre to one of the parks in the Toll Development.

8.1.3 Effect of Approval of Park Design. Upon approval of the final design of the park whether under paragraph 8.1.1 or 8.1.2, the inclusion of the Tract 989 park in DUV I will satisfy one (1) acre of the obligation set out in the Toll Development Agreement to construct and dedicate one 2.9 acre park or three one acre parks to the City. If the final park design is substantially similar to **Exhibit F-1** in accordance with paragraph 8.1.1 Toll shall receive a one-hundred per cent land credit, leaving an obligation to construct the remaining park area (two 1-acre parks or one 1.9 acre park) in the Toll Development. If the final design is not substantially similar to **Exhibit F-1** Toll shall be obligated to construct the remaining park area (two 1-acre parks or one 1.9 acre park) on the Toll Development plus any additional acreage that may be required pursuant to paragraph 8.1.2.

8.1.4 Toll Option to Not Develop Tract 989 Park. If Toll develops the Tract 989 Park, Toll shall be solely responsible for the construction of park improvements. If Toll chooses to exercise its option under the preliminary plat approval not to develop Tract 989 as a park, Toll and any successor in interest in Tract 989 shall be entitled to develop Tract 989 with residential and/or other uses allowed in the MU-12 and R-12 zones, subject to the applicable approval process in the City's Code, as provided in the Preliminary Plat approval.

8.2 Park Impact Fees. Park impact fees shall be paid at the time of building permit issuance for each single family housing unit and each multi-family building in accordance with the impact fee schedule in effect at the time of building permit issuance, subject to the impact fee credit provisions of paragraphs 8.3 and 8.4.

8.3 Park Impact Fee Credits. Impact fee credits shall be applied as set out herein to DUV I and the Toll Development. The Toll Development shall be eligible for impact fee credits as set out herein after approval of a preliminary plat, binding site plan or boundary line adjustment for the Toll Development. Toll shall receive a one hundred percent (100%) credit against park impact fees for costs incurred for eligible park improvements ("Eligible Park Improvements") for the Tract 989 park, any additional park constructed in the Toll Development pursuant to paragraph 8.1 hereof, and as provided in the Toll Development Agreement for the parks constructed by Toll in the Toll Development. Except as set forth in paragraph 8.4, Wonderland shall not be entitled to park impact fee credits. Eligible Park Improvements include design costs, grading, top soil, plantings, irrigation facilities, play equipment, courts, picnic areas, trails, structures, walls, fixtures, hardscape improvements, lighting, water play equipment, enhanced parking (e.g. angle or head in), public art, other park amenities, utility stubs and facilities needed to serve the park. No park impact fee credits shall be granted for land costs for the Tract 989 park or road improvements internal to the Duvall Urban Village Division I property used to access Tract 989. Toll or any successor in interest shall maintain accurate records of all costs and payments for Eligible Park Improvements. Park impact fee credits for Eligible Park Improvements incurred and paid for may be used to offset park impact fees commencing from the date that the City has approved the design of the Tract 989 park. Park impact fee credits may be used by Toll to offset impact fees owing for Lots 6-23 of DUV I (as numbered on the approved Preliminary Plat), any other property Toll may acquire within DUV 1, and for the Toll Development as these two projects share the improvement obligation and current ownership of the adjacent properties. No credits may be transferred to property outside of DUV I or the Toll Development. The park impact fee credits shall be applied as an offset to park impact fees paid at the time of issuance of a building permit (in the order received) for Lots 6-23 of DUV I, any other property Toll might acquire in DUV 1, and for single and multi-family residential development in the Toll Development. Park impact fee credits shall be available as provided herein until the Tract 989 park improvements have been fully constructed and all impact fee credits for Eligible Park Improvements have been fully expended. In no event shall park impact fee credits exceed the amount of park impact fees owing as provided herein.

8.4 Wonderland Construction of the Park. Wonderland and Toll may jointly request the City Council to reallocate the impact fee credits attributable to the Tract 989 park in the event that Wonderland constructs some or all of the park. Such reallocation if approved shall be implemented by

the City no later than 30 days after receipt of such notice. Any such reallocation shall not be considered an amendment to this Development Agreement, but shall be recorded with King County and a copy kept at Duvall City Hall and made available to anyone requesting review or a copy. In the event Wonderland constructs some or all of the Eligible Park Improvements, Wonderland shall maintain accurate records of all costs and payments eligible for credit.

8.5 Misapplication of Impact Fee Credits by the City. In the event that Wonderland and Toll advise the City that Wonderland is entitled to some or all of the available park impact fee credits in accordance with paragraph 8.4, the City shall use its best efforts to allocate impact fee credits to the proper Party as provided above. However, the City shall have no liability to Wonderland or Toll for credits issued in error unless the City intentionally issues the credit to the wrong Party or was grossly negligent.

9. OTHER FEES AND CHARGES

9.1 Sewer General Facilities Charges. Sewer general facilities charges shall be paid at the time of Final Plat approval for each development phase consisting of single family lots. The amount paid shall be calculated by multiplying the applicable charge per ERU times the number of single family lots created by that phase. Sewer general facilities charges shall be paid at the time of building permit issuance for each condominium and multi-family building in a development phase that includes condominiums, and for each commercial building in a development phase that includes a commercial building. The amount paid shall be calculated by applying the applicable charge times the ERU for each multi-family building and each commercial building. In the event that a development phase contains a mixture of single family lots, condominium and/or commercial lots the sewer general facilities charge shall be paid at the time of Final Plat approval for the single family lots and at the time of building permit issuance for each condominium and commercial building to be constructed.

9.2 Sewer Equalization Fees. Sewer equalization fees shall be paid at the time of Final Plat approval for each development phase consisting of single family lots, and at site plan approval for each phase consisting of (i) condominiums/other multi-family buildings, (ii) commercial development and (iii) in a development phase that contains a mixture of condominium/multi-family and commercial development. The amount paid shall be calculated by multiplying the fee per gross acre times the number of acres developed in that phase.

9.3 Storm Drainage Area Charges. Storm drainage area charges shall be paid at the time of Final Plat approval for each development phase consisting of single family lots, and at site plan approval for each phase consisting of (i) condominiums/other multi-family buildings, (ii) commercial development and (iii) in a development phase that contains a mixture of condominium/multi-family and commercial development. The amount paid shall be calculated by multiplying the charge per gross acre times the number of acres developed in that phase.

9.4 School Impact Fees. Fifty per cent of school impact fees owing at the time of any Final Plat approval, if any, shall be paid at the time of Final Plat approval for a development phase consisting only of single family lots and the remaining fifty per cent shall be paid at the time of building permit issuance for each single family unit if such impact fees are then owing. All such impact fees shall be computed based upon the impact fee schedule in effect at the time of Final Plat approval. One hundred per cent of school impact fees shall be paid for a condominium building at the time of building permit issuance for each condominium building in a development phase that includes only condominiums based upon the impact fee schedule in effect at the time of Final Plat approval for the condominium lot. In the event that a development phase contains both single family lots and condominium lots, fifty per cent of the school impact fee shall be paid at the time of Final Plat approval for each single family lot created and the remaining fifty per cent fee shall be paid at the time of building permit issuance for each single family unit. One-hundred percent of the impact fees for a

condominium building shall be paid at the time of building permit issuance for each condominium building to be constructed on the condominium lot(s). All such impact fees shall be based upon the impact fee schedule in effect at the time of Final Plat Approval for that development phase

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9.5 Water Capital Improvement Charges. Water capital improvement charges shall be paid at the time of issuance of building permits for each single family unit and for each condominium and commercial building.

10. MISCELLANEOUS

10.1 Amendment to Toll Development Agreement. An amendment to the Toll Development Agreement must be submitted and approved no later than (i) the approval of construction drawings for the first phase of DUV I, or (ii) prior to any preliminary plat approval of the Toll Development, whichever occurs first. References to the Toll Development Agreement in this Development Agreement shall be construed to include amendments to the Toll Development Agreement approved by the City Council after the date of approval of this DUV I Development Agreement.

10.2 Construction. The Parties shall cooperate in good faith and in a spirit of cooperation and fair dealing in the interpretation and application of the terms of this Agreement.

10.3 Parties/Authority and Recording. The signatories to this Agreement represent that they have the full authority of their respective entities to commit to all of the terms of this Agreement, to perform the obligations hereunder and to execute the same. A complete copy of this Agreement shall be recorded with King County and a copy kept at Duvall City Hall and made available to anyone requesting review or a copy.

10.4 Voluntary Agreement. The Parties intend and acknowledge that this Agreement is a voluntary contract binding upon the Parties hereto, as well as their successors and assigns.

10.5 Amendment of Agreement. Except as set forth herein, this Agreement shall only be amended in a writing signed by all Parties and only after approval by the Duvall City Council.

10.6 Applicable Law. This Agreement is entered into under the laws of the State of Washington, and the Parties intend that Washington state law shall apply to interpretation of this Agreement.

10.7 Dispute Resolution. In the event of any dispute between the Parties arising from this Agreement, the Parties will first attempt to resolve the dispute informally. In the event of a dispute that cannot be resolved, the Parties shall then attempt to resolve the dispute through mediation. Any Party may invoke mediation by providing the other Parties with written notice setting forth the Party's claim in detail and explaining the relief requested. The Parties shall attempt to agree on a mutually acceptable mediator during the next thirty days. If agreement is not reached within such time period, any Party may request that the Presiding Judge of the King County Superior Court appoint a mediator. In any mediation action, the Parties shall share equally in the costs of mediation, including the fees of the mediator. In the event that mediation cannot resolve the dispute, the matter shall be submitted to binding arbitration. Any Party may invoke arbitration by providing the other Parties with written notice setting forth the Party's claim in detail and explaining the relief requested. The Parties shall attempt to agree on a mutually acceptable arbitrator during the next thirty days. If agreement is not reached within such time period, any Party may request that the Presiding Judge of the King County Superior Court appoint an arbitrator. The arbitration shall be conducted pursuant to the Rules of the American Arbitration Association, regardless of whether the arbitrator is a member of that Association. The arbitrator's fee shall be divided equally between the Parties, provided the arbitrator shall award all

costs, including the arbitrator's fee, to the prevailing Party or Parties if the arbitrator determines that a Party has pursued claims in bad faith or claims which are frivolous.

10.8 Venue. Venue and jurisdiction to enforce all obligations under this Agreement, including judicial review as provided under RCW 7.04A, shall lie in the King County Superior Court.

10.9 Attorneys' Fees and Costs. In any mediation action, the Parties shall pay their own attorney's fees and costs. In any arbitration or judicial action to enforce or determine a Party's rights under this Agreement, the prevailing Party (or the substantially prevailing Party, if no one Party prevails entirely) shall be entitled to reasonable attorneys' fees and costs, including fees and costs incurred in the appeal of any ruling of a lower court. In the event of litigation or arbitration between the Parties hereto, declaratory or otherwise, in connection with this Agreement, the prevailing Party shall recover its reasonable costs and attorneys' fees actually incurred, including for appeals, which shall be determined and fixed by the court or arbitrator as part of the judgment, provided the Parties hereby agree that the amounts actually charged to the Parties by their respective counsel shall be presumed to be reasonable by any court or arbitrator and shall not be reduced or increased unless the court or arbitrator specifically finds that the rates for such legal work were unreasonable or that some portion of the legal work was unnecessary or performed without justification.

10.10 Severability. If any term or provision of this Agreement, or its applicability to a particular situation, is found to be invalid, void or unenforceable by a court of competent jurisdiction, then the remaining provisions of this Agreement shall continue in full force and effect unless and to the extent the remaining provisions, if implemented, would be inconsistent with or otherwise fail to carry out the mutual intent of the Parties.

10.11 Mutual Drafting and Construction. The Parties agree that all Parties participated fully in the negotiation and drafting of this Agreement and the rules of construction of ambiguities against the drafter shall not apply.

10.12 No Third Party Beneficiaries. Except as set forth explicitly herein, nothing in this Agreement is intended to create any third party beneficiary relationships.

10.13 No Joint Venture. Nothing in this Agreement is intended to create any type of joint venture or partner relationship between any of the Parties as to Duvall Urban Village Division I or its development.

10.14 Use Restrictions. The use restrictions set out in that use restriction agreement recorded under King County recording number 20080403001510 shall apply to DUV I as set out therein.

10.15 Successors and Assigns. If Wonderland and/or Toll convey some or all of the Wonderland Property and/or the Toll Property to a development entity during the term of this Agreement, the parties to the conveyance may agree that the terms and conditions of this Agreement shall be binding upon and inure to the benefit of such successors and assigns. In that case, the assigning Party shall be relieved of all obligations hereunder, except to the extent that the assigning Party retains ownership of any property subject to this Agreement.

10.16 Counterparts. This Agreement may be executed in counterparts.

10.17 Effective Date. This Agreement shall become effective on the fifteenth (15th) day following the recording of both Ordinance 1119 (authorizing the vacation of the southerly portion of 3rd Avenue, also known as 268th Ave. NE) and the associated boundary line adjustment. The Parties will use their best efforts to complete these requirements promptly so that the Parties can record Ordinance 1119 and the boundary line adjustment no later than sixty days after the execution of this Agreement by all Parties. If 60 days after execution of this Agreement by all Parties both Ordinance 1119 and the associated boundary line adjustment have not been recorded, this Agreement will become effective on the 61st day for the purpose of vesting to regulations and standards. The remaining provisions shall become effective upon recording of both Ordinance 1119 and the associated boundary line adjustment.

Date: March 22, 2012

CITY OF DUVALL

By _____
Will Ibershof, Mayor

Attested to by

_____
Jodee Schwinn, City Clerk

Approved as to form:

_____
Bruce Disend, City Attorney

Date: 4/12/12

WONDERLAND HOLDINGS LLC,
a Washington limited liability company
By: Washington Real Estate Holdings, LLC, a Washington limited liability company
Its: Manager

_____
By: Craig Wrench
Its: President

Date: _____

TOLLWA LP, a Washington limited partnership
By: Toll WA GP CORP, a Washington corporation
Its: General Partner

_____
By: Eric H. Campbell
Its: Division President

STATE OF WASHINGTON)
) ss.
COUNTY OF KING)

I hereby certify that I know or have satisfactory evidence that Will Ibershof appeared before me, and on oath stated that he was authorized to execute this instrument, and acknowledged it as the Mayor of the City of Duvall, a Washington municipal corporation, to be the free and voluntary act of such entity for the uses and purposes mentioned in this instrument.

GIVEN under my hand and official seal this 22 day of MARCH, 2012.

JODEE R. SCHWINN
COMMISSION EXPIRES
NOTARY
PUBLIC
7-29-15
STATE OF WASHINGTON

Jodee R. Schwinn
Signature of Notary
Print Name: Jodee R. Schwinn
NOTARY PUBLIC in and for the State of Washington, residing at: Duvall
My commission expires: 7/29/15

STATE OF WASHINGTON)
) ss.
COUNTY OF KING)

I hereby certify that I know or have satisfactory evidence that Craig Wrench appeared before me, and on oath stated that he was authorized to execute this instrument, and acknowledged it as the President of Washington Real Estate Holdings, LLC, a Washington limited liability company, member of Wonderland Holdings LLC, a Washington limited liability company, to be the free and voluntary act of such entity for the uses and purposes mentioned in this instrument.

GIVEN under my hand and official seal this _____day of _____, 2012.

_____
Signature of Notary
Print Name: _____
NOTARY PUBLIC in and for the State of Washington, residing at: _____
My commission expires: _____

STATE OF WASHINGTON)
) ss.
COUNTY OF KING)

I hereby certify that I know or have satisfactory evidence that Eric H. Campbell appeared before me, and on oath stated that he was authorized to execute this instrument, and acknowledged it as the Division President of Toll WA GP Corp, a Washington corporation, the general partner of Toll WA LP, a Washington limited partnership, to be the free and voluntary act of such entity for the uses and purposes mentioned in this instrument.

GIVEN under my hand and official seal this _____day of _____, 2012.

_____
Signature of Notary
Print Name: _____
NOTARY PUBLIC in and for the State of Washington, residing at: _____
My commission expires: _____

EXHIBIT A-1

LEGAL DESCRIPTION
WONDERLAND PARCELS PRIOR TO RECORDING OF ORDINANCE 1119 AND BLA

LOT E, CITY OF DUVALL BOUNDARY LINE ADJUSTMENT NO. BLA 02-001, AS RECORDED UNDER RECORDING NO. 20020814900002, RECORDS OF KING COUNTY, WASHINGTON;

TOGETHER WITH LOT B, CITY OF DUVALL BOUNDARY LINE ADJUSTMENT NO. BLA 08-002, AS RECORDED UNDER RECORDING NO. 20120305900003, RECORDS OF KING COUNTY, WASHINGTON.

EXHIBIT A-2

LEGAL DESCRIPTION
WONDERLAND PROPERTY AFTER RECORDING OF ORDINANCE 1119 AND BLA

LOT E, CITY OF DUVALL BOUNDARY LINE ADJUSTMENT NO. BLA 02-001, AS RECORDED UNDER RECORDING NO. 20020814900002, RECORDS OF KING COUNTY, WASHINGTON;

TOGETHER WITH LOT B, CITY OF DUVALL BOUNDARY LINE ADJUSTMENT NO. BLA 08-002, AS RECORDED UNDER RECORDING NO. 20120305900003, RECORDS OF KING COUNTY, WASHINGTON;

EXCEPT THE FOLLOWING DESCRIBED PORTION THEREOF:

THAT PORTION OF THE SOUTHEAST QUARTER OF THE NORTHWEST QUARTER AND THE SOUTHWEST QUARTER OF THE NORTHEAST QUARTER OF SECTION 24, TOWNSHIP 26 NORTH, RANGE 6 EAST, W.M., BEING DESCRIBED AS FOLLOWS:

COMMENCING AT THE NORTHEAST CORNER OF THE SOUTHEAST QUARTER OF THE NORTHWEST QUARTER OF SECTION 24, TOWNSHIP 26 NORTH, RANGE 6 EAST, W.M.; THENCE SOUTH 1°55'05" WEST ALONG THE EAST LINE OF SAID SOUTHEAST QUARTER OF THE NORTHWEST QUARTER 42.16 FEET; THENCE NORTH 88°04'55" WEST 30.00 FEET TO THE NORTHEAST CORNER OF SAID LOT B AND THE **TRUE POINT OF BEGINNING**; THENCE NORTH 89°38'24" WEST 3.50 FEET; THENCE SOUTH 1°55'05" WEST 97.96 FEET TO THE BEGINNING OF A CURVE TO THE RIGHT HAVING A RADIUS OF 166.50 FEET; THENCE ALONG SAID CURVE 124.57 FEET THROUGH A CENTRAL ANGLE OF 42°52'07"; THENCE SOUTH 44°47'12" WEST 319.39 FEET; THENCE NORTH 45°12'48" WEST 4.00 FEET; THENCE SOUTH 44°47'12" WEST 180.40 FEET TO THE NORTHERLY MARGIN OF BIG ROCK ROAD; THENCE SOUTH 45°21'01" EAST ALONG SAID NORTHERLY MARGIN 79.00 FEET; THENCE NORTH 44°47'12" EAST 219.69 FEET; THENCE SOUTH 45°21'01" EAST 249.72 FEET TO THE EAST LINE OF SAID LOT B AND A POINT HEREINAFTER DESCRIBED AS "A"; THENCE NORTH 1°55'05" EAST 636.95 FEET TO THE **TRUE POINT OF BEGINNING**;

AND TOGETHER WITH THAT PORTION OF THE SOUTHEAST QUARTER OF THE NORTHWEST QUARTER AND THE SOUTHWEST QUARTER OF THE NORTHEAST QUARTER OF SECTION 24, TOWNSHIP 26 NORTH, RANGE 6 EAST, W.M., BEING DESCRIBED AS FOLLOWS:

BEGINNING AT THE PREVIOUSLY DESCRIBED POINT "A"; THENCE SOUTH 1°55'05" WEST 184.82 FEET TO THE BEGINNING OF A CURVE TO THE RIGHT HAVING A RADIUS OF 50.00 FEET; THENCE ALONG SAID CURVE 115.83 FEET THROUGH A CENTRAL ANGLE OF 132°43'54" TO THE NORTHERLY MARGIN OF BIG ROCK ROAD; THENCE SOUTH 45°21'01" EAST ALONG SAID NORTHERLY MARGIN 195.94 FEET TO A LINE LYING 60.00 FEET EAST OF AND PARALLEL WITH THE EAST LINE OF SAID LOT B; THENCE NORTH 1°55'05" EAST ALONG SAID PARALLEL LINE 299.08 FEET; THENCE NORTH 45°21'01" WEST 81.68 FEET TO SAID POINT "A" AND THE POINT OF BEGINNING.

EXHIBIT B-1

LEGAL DESCRIPTION TOLL PARCEL PRIOR TO RECORDING OF ORDINANCE 1119 AND BLA

LOT A, CITY OF DUVALL BOUNDARY LINE ADJUSTMENT NO. BLA 08-003, AS RECORDED UNDER RECORDING NO. 20120305900004, RECORDS OF KING COUNTY, WASHINGTON.

EXHIBIT B-2

LEGAL DESCRIPTION
TOLL PROPERTY AFTER RECORDING OF ORDINANCE 1119 AND BLA

LOT A, CITY OF DUVALL BOUNDARY LINE ADJUSTMENT NO. BLA 08-003, AS RECORDED UNDER RECORDING NO. 20120305900004, RECORDS OF KING COUNTY, WASHINGTON;

EXCEPT THE FOLLOWING DESCRIBED PORTION THEREOF:

THAT PORTION OF THE SOUTHWEST QUARTER OF THE NORTHEAST QUARTER OF SECTION 24, TOWNSHIP 26 NORTH, RANGE 6 EAST, W.M., BEING DESCRIBED AS FOLLOWS:

COMMENCING AT THE NORTHEAST CORNER OF THE SOUTHEAST QUARTER OF THE NORTHWEST QUARTER OF SECTION 24, TOWNSHIP 26 NORTH, RANGE 6 EAST, W.M.; THENCE SOUTH 1°55'05" WEST ALONG THE EAST LINE OF SAID SOUTHEAST QUARTER OF THE NORTHWEST QUARTER 40.40 FEET; THENCE SOUTH 88°04'55" EAST 30.00 FEET TO THE EAST MARGIN OF 268TH AVENUE AND THE **TRUE POINT OF BEGINNING**; THENCE SOUTH 89°52'49" EAST 3.50 FEET; THENCE SOUTH 1°55'05" WEST 99.92 FEET TO THE BEGINNING OF A CURVE TO THE RIGHT HAVING A RADIUS OF 233.50 FEET; THENCE ALONG SAID CURVE 40.48 FEET THROUGH A CENTRAL ANGLE OF 9°55'58" TO SAID EAST MARGIN OF 268TH AVENUE; THENCE NORTH 1°55'05" EAST ALONG SAID EAST MARGIN 140.09 FEET TO THE **TRUE POINT OF BEGINNING**;

TOGETHER WITH THE FOLLOWING DESCRIBED PARCEL:

THAT PORTION OF THE SOUTHEAST QUARTER OF THE NORTHWEST QUARTER AND THE SOUTHWEST QUARTER OF THE NORTHEAST QUARTER OF SECTION 24, TOWNSHIP 26 NORTH, RANGE 6 EAST, W.M., BEING DESCRIBED AS FOLLOWS:

COMMENCING AT THE NORTHEAST CORNER OF THE SOUTHEAST QUARTER OF THE NORTHWEST QUARTER OF SAID SECTION 24; THENCE NORTH 89°09'36" WEST ALONG THE NORTH LINE OF THE SOUTHEAST QUARTER OF THE NORTHWEST QUARTER OF SAID SECTION 24 A DISTANCE OF 30.01 FEET TO A LINE LYING 30.00 FEET WESTERLY OF AND PARALLEL WITH THE EAST LINE OF THE NORTHWEST QUARTER OF SAID SECTION 24; THENCE SOUTH 1°55'05" WEST ALONG SAID PARALLEL LINE 299.73 FEET TO THE **TRUE POINT OF BEGINNING**; THENCE NORTH 44°47'12" EAST 1.67 FEET TO THE BEGINNING OF A CURVE TO THE LEFT HAVING A RADIUS OF 233.50 FEET; THENCE ALONG SAID CURVE 134.22 FEET THROUGH A CENTRAL ANGLE OF 32°56'09" TO A LINE LYING 30.00 EAST OF AND PARALLEL WITH SAID EAST LINE OF THE NORTHWEST QUARTER OF SAID SECTION 24; THENCE SOUTH 1°55'05" WEST ALONG SAID PARALLEL LINE 554.05 FEET; THENCE NORTH 45°21'01" WEST 331.40 FEET; THENCE NORTH 45°12'48" WEST 8.00 FEET; THENCE NORTH 44°47'12" EAST 278.24 FEET TO THE **TRUE POINT OF BEGINNING**.

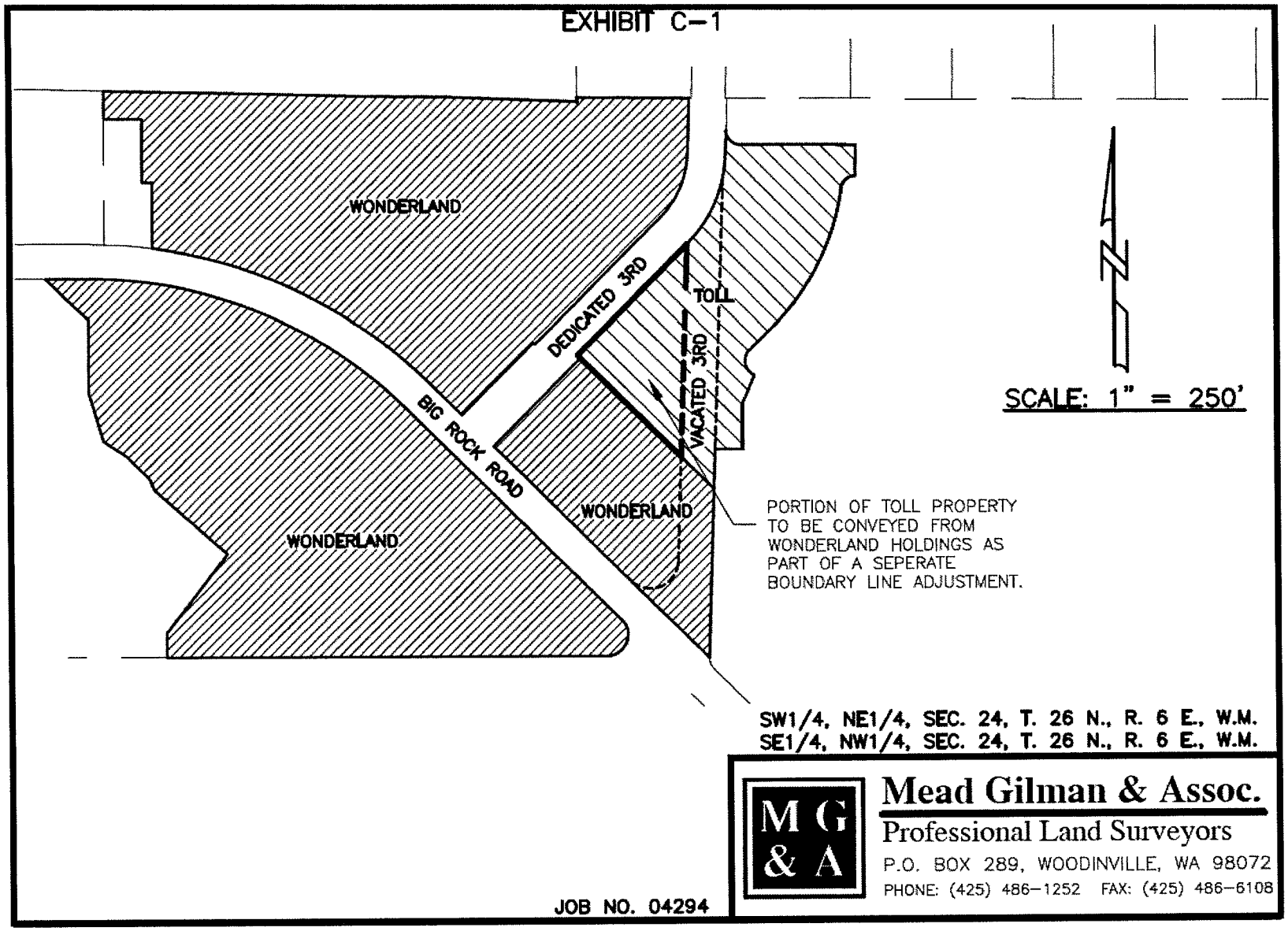

Exhibit C-1 to Development Agreement

EXHIBIT C-2
Depiction of Wonderland Property
and Toll Property

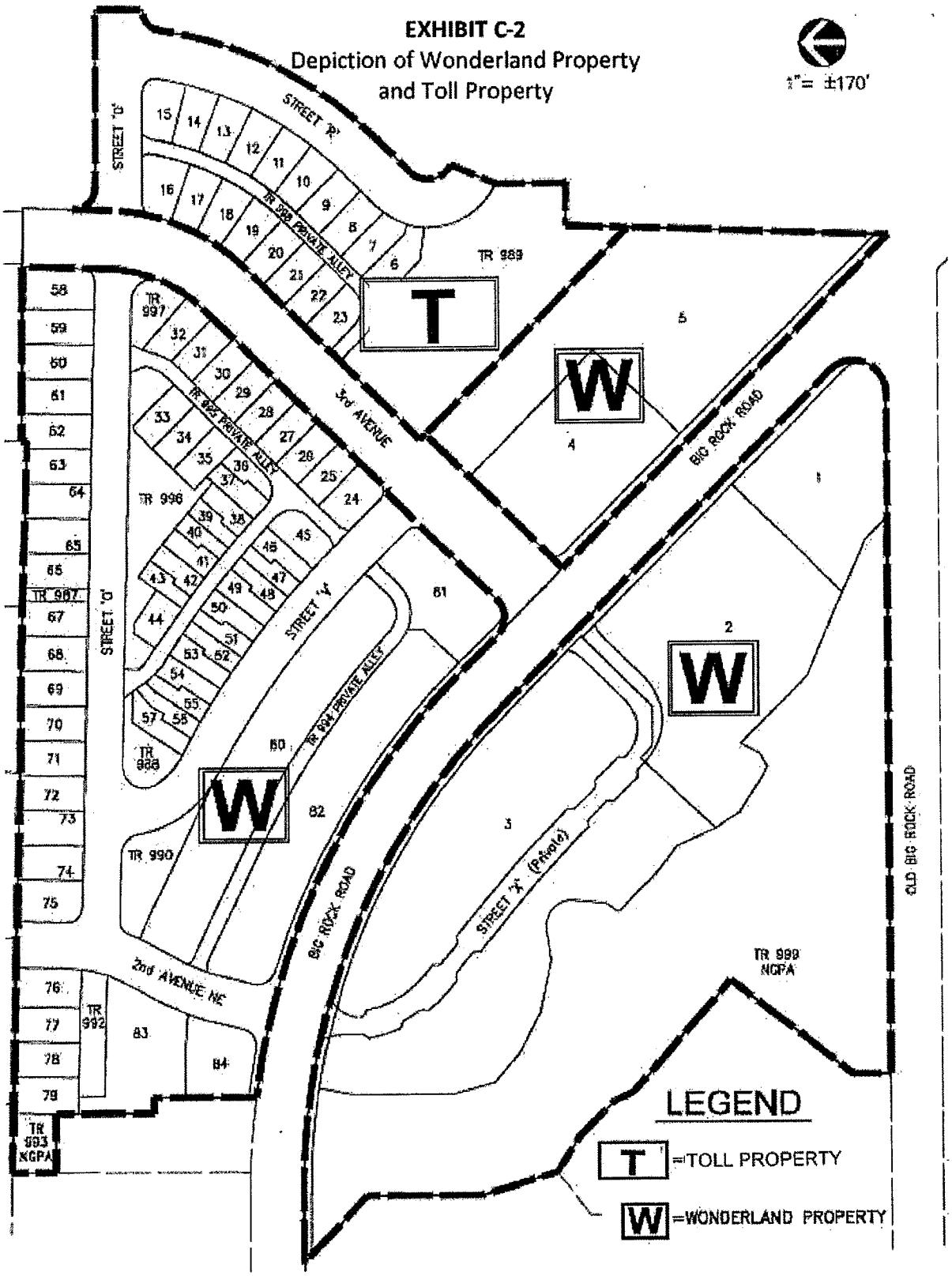

Exhibit C-2 to Development Agreement

EXHIBIT D-1

PHASING PLAN

PHASE A (Lot 4):

Road and Utility Improvements

1. Big Rock Road
   a. Construct a one-half street improvement where Phase A abuts Big Rock Road (BRR) consistent with the preliminary plat. Improvements shall extend a minimum to the east driveway access curb return from BRR. Install storm drainage, sewer and water stubs to the pad graded lot and the necessary franchise utilities where this Phase abuts BRR.
   b. The sidewalk, street trees and tree grates required along BRR will be installed at the time the commercial building is constructed within Phase A in order to avoid damage to infrastructure that would occur due to the proximity of the building to the front property line. A minimum 5-foot wide ACP sidewalk will be installed along the frontage unless previously constructed or permanent sidewalks installed.
   c. If Phase A is constructed before Phase F or G, install the western half of the median and channelization within Big Rock Road along the frontage where Phase A abuts Big Rock Road (approximately 175 LF). If Phase A is constructed after Phase F or G, install the remaining landscape median in Big Rock Road lying east of the relocated 3rd Avenue NE/Big Rock Road intersection.
   d. A 5-foot wide temporary ACP sidewalk will be installed along the Phase D frontage to connect to the existing sidewalk west of the project unless the Phase D frontage was previously completed.

2. 3rd Avenue NE
   a. Construct a one-half street improvement from BRR to the south boundary of Tract 989 along on the east side of the roadway as depicted on the preliminary plat and a 10-foot wide travel lane west of the center line. Temporary curbing and storm drainage shall be installed on the west side of the roadway to provide for safe channelization. Improvements include the installation of sewer, water and storm drainage utility mains, the extension of utility stubs to the pad graded lot, curb and gutter, paving and franchise utilities (active or dry).
   b. The sidewalk, street trees and tree grates required along 3rd Avenue NE will be installed at the time the commercial building is constructed within Phase A in order to avoid damage to infrastructure that would occur due to the proximity of the building to the front property line. A minimum 5-foot wide temporary ACP sidewalk will be installed along the frontage unless previously constructed or permanent sidewalks installed.

3. Storm Drainage and Detention
   a. Construct an offsite temporary detention/water quality pond on Lot 2, 3 or 82 with at least sufficient capacity to serve the stormwater management requirements of Phase A unless the permanent stormwater facility was previously constructed.

4. Grading
    a. Surplus earth material from Phase A (lot 4), Phase C, Phase E (including Tract 989) and Phase G (lot 5) may be transported to Phase B and/or Phase F at the applicants' option in accordance with an approved grading plan and grading permit.
    b. Relocate the driveway to the existing home on the Lake Washington Technical College parcel (tax parcel number 242606-9042) so that it is located outside of the graded area prior to initiation of grading activity within the driveway area.

5. Water
    a. Install the 450-zone water main in Big Rock Road beginning at the PRV located near the intersection of the existing 3rd Avenue NE/Big Rock Road right-of-way and extending west to the new 3rd Avenue NE road alignment. Install the 330-zone and 450-zone water mains as dry lines in 3rd Avenue NE as far as the south boundary of Tract 989.

<u>PHASE B (Lot 3)</u>:

Road and Utility Improvements and NGPA Plantings

1. Big Rock Road
    a. Construct a one-half street improvement consistent with the preliminary plat. Install storm drainage, sewer and water stubs to the pad graded lot and the necessary franchise utilities where this Phase abuts BRR.
    b. If Phase B is constructed before Phase D, install the western half of the landscape median and channelization along the frontage where Phase B abuts Big Rock Road (approximately 190 LF). If Phase B is constructed before Phase D, but after extension of 3rd Avenue NE to the north project limit, install the eastern half landscape median instead of the western half. If Phase B is constructed after Phase D, install the remaining median lying west of the relocated 3rd Avenue NE/Big Rock Road intersection.

2. Street X
    a. Construct a full-street improvement up to the point where this road abuts the commercial parking area proposed within Phase F. From this point, construct a concrete extruded curb and temporary 5-foot wide ACP sidewalk on the east side of Street X to the Street X/BRR intersection.

3. Storm Drainage and Detention
    a. Construct a storm drainage detention vault on the western portion of Phase B.
    b. Construct the detention vault outflow conveyance pipe extending from the detention vault to and within the Big Rock Road right-of-way and west to Thayer Creek.
    c. Mitigate for any Thayer Creek impacts associated with the installation of the new outfall and conveyance pipe.
    d. Install that portion of the outflow storm drainage conveyance pipe located within Phase B that conveys stormwater runoff from detention vault(s) located within Phase F.

4. Wetland/Stream Buffer Enhancement
    a. Install the stream buffer mitigation plantings in Tract 999 and construct the entire soft-surface trail in Tract 999.

5. Grading
    a. Obtain additional structural material from Phases north of Big Rock Road as necessary to bring Phase B to finish grade in accordance with an approved grading plan. Surplus earth material from Phase A (lot 4), Phase C, Phase E (including Tract 989), and Phase G (lot

5) may be transported to Phase B and/or Phase F at the applicants' option in accordance with an approved grading plan and grading permit.

PHASE C (Lots 24-71, and Tracts 988 and 995-997):

Road, Utility and Open Space Improvements

1. 3rd Avenue NE
   a. Construct a curb-to-curb full street improvement from Big Rock Road to the north boundary line of the plat and a sidewalk and planter strip abutting Phase C on the west side of 3rd Avenue NE. Improvement widths shall be consistent with the road section depicted on the preliminary plat drawings and include a 12-foot wide turn lane at the intersection of BRR in accordance with the June 16, 2010 Notice of Decision. A 5-foot wide temporary ACP pathway shall be installed on the Phase D frontage. The sidewalk and planter strip on the east side of 3rd Avenue NE shall be completed as part of the abutting phases.
   b. Prepare a LOS analysis at the Big Rock Road/3rd intersection to determine whether an eastbound left turn pocket is necessary on 3rd Avenue NE. Install improvements in accordance with the conclusions of the LOS analysis.

2. Street V
   a. Construct a one-half street improvement including curb and gutter as depicted on the approved preliminary plat drawings. The planter strip and sidewalk on the south side of Street V will be constructed with Phase D. Stub utilities as necessary to serve the future Phase D.

3. Street O
   a. Construct a full-street improvement where this street is located completely within Phase C and connect with Street V.

4. Big Rock Road
   a. Prepare a LOS analysis for the Big Rock Road/3rd Avenue NE intersection to determine whether a northbound left turn pocket is necessary for future conditions (full build out of DUV I and future development to east). Install improvements in accordance with the conclusions of the LOS analysis and approved by the City of Duvall.
   b. A 5-foot wide temporary ACP sidewalk will be installed along the Phase D frontage to connect to the existing sidewalk west of the project unless the Phase D frontage had been previously completed.

5. Storm Drainage and Detention
   a. Construct a detention vault within Phase F and size this vault so that it can also accommodate the stormwater volume from Phases A (if Phase A has been developed) and C. Install new outfall conveyance pipe extending from the detention vault west to Thayer Creek and mitigate for any Thayer Creek impacts associated with the installation of the new outfall and conveyance pipe if not already constructed.

6. Grading
    a. Surplus earth material from Phase C may be transported to Phase B and/or Phase F at the applicants' option in accordance with an approved grading plan and grading permit.

7. Water
    a. Install the 330-zone and 450-zone water mains in 3rd Avenue NE from point of connection to the north boundary of the project. Alternatively, the applicant may elect to place a "dry" 450-zone water main in 3rd Avenue from Big Rock Road to the north boundary of the project with the understanding that the City will require a "maintenance bond" extension to two years after the date of the water main's activation and connection to the system.

8. Open Space
    a. Construct the open space amenities in Tracts 988, 996 and 997.

PHASE D (Lots 72-84 and Tracts 990-994):

Road, Utility and Open Space Improvements

1. Big Rock Road
    a. Construct a one-half street improvement consistent with the preliminary plat. Install storm drainage and the necessary franchise utilities where this Phase abuts BRR.
    b. Prepare a LOS analysis for the Big Rock Road/3rd intersection to determine whether a northbound left turn pocket is necessary for future conditions (full build out of DUV I and future development to east). Install improvements in accordance with the conclusions of the LOS analysis and approved by the City of Duvall.
    c. If Phase D is constructed before Phase B, install the eastern half of the median and channelization along the frontage where Phase D abuts Big Rock Road (approximately 190 LF). If Phase D is constructed after Phase B, install the remaining median lying west of the 3rd Avenue NE/Big Rock Road intersection

2. 3rd Avenue NE
    a. Construct full street (curb-to-curb) improvements and the sidewalk and planter strip abutting Phase D from Big Rock Road to the south boundary of Tract 989. Improvement widths shall be consistent with the road section depicted on the preliminary plat drawings. The remaining frontage improvements (sidewalk and planter strip) on the opposite side of 3rd Avenue NE shall be completed as part of the abutting Phases.
    b. Complete the planter strip and sidewalk along the Phase D frontage unless previously constructed.

3. Street V
    a. Construct the planter strip and sidewalk along the Phase D frontage unless previously constructed.
    b. Construct a one-half street improvement, with planter strip and sidewalk along the Phase D frontage only unless previously constructed. Stub utilities as necessary for the future Phase C.

4. Street Y, Alley W, and Street O
    a. Complete Street Y to the north property line and all of Alley W (Tract 994) and that portion of Street O within Phase D.

5. Tracts 991 and 992
    a. Construct road and utility improvements within access tracts 991 and 992.

6. Open Space
    a. Construct the open space improvements in Tract 990.

7. Storm Drainage and Detention
    a. Construct the detention vault in Tract 992. Install new outfall conveyance pipe extending from the detention vault west to Thayer Creek if not already constructed.
    b. Mitigate for any Thayer Creek impacts associated with the installation of the new outfall and conveyance pipe.

8. Water
    a. Install the 330-zone and 450-zone water mains in 3rd Avenue NE from point of connection to the south boundary of Tract 989. Alternatively, the applicant may elect to place a "dry" 450-zone water main in 3rd Avenue from Big Rock Road to the south boundary of Tract 989 in 3rd Avenue NE with the understanding that the City will require a "maintenance bond" extension to two years after the date of the water main's activation and connection to the system.

<u>PHASE E (Lots 6-23 and Tract 989)</u>:

Road, Utility and Park Improvements

1. 3rd Avenue NE
    a. Construct a full street (curb to curb only) improvement from Big Rock Road to the north boundary line of the plat and sidewalk and planter strip along the Phase E frontage. Improvement widths shall be consistent with the road section depicted on the preliminary plat drawings.
    b. Construct a 5-foot wide temporary ACP sidewalk shall be installed on the Phase A and Phase G frontages unless previously constructed.
    c. Prepare a LOS analysis for the Big Rock Road/3rd intersection to determine whether an eastbound left turn pocket is necessary for future conditions (full build out of DUV I and future development to east). Install improvements in accordance with the conclusions of the LOS analysis and approved by the City of Duvall.

2. Street O
    a. Construct a one-half street improvement east of 3rd Avenue NE. where this road abuts Phase E and include the north curb return onto 3rd Avenue NE. Construct sidewalk and planter strip along the Phase E frontage

3. Street R
    a. Construct a one-half street improvement and a temporary turn-around at the terminus of this street. (Additional width is necessary to accommodates on-street parking on the west side of Street R.)
    b. Construct a temporary cutoff swale on the east side of Street R or other approved improvement to collect west-flowing drainage prior to future development to the east.

4. Big Rock Road
    a. A 5-foot wide temporary ACP sidewalk will be installed along the Phase D frontage to connect to the existing sidewalk west of the project unless the Phase D frontage had been previously completed. An alterative pedestrian route within Phase D from Phase C to the existing sidewalk west of the project will be allowed if approved by the City of Duvall.

5. Storm Drainage and Detention
    a. Construct a detention vault on Lot 2 to accommodate stormwater from this phase if not previously constructed. Install new outfall conveyance pipe extending from the detention vault west to Thayer Creek and mitigate for any Thayer Creek impacts associated with the installation of the new outfall and conveyance pipe if not already constructed.

6. Water
    a. Install the 450-zone water line in Big Rock Road, in 3rd Avenue NE and extend the 450-zone water main to NE 144th St unless previously installed. Install the 330-zone water system improvements within 3rd Avenue NE to the north boundary of the plat unless previously installed.

7. Grading
    a. Surplus earth material from Phase E (including Tract 989) may be transported to Phase B and/or Phase F, if needed, at the applicants' option in accordance with an approved grading plan and grading permit.

8. Park (Tract 989)
    a. Construct the one-acre neighborhood park and associated amenities.

9. Other Utilities
    a. Construct utilities along the north boundary of the one-acre park to serve Phase E and future development to the east.

PHASE F (Lots 1 and 2):

Road and Utility Improvements

1. Big Rock Road
    a. Construct a one-half street improvement consistent with the preliminary plat. Install storm drainage and the necessary franchise utilities along the south side of BRR where this Phase abuts BRR.
    b. If Phase F is constructed before Phases A or G construct the western one-half of center median and channelization on Big Rock Road east of the intersection with 3rd Avenue NE (approximately 175 LF).
    c. If Phases A or G have been constructed before Phase F, complete any remaining center median planter strip and landscaping within Big Rock Road extending from 3rd Avenue NE to the east property line.
    d. A 5-foot wide temporary ACP sidewalk will be installed along the Phase B frontage to connect to the existing sidewalk west of the project unless the Phase B frontage had been previously completed.

2. NE 140th Street (Old Big Rock Road or OBBR)
    a. Wonderland shall make the frontage improvements on Old Big Rock Road adjacent to commercial lot 1 as depicted in the Preliminary Plat drawings. Wonderland shall make the OBRR Payment(s) to the City as provided in paragraph 7.1 of the Development Agreement for the remainder of the OBRR improvements. The City shall be responsible for construction of those improvements, including frontage improvements adjacent to Tract 999 (sidewalk, curb, gutter, and railing as needed), any expansion of the travel way and full-width overlay.

3. Storm Drainage and Detention
    a. Construct a detention vault on Lot 2 sized with sufficient capacity to accommodate all future commercial development proposed on Lots 1, 2 and 5. Install new outfall conveyance pipe extending from the detention vault west to Thayer Creek and mitigate for any Thayer Creek impacts associated with the installation of the new outfall and conveyance pipe if not already constructed.

4. Water
    a. Install the 330-zone and 450-zone water mains as necessary, to support the phase if not previously installed.

5. Grading
    a. Surplus earth material from Phase A (lot 4), Phase C, Phase E (including Tract 989) Phase G (lot 5) may be transported to Phase B and/or Phase F at the applicants' option in accordance with an approved grading plan and grading permit.

PHASE G (Lot 5):

Road and Utility Improvements

1. Big Rock Road
    a. Construct a one-half street improvement along the north side of BRR where Phase G abuts BRR consistent with the preliminary plat.
    b. If Phase G is constructed before Phases A or F, install the western half of the median and channelization on Big Rock Road east of the intersection with 3rd Avenue NE (approximately 190 LF).
    c. If Phase G is constructed after Phase A or F, install any remaining center median planter strip and landscaping within Big Rock Road lying east of the 3rd Avenue NE/Big Rock Road intersection to the east property line.

2. Storm Drainage and Detention
    a. Construct a detention vault on Lot 2 sized to accommodate development on Phase G. Install new outfall conveyance pipe extending from the detention vault west to Thayer Creek and mitigate for any Thayer Creek impacts associated with the installation of the new outfall and conveyance pipe if not already constructed.

3. Grading
    a. Surplus earth material from Phase G (lot 5) may be transported to Phase B and/or Phase F at the applicants' option in accordance with an approved grading plan and grading permit.

4. Water
    a. Install the 330-zone and 450-zone water mains as necessary along BRR to the west limit of this phase if not previously installed.

5. Other Utilities
    a. Construct revised access drive and utility connections to existing residence unless previously completed. Toll will cooperate with Wonderland as reasonably necessary in this process.

General:

Portions of the site deferred to a later phase for development but disturbed by overall site grading shall be rough graded in accordance with an approved grading plan so as to be reasonably level, hydro-seeded and mowed semi-annually.

Install signals and associated signal infrastructure at the intersection of BRR and 3rd Avenue NE during the phase which causes the two-way stop-controlled movement (north/south on 3rd Ave. NE) to operate below LOS C, or the last DUV I phase, whichever occurs first. All road improvements installed prior to signal installation shall be designed and constructed to accommodate the signal.

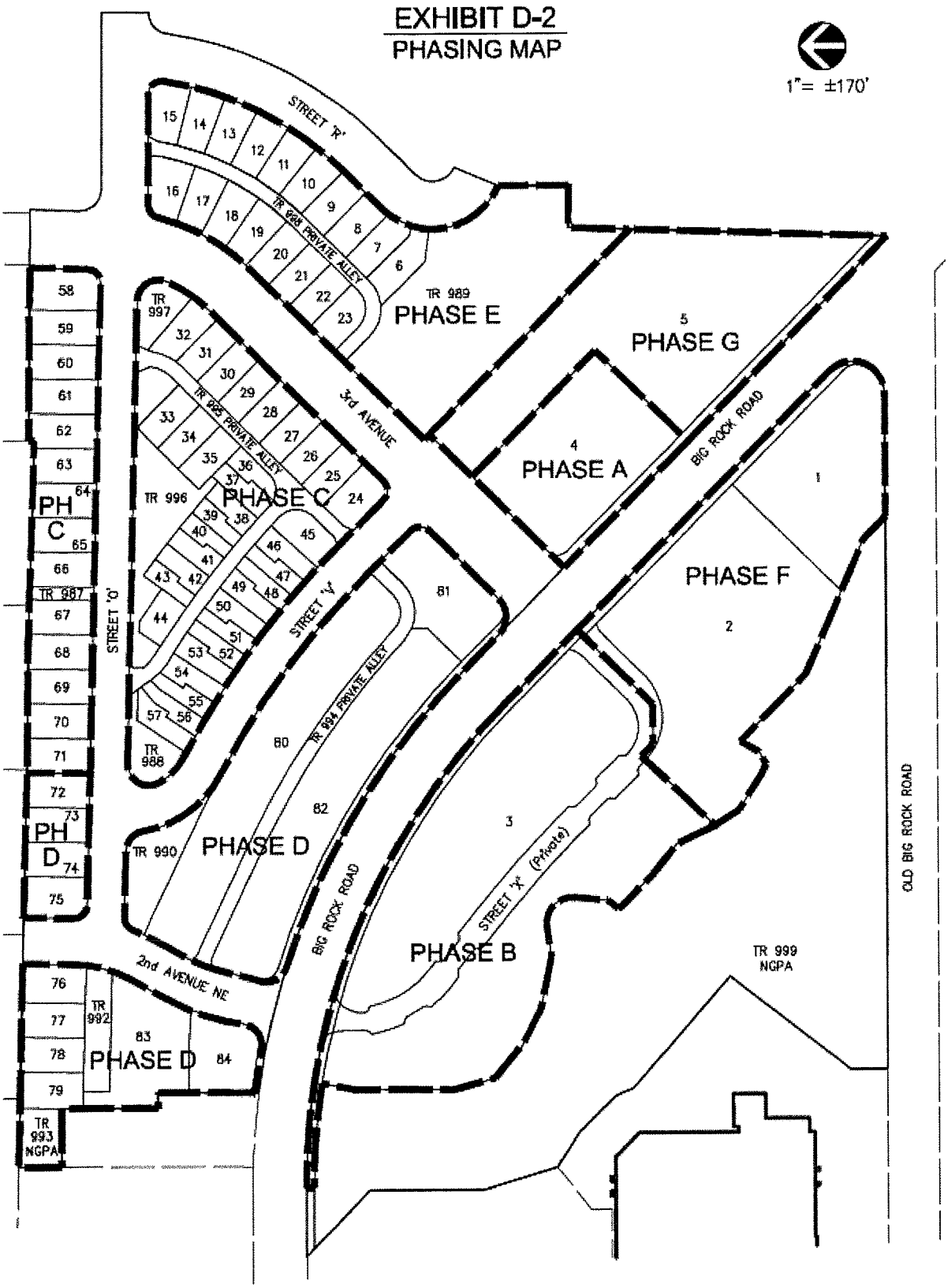

Exhibit D-2 to Development Agreement

EXHIBIT E

ID	Project Name	Project Limits	Project Type	Project Description	ROW Costs ($)	Roadway Costs ($)	Total Unfactored Project Cost ($)	Contingency Cost Factor (%)	Total Project Costs ($)	TIF Eligible?	Impact Fee Share (%)
13	NE Big Rock Road	Main Street NE to 3rd Avenue NE	Minor widening/ reconstruction	Reconstruct roadway to minor arterial standards to improve channelization and capacity to accommodate growth including curb, gutter, sidewalk, curb-bulbs, bike lanes, and on-street parking/turn lanes/medians within commercial or residential areas as required. Project will include storm drainage system improvements.	$366,375.00	$1,610,592.75	$1,976,967.75	0.3	$ 2,570,058.08	Yes	21%
16	3rd Avenue NE Extension	NE 143rd Place to NE Big Rock Road	New roadway	Construct new collector arterial segment to provide connection and capacity to serve growth including two travel lanes, curb, gutter, sidewalk, curb-bulbs, bike lanes and on-street parking/turn lanes/medians within commercial or residential areas as required. Project will include storm drainage system improvements.	$0 (2)	$1,739,240.10	$1,739,240.10 (1, 2)	0.3	$ 2,261,012.13	Yes	76%
36	2nd Avenue NE Extension	NE 143rd Place to NE Big Rock Road	New roadway	Construct new collector arterial segment to provide connection and capacity to accommodate growth including acquisition of right-of-way, road, bike lane, parking, curb, gutter, sidewalk, and storm drainage system. Alignment will need to consider wetlands and property ownership.	$707,100.00	$906,872.85	$1,613,972.85	0.3	$ 2,098,164.71	Yes	83%

(1) The value of the credit available will be reduced by the value of the 8,802 square feet of excess vacated right-of-way on 3rd Avenue NE (8,802 square feet times $15 SF).
(2) No ROW credit shall be given for ROW dedicated as part of the 3rd Avenue NE vacation up to the northern boundary of the DUV I project. Full ROW credit at $15 per square foot shall be given for any additional off-site right-of-way that may be required

Conceptual Park Design

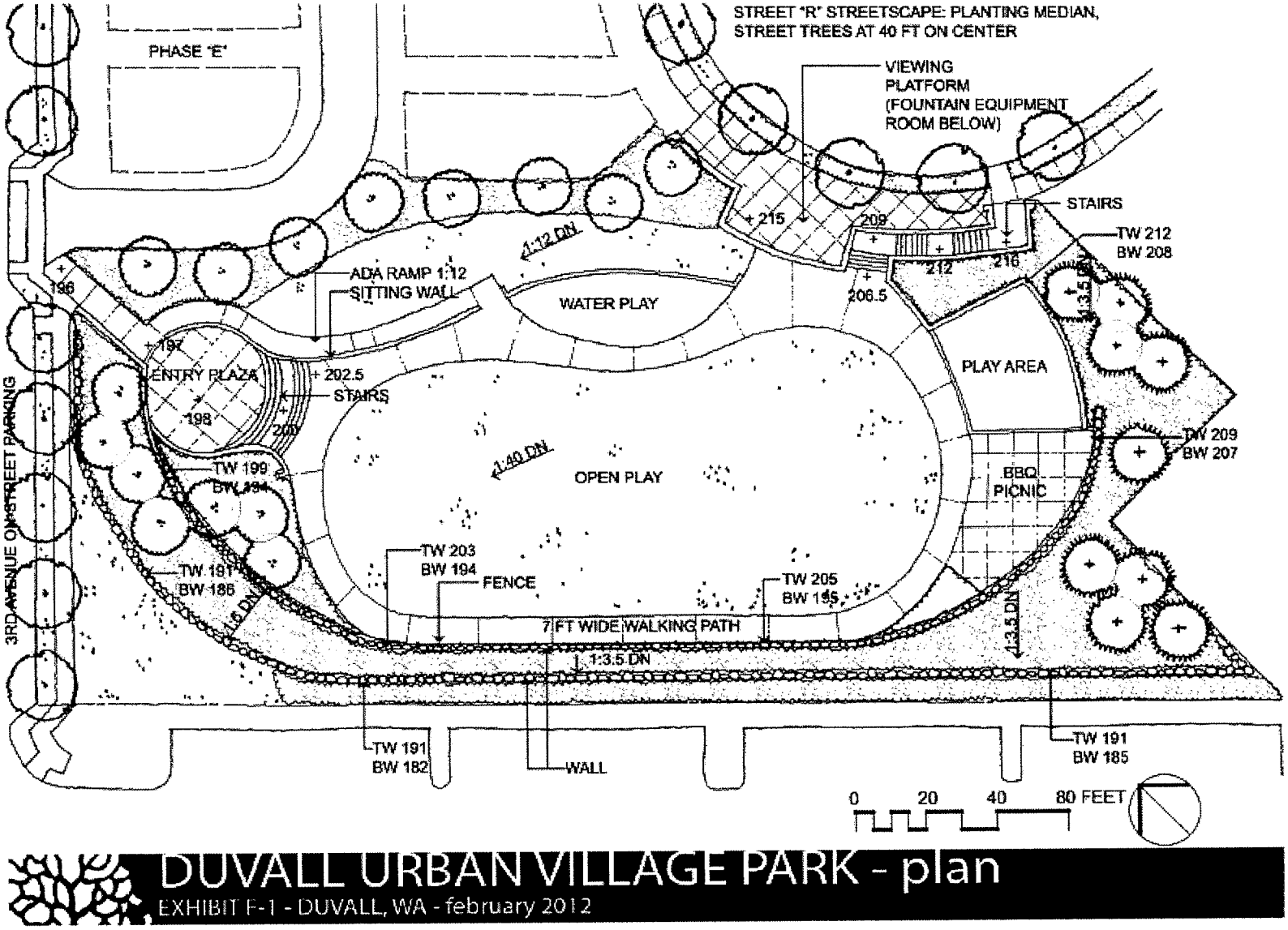

Exhibit F-1 to Development Agreement

EXHIBIT F-2
TRACT 989 PARK AMENITIES

The Tract 989 Park design and amenities shall be substantially similar to the design set out in **Exhibit F-1** and in this **Exhibit F-2**, provided that the amenities to be included in the final park design shall be subject to paragraphs 8.1, 8.1.1 and 8.1.2 of the Development Agreement.

PARK AMENITIES

- Open Play Area/Lawn/Circular Walkway with a minimum size of approximately 15,000 SF and not to exceed 5% slope (based upon the design in **Exhibit F-1** and subject to the City granting modifications required to achieve this square footage)
- Entry Plaza
- Pathways
- Viewing Platform
- Play Area(s) with Play Equipment (e.g. play structure, etc.)
- Water Play Area
- Bike Racks
- Seating (e.g. benches, sitting wall)
- Barbeque
- Fencing as needed
- Shaded Area or Shelter
- Landscaping
- Path lighting

OTHER CONSIDERATIONS

- The City will exercise flexibility and grant modifications from design standards for such items as location and height of retaining walls and allowing grade of 2:1 or 2.5:1 in appropriate areas as depicted on Exhibit F-2, and allow angle or head in parking adjacent to the park instead of parallel parking and other approvals if they will result in a public benefit.
- Features can be combined.
- The Park shall comply with preliminary plat requirements, including required parking, applicable code requirements (subject to City approval of deviations) and other applicable requirements such as ADA.

Exhibit 10

CITY OF DUVALL
WASHINGTON
RESOLUTION NO. 17-12

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF DUVALL, WASHINGTON, APPROVING THE DUVALL URBAN VILLAGE DIVISION I DEVELOPMENT AGREEMENT AMENDMENT BETWEEN THE CITY OF DUVALL AND TOLL WA LP.

WHEREAS, The Duvall Urban Village Division I Preliminary Plat was approved on June 16, 2010; and

WHEREAS, The City of Duvall, Wonderland Holdings LLC entered into a Development Agreement on March 22, 2012 to govern the development of the adjoining properties owned by Wonderland Holdings LLC; and

WHEREAS, Toll WA LP acquired the property owned by Wonderland Holdings LLC in November 2016 and is now the sole owner of all property subject to the Development Agreement dated March 22, 2012; and

WHEREAS, all the property under the March 22, 2012 Development Agreement is now collectively referred to as Duvall Urban Village Division 1.

WHEREAS, On March 9, 2017 and April 25, 2017, Toll Brothers submitted a letter of intent to the City requesting modification to the March 22, 2012 Development agreement between Wonderland, Toll WA LP, and the City; and

WHEREAS, Toll WA LP proposes the following amendments to the development agreement: 1) All commercial development will be located on the south side of Big Rock Road 2) All residential development will be located on the north side of Big Rock Road 3) Allows the option for Toll WA LP to construct Old Big Rock Road Improvements or make in lieu payments 4) Acknowledges the new 3rd Avenue realignment 5) Acknowledges the one acre public park will be located off-site; and

WHEREAS, the Planning Commission and City Council held public hearings and took public testimony; and

WHEREAS, Development Agreements are authorized by RCW 36.70B.170 to establish the "development standards and other provisions that shall apply to and govern and vest the development, use, and mitigation of the development of the real property for the duration specified in the agreement".

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF DUVALL, WASHINGTON, DO RESOLVE AS FOLLOWS:

Section 1. The City of Duvall approves Duvall Urban Village 1 Development Agreement Amendment between the City of Duvall and Toll WA LP as depicted in the attached Exhibit "1".

Section 2. Severability. Should any section, paragraph, sentence, clause or phrase of this Resolution, or its application to any person or circumstance, be declared unconstitutional or otherwise invalid for any reason, or should any portion of this Resolution be pre-empted by state or federal law or regulation, such decision or pre-emption shall not affect the validity of the remaining portions of this Resolution or its application to other persons or circumstances.

6th APPROVED BY THE CITY COUNCIL AT A REGULAR MEETING THEREOF ON THE DAY OF June, 2017.

CITY OF DUVALL

Mayor Will Ibershof

Approved as to form:

Rachel Turpin, City Attorney

ATTEST/AUTHENTICATED:

Jodi Wycoff, City Clerk

AFTER RECORDING MAIL TO:
City of Duvall – Clerk's Office
15535 Main Street NE
PO Box 1300
Duvall, WA 98019

FIRST AMENDMENT TO DUV I DEVLOPMENT AGREEMENT
CITY OF DUVALL AND TOLL WA LP

Grantor(s):	City of Duvall, a Municipal corporation; Toll WA LP, a Washington limited partnership
Grantee(s):	City of Duvall, a Municipal corporation; Toll WA LP, a Washington limited partnership
Abbr. Legal Descrip.:	Lot A City of Duvall BLA 12-005, King County recording #20140926900013; Lot B City of Duvall BLA 12-005, King County recording #20140926900013; and Lot E City of Duvall BLA 02-001, King County recording #20020814900002
Tax Account No.:	2426069067; 2426069083; 2426069065;
Related Documents:	20120921001291

FIRST AMENDMENT TO DUV I DEVELOPMENT AGREEMENT
CITY OF DUVALL AND TOLL WA LP

This First Amendment to DUV I Development Agreement ("First Amendment") dated the 6th day of June, 2017 is entered by and between the City of Duvall, a Washington municipal corporation (the "City") and Toll WA LP, a Washington limited partnership ("Toll"), a party to the original agreement and as the successor in interest to Wonderland Holdings, LLC, a Washington limited liability company ("Wonderland") in that real property subject to the Development Agreement between Wonderland, Toll, and the City dated March 22, 2012.

RECITALS

A. Wonderland, Toll and the City entered into a Development Agreement dated March 22, 2012 to govern the development of certain real property located in the City of Duvall ("DUV I Development Agreement"). The DUV I Development Agreement was recorded on September 21, 2012 under King County recording number 20120921001291. On November 4, 2016, Toll acquired the real property owned by Wonderland, including the Wonderland properties subject to the DUV I Development Agreement.

B. On December 22, 2008 a preliminary plat application (the "Preliminary Plat") was submitted to the City for the real property subject to the DUV I Development Agreement, and the DUV I Plat received preliminary plat approval on June 16, 2010 (the "Approved DUV I Preliminary Plat") .

C. The DUV I Development Agreement governs the development of the Approved DUV I Preliminary Plat, consistent with the Approved DUV I Preliminary Plat.

D. The Parties agree that circumstances surrounding development under the DUV I Development Agreement have changed, including changes in the market and Toll's acquisition of the Wonderland properties, which enable Toll to completely coordinate development of the DUV I Plat with adjoining Toll-owned lands generally known as the Walden project.

E. Among the changes described in Recital D, are that Toll chose not to exercise the Option provided in Section 8.1.4, such that Tract 989 will not be developed as a 1-acre park.

F. Among the changes described in Recital D, the parties acknowledge that all boundary line adjustments described in Recital B of the DUV I Development Agreement have been completed, including those actions necessary to create the 3rd Avenue NE re-alignment.

G. Among the changes described in Recital D, the parties acknowledge that minor road, sewer, water, storm drainage, open space and phasing revisions will be made via the processing of a minor plat modification.

H. To provide a more attractive and successful development plan, Toll has provided to the City proposed revised conceptual plans that would relocate all commercial development south of Big Rock Road, and residential development north of Big Rock Road, which plan still ensures that the minimum 50,000 square feet of commercial space negotiated in the original Development Agreement for the DUV I property remains a requirement for the project, and which plan, together with this First Amendment, make it possible for additional uses to be shifted across the real property subject to the DUV I Development Agreement.

I. The parties acknowledge that the changes made to the location of commercial property described in Recital G and Sections 1 and 2 of this Amendment result in assurance that commercial

requirements set forth in Section 4.1 of the DUV I Development Agreement will be met south of Big Rock Road, such that inclusion of Live/Work units adjoining the planned round about at the intersection of Big Rock Road and 3rd Avenue NE are no longer required to meet commercial requirements and may be deleted from the DUV I Development Agreement as well as later modified via the processing of a minor plat modification.

J. Due to those changes in circumstances and approach to the development of the affected property, the Parties desire to update and amend the DUV I Development Agreement to provide additional design flexibility, and assure timely infrastructure construction, all as provided herein.

K. All capitalized terms used and not otherwise defined in this First Amendment shall have the same meaning as in the DUV I Development Agreement.

Pursuant to the provisions of RCW 36.70B.170, et seq., and in consideration of the mutual promises, benefits and obligations of the Parties in the DUV I Development Agreement as amended herein, the City and Toll agree as follows:

1. Section 3.2 of the DUV I Development Agreement, entitled "Condominium/Multi-Family Lots" is amended as shown below

> 3.2 *Condominiums/Multi-family Lots.* Condominiums or other multi-family development proposed for the Lots within the MU-12 zoned portions of the affected property will require review through the site plan review process set out in DMC 14.62. In the event that Toll wishes to create additional single family lots on those lots for which condominium or other multi-family development is now contemplated, ~~they~~ it shall be required to submit and obtain approval of a subdivision application. Such development must maintain the overall project's MU-12 sixty per cent attached unit requirement and minimum density requirements. Any such applications filed during the term of this Development Agreement shall vest to and be considered under the laws and regulations in effect as of the Vesting Date, except as otherwise provided in paragraph 1.1 herein. When reviewing any such application, the City will not impose conditions different from those set out in the conditions of the Preliminary Plat approval, except and only to the extent necessary to address an impact(s) not addressed as part of the Preliminary Plat approval process, or except as authorized due to modifications to the Approved DUV I Preliminary Plat.

2. Section 4.1 the DUV I Development Agreement, entitled "Commercial and Mixed Use Development" is amended as shown below:

> 4.1 *Commercial and Mixed Use Development.* The Approved DUV I Preliminary Plat provides for the creation of commercial lots for the development of office, commercial, retail and/or mixed uses Toll will develop the commercial and live-work lots through the site plan review process. Toll will submit an application for at least one (1) mixed use building (defined as a building with two or more uses, including live-work units if the live-work units are subject to a recorded covenant on the face of the plat limiting the ground floor to office or other commercial uses) or other commercial building within five years after the Final Plat recording of the first phase of residential development, unless market conditions warrant an extension to ensure successful commercial development in which case the City Council is authorized to modify the timing for development of the mixed use and/or commercial building. Upon approval of all permits for the mixed use or commercial building, construction shall commence within the time period set out in the City's code after applicable permits for such a

building are issued. Wonderland shall construct a minimum of fifty thousand square feet (50,000 SF) of office or other commercial uses within the boundaries of the Approved DUV I Preliminary Plat. Provided that the minimum commercial square footage required in aggregate has been met (i.e., 50,000 square feet) on developed lots, then the minimum square footages on any remaining undeveloped commercial lots will be determined as the_minimum square footage required by Code.

3. Section 7.1 of the DUV I Development Agreement, entitled "Timing of Road Improvements" is amended as shown below

7.1. Timing of Road Improvements. The nature, scope and timing of construction of transportation improvements shall be in accordance with the conditions of Preliminary Plat approval, the Phasing Plan set out in Exhibit D-1 and as set out herein. The improvements to Big Rock Road, 3rd Avenue, Old Big Rock Road adjacent to lot 1 (as depicted on the Preliminary Plat drawings) and the roads internal to the Preliminary Plat shall be constructed prior to final plat approval for the phase in which such improvements are required by the Phasing Plan, or a security shall be provided to the City in accordance with the DMC 14.66.080.

The original terms of the DUV I Development Agreement provided for Wonderland to make a payment to the City so that the City could satisfy certain conditions relating to Old Big Rock Road improvements, as follows._Wonderland shall satisfy all conditions relating to all other Old Big Rock Road improvements by making a payment to the City as provided herein and it shall become the responsibility of the City to construct such improvements. Except as set forth below with respect to Phases B and F, Wonderland shall pay the City the sum of one hundred seventy five thousand dollars ($175,000.00) ("OBRR Payment") within ten (10) business days after the issuance of the certificate of occupancy for the one-hundred-twenty-fifth (125th) residential dwelling unit. Each single family detached home, attached home and each unit within a multi-family building shall be counted as one residential unit. If Wonderland fails to make the required payment when due, the City shall not issue any additional certificates of occupancy for residential units until such payment has been made. If Phases B and/or F are proposed for final plat prior to the issuance of a certificate of occupancy for the 125th residential unit, Wonderland shall make an OBRR Payment to the City in the amount of $75,000. Such payment shall be a condition of the City's issuance of final plat approval for Phases B and F if they are jointly submitted for final plat approval at the same time and if submitted separately shall be a condition of final plat approval for the first of those two phases. Such payment shall satisfy all requirements of DMC 14.66.080 for the final plat for both Phase B and Phase F. The remaining OBBR Payment of $100,000.00 shall be made to the City within ten (10) business days after the issuance of the certificate of occupancy for the 125th residential dwelling unit. If Wonderland fails to make the required payment to the City, the City shall not issue any additional certificates of occupancy for residential units until such payment has been made. The OBRR Payment shall be adjusted at the time the OBRR Payment is due based upon the percentage increase in the Consumer Price Index for All Urban Consumers Seattle-Tacoma-Bremerton – All Items ("CPI") for the period nearest to the date of this Agreement ("Base Period") and the CPI for the period nearest to the date the OBRR Payment is due ("Payment Period"). For example, if the CPI for the Base Period is 225 and the CPI for the Payment Period is 240, the percentage increase to be applied to the OBRR Payment then due is 6.7% (rounded to the nearest tenth of a per cent) calculated as follows:

CPI Base Period	= 225
CPI Payment Period	= 240
Index Point Change	= 15
% Change	= 6.66% [(15 ÷ 225) x (100) = 6.66] rounded to 6.7%

As successor in interest to Wonderland, Toll shall have sole discretion to either make the OBRR Payment described above, or to satisfy the conditions related to the Old Big Rock Road improvements via physical construction of those improvements.

4. The Parties explicitly acknowledge and understand that the amendments made in this Agreement do not relieve Toll of the separate obligation to process a modification to the approved preliminary plat for the Approved DUV I Preliminary Plat, and the Parties acknowledge and understand that the plat modification process may be used to implement changes beyond those described in the recitals to this First Amendment.

5. This First Amendment shall become effective after execution of this First Amendment by all Parties.

6. A complete copy of this First Amendment to DUV I Development Agreement shall be recorded with King County and a copy kept at Duvall City Hall and made available to anyone requesting review or a copy.

[SIGNATURE PAGE FOLLOWS]

Date: 6/6/17

CITY OF DUVALL

By_____
Will Ibershof, Mayor

Attested by:

_____
Jodi Wycoff, City Clerk

Approved as to form:

_____
Rachel Turpin, City Attorney

Date: 6/15/17

TOLL WA LP, a Washington limited partnership
By: Toll WA GP Corp, a Washington corporation
Its: General Partner

_____
By: Kelley Moldstad
Its: Division President

STATE OF WASHINGTON)
) ss.
COUNTY OF KING)

I hereby certify that I know or have satisfactory evidence that Will Ibershof is the Mayor of the City of Duvall, a Washington municipal corporation, and is the person who appeared before me, and acknowledged that he signed this instrument on behalf of such City, on oath stated that he was authorized to execute the instrument and acknowledged it as the free and voluntary act of such City for the uses and purposes mentioned in this instrument.

DATED: June 6, 2017.

Notary Seal

JODI WYCOFF
COMMISSION EXPIRES
NOTARY
PUBLIC
2-09-19
STATE OF WASHINGTON

Jodi Wycoff
Jodi Wycoff (Print Name)
Notary Public
Residing at Monroe, WA
My appointment expires: 2/9/19

STATE OF WASHINGTON)
) ss.
COUNTY OF KING)

I hereby certify that I know or have satisfactory evidence that Kelley Moldstad is the person who appeared before me, and acknowledged that he signed this instrument as the Division President of Toll WA GP Corp., a Washington corporation, the general partner of Toll WA LP, a Washington limited partnership and on oath stated that he was authorized to execute the instrument and acknowledged it as the free and voluntary act of the partnership for the uses and purposes mentioned in this instrument.

DATED: 6/15/17.

Notary Seal

Angelina A Klein (Print Name)
Notary Public
Residing at Seattle
My appointment expires: 1-19-18

Exhibit 11

BEFORE the LAND USE HEARING EXAMINER for the CITY of DUVALL

DECISION

FILE NUMBERS:	SU08-001, [1] BLA08-002, and BLA08-003
APPLICANTS:	CamWest Duvall LLC and Wonderland Holdings LLC
TYPE OF CASE:	Consolidated: 1) Preliminary long subdivision (*Duvall Urban Village Division I*); and 2) Two (2) Boundary Line Adjustments
STAFF RECOMMENDATION:	Approve subject to conditions
SUMMARY OF DECISION:	GRANT subject to revised conditions
DATE OF DECISION:	June 16, 2010

INTRODUCTION [2]

CamWest Duvall LLC (CamWest), 9720 NE 120th Place, Kirkland, Washington 98034, and Wonderland Holdings LLC (Wonderland), 600 University Street, Suite 2820, Seattle, Washington 98101, (collectively referred to as the Applicants), seek preliminary long subdivision approval of *Duvall Urban Village Division I*, a mixed-use subdivision of a 23.3 acre site. (Exhibits 2, 4a, and 4b [3]) The Applicants also seek concurrent approval of two Boundary Line Adjustments (BLAs) which adjust small portions of the perimeter of the subdivision site. (Exhibits 3a, 3b, and 4c)

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1 File documents uniformly state that this preliminary long subdivision application's file number is SU08-001. However, that file number was previously assigned by City Staff to The 14320 LLC's preliminary long subdivision (*The 14320 Site*) which was initially filed as a binding site plan application on September 10, 2008, was converted to a preliminary long subdivision on May 22, 2009, was heard by the Hearing Examiner on July 21, 2009, and was approved by the Hearing Examiner on August 7, 2009. (Official notice) The Examiner discovered and advised City Staff of the file number duplication subsequent to the close of the open record hearing. City Staff has asked the Examiner to retain the assigned file number and footnote the duplication.

2 Any statement in this section deemed to be either a Finding of Fact or a Conclusion of Law is hereby adopted as such.

3 Exhibit citations are provided for the reader's benefit and indicate: 1) The source of a quote or specific fact; and/or 2) The major document(s) upon which a stated fact is based. While the Examiner considers all relevant documents in the record, typically only major documents are cited. The Examiner's Decision is based upon all documents in the record.

The Applicants filed the preliminary long subdivision application and the BLA applications on December 22, 2008. (Exhibits 4a – 4c [4]) The Duvall Planning Department (Planning) deemed the applications to be complete on January 20, 2009. (Exhibit 5)

The subject property straddles NE Big Rock Road between the Safeway Plaza on the west and, generally, the unopened 3rd Avenue NE right-of-way on the east. The southern boundary of the site is Old Big Rock Road (aka NE 140th Street).

The Duvall Hearing Examiner (Examiner) viewed the subject property on June 8, 2010.

The Examiner held an open record hearing on June 8, 2010. Planning gave notice of the hearing as required by the Duvall Municipal Code (DMC). (Exhibit 11)

The following exhibits were entered into the hearing record during the hearing:

Exhibits 1 - 51:	As enumerated in Exhibit 51, the Departmental Staff Report
Exhibit 52:	Applicants' PowerPoint presentation (23 slides)
Exhibit 53:	Applicant Requested Modifications to Conditions of Approval
Exhibit 54:	Applicants' Hearing Memorandum
Exhibit 54.1:	Letter, TraffEx to Applicants, June 1, 2010
Exhibit 54.2:	Letter, Flury-Wyrick to CamWest, June 4, 2010
Exhibit 54.3:	Letter, Raedeke to Wonderland, June 4, 2010
Exhibit 55:	Technical Memorandum, MSA to City of Duvall, February 26, 2010
Exhibit 56:	E-mail string: Benson-Booy, April 29, 2010
Exhibit 57:	E-mail with attachment, Benson-Booy, January 21, 2010
Exhibit 58:	*Curriculum Vitae*: Larry Hobbs
Exhibit 59:	*Curriculum Vitae*: Mark Flury
Exhibit 60:	*Curriculum Vitae*: G. Emmett Pritchard
Exhibit 61:	E-mail letter from Roger and Kerri Lange, June 1, 2010
Exhibit 62:	Old Big Rock Road Alternate Pedestrian Alignment

The City has not met the code-imposed processing time limits. (Exhibit 51) Planning provided to the Applicants the written explanation required by DMC 14.08.020(H)(2). (Exhibit 46)

The action taken herein and the requirements, limitations and/or conditions imposed by this decision are, to the best of the Examiner's knowledge or belief, only such as are lawful and within the authority of the Examiner to take pursuant to applicable law and policy.

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[4] Many other documents in the record give application filing dates different from that contained in Exhibits 4a – 4c. The Examiner finds the December 22, 2008, "Received" date stamp on each of the actual application forms to be original data and, therefore, the most credible evidence available.

ISSUES

Do the applications meet the criteria for Preliminary long subdivision and BLA approval as established within the DMC?

Although this is a complex proposal with many "moving parts," only three topics remain in contention. In order of importance, they are: Whether the Applicants should be required to construct frontage improvements (a sidewalk) along approximately 620 feet of the north side of Old Big Rock Road; whether proposed Street "Y" should be stubbed to the north boundary of the development to allow for future northerly extension; and whether the proposal will adversely affect drainage conditions on properties to the south across Old Big Rock Road.

In addition, a number of significant changes to the Staff-recommended conditions of approval are necessary, primarily because of certain unique procedural situations which apply to this proposal.

This Decision will focus almost exclusively on those three topics and the needed changes to the conditions. Specific Findings of Fact and Conclusions of Law will be limited to those topics. The record is replete with documentation and analysis of all other aspects of these applications. Analysis and conclusions from documents in the record will be incorporated by reference where appropriate to conserve resources.

FINDINGS OF FACT

A. General

A.1. The Applicants propose to subdivide the subject property into seventy-five single family lots, five lots to be developed with 102 condominiums or other multi-family units, one lot to be developed with six live-work units, four commercial lots to be developed with approximately 92,692 square feet of commercial, retail, and office uses, and a lot for a one-acre community park which will be improved and dedicated to the City upon approval by the City Council. Common open space/recreation tracts and a large Native Growth Protection Area (NGPA) tract are also proposed to be created. (Exhibit 2)

The record contains numerous documents, some submitted by the Applicants, some prepared by City Staff, describing the proposal in detail and analyzing it against all applicable regulations and policies. (Exhibits 2 – 4, 7, 13 – 22, 22a, 23 – 25, 27 – 41, 44, 45, and 48 - 51) Since the record contains no challenge to the vast majority of that evidence, those exhibits are incorporated herein by reference as if set forth in full; provided, that to the extent Findings of Fact contained herein conflict with the content of any of the incorporated documents, the Findings of Fact control.

A.2. The subject property consists of a rough rectangle which is bisected from northwest to southeast by NE Big Rock Road, essentially dividing the subject property into two triangles. The portion south of NE Big Rock Road (the south portion) is bordered on the west by the Safeway Plaza shopping center

(which has frontage on SR 203, NE Big Rock Road, and Old Big Rock Road) and on the south by Old Big Rock Road. (Exhibits 2, 22.15 {Att. 4}, and 52 {Slide 2})

The portion north of NE Big Rock Road (the north portion) is bordered on the west by a tract containing a replacement wetland and storm water control facility associated with the Safeway Plaza but owned by the City, and on the north by six acreage lots in *Rio Vista Ranchettes* (which front on NE 143rd Street). The unopened right-of-way of 3rd Avenue NE (aka 278th Avenue NE using County road naming convention) forms the eastern boundary of most of the north portion; a small area of about 1.65 acres lies to the east of that right-of-way. A single-family residence on an acreage parcel and undeveloped land lies further to the east. (Exhibits 2, 3b {Sheet 3 of 3}, 22.15 {Att. 4}, and 52 {Slide 2})

A.3. The legal description of the subject property provided by the Applicants (Exhibit 13) presumes approval of two BLAs. Both involve the north portion of the subject property. The first, BLA08-002, would literally "tweak" the easterly 208 feet of the north property line west of the 3rd Avenue NE right-of-way, shifting it northward about 4.5 feet and straightening it out. (Exhibit 3a)

The second, BLA08-003, makes a more substantial adjustment to the boundaries of two parcels which abut the east side of the presently unopened 3rd Avenue NE right-of-way, both of which are owned by CamWest. That BLA will replace the two straight property lines which now separate the parcels with a compound, curvilinear line. Both existing parcels have direct frontage (452 feet for Parcel A and 172 feet for Parcel B) on the east side of the unopened 3rd Avenue NE right-of-way. If approved as proposed, Parcel A (the parcel that is within the current *Duvall Urban Village Division I* proposal) will have 624 feet of frontage on the existing right-of-way and Parcel B (which is outside of the current *Duvall Urban Village Division I* proposal) will have none: It will parallel the right-of-way edge at a distance of 3.5 feet for a linear distance of about 56 feet; the remainder of its western boundary is much further from the existing right-of-way. (Exhibit 3b)

A.4. The Applicants propose to develop *Duvall Urban Village Division I* in several phases. The current plans envision seven phases: Three commercial phases (Phases A, F, and G) and four residential/live-work phases (Phases B – E), one of which (Phase C) will contain the proposed public park. (Exhibit 2, Sheet PP7)

Section 14.18.060 DMC states "the commercial and residential portions of a mixed use project shall be constructed concurrently unless the developer establishes a phasing plan through a development agreement." Development agreements are a Type VI application: The Planning Commission reviews the proposed agreement and makes a recommendation to the City Council (Council) which exercises final decision making authority for the City. [DMC 14.08.010(C)(1) and (C)(2)] The terms and conditions of the required development agreement are thus outside the scope of this proceeding.

The Applicants and Planning intend to present a development agreement for Planning Commission and Council consideration subsequent to issuance of this Decision by the Examiner. (Exhibit 51 and testimony)

A.5. In July, 2007, the City and CamWest entered into a Pre-Annexation Agreement affecting some 56 acres located on the north side of NE Big Rock Road, lying east of the 3rd Avenue NE right-of-way and west of 275th Avenue NE. The northeast 1.65 acres of the subject property occupies a portion of the northwest corner of the area subject to the terms of the Pre-Annexation Agreement. (Exhibits 2, 3b, and 24)

The Pre-Annexation Agreement included provisions requiring the execution of a development agreement between CamWest and the City to which all development within the annexation area would be subject. (Exhibit 24, p. 3, § 3.4) The Pre-Annexation Agreement also includes a number of requirements regarding low-income housing, public park area, pedestrian connectivity, "low impact" development, and traffic impact mitigation. (Exhibit 24, pp. 3 - 7)

The City and CamWest followed up the Pre-Annexation Agreement by entering into a Development Agreement (CamWest Development Agreement) in December, 2007, subsequent to the August, 2007, annexation of the area into the City. The CamWest Development Agreement applies to the same 56 acres as did the Pre-Annexation Agreement. (Exhibit 25) Thus, the northeast 1.65 acres of the subject property lies within the area subject to the terms of the CamWest Development Agreement.

The CamWest Development Agreement vests development within the 56 acres to the land use regulations as they existed on December 14, 2007 (Exhibit 25, p. 3, § 4.a), requires submittal of a master plan and phasing plan for the entire 56 acres "with the development permit applications for the first phase of its development" (Exhibit 25, p. 4, § 6.a), requires CamWest to construct 3rd Avenue NE from NE 143rd Place south to NE Big Rock Road (the 3rd Avenue Extension) concurrent with development of the first phase of its project (Exhibit 25, p. 11, § 17.a.i), calls for the 3rd Avenue Extension to include westerly realignment of the 3rd Avenue NE right-of-way (Exhibit 25, p. 15, § 17.d), requires CamWest to utilize low impact development techniques (Exhibit 25, p. 18, § 21.a), and requires "All phases" of CamWest's development within the 56 acres to include pedestrian connections to adjacent properties (Exhibit 25, p. 21, § 28.a).

CamWest and Planning have processed *Duvall Urban Village Division I* with the expectation that the Council will amend the CamWest Development Agreement to remove the northeast 1.65 acres of the subject property from coverage under the Agreement. (Exhibit 51)

A.6. BLA08-003 relies upon City vacation of the present 3rd Avenue NE right-of-way and its replacement with the realigned and widened 3rd Avenue Extension right-of-way. Specifically the new right-of-way will be wider than the existing right-of-way (67 feet v. 60 feet), resulting in Parcel B having frontage on the east side of the replacement right-of-way, something which it would not have without the new right-

of-way. The proposed alignment will swing 3rd Avenue NE westerly as it passes through the subject property such that it will intersect with NE Big Rock Road at a right angle. (Exhibits 2 and 3b)

Right-of-way vacations are not considered land use applications. (See DMC 14.08.010(C): Right-of-way vacations are not listed within Table 1.) Right-of-way vacations are subject to the provisions of Chapter 35.79 RCW which vests the authority to act on such applications with the Council. Thus, consideration of the right-of-way vacation is outside the scope of this proceeding.

A.7. Both the *Duvall Urban Village Division I* preliminary plat and BLA08-003 assume Council approval of the 3rd Avenue Extension vacation and realignment as proposed. (Exhibit 2)

A.8. The Applicants have presented "Residential Architectural Concepts" for the residential units in Phases B – E. (Exhibit 30) The Applicants have no idea what commercial development will ultimately locate in Phases A, F, and G. [5] For planning purposes, they have assumed that about 93,000 square feet of commercial space would be developed in those phases. (Exhibit 51, pp. 9 and 29) Site plan review pursuant to DMC 14.08.010(C) and Chapter 14.62 DMC is required prior to actual development of the commercial areas. (Exhibit 51, p. 30)

A.9. Duvall's State Environmental Policy Act (SEPA) Responsible Official issued a Mitigated Determination of Nonsignificance (MDNS) for *Duvall Urban Village Division I* on March 3, 2010. The MDNS contains seven mitigation measures: Realignment of 3rd Avenue NE and signalization of the 3rd Avenue NE/NE Big Rock Road intersection; construction of "Sidewalk, bicycle, and pedestrian facilities … to city standards"; grading controls; water utility improvements; stormwater and impervious surfaces requirements; sensitive areas preservation; and completion of a Development Agreement including phasing plans. (Exhibit 45) The mitigation measures within the MDNS have been carried forward by reference as a recommended condition of approval. (Exhibit 51, p. 39, Recommended Condition 4)

A.10. The Applicants sought and obtained approval by staff of a total of 13 administrative engineering variances and/or administrative code deviations/departures:

A. Administrative Engineering Variances. The Applicants requested and obtained City Engineer approval of the following variances from the City's Development Design Standards (Standards [6]):

i. Meandering sidewalk along Street "O". (Exhibits 31 and 51 {p. 16})

ii. Private stormwater vaults in private roads, tracts, and easements. (Exhibits 32 and 51 {p. 22})

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5 For a time, the King County Library System (KCLS) planned to occupy Phase A with a branch library. (E.g., see Exhibit 16) KCLS no longer plans to locate its library in *Duvall Urban Village Division I*. (Testimony)

6 Section 1-1.02 of the Development Design Standards specifies that the shorthand name is simply "Standards".

iii. A private road. (Exhibits 33 and 51 {p. 18})

iv. Reduced intersection spacing. (Exhibits 34 and 51 {p. 17})

v. 3rd Avenue NE slope exceeding standard. (Exhibits 35 and 51 {p. 10})

vi. Temporary cut and fill slopes in excess of 3H:1V. (Exhibits 37 and 51 {p. 24}; see also Finding of Fact A.10.B.iii, below.)

B. Administrative Deviations/Departures. The Applicants requested and obtained Staff approval of the following deviations/departures from DMC provisions:

i. Reduced off-street parking in commercial areas. (Exhibits 36 and 51 {p. 20}) Planning is authorized by DMC 14.44.040(B) to administratively reduce required off-street parking if certain requirements are met.

ii. Reduce number of loading spaces required by DMC 14.44.090. (Exhibits 36 and 51 {pp. 20 and 21}) (The DMC contains no authority for administrative relief from DMC 14.44.090.)

iii. Temporary cut and fill slopes in excess of 3H:1V. (Exhibits 37 and 51 {p. 24}) Subsection 14.34.030(B)(1)(c) DMC expressly authorizes Planning and Public Works to grant exceptions to this limitation. (See also Finding of Fact A.10.A.vi, above.) Subsection 14.34.010(E) DMC authorizes Planning to grant departures from Chapter 14.34 DMC, Design Guidelines, requirements.

iv. Common open space: Slope in excess of code limitations; and minimum dimension narrower than code standard. (Exhibits 38 and 51 {p. 25}). Subsection 14.34.010(E) DMC authorizes Planning to grant departures from Chapter 14.34 DMC, Design Guidelines, requirements.

v. Grassy slopes in excess of 4H:1V. (Exhibits 39 and 51 {p. 26}). Section 14.38.030 DMC authorizes Planning to vary requirements contained in Chapter 14.38, Landscaping Standards.

vi. Garages exceeding 50% of front façade. (Exhibits 40 and 51 {p. 31}) Subsection 14.34.010(E) DMC authorizes Planning to grant departures from Chapter 14.34 DMC, Design Guidelines requirements.

vii. Reduced separation between like residential house models. (Exhibits 41 and 51 {pp. 31 and 32}) Subsection 14.34.010(E) DMC authorizes Planning to grant departures from Chapter 14.34 DMC, Design Guidelines, requirements.

A.11. Any Conclusion of Law deemed to be a Finding of Fact is hereby adopted as such.

B. Drainage Impact Off-site to the South

B.1. The owner of the property in the south quadrant of the NE Big Rock Road/Old Big Rock Road intersection (Pedeferri) seeks assurance that development of *Duvall Urban Village Division I* will not result in storm water runoff flowing onto his property. Runoff water from land on the north side of Big Rock Road east of the 3rd Avenue NE right-of-way flows beneath Big Rock Road in a culvert onto the Pedeferri property. It then flows southwesterly through the Pedeferri property towards SR 203. (Exhibit 17 {Fig. 18} and testimony)

Pedeferri stated that flows in that system have increased over the years, causing significant erosion on his property. Pedeferri does not want his runoff problems exacerbated by development of *Duvall Urban Village Division I*. (Testimony)

B.2. Drainage from the north portion of the subject property sheet flows overland to a roadside ditch along the north side of NE Big Rock Road, then westerly to enter Thayer Creek. Drainage from the south portion of the subject property sheet flows overland southwesterly into the Thayer Creek headwaters and wetlands system on the subject property, then northwesterly down Thayer Creek. (Exhibit 17, Fig. 18)

Although Exhibit 17, Fig. 18, indicates that Old Big Rock Road is the dividing line between the Thayer Creek drainage basin and the drainage basin to the south, subsequent work by the Applicants' consultants has identified a wetland area (of unknown size) immediately south of Old Big Rock Road which is connected to the Thayer Creek headwaters wetland on the north side of the road by a 12" culvert. (Exhibit 54.3, p. 2) It would appear from the evidence that the Thayer Creek headwaters area was bisected by the original construction of Old Big Rock Road. The water course identified by Pedeferri does not connect to the Thayer Creek headwaters wetlands. (Testimony)

B.3. The Applicants' preliminary drainage plan indicates that surface runoff from impervious surfaces within *Duvall Urban Village Division I*, except for some from roof-tops on the south portion which will directly recharge the on-site wetlands, will be collected, routed to one of five underground detention vaults, and then conveyed to a discharge location where Big Rock Road crosses Thayer Creek. (Exhibit 17, Fig. 20)

B.4. The Applicants' engineer assured Pedeferri and the Examiner that no runoff water would be diverted to or backed up onto the Pedeferri property. (Testimony)

C. Stub-Out of Street "Y" to the North

C.1. Conceptual plans developed in 2006 – 2008 for the subject property did not contemplate extending a street stub to the north property line near the west edge of the site. (Exhibit 26) Application plans as late as October, 2009, did not contemplate such a street stub. (Exhibit 16; see the area of Street "Y" and then-Proposed Lots 76 and 77)

C.2. Figure T-6 and Table T-6 of the 2006 Comprehensive Plan (2006 Plan) depict projects within the 20-year Transportation Capital Improvement Program. One of those projects is the 1st Avenue NE southerly extension. The 1st Avenue NE extension (from NE 145th Street to NE Big Rock Road), identified as Project No. 17 in Table T-6, notes that "alignment between NE 143rd Street and Big Rock Road will need to consider wetlands and property." Figure T-1, Roadway Classifications, in the 2006 Plan shows the 1st Avenue NE extension alignment routed slightly to the east at NE 143rd street, closer to the 2nd Avenue NE alignment, while Figure T-6 shows the roadway along the 1st Avenue NE alignment. Both alignments, however, are within a wetland buffer. [7] The road extension alignment is in the City's Transportation Capital Improvement Program and is eligible for Traffic Impact Fee credit. (Exhibits 42 {pp. 4 and 5} and 51 {p. 15})

C.3. City staff asked the Applicants to revise the street layout to extend Street "Y" to the north property boundary as a collector arterial with a 53 foot wide right-of-way. In October, 2009, the Applicants objected strenuously to this request, arguing that it violated RCW 82.02.020. (Exhibit 42, pp. 5, 6, 9, and 10)

C.4. The Applicants subsequently made a "business decision" to voluntarily agree (as allowed by RCW 82.02.020) to include the Street "Y" stub and extra right-of-way width in their development plan in exchange for a promise of Staff "agreement to support vesting of the current methodology of calculating credits to transportation impact fees in the development agreement for [*Duvall Urban Village Division I*] which must be approved by the City Council." (Exhibit 54, pp. 2 and 3, and testimony)

C.5. The proposed preliminary plat provides a 53 foot wide right-of-way for Street "Y" from Big Rock Road through the north portion of the subject property to stub-out at the north property boundary. The street stub is nearly centered on the common property line between tax parcels 7325800030 and 7325800040, two acreage lots in the *Rio Vista Ranchettes* subdivision. (Exhibit 2) This alignment is desired by City Staff due to the environmental considerations noted in Finding of Fact C.2, above. (Exhibit 51 and testimony)

C.6. Tax parcels 7325800030 and 7325800040 are owned by Roger and Kerri Lange (the Langes). The Langes purchased those two approximate two-acre lots in 2004 and 2005 for development purposes. They initially intended to build a mini-storage facility on the property, but discovered that such a use

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[7] The Draft 2009 Transportation Element identifies the NE 143rd Place to Big Rock Road portion of this project as TIP project No. M-9, 2nd Avenue NE Extension. (Exhibit 51, p. 15) Draft policy and/or regulatory documents cannot legally be considered in deciding preliminary subdivision cases. The Examiner has not considered the impact of the 2009 proposal, if ultimately adopted, on *Duvall Urban Village Division I*.

was not allowed by current zoning. In 2008 they sought to sell the property to a church, but the prospective purchaser backed out of the deal because of steeple height limits and grading concerns. (Exhibits 47.c and 61)

C.7. The Langes strenuously oppose existence of the Street "Y" stub on their south property line. They argue that it would be a precursor to requiring them to provide an arterial through their lots, a requirement which they believe would violate constitutional protections against "taking" of private property and would also violate appellate case law regarding "nexus" and "rough proportionality." (Exhibits 47.c and 61 and argument of counsel)

D. Frontage Improvements along Old Big Rock Road

D.1. The Old Big Rock Road right-of-way extends from SR 203 on the west to NE Big Rock Road on the east. (Exhibit 2) A two-lane, open ditch section, paved road exists within that right-of-way from NE Big Rock Road west to the Safeway Plaza which has two connections to Old Big Rock Road: One to the rear loading area of the Safeway store; the other to the main north-south drive lane in the Plaza parking lot, providing a connection between Old Big Rock Road and NE Big Rock Road. (Exhibits 2 and 52 {Slide 2}) Bollards block Old Big Rock Road just west of the second Safeway Plaza entrance. (Testimony)

Old Big Rock Road is situated on a fill embankment for most of the above-described section. The street consists of two approximate 11 foot wide travel lanes with minimal shoulders on each side. The total paved width varies between 24.25 and 25.25 feet. (Exhibits 22.14 and 52 {Slides 10 and 13})

Wetlands abut the street embankment on both the north (for a distance of about 400 feet) and the south (for a distance of about 300 feet). (Exhibits 18, 52 {Slides 16 – 22}, and 54.3)

D.2. *Duvall Urban Village Division I*, as presently proposed, makes no vehicular connection to Old Big Rock Road. (Exhibits 2 and 52 {Slide 5})

D.3. The traffic impact assessment prepared on behalf of the Applicants and accepted by the City does not project that any site-generated vehicular p.m. peak hour trips will use Old Big Rock Road. (Exhibits 22.5 and 54.1)

D.4. The Applicants have voluntarily offered to construct a sidewalk along Proposed Lot 1's (in Phase F) frontage on Old Big Rock Road. The west end of that sidewalk will connect to the south end of a soft-surface trail which the Applicants will construct through NGPA Tract 999. (Exhibits 2 and 52 {Slide 7})

D.5. Public Works wants the Applicants to construct pedestrian walkway improvements along the remainder of the site's frontage on Old Big Rock Road, a distance of some 620 feet. (Exhibit 51, pp. 10 – 14)

D.6. The City estimates that the additional Old Big Rock Road walkway improvements would cost approximately $67,500. (Exhibit 22.14) The Applicants believe that the requested improvements would cost approximately $332,250. (Exhibits 54.2 and 54.3)

D.7. The City Staff believes that adopted policies, code provisions, Standards provisions, and MDNS mitigation measures require construction of the walkway along the north side of Old Big Rock Road. (Exhibit 52, pp. 10 – 14 and testimony) City Staff also believes that pedestrians from *Duvall Urban Village Division I* will use Old Big Rock Road to reach the Safeway Plaza. (Exhibit 22.16 and testimony)

D.8. The Applicants believe that a requirement to construct a pedestrian walkway along Old Big Rock Road adjacent to NGPA Tract 999 lacks a "rational nexus" to project impacts, therefore lacks "rough proportionality," violates limitations in RCW 82.02.020, and is unconstitutional. The Applicants also dispute the notion that *Duvall Urban Village Division I* residents will use Old Big Rock Road to reach the Safeway Plaza. (Exhibits 54 and 54.1 and testimony)

D.9. If the Examiner finds that a "rational nexus" exists to justify mitigation, then the Applicants have offered an alternative to the City's walkway requirement: 1) To construct a soft surface walkway within Tract 999 connecting the proposed walkway with the end of the existing Safeway Plaza sidewalk at the southwest corner of the subject property; and 2) To provide a full pavement overlay of Old Big Rock Road. (Exhibit 62 and testimony)

D.10. The land south of Old Big Rock Road lies outside present City limits but within the City's approved Urban Growth Area. The area is slated for eventual commercial development. (Testimony)

E. Approval Conditions

E.1. City Staff recommends approval of all three applications subject to 80 conditions. (Exhibit 51, pp. 39 – 52)

E.2. The Applicants take exception to Recommended Conditions 31, 35, and 38; the Applicants propose an additional condition (Condition 81) in the event the Examiner concludes that Street "Y" should not stub-out to the north property line. (Exhibit 53 and testimony)

E.3. City Staff concurs with the Applicants' changes to Recommended Conditions 31 and 35, opposes the Applicants' changes to Recommended Condition 38, and concurs with the Applicants' proposed Condition 81 in the event the Examiner concludes that Street "Y" should not stub-out to the north property line. (Testimony) The City's position with respect to Recommended Condition 38 has been summarized in Section D, above.

LEGAL FRAMEWORK [8]

The Examiner is legally required to decide this case within the framework created by the following principles:

Authority
A preliminary long subdivision is a Type III application which is subject to an open record hearing before the Examiner. The Examiner makes a final decision on the application which is subject to the right of reconsideration and appeal to Superior Court. [DMC 2.30.070(A)(2) and 14.08.010(C), Tables 14.08.010.C.1 and .2]

BLAs are normally Type I applications which are handled administratively by Planning. [DMC 14.08.010(C)] However, when "multiple applications are submitted concurrently, the city shall process [them] as a consolidated application unless notified otherwise by the applicant." [DMC 14.08.010(B)(2)(a)] When consolidated, the applications are "processed collectively under the highest numbered procedure required for any part of the application". [*Id.*] Therefore, the BLAs in this consolidated application are treated as Type III applications.

> The examiner's decision may be to grant or deny the application or appeal, or the examiner may grant the application or appeal with such conditions, modifications, and restrictions as the examiner finds necessary to make the application or appeal compatible with the DMC, state laws and regulations, including Chapter 43.21C RCW, and the regulations, policies, objectives, and goals of the Duvall comprehensive plan, the unified development regulations, and other official laws, policies and objectives of the city of Duvall.

[DMC 2.30.070(B)]

Review Criteria
The primary review criteria for preliminary long subdivisions are set forth at DMC 14.66.040:

> A. Each proposed subdivision or short subdivision shall be reviewed to ensure that:
> 1. The proposal conforms to the goals, policies and plans set forth in the Duvall comprehensive plan;
> 2. The proposal conforms to the site and design requirements set forth in this title. No final subdivision or short subdivision shall be approved unless the requirements are met;
> 3. The proposed street system and pedestrian system conform to the Duvall comprehensive plan, DMC Chapter 14.34, Design Guidelines, and the public works development design standards, and is laid out in such a manner as to provide for the safe, orderly and efficient circulation of vehicular and pedestrian traffic;

[8] Any statement in this section deemed to be either a Finding of Fact or a Conclusion of Law is hereby adopted as such.

4. The proposed subdivision or short subdivision will be adequately served with city-approved water and sewer, and other utilities appropriate to the nature of the subdivision or short subdivision;

5. The layout of lots, and their size and dimensions, takes into account topography and vegetation on the site in order that buildings may be reasonably sited, and that the least disruption of the site, topography and vegetation will result from development of the lots;

6. Identified hazards and limitations to development have been considered in the design of streets and lot layout to assure street and building sites are on geologically stable soil considering the stress and loads to which the soil may be subjected.

B. Lack of compliance with the criteria set forth in subsection A of this section and DMC Section 14.66.050, Subdivision standards, shall be grounds for denial of a proposed subdivision or short subdivision, or for the issuance of conditions necessary to more fully satisfy the criteria.

In addition, DMC 2.30.210 contains additional requirements for preliminary long subdivisions:

When the examiner makes a decision regarding an application for a proposed preliminary plat, the decision shall include additional findings as to whether:

A. Appropriate provisions are made for the public health, safety, and general welfare and for such open spaces, drainage ways, streets or roads, alleys, other public ways, transit stops, potable water supplies, sanitary wastes, parks and recreation, playgrounds, schools and school grounds and all other relevant facts, including sidewalks and other planning features that assure safe walking conditions for students who only walk to and from school; and

B. The public use and interest will be served by the platting of such subdivision and dedication.

A "consistency determination" is also required for every project permit application.

During project permit application review, [Duvall] shall determine whether the items listed in this section are defined in the development regulations applicable to the proposed project and if the proposed project meets the development regulations. In the absence of applicable development regulations, [Duvall] shall determine whether the items listed in this section are defined in [Duvall's] adopted comprehensive plan and if the proposed project meets the comprehensive plan policies. This determination of consistency shall include, but is not limited to, the following:

a. The type of land use permitted at the site, including uses that may be allowed under certain circumstances, if the criteria for their approval have been satisfied;

b. The level of development, such as units per acre, floor area ratio, lot coverage, etc;

c. Availability and adequacy of infrastructure and public facilities identified in the comprehensive plan, if the plan or development regulations provide for funding of these facilities as required by Chapter 36.70A RCW; and

d. Character of the development, such as development standards.

[DMC 14.08.040(A)(2)]

The review criteria for BLAs are set forth at DMC 14.66.120(B):

1. The proposed adjustment shall meet the exemption requirements provided in RCW 58.17.040(6);
2. The boundary line adjustment shall not result in the creation of any additional tract, lot, parcel, site or division;
3. The property being transferred within the boundary line adjustment shall be combined with the benefiting parcel and shall not be a separate parcel, which could be mistaken as a separate and distinct, conveyable tract without proper research;
4. The lots, tracts, or parcels resulting after the boundary line adjustment shall meet all dimensional requirements specified for the applicable zone as outlined in this title;
5. All lots modified by the boundary line adjustment procedures shall have legal access meeting the standards of the city of Duvall;
6. The boundary line adjustment shall not violate an applicable requirement or condition of a previous land use action, subdivision, short subdivision or binding site plan;
7. All boundary line adjustments shall be recorded surveys consistent with the requirements of Chapter 58.09 RCW and Chapter 332-130 WAC. All lot lines being adjusted shall be surveyed, and newly established lot corners shall be staked.

Vested Rights
Subdivision and short subdivision applications are governed by a statutory vesting rule: such applications "shall be considered under the subdivision or short subdivision ordinance, and zoning or other land use control ordinances, in effect on the land at the time a fully completed application … has been submitted …." [RCW 58.17.033]

Standard of Review
The standard of review is preponderance of the evidence. The applicant has the burden of proof.

Scope of Consideration
The Examiner has considered: all of the evidence and testimony; applicable adopted laws, ordinances, plans, and policies; and the pleadings, positions, and arguments of the parties of record.

CONCLUSIONS OF LAW

A. General

A.1. The state Supreme Court in *Citizens v. Mount Vernon* [133 Wn.2d 861, 947 P.2d 1208 (1997), *reconsideration denied*] has ruled that "[RCW 36.70B.030(1)] suggests … a comprehensive plan can be used to make a specific land use decision. Our cases hold otherwise." [at 873]

> Since a comprehensive plan is a guide and not a document designed for making specific land use decisions, conflicts surrounding the appropriate use are resolved in favor of the more specific regulations, usually zoning regulations. A specific zoning ordinance will prevail over an inconsistent comprehensive plan. If a comprehensive plan prohibits a particular use but the zoning code permits it, the use would be permitted. These rules require that conflicts between a general comprehensive plan and a specific zoning code be resolved in the zoning code's favor.

[*Mount Vernon* at 873-74, citations omitted]

A.2. "An administrative tribunal, such as the hearing examiner in this case, has only the authority granted it by statute or ordinance." [*HJS Development, Inc. v. Pierce Cy*, 148 Wn.2d 451, 471 (2003)] The Examiner has only that authority "conferred either expressly or by necessary implication." [*Chaussee v. Snohomish County*, 38 Wn. App. 630, 636, 689 P.2d 1084 (1984)]

Neither a Hearing Examiner nor a City Council have authority to rule on the constitutionality of a duly enacted ordinance. [*Exendine v. City of Sammamish*, 127 Wn. App. 574, 113 P.3d 494 (2005), rev. denied 156 Wn.2d 1018 (2006)]

Likewise, the Examiner has no authority to determine whether a duly enacted City regulation complies with statutory or case law. The Examiner is required to base his land use decisions upon duly adopted laws and ordinances, and may not consider equitable defenses. [*Chaussee* at 638] Whether those regulations conflict with statutory or case law is for a court of competent jurisdiction to decide. [9]

A.3. "The word 'shall' is mandatory and the word 'may' is discretionary. The word 'should' is mandatory unless waived by the director due to special circumstances." [DMC 14.04.060(D)]

A.4. Where authority to make a decision administratively is conferred by the DMC on staff, as opposed to merely the authority to make a recommendation to a higher decision maker, a higher decision maker has no inherent authority to second guess that administrative decision absent clear authority to do so. For example, the code sections listed in Finding of Fact A.10, above, grant to either Planning or Public Works (or both) the authority to grant certain variances/deviations/departures from certain

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[9] If a regulation is vague or unclear, then the Examiner would most certainly weigh statutory and case law in seeking to understand and apply the regulation. If two regulations conflict, then the Examiner would most certainly apply case law regarding statutory construction to seek to resolve the conflict. If a regulation grants discretion to the decision maker, then the Examiner would most certainly apply the "rational nexus" and "rough proportionality" tests from case law, among others, in exercising that discretion.

specific DMC and Standards provisions. Nothing in the language of those sections suggests that Staff action is but a recommendation to the Examiner or that the Examiner has any authority to second guess the administrative action. The Examiner has no authority to review, affirm, or reject those administrative actions in the context of this consolidated proceeding. [10]

A.5. The Staff Report (Exhibit 51) contains an exhaustive analysis of the three applications which make up this consolidated application. Since the record contains no challenge to the vast majority of that analysis, the conclusions within Exhibit 51 are incorporated herein by reference as if set forth in full; provided, that to the extent Conclusions of Law contained herein conflict with the content of any of the incorporated analysis, the Conclusions of Law control.

A.6. The uncontested preponderance of the evidence demonstrates that both BLAs comply with all approval criteria with but one exception. [11] BLA08-002 can stand on its own as an independent application. Therefore, it can be approved without contingencies.

BLA08-003, on the other hand, is dependent upon vacation and rededication of 3rd Avenue NE right-of-way. If right-of-way vacation and realignment occur as proposed, each lot will have access to 3rd Avenue NE and will meet the access requirement of DMC 14.66.120(B)(6). However, until that occurs, Proposed Lot B (the lot which is not within *Duvall Urban Village Division I*) would be landlocked. Therefore, approval of BLA08-003 must be made contingent on the vacation/rededication process.

A.7. As noted above, the administrative variances/deviations/departures requested in Exhibits 31 – 41 and approved in Exhibit 51 are not within the Examiner's jurisdiction in this proceeding. Therefore, the Examiner accepts them as givens for the purpose of this Decision with one exception.

City staff appears to lack the authority to have granted one of those administrative variances/deviations/departures. This situation will be addressed further in Conclusion of Law E.6, below.

A.8. Any Finding of Fact deemed to be a Conclusion of Law is hereby adopted as such.

B. Drainage Impact Off-site to the South

B.1. The evidence indicates that *Duvall Urban Village Division I* will not direct any of its stormwater runoff towards the south. The record contains no evidence that the proposed development will discharge stormwater onto properties to the south. The evidence also indicates that the Applicants can comply with all applicable City stormwater control requirements.

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10 If there is an appeal process in the DMC for those administrative actions, it must be used overtly, not by implication.

11 Planning confirmed in testimony that the statement on page 9 of Exhibit 51 that "one parcel [is]to be created by a [BLA]" was erroneous: No new parcels will be created by either BLA.

B.2. Given the above, no basis exists in the record to impose any additional or more stringent conditions regarding stormwater control.

C. Stub-Out of Street "Y" to the North

C.1. City Staff rely primarily on DMC 14.66.050(L)(5) as the basis for requiring Street "Y" to stub to the north property line:

> Proposed streets should extend to the boundary lines of the proposed site plan or subdivision in order to provide for the future development of adjacent tracts unless prevented by natural or man-made conditions or unless such extension is determined to be unnecessary by the Public Works Director.

[Emphasis added] In accordance with DMC 14.04.060(C), quoted in Conclusion of Law A.3, above, "should" is mandatory. The code clearly places the authority to waive the mandatory requirement to extend streets to external property lines in the office of the Public Works Director, not in the Examiner. The Public Works Director has determined that the stub-out is necessary. (Exhibit 51, pp. 14 and 15) The Examiner must respect and apply that determination.

C.2. Stubbing-out Street "Y" to the north property line will not constitute a "taking" of any portion of the Lange's abutting property: The stubbed-out right-of-way will lie entirely within the subject property and will not intrude onto or into the Lange's property.

Whether extension of Street "Y" at some future time through the Lange's property would constitute a "taking" is not ripe for adjudication, even if the question were within the Examiner's purview to adjudicate, as no one in this proceeding is conditioning development of the Lange property on such an extension.

C.3. Proposed Condition 81 (See Exhibit 53.) is unnecessary in its offered form. (See Conclusion of Law E.7 for further discussion of Proposed Condition 81.)

D. Frontage Improvements along Old Big Rock Road

D.1. City Staff relies primarily on three DMC/Standards provisions as the basis for requiring a pedestrian walkway along the entire length of the north side of Old Big Rock Road:

> When a subdivision is abutting an existing street(s) with a right-of-way of lesser width than specified by City ordinances or abuts a roadway(s) that is not built to City street standards, or abuts a roadway(s) that is in substandard condition, the applicant may be required as a condition of approval, to deed additional right-of-way width, and/or to improve the existing and additional right-of-way to the design specifications of the Public Works Director.

[DMC 14.66.050(L)(2), emphasis added]

> When necessary for public convenience or safety, the developer shall improve and dedicate to the public accessways …to provide for networks of public paths creating access to schools, parks, shopping centers, transit stops or other community services. The accessway shall be of such design, width and location as reasonably may be required to facilitate public use.

[DMC 14.66.050(R), emphasis added]

> Any development abutting and impacting rights-of-way shall improve the frontage of those rights-of-way in accordance with these Standards as part of a development permit. The extent of improvements shall be based on these Standards and on an assessment of the impacts of the proposed land development by the City Engineer.

[Standards §1-1.21.B, emphasis added]

D.2. Subsection 14.66.050(L)(2) DMC is discretionary ("may"), but vests exercise of that discretion in the Public Works Director, not in the Examiner.

Subsection 14.66.050(R) DMC includes both mandatory and discretionary elements. The requirement to provide "networks of public paths" to, among other destinations, "shopping centers" is mandatory ("shall"). Discretion is involved in determining the extent of the required paths in any given case. The DMC does not vest that discretion in any specific position, so it would fall to the Examiner as this is a preliminary subdivision requirement and the Examiner has decision making authority over preliminary subdivisions.

Standards §1-1.21.B parallels DMC 14.66.050(R) in its structure: The requirement is mandatory, but the extent of the requirement involves the exercise of discretion. Unlike DMC 14.66.050(R), Standards §1-1.21.B explicitly vests the authority to exercise that discretion in the City Engineer, not in the Examiner.

D.3. Two of the three key regulatory provisions vest decision making authority in someone other than the Examiner: The Public Works Director and the City Engineer. They, not the Examiner, are vested with the authority to set the extent and nature of frontage improvements. [12] Both have determined that a walkway is required along the subject property's entire Old Big Rock Road frontage. The Examiner must respect and apply that determination.

D.4. Applicants-Recommended Replacement Condition 38 will not be used.

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[12] The Examiner reached this identical conclusion in the *Baisa-Khulan Short Plat* case, SU07-007, Decision issued March 7, 2008. The analogous code structure of Chapter 14.34 DMC (staff, not Examiner, authority to relax standards) was acknowledged in the Duvall Hardware site plan review case, SPR05-001, Decision issued February 27, 2006.

E. Approval Conditions

E.1. Recommended Condition 5. This condition would have the Examiner mandate to the Council the content of a development agreement over which the Examiner legally has no jurisdiction. The Examiner declines to intrude into the Council's authority.

Staff's intent here, to put everyone on notice of topics which it believes need to be included in the required development agreement, is quite reasonable. However, having the Examiner tell the Council what it must put in a development agreement is equally unreasonable.

Because the Applicants propose to phase the development, and because the development includes commercial development, a development agreement is necessary. The extent of the Examiner legitimate interest is that the required agreement be negotiated and executed prior to submittal of construction drawings. The condition will be revised accordingly.

E.2. Recommended Condition 6. Similar to Recommended Condition 5, the Examiner has limited legitimate interest in the content of a revised CamWest/City Development Agreement. The Examiner's sole interests are that the existing Agreement be revised to remove the overlapping property and that the amendment be completed prior to submittal of construction drawings. The condition will be revised accordingly. Allowing the overlap to exist until final plat recordation (as proposed by the Staff) would merely confuse matters as competing requirements would then apply to the northeast corner of the subject property.

E.3. Recommended Condition 7. The second half of this condition purports to specify the zoning pattern which will result from realignment of the 3rd Avenue NE right-of-way. Rezones are Type IV proceedings in which the decision is made by the Council after recommendation from the Planning Commission, not by the Examiner. A Decision on a preliminary long subdivision application cannot tie the hands of the Type IV decision makers. The second half of the condition will be removed.

E.4. Recommended Condition 11. The requirement that "lighting fixtures shall be the same or similar in character throughout the residential area" needs a minor, but important, clarification: The condition is intended to address external site lighting, not internal or even external-on-residences lighting. (Testimony) The modifiers "external site" will be added to remove any potential lack of clarity.

E.5. Recommended Conditions 19 and 20. These conditions address two separate mid-block pedestrian crossings. Recommended Condition 20 expressly allows flexibility which is missing from Recommended Condition 19. Planning testified that the flexibility should be included in both conditions. The necessary changes will be incorporated to accomplish that objective and bring parallel construction to the two conditions.

E.6. Recommended Condition 24. The Examiner declines to include the loading spaces "Administrative Deviation" in the Decision: The code does not authorize staff to approve such a deviation. The only vehicle known to the Examiner by which such a "deviation" could be initially considered by the

Examiner would be through a variance application under Chapter 14.70 DMC. The present consolidated application does not include any such application nor did the hearing notices indicate that the Examiner would be considering such an application. While the Examiner cannot rule on the request, it would be wrong to include its approval as a condition, implying that the Examiner accepted the Staff's action. The condition will simply be omitted.

E.7. Recommended Condition 31. This condition, like Applicants-Proposed Condition 81, addresses Street "Y." As a starting point, the language addition proposed by the Applicants in Exhibit 53 is reasonable and will be included. However, restructuring the condition slightly will avoid the need to repeat the same new wording twice as now proposed by the Applicants.

Further, Applicants-Proposed Condition 81 is unnecessary as the Examiner has concluded that he lacks authority to determine whether Street "Y" must stub-out to the north property line. However, if prior to development of *Duvall Urban Village Division I* the City approves a development plan for the abutting property to the north which does not include a street stub on the Street "Y" alignment, then the developer of *Duvall Urban Village Division I* should not be required to provide the stub. (That only makes sense as it would be the same City officials making the decision on both properties: The most recent decision logically has to be considered as the controlling decision.) Recommended Condition 31 will be further modified to take that possibility into consideration.

E.8. Recommended Condition 35. The minor change contained in Exhibit 53 will be incorporated into this condition.

E.9. "Limitation on Preliminary Approval" statement. The Staff Report concludes with a paragraph explaining the approval limitations associated with preliminary subdivisions. The 2010 Washington State legislature amended the state law on which the cited DMC provision is based: The amendment extends the time in which a subdivision may be developed from five to seven years after preliminary approval. (The amendment includes a sunset clause reverting the language back on December 31, 2014.) The Examiner will add a footnote to apprise the reader of this change in state law.

E.10. A few minor, non-substantive structure, grammar, and/or punctuation revisions to Recommended Conditions 4 – 7, 9 – 23, 25 – 37, 38, 40, 42, 45 - 47, 49, 50, 53, 55 - 58, 61, 64, 66, 69, 70, and 76 - 80 will improve parallel construction, clarity, and flow within the conditions. Such changes will be made.

DECISION

Based upon the preceding Findings of Fact and Conclusions of Law, the testimony and evidence submitted at the open record hearing, and the Examiner's site view, the Examiner **APPROVES:**

A. BLA 08-002.

B. BLA08-003 **CONTINGENT UPON** approval by the City Council of the realignment of 3rd Avenue NE adjacent to the property subject to the BLA and dedication/deeding of the new right-of-way alignment so as to provide legal access to said right-of-way for both adjusted lots.

C. The requested *Duvall Urban Village Division I* subdivision **CONTINGENT UPON** consummation of BLA08-002 and BLA08-003 (necessary to create the boundary of the property being subdivided) and **SUBJECT TO THE ATTACHED CONDITIONS**.

Decision issued June 16, 2010.

\s\ John E. Galt (Signed original in official file)
John E. Galt
Land Use Hearing Examiner

HEARING PARTICIPANTS [13]

Bruce Knowlton
Mark Flury
David Johnston (sworn counsel)
Marsha Martin (sworn counsel)
Emmett Pritchard
Bruce Disend (sworn counsel)
Walter Pedeferri
Michael Brooks
Ray Burhen
Larry Hobbs
Lara Thomas
Boyd Benson

NOTICE of RIGHT of RECONSIDERATION

This Decision is final subject to the right of any party of record to file a written motion for reconsideration within 10 calendar days of the date this Decision was mailed to the parties. See DMC 2.30.240 for additional information and requirements regarding reconsideration.

NOTICE of RIGHT of APPEAL

This Decision is final subject to the right of a party of record with standing, as provided in RCW 36.70C.060, to file a land use petition in Superior Court in accordance with the procedures of DMC 2.30.230

[13] The official Parties of Record register is maintained by the City's Hearing Clerk.

and 14.08.060(E). Any appeal must be filed within 21 days following the issuance of this Decision. See DMC 2.30.230 and 14.08.060(E) for additional information and requirements regarding judicial appeals.

The following statement is provided pursuant to RCW 36.70B.130: "Affected property owners may request a change in valuation for property tax purposes notwithstanding any program of revaluation."

CONDITIONS OF APPROVAL
Duvall Urban Village Division I
SU08-001

This preliminary long subdivision is subject to compliance with all applicable provisions, requirements, and standards of the Duvall Municipal Code, standards adopted pursuant thereto, the Fire District #45, Public Works and Engineering, and Planning General Conditions as set forth in Exhibits 1a – 1c, and the following special conditions:

General

1. Exhibits 2 and 3 (a and b) are the preliminary plat (and associated master development plan) and boundary line adjustments, respectively, subject to conditions of approval.

2. Development shall occur as portrayed on the preliminary plat and as generally depicted on the conceptual master development plan.

3. The developer shall submit construction drawings consistent with the 2006 Duvall Comprehensive Plan, Duvall Municipal Code, Development Design Standards, and Fire District #45 requirements.

4. The developer shall comply with the Mitigated Determination of Nonsignificance dated March 3, 2010. (Exhibit 45)

5. A Development Agreement covering all the property within this preliminary subdivision shall be approved by the City Council pursuant to DMC 14.18.060 prior to submittal of the construction drawings. Subjects to be covered by said Agreement are beyond the scope of this Decision.

6. The existing CamWest development agreement (See Exhibit 25.) shall be revised by the City Council pursuant to DMC 14.18.060 prior to submittal of the construction drawings for the area east of the existing 3rd Avenue NE right-of-way to eliminate from its coverage all that property within this preliminary subdivision which lies to the east of the realigned 3rd Avenue NE corridor. Subjects to be covered by said revision are beyond the scope of this Decision.

7. Dedication of the new right-of-way location for 3rd Avenue NE shall be provided at the time of vacation of the existing 3rd Avenue NE right-of-way. The developer shall officially request right-of-way vacation/dedication of 3rd Avenue NE.

Planning

General

8. The developer shall be allowed a maximum of 206 residential units and must provide a minimum of 143 residential units.

9. The combined commercial square footage for Lots 1, 2, 4, 5, and 81 as proposed is approximately 92,692 square feet. The combined commercial square footage for Lots 1, 2, 4, 5, and 81 shall be a minimum of 37,282 square feet.

10. The developer shall establish an Owner's Association. The developer shall submit the Covenants, Conditions, and Restrictions (CC&Rs) and Articles of Incorporation for the Owner's Association to the Planning Department for review and approval prior to recording the final plat to the extent that it addresses those conditions specifically required to be included in the CC&Rs as conditions of plat approval.

11. The residential CC&Rs shall include the following requirements that shall apply to all residential lots: Landscaping shall be consistent, external site lighting fixtures shall be the same or similar in character throughout the residential area, fences shall be compatible in height and color, and other residential improvements shall be consistent within the project. The developer shall provide preliminary design concepts for review and comment prior to building permit application for single-family homes. Building design shall be consistent with DMC 14.34, Design Guidelines.

12. If the Tract 989 area does not meet open space requirements or the City Council does not approve the area as a park, the developer may request the area be treated as a separate lot/tract for which the developer may propose alternative uses, subject to compliance with City process and other applicable requirements.

Sensitive Areas

13. Prior to construction drawing approval, the developer shall submit a final wetland mitigation plan in accordance with the recommendations in the November 13, 2009, letter from the City's sensitive area peer review consultant, ESA Adolfson. (Exhibit 19)

14. In order for the trail within the sensitive area buffer to count towards the common open space requirement, the area shall also contain a small viewing area and/or seating area and interpretive signage, pursuant to DMC 14.64.240(D). The plans for the viewing/seating area and interpretive signage shall be submitted as part of the site plan review for Lot 3 and Tract 999. Access to the trail shall be provided from Lot 3 and the commercial Lots 1 and 2 proximate to the southwest extension of 3rd Avenue NE-Street "X".

Landscaping

15. The developer shall submit a final landscape plan consistent with DMC 14.38. A total of 3.22 acres of landscaped area is required outside of rights-of-way and sensitive area buffers. Temporary stormwater ponds shall be screened with 15 feet of Type V landscaping in accordance with DMC Table 14.38.090.

Impervious Surfaces

16. Covenants shall be included on the face of the final plat(s) indicating any reduced maximum allowable impervious surface for all residential lots and to put future residential purchasers on notice that future additions to residential structures and/or the addition of accessory structures may be limited or disallowed by the City due to impervious coverage limitations for the project and the amount of available detention volume within the stormwater vaults. These restrictions shall also be set out in the CC&Rs for the Owner's Association.

Bus Stop

17. Upon submittal of construction drawings, the developer shall contact Metro to discuss a potential location for a bus stop on NE Big Rock Road. The developer has no obligation to provide a bus stop or related facility. Any loss, due to provision of a bus stop or other facility voluntarily agreed to by the developer, of on-street parking spaces that the developer has currently proposed to count toward the required off-street parking spaces in the conceptual master plan shall be provided elsewhere.

Site Plan Entitlement

18. The developer shall apply for site plan entitlement for the multi-family residential lots (Lots 3 and 81-84), the commercial lots (Lots 1, 2, 4, and 5), and community park (Tract 989) before submittal of building permit applications on those lots.

19. At the time of site plan application for Lots 80 and 82, a 15-foot mid-block pedestrian pathway/access easement shall be provided approximately mid-point of these lots to provide pedestrian access through these lots from Street "V" to NE Big Rock Road, in accordance with DMC Figure 14.34.10 and Table 14.38.090, which require a 5 foot trail and 5 feet of landscaping on each side. The developer can request a reduction of up to 2 feet in width of the walkway in accordance with Chapter 14.34 DMC. No setback is required from edge of easement to adjacent development. The final site design shall be determined at the time of site plan review and design review of these residential lots.

20. At the time of site plan application for Lot 3, the developer shall modify the conceptual site plan for this lot in order to provide:

    a. A 15-foot wide mid-block pedestrian pathway/access easement at approximately mid-point of the lot to provide pedestrian access from NE Big Rock Road to Street "X" in accordance with DMC Figure 14.34.10 and Table 14.38.090, which require a 5 foot trail and 5 feet of landscaping on each side.. The developer can request a reduction of up to 2 feet in width of the walkway in accordance with Chapter 14.34 DMC. No setback is required from edge of easement to adjacent development. The final site design shall be determined at the time of site plan review and design review of these residential lots.

    b. Access to the midpoint of the trail in Tract 999.

21. At the time of site plan application for the commercial lots, the developer shall:

    a. Provide on-street parking stalls that are directly adjacent to the commercial use without crossing a street in order for these stalls to count toward the off-street parking requirement.

    b. Consider proximity to the park on Tract 989 north of Lots 4 and 5 in designing and locating the plaza space for these lots to provide strong visual and physical connections.

    c. Apply for an administrative deviation from DMC 14.34.052(H) if the developer chooses to provide/calculate the plazas aggregately for adjacent commercial buildings as shown on the proposed conceptual master plan,

    d. Provide clear pedestrian connections within and to/from the commercial portions of the project to integrate the commercial development with the community park, common open space, residential development, and future development to the east.

    e. Consider the visual impact of roof treatments, rooflines, and rooftop equipment for commercial buildings on Lots 4 and 5 due to the surrounding topography at the community park to the north and future college buildings to the east.

22. At the time of site plan application for Tract 989, the developer shall provide ten (10) on-street parking stalls on 3rd Avenue NE that are directly adjacent to the park without crossing the street. This parking requirement may also be met through the provision of parking stalls in Lots 4 and 5 (in addition to those required for the proposed commercial development), if developed prior to or concurrently with the park.

Deviation Requests

23. Administrative Deviation – Off Street Parking for Commercial Uses:

    The City grants the requested administrative deviation to the commercial parking requirement as allowed under DMC 14.44.040(B), based on the mixed-use nature of the development. This deviation will compute the required off-street parking spaces at 1 space per 300 square feet for the entire commercial square footage. The City also grants an administrative deviation to allow up to 15 percent of the required off-street parking for commercial uses to be provided on the adjacent street, provided that the on-street parking stalls shall be directly adjacent to the commercial use without crossing a street.

24. Administrative Deviations – Common Open Space Slope and Dimensions:

    In order to accommodate existing topography and to provide strategically located and readily accessible common open space areas which meet the design standards of DMC 14.34.050(A)(5)(b)(ii), the City grants the requested administrative deviation from the slope and dimension requirements for common open space. (DMC 14.34.050(A)(5)(b)(iii) and DMC 14.64.240(F) require that common open spaces be at least 25 feet wide; DMC 14.64.240(G) states that open space shall not have more than five percent grade, unless approved by the director.) At least 50 percent of the common open space area, however,

shall have a grade of five percent or less. These areas shall be graded flatter than the existing topography and shall incorporate amenities such as an open lawn area, play structure, and a pedestrian/bicycle rest area. No common open space shall exceed 15 percent grade.

25. Administrative Deviation – Grassy Slopes:

In order to allow terraces for the proposed amphitheater, the City grants the requested administrative deviation to DMC 14.38.140(C) to allow grassy slopes in excess of a slope of 4H:1V. Since the City does not have the equipment to maintain/mow grass on slopes in excess of 3H:1V, the City will grant this deviation up to a maximum slope of 3H:1V within the amphitheater in order to provide for this unique park amenity. The granting of this deviation does not imply approval of the proposed park concept. The developer shall submit a feasible site design to City Council as part of the development agreement. The developer shall also apply for site plan approval of the community park in Tract 989 upon final plat approval/site plan approval of residential development north of NE Big Rock Road.

26. Administrative Deviation – Garage faces to exceed 50 percent of façade:

In order to provide the opportunity for side-by-side two-car garages in single-family homes on some small lots, the City grants the requested administrative deviation from DMC 14.34.050(A)(6)(a)(iv) to allow 75 percent of the lots within Lots 57-80 to have garages that occupy up to 75 percent of the ground level façade, if the Director determines that the visual mass of the garage is reduced through different building materials, additional modulation, and roof pitches.

27. Administrative Deviation – Less than 400 feet of separation between like models:

The City grants the requested administrative deviation from DMC 14.34.060(A)(2)(a)(ii) to allow any two of the same model and elevation of a home to be separated by a minimum of two homes, provided that the same model and elevation is not directly across the street, and different elevations of models incorporate different materials, window placement, porches, reversed floor plans, and different colors.

Public Works and Engineering

Roads

28. NE Big Rock Road shall be designed and constructed as a Minor Arterial in accordance with Public Works Development Design Standards (Standards). The 79- to 83-foot wide right-of-way shall include vertical curb and gutter, 12-foot wide sidewalks within commercial areas or 5-foot wide sidewalks and 5-foot wide landscape strips within residential areas, two 11-foot wide travel lanes, 12-foot wide median with turn pockets, 5-foot bike lanes, and 7-foot wide parking lanes. The project shall include installation of a traffic signal and associated channelization at the 3rd Avenue NE intersection in accordance with the March 3, 2010, MDNS. Median, road, and channelization transitions will be required east and west of the project to provide smooth traffic transitions to the project.

29. A new 3rd Avenue NE alignment shall be constructed as a Collector Arterial west of the existing 3rd Avenue NE right-of-way. The 67- to 79-foot wide right-of-way shall include vertical curb and gutter, 10-foot wide sidewalks within commercial areas or 5-foot wide sidewalks and 5-foot wide landscape strips within residential areas, two 11-foot wide travel lanes, 12-foot wide turn lane at the NE Big Rock Road approach, 5-foot bike lanes, and 7-foot wide parking lanes. The road slope will be inclined at up to 12 percent to accommodate site topography and constraints in accordance with the Administrative Engineering Variance Request dated April 14, 2010. Access and channelization restrictions may be associated with the dedicated left turn lane at the NE Big Rock Road intersection depending on turn lane storage length.

30. Street "Y" shall be constructed as a collector arterial and extend from NE Big Rock Road to the north property line and the developer shall receive transportation impact fee credits for the Street "Y right-of-way and road improvements. The 53-foot wide right-of-way shall include vertical curb and gutter, 5-foot wide sidewalks and 5-foot wide landscape strips, two 11-foot wide travel lanes, and 5-foot bike lanes. The developer's proposed road section does not include on-street parking. If prior to construction plan approval for Street "Y" the City Council removes Project 17 from the Capital Improvement Program or if the City approves a development plan for the property to the north which does not include a street stub to the south aligning with Street "Y", Street "Y" shall terminate at its intersection with Street "O, " Street "Y" shall be constructed as a residential subcollector, Street "Y" shall not be eligible for Transportation Impact Fee credits, and the developer may add one additional residential lot north of Street "O."

31. Street "O" shall be constructed as a Residential Subcollector west of the 3rd Avenue NE alignment. The portion of the street east of 3rd Avenue NE may be constructed as a minimum ½ road improvement and shall be classified as a Neighborhood Collector based on the future access requirements as depicted in the proposed site plan for the CamWest development to the east of the project. The 53-foot wide right-of-way shall include vertical curb and gutter, 5-foot wide sidewalks and 5-foot wide landscape strips, two 10-foot wide travel lanes, and 6-foot wide parking lanes. Curb extensions shall restrict parking within 30 feet of a street intersection. The 30 foot restriction shall be measured from a projection of the lane edge or curb face. Curb extensions shall restrict parking within 10 feet of an alley intersection. The

10 foot restriction shall be measured from a projection of the alley pavement edge or curb face. A meandering sidewalk within a private tract owned and maintained by the Owner's Association may be located on the south side of the roadway west of 3rd Avenue NE to allow its incorporation into the common open space located in Tracts 988, 990, 996, and 997, if a public access easement is provided in accordance with the Administrative Engineering Variance Request dated March 11, 2010.

32. Street "V" shall be constructed as a Residential Subaccess Street. The 47-foot wide right-of-way shall include vertical curb and gutter, 5-foot wide sidewalks and 5-foot wide landscape strips, two 10-foot wide travel lanes, and parking on one side only as proposed. Curb extensions shall restrict parking within 30 feet of a street intersection. The 30 foot restriction shall be measured from a projection of the lane edge or curb face. Curb extensions shall restrict parking within 10 feet of an alley intersection. The 10 foot restriction shall be measured from a projection of the alley pavement edge or curb face.

33. Street "R" shall be constructed as a Residential Subcollector. The roadway may be constructed as a minimum ½ road improvement with a temporary cul-de-sac at the end of the roadway with a minimum 45-foot radius to accommodate future development to the east. The 55-foot wide right-of-way shall include vertical curb and gutter, 5-foot wide sidewalks and 5-foot wide landscape strips, two 10-foot wide travel lanes, and 6-foot wide parking lanes on both sides. Portions of the temporary cul-de-sac outside of the right-of-way shall be within an easement and temporary drainage and channelization measures shall be installed as part of construction. Curb extensions shall restrict parking within 30 feet of a street intersection. The 30 foot restriction shall be measured from a projection of the lane edge or curb face. Curb extensions shall restrict parking within 10 feet of an alley intersection. The 10 foot' restriction shall be measured from a projection of the alley pavement edge or curb face.

34. Street "X" shall be constructed as a Private Residential Subaccess Street. The roadway improvements and associated limited common access elements will be privately owned and maintained by the Owner's Association in accordance with the Administrative Engineering Variance Request dated March 11, 2010. The roadway shall include vertical curb and gutter, 5-foot wide sidewalks and 5-foot wide landscape strips, two 10-foot wide travel lanes, and 6-foot wide parking lanes on one or both sides. The roadway includes limited common element access drives. The access drives associated with Street "X" shall be reviewed as part of the site plan review process. Curb extensions shall restrict parking within 30 feet of a street intersection. The 30 foot restriction shall be measured from a projection of the lane edge or curb face. Curb extensions shall restrict parking within 10 feet of an alley intersection. The 10 foot restriction shall be measured from a projection of the alley pavement edge or curb face.

35. Tract 992 shall be classified as a privately owned and maintained Private Access Tract serving a maximum of 4 units. The minimum tract width shall be 30 feet with a 20-foot travelway, and 0.5 dedicated guest parking stalls shall be provided per unit (2 stalls total based on 4 units) in dedicated pull-outs or other public parking locations distributed consistently within the tract in accordance with Standards §3-2.06.E. No parking will be allowed within the 20-foot wide travelway.

36. Alleys shall be privately owned and maintained by the Owner's Association and shall provide a minimum of 16-feet of travelway. No parking will be allowed within alleys unless at dedicated parking areas outside of the travelway.

37. Install NE 140th Street (Old Big Rock Road) frontage improvements in accordance with City standards. Reduced frontage improvements adjacent to wetland buffers, including a minimum 20-foot wide travelway with full-width overlay and a minimum 4-foot wide concrete sidewalk with curb, gutter, and railing (as needed) within the existing roadway, will be allowed.

38. Commercial parking shall be provided as required by the DMC as modified by the approved variances. Any required parking lost due to channelization or other plan revisions shall be provided elsewhere on site.

39. The project includes relocation of the existing residential driveway located east of the site. The proposed driveway relocation shall be completed as part of this development and the grading and clearing limits adjusted accordingly. Access and grading constraints may require that the driveway access extend from the south end of the Street "R" temporary cul-de-sac.

40. Entering/exiting turning restrictions may be required at Lots 1, 2, 3, 4, and 5 and possibly elsewhere based on final median, turn lane, queuing, and sight distance restrictions.

41. An updated TIA shall be submitted, as necessary during construction drawing review, in connection with the site plan review approval issued by the Hearing Examiner for the commercial and multi-family residential lots and during construction review for the construction of the 3rd Avenue NE improvements. The updated TIA shall provide specific information as needed for these reviews which may include, but is not limited to, queuing information for roads and parking lots, channelization including storage lengths, evaluation of improvements for the 3rd Avenue NE/NE Big Rock Road intersection, and signalization of the intersection.

42. Transportation Impact Fee (TIF) credit up to, but not exceeding, TIF associated with development is available for roadways included in the TIP. The TIF credit may not exceed TIF associated with development and shall be based on the City's TIF cost and calculations method. TIF credit for dedicated 3rd Avenue NE right-of-way will not be available once the existing 3rd Avenue NE right-of-way is vacated. TIF credit is available for the following roadway improvements:

    a. NE Big Rock Road.

    b. 3rd Avenue NE.

    c. Street "Y"/2nd Avenue NE Corridor (credit only available if improvements extend from NE Big Rock Road to the north property line to provide the required corridor).

Clearing and Grading

43. Internal temporary lot slopes may be steeper than 3H:1V (2H:1V maximum) based on an approved grading and TESC plan developed as part of the construction drawing review in accordance with the Administrative Engineering Variance Request dated March 11, 2010. All other slopes, including temporary slopes adjacent to neighboring properties and all permanent slopes, shall be less than or equal to 3H:1V.

Variances

44. Between the intersections with Street "V" and 3rd Avenue NE, the developer has requested an administrative engineering variance to allow a meandering sidewalk along the south side of Street "O". This administrative variance request for meandering sidewalks is granted.

45. The developer has requested an administrative engineering variance from Standards §3-5.02 to allow temporary cut and fill slopes in excess of a 3H:1V slope. The preliminary grading shown on the preliminary plat drawings for the project includes temporary cuts and fills with slopes of 2H:1V. The City grants this administrative engineering variance for internal temporary lot slopes only in order to reduce erosion control issues with less earth disturbance and to reduce the truck trips entering and leaving the site. All other slopes, including those within slope easements on neighboring properties, shall be no steeper than 3H:1V. Adequate erosion control techniques for the temporary grading will be incorporated in accordance with DMC 14.38.140 and will include increased TESC (Temporary Erosion and Sediment Control) measures.

46. The developer has requested an administrative engineering variance to allow private stormwater vaults in private tracts. Portions of the Lot 3 vault are located beneath Private Street "X" because of topography, drainage path constraints, and the alignment of the Street "X"/Street "Y" intersection and NE Big Rock Road. A portion of the Tract 992 Vault is located beneath the access tract because of topography and drainage path constraints. These vaults shall be owned and maintained by the Owner's Association and encumbered by an access easement and maintenance covenant to the benefit of the City of Duvall. The City grants this variance request.

47. The developer has requested an administrative engineering variance to allow for the use of Street "X" as a private street. The City has determined that the developer has met the variance criteria and the administrative variance is granted.

48. The developer has requested an administrative engineering variance to allow reduced intersection spacing along 3rd Avenue NE between NE Big Rock Road and Street "V". 3rd Avenue NE is a collector arterial with a minimum intersection spacing of 300 feet according to Standards §3-2.10. The developer has demonstrated that the proposed 211-foot intersection spacing at this location provides sufficient stopping sight distance, vehicle storage length, and turning movement accommodations. The City has determined that the developer has met the variance criteria and the Administrative Variance Request for Intersection Spacing at Street "V," submitted April 8, 2010, is granted.

49. The developer has requested an administrative engineering variance to allow up to a 12 percent longitudinal slope for 3rd Avenue NE for a distance of 260 feet. Based on the projected average daily traffic, the maximum allowable road grade for the 3rd Avenue NE collector arterial is 10 percent. However, Table 3-2.02, Note 3, of the Standards allows the maximum road grade to be exceeded for short distances (300 feet of less) when no practical alternative exists. Due to the existing topography of the site, the need for a landing at NE Big Rock Road, and a moderate grade at the western frontage of the commercial Lots 4 and 5, the City grants this administrative engineering variance to allow the road grade to transition to 12 percent for a short distance north of the commercial parking areas.

Water

50. Water mains served by the city water system shall extend across the full frontage of the property and shall be as set out in Mitigation Measure 4 in the SEPA determination dated March 3, 2010. The improvements shall include approved provisions for off-site water system expansion and improvement of deficiencies along the project frontage to mitigate modifications and impacts associated with the proposed development.

51. A preliminary evaluation has been completed to assess the available water pressure and flow for the project with respect to City requirements, fire requirements, and the most recent Comprehensive Water System Plan. Final evaluations shall be completed during construction drawing review if required for fire flow assessment by the City or Fire Department. Any improvements to provide the required water pressure and flow shall be completed by the developer as part of construction.

52. Water system improvements shall be completed to support the development. The existing 450-zone 10-inch diameter water main between NE Big Rock Road and NE 144th Place east of 3rd Avenue NE shall be rerouted as part of the project in accordance with the March 3, 2010, MDNS. The new water main shall include a 12-inch diameter section of main along 3rd Avenue NE from NE Big Rock Road to NE 144th Place. The new 12-inch diameter main shall originate upstream (east) of the existing PRV near the southeast corner of the site and the PRV lid revised to accommodate proposed site improvements. The new water main shall be connected to existing mains and services and fitted with appropriate valves and connections for future extensions. Additional water system improvements and/or extensions will be required if insufficient fire flow is available as provided in the SEPA determination.

53. The water system for the development shall be constructed of minimum 8-inch diameter ductile iron pipe and shall include air-vac, blow-off, and other appurtenances as required by the Public Works Department. A 12-inch diameter main shall be required on 3rd Avenue NE, and may be required on Street "Y", the Street "O"/Street "V" loop, and elsewhere if required for fire flow. The water system shall provide internal looping and circulation.

54. Fire hydrant locations shall be revised to provide a minimum of one (1) hydrant per intersection and additional residential and commercial coverage as required by the Standards. The number of water service and fire sprinkler taps shall be minimized by branching services as possible. Homes requiring

fire sprinklers shall be identified during construction drawing review and include additional required taps or branching.

Sewer

55. The sewer system shall be designed in accordance with the Standards, extend to the limits of the project, and shall include improvement of deficiencies along the project frontage and to the next downstream manhole to mitigate modifications and impacts associated with the proposed development.

56. The developer shall submit a sewer inspection video prior to performance and maintenance bond reduction or release.

57. Branched sewer side service shall be limited to a maximum of two homes. Conveyances serving more than two homes shall be constructed as a sewer main bounded at each end by sewer manholes.

Storm Drainage

58. The storm drainage system shall be designed in accordance with the Standards and the 2005 King County Surface Water Design Manual (KCSWDM). The storm system shall include approved provisions to provide for off-site stormwater system expansion and improvement of deficiencies along the project frontage to mitigate modifications and impacts associated with the proposed development.

59. A final Technical Information Report (TIR) shall be submitted during construction drawing review. The final TIR shall consider existing and future comments and address any downstream drainage issues or required improvements. The final TIR shall include any proposed provisions for reductions in maximum allowed impervious surface area.

60. Detention/water quality vaults shall be located within individual tracts or easements with associated building setbacks as required by the KCSWDM, the Standards, and the DMC. Vault B (Lot 3) may be located partially beneath private Street "X" and Vault D (Tract 992) may be located partially beneath private Access Tract 992 because of site and drainage constraints in accordance with the Administrative Engineering Variance Request dated March 11, 2010.

61. Removable vault panels (required for vaults with greater than 1,250 square feet of floor area) must be located outside of the travel lanes. Also, ventilation pipes located in the corners of the vault must be designed to accommodate H-20 traffic loading or preferably be located outside of the travel lanes.

62. Certification of as-built detention/water quality systems for each facility shall be provided and shall identify lots and other impervious areas served by each facility. Storm drainage for each lot shall be assigned to a specific stormwater facility.

63. Any temporary storm drainage ponds shall be designed and screened in accordance with the DMC and the Standards. Temporary ponds shall be removed and mitigated upon construction of permanent stormwater facilities.

64. The ownership, operation, and maintenance of stormwater facilities shall be the sole responsibility of the developer for the first two years of operation following final plat approval or until the stormwater facility maintenance bond is released, whichever is longer.

65. The ownership, operation, and maintenance of stormwater facilities shall be the sole responsibility of the Owner's Association, Commercial entity, or other private entity following approval and maintenance bond release. The developer shall submit language acceptable to the city during construction drawing review dictating how the Owner's Association, Commercial entity, or other private entity will take over ownership, operations, and maintenance of the private facilities, which language shall be included on the face and recorded as part of the final plat.

66. The City shall be granted an access easement for stormwater system inspection. Copies of the inspection and maintenance reports shall be submitted to the City annually on or before August 31st of each year to satisfy City and NPDES requirements. A stormwater system access and reporting agreement shall be developed and recorded prior to construction drawing approval.

67. The stormwater facilities shall successfully operate and shall remain free of defects in workmanship, materials, and design during the maintenance and performance bond periods. The developer shall clean the drainage system prior to the City's final inspection before the bonds are released. The City, at its sole discretion, has the right to demand prompt maintenance at the end of the bond periods to correct defects.

Fire

Hydrants

68. New hydrants shall be installed by the developer at locations to meet the Standards.

Access

69. Any private road serving more than one residence shall be built to meet the Standards, shall be paved, and shall be at least 30 feet across. Exception: the access road may be as narrow as 20 feet across if one of the following conditions is met:

    a. No portion of a served residence is more than 150 feet from a public road (at least 26 feet paved), measured along an approved pathway (reflecting how a fire hose would be extended).

    b. Any served residence that does not meet the 150 foot requirement above shall have an approved automatic fire sprinkler system.

    Based on this requirement, it appears that the residence on Lot 79 will have to be protected by an approved automatic fire sprinkler system.

70. Any residence accessed only by an alley shall have an approved automatic fire sprinkler system. Exception: No portion of a served residence is more than 150 feet from a public road (at least 26 feet

paved), measured along an approved pathway (reflecting how a fire hose would be extended). Based on this requirement, it appears that residences on Lots 34-43 will have to be protected by an approved automatic fire sprinkler system.

71. Any roads with an emergency vehicle drivable width (capable of supporting 25 tons) of less than 30 feet shall be posted "No Parking" on one side. Any roads with an emergency vehicle drivable width (capable of supporting 25 tons) of less than 26 feet shall be posted "No Parking" on both sides.

72. The developer shall provide a turnaround as defined in the Standards at the south end of Street "R."

73. Cul-de-sacs with less than 90-foot paved diameter (curb to curb) shall be signed "No Parking".

74. Required Fire Access Roads shall be constructed to a minimum of 20 feet wide with 13 feet 6 inches height clearance. They shall have a load capacity of 25 tons and be marked as a "Fire Lane" per City of Duvall standards. All turn radii shall be adequate for access by a ladder truck.

Townhomes

75. If buildings fall under the townhouse definition (IRC Rf202 defines Townhouse as "a single-family dwelling unit constructed in a group of three or more attached units in which each unit extends from foundation to roof and with open space on at least two sides".) and together are greater than 5,000 square feet, an approved automatic sprinkler shall be required. Most, if not all, of the multi-family residential units will require approved supervised automatic sprinklers.

Commercial Buildings

76. An approved supervised automatic sprinkler system is required in all new commercial buildings greater than 5,000 square feet. If a fire department connection is required, all openings will be provided with a Knox FDC Plug.

77. An approved Monitored Detection System is required pursuant to DMC 10.01 in all new buildings.

78. The developer shall provide and install an approved Knox key box in location(s) to be approved by the Fire Department.

Fire Protection During Construction

79. When fire protection, including fire apparatus access roads and water supplies for fire protection, is required to be installed, such protection shall be installed and made serviceable prior to and during the time of construction. (2006 International Fire Code 501.4)

Final plat approval must be acquired within five years of preliminary approval, after which time the preliminary subdivision approval is void. [14] The Examiner may grant an extension for one year if the applicant has attempted in good faith to submit the final subdivision within the five-year time period; provided, however, the applicant must file a written request with the Examiner requesting the extension at least thirty (30) days before expiration of the five-year period. [DMC 14.66.060(D)]

[14] Chapter 79 , 2010 Laws, Washington State Legislature, amends RCW 58.17.140, effective June 10, 2010, to extend the time period within which a preliminary subdivision must be recorded from five to seven years.

A PORTION OF THE NW 1/2, SEC 24, TWP 26N, RGE 6E, W.M.

Exhibit 12

DUV DIV I

MINOR MODIFICATION TO PRELIMINARY PLAT

MU-12 TABLE - 14.18.080.A

MAXIMUM DENSITY – 8 UNITS PER GROSS USABLE ACRE FOR THE NONCOMMERCIAL PORTION OF THE PROPERTY; 60% OF UNITS SHALL BE ATTACHED
MAXIMUM DENSITY – 12 UNITS PER GROSS USABLE ACRE FOR THE NONCOMMERCIAL PORTION OF THE PROPERTY; 60% OF THE UNITS SHALL BE ATTACHED
MINIMUM LOT AREA IN SQUARE FEET – 2,500 SQUARE FEET COMMERCIAL; 0 FOR MULTIFAMILY UNITS AND DETACHED SINGLE-FAMILY UNITS
MINIMUM STREET SETBACK – 10 FEET FOR RESIDENTIAL PORTION OF PROPERTY (NOTES 1,5); 0–20 FEET FOR COMMERCIAL PORTION OF PROPERTY (SEE DMC CHAPTER 14.34, DESIGN GUIDELINES)
MINIMUM INTERIOR SETBACK – 0/5 FEET IF ATTACHED 5/5 FEET IF DETACHED; SEE DMC CHAPTER 14.38 FOR LANDSCAPE PERIMETER REQUIREMENTS
MINIMUM SETBACK BETWEEN RESIDENTIAL AND COMMERCIAL PORTION OF SITE – 10 FEET
MU12 TO R4–R6 TRANSITION BUILDING SETBACK – 25 FEET (NOTES 2, 5)
MINIMUM LOT WIDTH – 20 FEET FOR ATTACHED UNITS AND 30 FEET FOR DETACHED UNITS
MAXIMUM IMPERVIOUS SURFACE – 75% FOR RESIDENTIAL AREA; 85% FOR COMMERCIAL AREA
MAXIMUM IMPERVIOUS COVERAGE–BINDING SITE PLAN* 75% FOR RESIDENTIAL AREA; 85% FOR COMMERCIAL AREA
MAXIMUM BUILDING COVERAGE – 60% FOR RESIDENTIAL AREA
MAXIMUM HEIGHT – 35 FEET FOR RESIDENTIAL (NOTES 3, 4)

NOTES

1. PORCHES ON NONHABITABLE ENTRY FEATURES MAY PROJECT UP TO TO FEET INTO THE REQUIRED FRONT YARD SETBACK. THIS PROVISION PROVIDES INCENTIVES FOR PORCHES WITHOUT TAKING UP THE BUILDING ENVELOPE SPACE FOR THE DWELLING UNIT.
2. SEE DMC SECTION 14.18.050.
3. THREE FLOORS ALLOWED.
4. SEE DMC CHAPTER 14.64.
5. PROJECT USING THE BINDING SITE PLAN PROCESS FOR RESIDENTIAL UNITS SHALL MEET THE SAME SETBACKS.

* SUBTRACT RIGHT–OF–WAY. EXAMPLE: 100,000 SQUARE FEET –20,000 SQUARE FEET OF ROW = 80,000 SQUARE FEET x 75% = 60,000 SQUARE FEET OF IMPERVIOUS COVERAGE ALLOWED.

B:. SEE ADDITIONAL DEVELOPMENT STANDARDS IN ACCORDANCE WITH DMC CHAPTER 14.64.

(ORD. 1073 § EXH. A (PART), 2008: ORD. 1056 § 1 EXH. A (PART), 2007)

R-12 TABLE - 14.14.060.A

MINIMUM LOT AREA AND SITE REQUIREMENTS
MINIMUM DENSITY – 8 DWELLING UNITS PER GROSS USEABLE ACRE (NOTE 1); A MINIMUM OF 20% OF UNITS SHALL BE ATTACHED
MAXIMUM DENSITY – 12 DWELLING UNITS PER GROSS USEABLE ACRE (NOTE 1); A MINIMUM OF 20% OF UNITS SHALL BE ATTACHED
MINIMUM LOT AREA IN SQUARE FEET – 0 FOR MULTIFAMILY UNITS; 2,500 SQUARE FOOT AVERAGE FOR DETACHED UNITS
MINIMUM STREET SETBACK – 10 FEET FROM BACK OF SIDEWALK (NOTE 2)
MINIMUM INTERIOR SETBACK – 0/5 FEET FOR ATTACHED DWELLING UNITS; 5/5 FEET FOR SINGLE–FAMILY DETACHED DWELLING UNITS (NOTE 8)
REAR YARD SETBACK – 15 FEET (NOTE 3, 8)
R12 TO R4 TRANSITION BUILDING SETBACK – 25 FEET (NOTE 4, 8)
ALLEY AND TRACT SETBACK – 5 FEET (NOTE 5)
MINIMUM LOT WIDTH – 20 FEET FOR ATTACHED UNITS; 30 FEET FOR DETACHED UNITS
MAXIMUM BUILDING COVERAGE – 60%
MAXIMUM IMPERVIOUS SURFACE – 75%
MAXIMUM IMPERVIOUS COVERAGE, BINDING SITE PLAN* – 75%
MAXIMUM HEIGHT – 35 FEET (NOTES 6, 7)

1. SEE DMC SECTION 14.42.090, DENSITY CREDITS.
2. PORCHES OR STOOPS MAY PROJECT UP TO TWO FEET INTO THE REQUIRED FRONT YARD SETBACK.
3. REAR YARD SETBACK DOES NOT APPLY TO ALLEY LOADED LOTS.
4. SEE DMC SECTION 14.14.050.
5. THE SETBACK IS INTENDED FOR SIXTEEN (16) TO TWENTY (20) ALLEYS AND TRACTS.
6. THREE FLOORS ALLOWED.
7. SEE DMC CHAPTER 14.64 FOR BUILDING HEIGHT CALCULATIONS.
8. PROJECTS USING THE BINDING SITE PLAN PROCESS FOR RESIDENTIAL UNITS SHALL MEET THE SAME SETBACKS.

* SUBTRACT RIGHT–OF–WAY. EXAMPLE: 100,000 SQUARE FEET–20,000 SQUARE FEET OF ROW = 80,000 SQUARE FEET x 75% = 60,000 SQUARE FEET OF IMPERVIOUS COVERAGE ALLOWED.

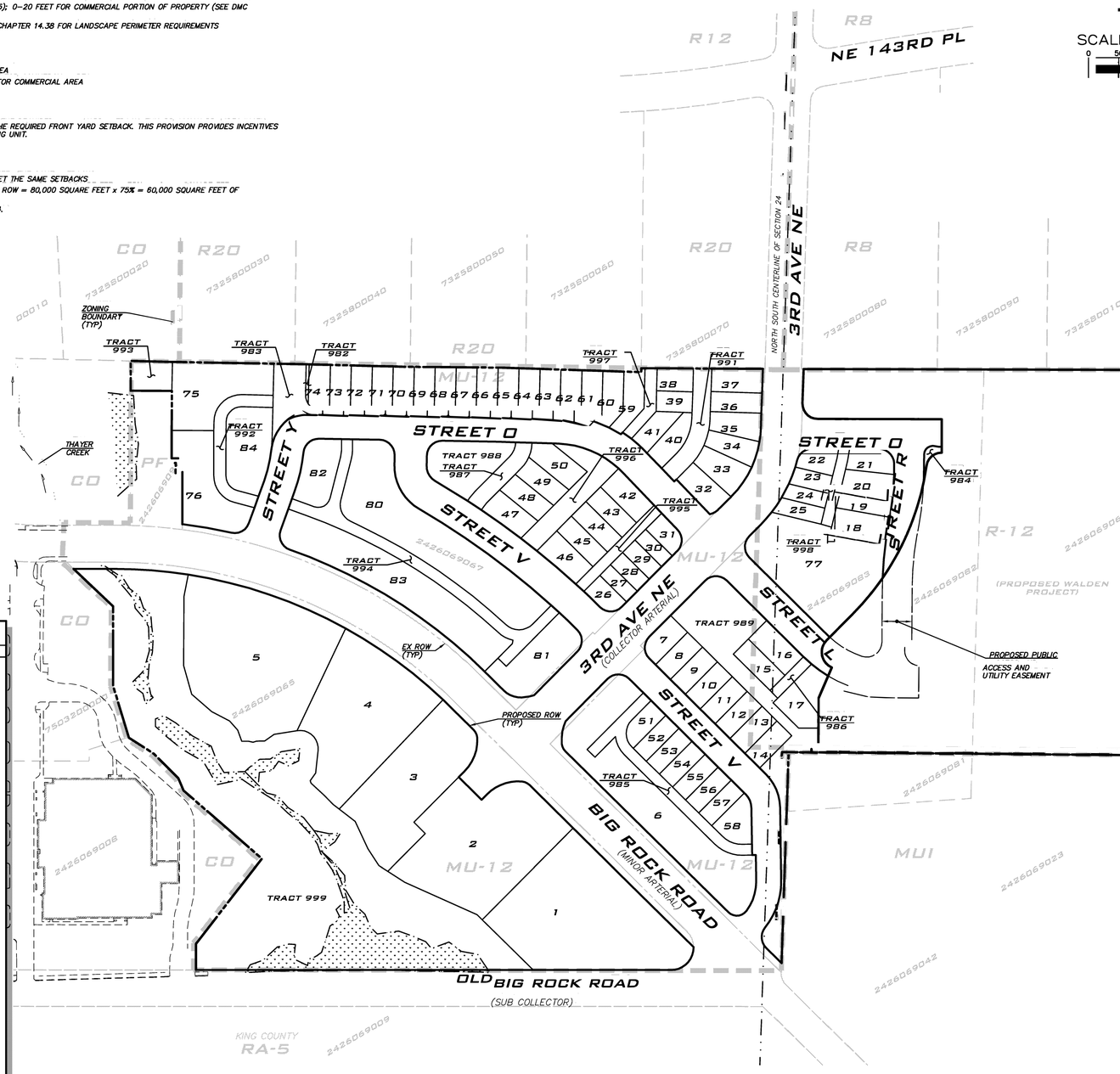
B. SEE ADDITIONAL DEVELOPMENT STANDARDS IN ACCORDANCE WITH DMC CHAPTER 14.64.

(ORD. 1073 § 1 EXH. A (PART), 2008: ORD. 1056 § 1 EX. A (PART), 2007)

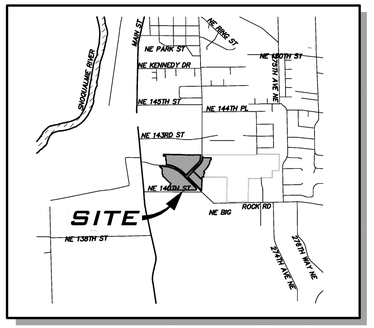
LEGEND

EXISTING FEATURES

ADJACENT PLAT/PARCEL LINE
ADJACENT RIGHT–OF–WAY
CENTERLINE
EASEMENT
SURFACE FEATURES
BUILDING FOOTPRINT
TOP OF 40% SLOPE
STEEP SLOPE BUFFER
EDGE OF WETLAND
WETLAND BUFFER
10' CONTOURS
2' CONTOURS
SD STORM DRAIN PIPE
SS SEWER MAIN
FM SEWER FORCE MAIN
W WATER MAIN
OH P AERIAL POWER LINE
P BURIED POWER LINE
G GAS MAIN
C BURIED CABLE
TV BURIED TV
OTV AERIAL TV
T BURIED TELEPHONE LINE
OHT AERIAL TELEPHONE LINE
P/T BURIED POWER/TELEPHONE
OH P T AERIAL POWER/TELEPHONE
OHU AERIAL UTILITIES
FO BURIED FIBER OPTIC CABLE
X WIRE FENCE
O CHAINLINK FENCE
BOARD FENCE
DITCH OR SWALE
RAILROAD
GUARD RAIL
RETAINING WALL
ROCKERY
CATCH BASIN, TYPE I
CATCH BASIN, TYPE II
SD PIPE FLOW
YARD DRAIN
STORM CLEANOUT
STORM DRAIN STUB
STORM CULVERT END
SEWER MANHOLE
SEWER CLEANOUT
SS PIPE FLOW
SEWER STUB
SEPTIC LID
FIRE HYDRANT
WATER METER
GATE VALVE
WATER MANHOLE
AIR/VAC RELEASE VALVE
BLOW OFF
IRRIGATION METER
IRRIGATION VALVE
WATER WELL
HOSE BIB
POWER POLE
GUY ANCHOR
STREET LIGHT
POLE LIGHT
POWER VAULT
TRANSFORMER
POWER METER
JUNCTION BOX
GAS METER
GAS VALVE
FIBER OPTICS MANHOLE
TV RISER
TELECOMM VAULT
TELECOMM RISER
TELECOMM JUNCTION BOX
TRAFFIC SIGNAL
MAIL BOX
SIGN
BOLLARD
SOIL LOG TEST PIT
CONIFEROUS TREE
DECIDUOUS TREE
CONIFEROUS TREE TO BE SAVED
DECIDUOUS TREE TO BE SAVED
ASPHALT
CONCRETE
GRAVEL
WETLAND
≥40% SLOPE



SCALE: 1" =100'
0 50 100 200



VICINITY MAP

SCALE: 1" = 2000'

PROJECT TEAM

OWNER/DEVELOPER/APPLICANT
TOLL WA LP
9720 NE 120TH PL, SUITE 100
KIRKLAND, WA 98034
(425) 825–1955 x125
CONTACT: CHARLES HARE

ENGINEER
THE BLUELINE GROUP
25 CENTRAL WAY, SUITE 400
KIRKLAND, WA 98033
(425) 216–4051
CONTACT: BRETT K. PUDISTS, PE

ORIGINAL SURVEYOR
MEAD GILMAN AND ASSOCIATES
17625 130TH AVENUE NE, SUITE 104
WOODINVILLE, WA 98072
(425) 486–1252
CONTACT: SHANE BARNES, PLS

SUPPLEMENTAL SURVEYOR
ESE CONSULTING
9720 NE 120th PLACE, SUITE 100
KIRKLAND, WA 98034
(425) 825–5367
JOHN CAYTON, PLS

ENVIRONMENTAL/ NATURAL RESOURCES
RAEDEKE ASSOCIATES
2111 N NORTHGATE WAY, SUITE 219
SEATTLE, WA 98133
(206) 525–8122
CONTACT: EMMETT PRITCHARD, BS

TRAFFIC CONSULTANTS
TRAFFEX
LARRY HOBBS, P.E.
11410 NE 124TH ST, #5950
KIRKLAND, WA 98034
(425) 522–4118

TENW
11400 SE 8TH ST, SUITE 200
BELLEVUE, WA 98004
(425) 250–5002
CONTACT: CHRIS BICKET, PE

LANDSCAPE ARCHITECT
DTJ DESIGN
3101 IRIS AVE., STE 130
BOULDER, CO 80301
(303) 443–7533
CONTACT: GREG WHITE, RLA, ASLA

SHEET INDEX

1 CV-01 COVER SHEET
2 GN-01 PRELIMINARY PLAT DATA
3 GN-02 PRELIMINARY PLAT DATA
4 EC-01 EXISTING CONDITIONS
5 PP-01 PRELIMINARY PLAT
6 RD-01 ROAD SECTIONS
7 RD-02 ROAD SECTIONS & DETAILS

SURVEY NOTE

ORIGINAL TOPOGRAPHIC & BOUNDARY SURVEY PREPARED BY MEAD GILMAN & ASSOCIATES, AND SUPPLEMENTED BY ESE CONSULTING, INC.

UNDERGROUND UTILITY NOTE

UNDERGROUND UTILITIES ARE SHOWN IN THE APPROXIMATE LOCATION. THERE IS NO GUARANTEE THAT ALL UTILITY LINES ARE SHOWN, OR THAT THE LOCATION, SIZE AND MATERIAL IS ACCURATE. THE CONTRACTOR SHALL UNCOVER ALL INDICATED PIPING WHERE CROSSING, INTERFERENCES, OR CONNECTIONS OCCUR PRIOR TO TRENCHING OR EXCAVATION FOR ANY PIPE OR STRUCTURES, TO DETERMINE ACTUAL LOCATIONS, SIZE AND MATERIAL. THE CONTRACTOR SHALL MAKE THE APPROPRIATE PROVISION FOR PROTECTION OF SAID FACILITIES. THE CONTRACTOR SHALL NOTIFY ONE CALL AT 8–1–1 (WASHINGTON811.COM) AND ARRANGE FOR FIELD LOCATION OF EXISTING FACILITIES BEFORE CONSTRUCTION.

BLUELINE
25 CENTRAL WAY, SUITE 400, KIRKLAND, WA 98033
PH: 425.822.4383 FAX: 425.822.4375
WWW.THEBLUELINEGROUP.COM

SCALE: AS NOTED
PROJECT MANAGER: BRETT K. PUDISTS, PE
PROJECT ENGINEER: BRETT K. PUDISTS, PE
DESIGNER: AARON LANCE
ISSUE DATE: 5/26/2017

NO	DATE	BY	REVISIONS

COVER SHEET
DUV DIV I
MINOR MODIFICATION TO PRELIMINARY PLAT
CITY OF DUVALL WASHINGTON

BRETT K. PUDISTS STATE OF WASHINGTON 37925 REGISTERED PROFESSIONAL ENGINEER

5/26/17

JOB NUMBER: 16-123
SHEET NAME: CV-01
SHT 1 OF 7

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PRELIMINARY PLAT DATA

TAX LOT NUMBERS
2426069067, 2426069065, 2426069083

APPROXIMATE SITE ADDRESS: INTERSECTION OF BIG ROCK AND 268TH AVE NE
EXISTING ZONING: MU12 / R12
PROPOSED ZONING: MU12 / R12

GROSS SITE AREA	SF	Ac
GROSS SITE	963,475	22.1184
3RD AVE ROW VACATION (PROPOSED)	1,411	0.0324
AREA AFTER VACATION	964,886	22.1508
AREA PER ZONE	**SF**	**Ac**
R-12	97,571	2.2399
MU-12 N. OF BRR	491,507	11.2834
MU-12 S. OF BRR	375,808	8.6274
TOTAL	964,886	22.1507
RESIDENTIAL LOT AREA	**SF**	**Ac**
LOTS 6-77 AND 80-84	355,587	8.1632
OPEN SPACE TRACTS	**SF**	**Ac**
TRACTS 988, 989, 996, 997	43,516	0.9990
COMMERCIAL LOT AREA	**SF**	**Ac**
LOTS 1-5	201,267	4.6205
CRITICAL AREA TRACTS	**SF**	**Ac**
TRACTS 993 AND 999	159,270	3.6563
ROADS	**SF**	**Ac**
ROW DEDICATION	156,859	3.6010
PRIVATE ACCESS TRACTS	42,323	0.9716
TOTAL	199,182	4.5726
NET DEVELOPABLE AREA (RESIDENTIAL)	**SF**	**Ac**
RESIDENTIAL LOT AREA & OPEN SPACE TRACTS AND TRACTS 982-984)	404,842	9.2939

RESIDENTIAL LOTS PROPOSED: 77
COMMERCIAL LOTS PROPOSED: 5

	SF	Ac
AVERAGE LOT SIZE:	6,792	0.1559
SMALLEST LOT SIZE:	1,552	0.0356

TRACT DESIGNATIONS

982	OPEN SPACE OR FUTURE DEVELOPMENT	301 SF	0.01 AC
983	ROW DEDICATION OR FUTURE DEVELOPMENT	5,157 SF	0.12 AC
984	ROW DEDICATION OR FUTURE DEVELOPMENT	535 SF	0.01 AC
985	PRIVATE ACCESS & UTILITY	7,856 SF	0.18 AC
986	PRIVATE ACCESS & UTILITY	1,414 SF	0.03 AC
987	PRIVATE ACCESS & UTILITY	3,624 SF	0.08 AC
988	OPEN SPACE	9,348 SF	0.21 AC
989	*OPEN SPACE	23,578 SF	0.54 AC
991	PRIVATE ACCESS & UTILITY	5,799 SF	0.13 AC
992	PRIVATE ACCESS & UTILITY	5,549 SF	0.13 AC
993	NGPA	3,298 SF	0.08 AC
994	PRIVATE ACCESS & UTILITY	12,795 SF	0.29 AC
995	PRIVATE ACCESS & UTILITY	3,279 SF	0.08 AC
996	PRIVATE ACCESS & UTILITY	7,942 SF	0.18 AC
997	OPEN SPACE	2,394 SF	0.05 AC
998	PRIVATE ACCESS & UTILITY	2,339 SF	0.05 AC
999	NGPA	155,971 SF	3.58 AC

* ENCUMBERED WITH PUBLIC STORM DRAIN EASEMENT OVER VAULT.

SERVICES

WATER:	CITY OF DUVALL
SANITARY SEWER:	CITY OF DUVALL
PUBLIC SCHOOLS:	RIVERVIEW SCHOOL DISTRICT
FIRE PROTECTION:	KING COUNTY FIRE DISTRICT #45
POLICE PROTECTION:	CITY OF DUVALL
ELECTRICITY:	PUGET SOUND ENERGY SERVICES
TELEPHONE:	VERIZON
NATURAL GAS:	PUGET SOUND ENERGY SERVICES

LEGAL DESCRIPTION

LOT E CITY OF DUVALL BOUNDARY LINE ADJUSTMENT NO. BLA 02-001, RECORDED UNDER RECORDING NO. 20020814900002, IN KING COUNTY, WASHINGTON; AND

LOT A, CITY OF DUVALL BOUNDARY LINE ADJUSTMENT NO. BLA 12-005, RECORDED UNDER RECORDING NO. 20140926000013, IN KING COUNTY, WASHINGTON.

BASIS OF BEARINGS

N42°46'50"W BETWEEN THE NORTH QUARTER CORNER AND EAST QUARTER CORNER OF SECTION 24-26-6 PER REFERENCE 1.

REFERENCES

1. CITY OF DUVALL BLA 12-005, REC. NO. 20140926900013, RECORDS OF KING COUNTY, WASHINGTON.
2. CITY OF DUVALL BLA 02-001. REC. NO. 20020814900002, RECORDS OF KING COUNTY, WASHINGTON.
3. CITY OF DUVALL BLA 02-001. REC. NO. 20060816900009, RECORDS OF KING COUNTY, WASHINGTON.
4. CITY OF DUVALL BLA 02-001. REC. NO. 9802059014, RECORDS OF KING COUNTY, WASHINGTON.

SURVEYOR'S NOTES

1. TITLE INFORMATION IS FROM CHICAGO TITLE COMPANY'S UPDATED REVISED REVISION COMMITMENT NUMBER 0061974-06 DATED APRIL 4, 2016, WHICH IS AN UPDATE OF SECOND COMMITMENT NUMBER 0061974-06 DATED APRIL 1, 2016.
2. PROPERTY AREA = LOT A 357,819± SQUARE FEET (8.21 ± ACRES)
   LOT A(2) 95,154± SQUARE FEET (2.18 ± ACRES)
   LOT E 375,799± SQUARE FEET (8.63 ± ACRES)
3. THIS PROPERTY HAS LEGAL ACCESS TO NE BIG ROCK ROAD, NE 140TH STREET, AND 3RD ANEVUE SHOWN HEREON AS PUBLIC RIGHT-OF-WAY. PHYSICAL ACCESS MAY BE LIMITED BY IMPROVEMENTS, OR LACK THEREOF, AS SHOWN ON THE SURVEY.
4. ZONING: MU-12.
5. FLOOD ZONE DESIGNATION = X, AREA DETERMINED TO BE OUTSIDE OF 500-YEAR FLOOD PLAIN, ACCORDING TO FLOOD INSURANCE RATE MAP, ("FIRM") NO. 53033C0401F COMMUNITY NO. 530282,(530071) PANEL NO. 0401, SUFFIX F, EFFECTIVE MAY 16, 1995, KING COUNTY, WASHINGTON, AS PREPARED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY ("FEMA").
6. ESE SURVEY CREWS LOCATED ONLY THOSE UTILITIES WITH EVIDENCE OF THEIR INSTALLATION VISIBLE AT GROUND SURFACE ARE SHOWN HEREON. UNDERGROUND UTILITY LOCATIONS (IF SHOWN) ARE APPROXIMATE ONLY. UNDERGROUND CONNECTIONS ARE SHOWN AS STRAIGHT LINES BETWEEN SURFACE UTILITY LOCATIONS BUT MAY CONTAIN BENDS OR CURVES NOT SHOWN. SOME UNDERGROUND LOCATIONS SHOWN HEREON MAY HAVE BEEN TAKEN FROM PUBLIC RECORDS. CORE DESIGN, INC. ASSUMES NO LIABILITY FOR THE ACCURACY OF PUBLIC RECORDS.
7. ESE CONSULTANTS, INC. SURVEY CREWS DETECTED NO OBSERVABLE EVIDENCE OF ANY CEMETERIES, RUBBISH FILLS, SLOUGHS, SPRINGS, FILLED-IN WELLS, CISTERNS, OR SEEP HOLES ON THE PROPERTY.
8. THERE ARE NO RAILROAD TRACKS ON THE SITE OR ON PARCELS CONTIGUOUS TO THE SITE.
9. PLANTED LANDSCAPED AREAS INCLUDE LAWN, SMALL SHRUBS, AND ORNAMENTAL PLANTS.
10. THIS IS A FIELD TRAVERSE SURVEY BALANCED BY METHOD OF LEASE SQUARES ADJUSTMENT. A LIECA FIVE SECOND ELECTRONIC TOTAL STATION WAS USED TO MEASURE THE ANGULAR AND DISTANCE RELATIONSHIPS BETWEEN THE CONTROLLING MONUMENTATION AS SHOWN. CLOSURE RATIOS OF THE TRAVERSE MET OR EXCEEDED THOSE SPECIFIED IN WAC 332-130-090. DISTANCE MEASURING EQUIPMENT HAS BEEN MAINTAINED IN ADJUSTMENT ACCORDING TO MANUFACTURERS' GUIDELINES.
11. THIS SURVEY WAS PREPARED FOR THE EXCLUSIVE USE OF THOSE PARTIES LISTED IN THE SURVEYOR'S CERTIFICATE. RIGHTS TO RELY ON OR USE THIS SURVEY DO NOT EXTEND TO ANY UNNAMED PARTY WITHOUT EXPRESS RECERTIFICATION BY CORE DESIGN, INC. AND/OR THE PROFESSIONAL LAND SURVEYOR WHOSE SEAL APPEARS HEREON.
12. THERE ARE NO DESIGNATED PARKING STALLS ON SITE.

GENERAL NOTES

1. THIS SITE IS SUBJECT TO AN EASEMENT GRANTED TO THE CITY OF DUVALL TO MAKE NECESSARY SLOPES FOR CUTS OR FILLS UPON PROPERTY HEREIN AS DISCLOSED IN INSTRUMENT NUMBER 9802030426, DATED FEBRUARY 3, 1998. THE LOCATION CANNOT BE DETERMINED FROM THE RECORD DOCUMENT.
2. THIS SITE IS SUBJECT TO THE COVENANTS, CONDITIONS, RESTRICTIONS, RECITALS, RESERVATIONS, EASEMENTS, EASEMENT PROVISIONS, DEDICATIONS, BUILDING SETBACK LINES, NOTES, STATEMENTS, AND OTHER MATTERS, IF ANY, BUT OMITTING ANY COVENANTS OR RESTRICTIONS, IF ANY, INCLUDING BUT NOT LIMITED TO THOSE BASED UPON RACE, COLOR, RELIGION, SEX, SEXUAL ORIENTATION, FAMILIAL STATUS, MARITAL STATUS, DISABILITY, HANDICAP, NATIONAL ORIGIN, ANCESTRY, OR SOURCE OF INCOME, AS SET FORTH IN APPLICABLE STATE OR FEDERAL LAWS, EXCEPT TO THE EXTENT THAT SAID COVENANT OR RESTRICTION IS PERMITTED BY APPLICABLE LAW, AS SET FORTH CITY OF DUVALL BOUNDARY LINE ADJUSTMENT 98-001, RECORDING NUMBER 9802059014.
3. THIS SITE IS SUBJECT TO AN EASEMENT GRANTED TO THE CITY OF DUVALL FOR THE PURPOSE OF CONSTRUCTING, INSPECTING, REPAIRING, MODIFYING, REPLACING, REMOVING, OR UPDATING WATERLINE UTILITIES AS DISCLOSED IN INSTRUMENT NUMBER 20011022001668, DATED OCTOBER 22, 2001, AND IS SHOWN HEREON.
4. THIS SITE IS SUBJECT TO THE COVENANTS, CONDITIONS, RESTRICTIONS, RECITALS, RESERVATIONS, EASEMENTS, EASEMENT PROVISIONS, DEDICATIONS, BUILDING SETBACK LINES, NOTES, STATEMENTS, AND OTHER MATTERS, IF ANY, BUT OMITTING ANY COVENANTS OR RESTRICTIONS, IF ANY, INCLUDING BUT NOT LIMITED TO THOSE BASED UPON RACE, COLOR, RELIGION, SEX, SEXUAL ORIENTATION, FAMILIAL STATUS, MARITAL STATUS, DISABILITY, HANDICAP, NATIONAL ORIGIN, ANCESTRY, OR SOURCE OF INCOME, AS SET FORTH IN APPLICABLE STATE OR FEDERAL LAWS, EXCEPT TO THE EXTENT THAT SAID COVENANT OR RESTRICTION IS PERMITTED BY APPLICABLE LAW, AS SET FORTH CITY OF DUVALL BOUNDARY LINE ADJUSTMENT 02-001, RECORDING NUMBER 20020814900002.
5. THIS SITE IS SUBJECT TO THE COVENANTS, CONDITIONS, RESTRICTIONS, RECITALS, RESERVATIONS, EASEMENTS, EASEMENT PROVISIONS, DEDICATIONS, BUILDING SETBACK LINES, NOTES, STATEMENTS, AND OTHER MATTERS, IF ANY, BUT OMITTING ANY COVENANTS OR RESTRICTIONS, IF ANY, INCLUDING BUT NOT LIMITED TO THOSE BASED UPON RACE, COLOR, RELIGION, SEX, SEXUAL ORIENTATION, FAMILIAL STATUS, MARITAL STATUS, DISABILITY, HANDICAP, NATIONAL ORIGIN, ANCESTRY, OR SOURCE OF INCOME, AS SET FORTH IN APPLICABLE STATE OR FEDERAL LAWS, EXCEPT TO THE EXTENT THAT SAID COVENANT OR RESTRICTION IS PERMITTED BY APPLICABLE LAW, AS SET FORTH CITY OF DUVALL BOUNDARY LINE ADJUSTMENT 06-002, RECORDING NUMBER 20060816900009.
7. THIS SITE IS SUBJECT TO THE COVENANTS, CONDITIONS, RESTRICTIONS, RECITALS, RESERVATIONS, EASEMENTS, EASEMENT PROVISIONS, DEDICATIONS, BUILDING SETBACK LINES, NOTES, STATEMENTS, AND OTHER MATTERS, IF ANY, BUT OMITTING ANY COVENANTS OR RESTRICTIONS, IF ANY, INCLUDING BUT NOT LIMITED TO THOSE BASED UPON RACE, COLOR, RELIGION, SEX, SEXUAL ORIENTATION, FAMILIAL STATUS, MARITAL STATUS, DISABILITY, HANDICAP, NATIONAL ORIGIN, ANCESTRY, OR SOURCE OF INCOME, AS SET FORTH IN APPLICABLE STATE OR FEDERAL LAWS, EXCEPT TO THE EXTENT THAT SAID COVENANT OR RESTRICTION IS PERMITTED BY APPLICABLE LAW, AS SET FORTH CITY OF DUVALL BOUNDARY LINE ADJUSTMENT 08-002, RECORDING NUMBER 20120305900003.
8. THIS SITE IS SUBJECT TO AN EASEMENT GRANTED TO PUGET SOUND ENERGY FOR THE PURPOSE OF CONSTRUCTING, INSPECTING, REPAIRING, MODIFYING, REPLACING, REMOVING, OR UPDATING UTILITIES FOR THE DISTRIBUTION AND SALE OF GAS AND ELECTRICITY AS DISCLOSED IN INSTRUMENT NUMBER 20120726001021, DATED JULY 26, 2012, AND IS SHOWN HEREON.
9. THIS SITE IS SUBJECT TO A DEVELOPMENT AGREEMENT BETWEEN WONDERLAND HOLDINGS LLC, A WASHINGTON LIMITED LIABILITY COMPANY, TOLL WA LP, A WASHINGTON LIMITED PARTNERSHIP, AND THE CITY OF DUVALL, A MUNICIPAL CORPORATION AS DISCLOSED IN INSTRUMENT NUMBER 20120921001291, DATED SEPTEMBER 21, 2012.
10. THIS SITE IS SUBJECT TO A CITY OF DUVALL ORDINANCE NO. 1119 AUTHORIZING THE VACATION OF THE SOUTHERLY PORTION OF 3RD AVENUE NE, ALSO KNOWN AS 268TH AVENUE NE AS DISCLOSED IN INSTRUMENT NUMBER 20120921001292, DATED SEPTEMBER 21, 2012.
11. THIS SITE IS SUBJECT TO AND EASEMENT GRANTED TO FRONTIER COMMUNICATIONS NORTHWEST INC, A WASHINGTON CORPORATION FOR THE PURPOSE OF CONSTRUCTING, INSPECTING, REPAIRING, MODIFYING, REPLACING, REMOVING, OR UPDATING COMMUNICATION UTILITY SYSTEMS AS DISCLOSED IN INSTRUMENT NUMBER 20120925000970, DATED SEPTEMBER 25, 2012, AND IS SHOWN HEREON.
12. THIS SITE IS SUBJECT TO AND EASEMENT GRANTED TO THE STATE OF WASHINGTON, STATE BOARD FOR COMMUNITY AND TECHNICAL COLLEGES FOR INGRESS AND EGRESS AS DISCLOSED IN INSTRUMENT NUMBER 20131202001168, DATED DECEMBER 2, 2013, AND IS SHOWN HEREON.
13. THIS SITE IS SUBJECT TO THE COVENANTS, CONDITIONS, RESTRICTIONS, RECITALS, RESERVATIONS, EASEMENTS, EASEMENT PROVISIONS, DEDICATIONS, BUILDING SETBACK LINES, NOTES, STATEMENTS, AND OTHER MATTERS, IF ANY, BUT OMITTING ANY COVENANTS OR RESTRICTIONS, IF ANY, INCLUDING BUT NOT LIMITED TO THOSE BASED UPON RACE, COLOR, RELIGION, SEX, SEXUAL ORIENTATION, FAMILIAL STATUS, MARITAL STATUS, DISABILITY, HANDICAP, NATIONAL ORIGIN, ANCESTRY, OR SOURCE OF INCOME, AS SET FORTH IN APPLICABLE STATE OR FEDERAL LAWS, EXCEPT TO THE EXTENT THAT SAID COVENANT OR RESTRICTION IS PERMITTED BY APPLICABLE LAW, AS SET FORTH CITY OF DUVALL BOUNDARY LINE ADJUSTMENT 12-005, RECORDING NUMBER 20140926900013.

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GOVERNING DOCUMENTS

1. HEARING EXAMINER'S DECISION FOR DUVALL URBAN VILLAGE DIVISION 1 DATED JUNE 16,2010 (HEX DECISION)
2. DEVELOPMENT AGREEMENT BETWEEN THE CITY OF DUVALL, WONDERLAND HOLDINGS, LLC AND TOLL WA LP RECORDING NUMBER 20120921001291 (THE DEVELOPMENT AGREEMENT)

RESIDENTIAL DATA

RESIDENTIAL UNITS
REFERENCE FOR MIN AND MAX RESIDENTIAL UNIT COUNT: HEX DECISION CONDITION OF APPROVAL #8.

REQUIRED RESIDENTIAL UNITS (HEX COA 8)	143 MIN	206 MAX
PROPOSED RESIDENTIAL UNITS	144	

R-12 SUMMARY

% ATTACHED REQUIRED	20%	3 UNITS
% ATTACHED PROVIDED	76.9%	10 UNITS
MIN LOT AREA REQUIRED-MF	0 SF	
MIN AVG LOT AREA REQUIRED -DETACHED	2,500 SF	
*MIN AVG LOT AREA PROVIDED - DETACHED		4,010 SF
**MIN AVG LOT AREA PROVIDED - ATTACHED		2,526 SF

* AVG OF DETACHED (LOTS 15,16,17)
** AVG OF ATTACHED SF
NOTE: LOT 77-OPENSPACE/AMENITY EXCLUDED FROM MIN AVG LOT SIZE CALCULATION

MU12 (NORTH OF BRR) SUMMARY

ATTACHED REQUIRED	60%	79 UNITS
ATTACHED PROVIDED	91.6%	120 UNITS
MIN LOT AREA REQUIRED-RESIDENTIAL	0 SF	

RESIDENTIAL PARKING CALCULATIONS
NUMBER OF UNITS PROPOSED = 144
NUMBER OF STALLS REQUIRED (2 PER UNIT) = 288
NUMBER OF GARAGE STALLS PROVIDED = 288*
*EACH UNIT TO HAVE 2 GARAGE STALLS.

NOTE: 166 ADDITIONAL ON STREET STALLS (155 ROW AND 11 PRIVATE ACCESS TRACT) ARE AVAILABLE FOR RESIDENTIAL AND COMMERCIAL USES WITHIN THE DEVELOPMENT.

PRIVATE YARD CALCULATIONS

PRIVATE YARD (DMC 14.34.050A.5.a)

I. A PRIVATE YARD SHALL BE LOCATED ON EACH INDIVIDUAL LOT OR INDIVIDUAL UNIT.
II. EACH DETACHED OR ATTACHED SINGLE-FAMILY UNIT SHALL HAVE A MINIMUM OF TWO HUNDRED FIFTY (250) SQUARE FEET OF CONTIGUOUS USABLE YARD WITH NO DIMENSION LESS THAN FIFTEEN (15) FEET IN WIDTH. THIS MAY INCLUDED PRIVATE BALCONIES, REAR OR SIDE YARDS, LANDSCAPED FRONT YARDS, AND COVERED FRONT PORCH AREAS. BALCONIES MUST BE AT LEAST THIRTY-FIVE (35) SQUARE FEET WITH NO DIMENSION LESS THAN FOUR FEET TO PROVIDE A SPACE USEABLE FOR HUMAN ACTIVITY.
III. THE PRIVATE YARD REQUIREMENT CAN BE REDUCED BY UP TO FIFTY (50) PERCENT ONLY IF THAT AREA IS INCORPORATED IN THE REQUIRED COMMON SPACE. IF THIS ALLOWANCE IS USED, THE MINIMUM DIMENSION OF THE PRIVATE YARD AREA MAY BE REDUCED TO NO LESS THAN TEN (10) FEET IN WIDTH.
IV. RECIPROCAL USE EASEMENTS MAY BE INCLUDED IN THE CALCULATION OF PRIVATE YARD.
V. MULTIFAMILY RESIDENTIAL BUILDINGS MUST PROVIDE AT LEAST TWO HUNDRED FIFTY (250) SQUARE FEET OF OPEN SPACE PER UNIT. CARRIAGE UNITS SHALL PROVIDE AT LEAST ONE HUNDRED (100) SQUARE FEET OF OPEN SPACE PER UNIT. THIS OPEN SPACE MAY BE APPLIED TO A COMMON AREA, COURTYARD, OR PLAZA AS DETERMINED BY THE PLANNING DIRECTOR AND SHALL INCLUDE AMENITIES SUCH AS PLAY STRUCTURES, SPORT COURTS, OR BENCHES.

OPEN SPACE CALCULATIONS

PRIVATE YARD SPACE < 15'

- THE MINIMUM REQUIRED PRIVATE YARD OF 250 SF WITH A 15' MINIMUM DIMENSION WOULD BE 15' x 16.7'. REDUCING THE DIMENSION TO 10' RESULTS IN A REDUCTION OF 83.5 SF (5' x 16.7') PER REDUCED PRIVATE YARD.
- THE NUMBER OF UNITS WITH REDUCED PRIVATE YARD SPACE = 56. THUS ADDITIONAL COMMON OPEN SPACE EQUAL TO 4,676 SF (56 x 83.5 SF) IS REQUIRED.

COMMON OPEN SPACE CALCULATIONS

COMMON SPACE (DMC 14.34.0050A.5.b)
TEN PERCENT OF THE NET DEVELOPABLE AREA (RESIDENTIAL) OF ALL NEW DEVELOPMENT SHALL BE SET ASIDE FOR THE PROVISION OF COMMON OPEN SPACE.

REQUIRED COMMON OPEN SPACE =	48,484 SF	1.11304 AC	(10% x 484,842 SF)
ADD FOR PRIVATE YARDS < 15' =	4,676 SF	0.10735 AC	
TOTAL REQUIRED OPEN SPACE =	53,160 SF	1.22039 AC	

COMMON OPEN SPACE PROVIDED:

	TOTAL OPEN SPACE		OPEN SPACE AT 5% OR LESS GRADE	
TRACT 988	9,348 SF	0.21460 AC	5,917 SF	0.13584 AC
TRACT 989	23,578 SF	0.54127 AC	8,814 SF	0.20234 AC
TRACT 996	7,942 SF	0.18231 AC	3,723 SF	0.08547 AC
TRACT 997	2,394 SF	0.05496 AC	0 SF	0.00000 AC
PORTION OF LOT 77	25,654 SF	0.58893 AC	12,428 SF	0.28531 AC
PORTION OF LOT 84	1,527 SF	0.03506 AC	1,527 SF	0.03506 AC
TOTAL:	70,442 SF	1.61713 AC	32,409 SF	0.74401 AC

* SEE CONCEPTUAL MASTER DEVELOPMENT PLAN FOR LOCATION OF COMMON OPEN SPACE AREAS

COMMERCIAL DATA

REFERENCE FOR REQUIRED COMMERCIAL AREA: HEX DECISION CONDITION OF APPROVAL #9 AND SECTION 4.1 OF THE DEVELOPMENT AGREEMENT.

REFERENCE FOR PARKING REQUIREMENT DEVIATION: HEX DECISION CONDITION OF APPROVAL #23.

BUILDING USE	PARKING REQUIREMENT (1 STALL PER __SF)	GROSS FLOOR AREA	90% FACTOR (SEE NOTE 1)	REQUIRED PARKING STALLS
COMMERCIAL (A - D)	300 SF	38,400 SF	34,560 SF	115
RESTAURANT (E - F)	200 SF	8,000 SF	7,200 SF	36
REC / COMM (G)	300 SF	23,400 SF	21,060 SF	70
GROSS COMMERCIAL SF DEPICTED		**69,800 SF**		
GROSS COMMERCIAL AREA REQUIRED (D.A. 4.1)		**50,000 SF**		

PARKING DATA

SUB-TOTAL PARKING STALLS REQUIRED	**221**
ON-SITE PARKING STALLS DEPICTED	209
OFF-SITE PARKING ALONG BIG ROCK ROAD FRONTAGE (SOUTH SIDE)	21
TOTAL PARKING STALLS DEPICTED	**230**

NOTES:
1. A 90% EFFICIENCY FACTOR HAS BEEN APPLIED TO THE COMMERCIAL BUILDINGS PER LETTER FROM CITY OF DUVALL DATED 2/23/2009.
2. IN ADDITION TO THE STALLS PROVIDED ON THE COMMERCIAL LOTS, THE SITE CONTAINS 166 ON STREET STALLS (155 ROW AND 11 PRIVATE ACCESS TRACTS) WHICH ARE AVAILABLE FOR RESIDENTIAL AND COMMERCIAL USES.
3. 35 (17%) OF COMMERICAL OFF-STREET STALLS ARE DESIGNED AS COMPACT STALLS.

PARKING - ADA AND LOADING STALLS

BUILDING USE	GROSS FLOOR AREA	ADA STALLS REQUIRED	ADA STALLS DEPICTED	LOADING SPACES REQUIRED	LOADING SPACES DEPICTED
COMMERCIAL (A - D)	38,400 SF	6	6	2	2
RESTAURANT (E - F)	8,000 SF	2	2	0	1
REC / COMM (G)	23,400 SF	3	3	2	1

COMMERCIAL PLAZA AREA CALCULATIONS

DMC 14.34.052H PEDESTRIAN-ORIENTED SPACES
1. NON-RESIDENTIAL BUILDINGS AND DEVELOMENTS SHALL PROVIDE PEDESTRIAN-ORIENTED SPACE (PUBLIC PLAZA OR COURTYARD), AT A MINIMUM OF 1 PERCENT OF THE TOTAL LOT AREA +1 PERCENT OF THE NON-RESIDENTIAL FOOTPRINT.

TOTAL COMMERCIAL AREA: 201,267 SF
TOTAL COMMERCIAL FLOOR AREA: 38,400 SF

PLAZA AREA REQUIRED: 2,397 SF
PLAZA AREA PROVIDED: 6,155 SF

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26 CENTRAL WAY, SUITE 420, KIRKLAND, WA 98033
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SCALE: AS NOTED
PROJECT MANAGER: BRETT K. PUDISTS, PE
PROJECT ENGINEER: BRETT K. PUDISTS, PE
DESIGNER: AARON LANCE
ISSUE DATE: 5/31/2017

NO	DATE	BY	REVISIONS

PRELIMINARY PLAT DATA
DUV DIV I
MINOR MODIFICATION
TO PRELIMINARY PLAT
CITY OF DUVALL WASHINGTON

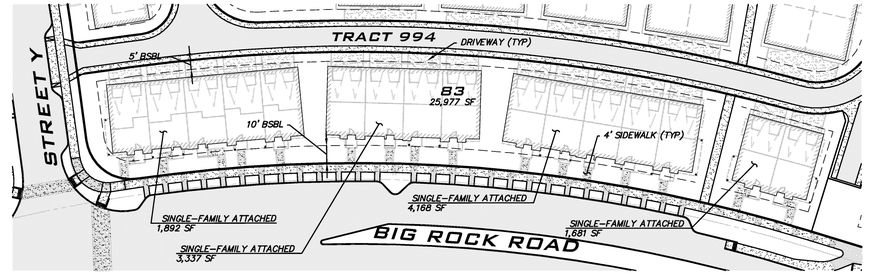
BRETT K. PUDISTS
STATE OF WASHINGTON
37925
REGISTERED PROFESSIONAL ENGINEER
5/26/17

JOB NUMBER: 16-123
SHEET NAME: GN-01
SHT 2 OF 7

RESIDENTIAL IMPERVIOUS SURFACE CALCULATIONS

RESIDENTIAL LOT NUMBER	LOT AREA (SF)	ALLOWABLE IMPERVIOUS SURFACE 75% (SF)	ALLOWABLE BUILDING COVERAGE 60% (SF)
6	32,887.05	24,665	19,732
7	2,828.37	2,121	1,697
8	2,587.50	1,941	1,553
9	2,587.50	1,941	1,553
10	2,587.50	1,941	1,553
11	2,587.50	1,941	1,553
12	2,587.50	1,941	1,553
13	2,587.50	1,941	1,553
14	2,587.25	1,940	1,552
15	2,975.00	2,231	1,785
16	3,686.51	2,765	2,212
17	5,288.67	3,967	3,173
18	3,367.00	2,525	2,020
19	3,044.88	2,284	1,827
20	2,776.21	2,082	1,666
21	2,774.19	2,081	1,665
22	2,351.96	1,764	1,411
23	1,913.21	1,435	1,148
24	1,747.91	1,311	1,049
25	2,108.01	1,581	1,265
26	2,158.54	1,619	1,295
27	1,553.73	1,165	932
28	1,742.63	1,307	1,046
29	1,792.60	1,344	1,076
30	1,552.41	1,164	931
31	2,152.60	1,614	1,292
32	3,511.84	2,634	2,107
33	3,990.83	2,993	2,394
34	3,039.84	2,280	1,824
35	3,270.15	2,453	1,962
36	2,772.44	2,079	1,663
37	3,263.26	2,447	1,958
38	2,253.05	1,690	1,352
39	2,026.60	1,520	1,216
40	3,093.96	2,320	1,856
41	2,581.40	1,936	1,549
42	3,509.39	2,632	2,106
43	2,856.00	2,142	1,714
44	2,856.00	2,142	1,714
45	2,856.00	2,142	1,714
46	3,594.48	2,696	2,157
47	3,408.28	2,556	2,045
48	2,931.40	2,199	1,759
49	2,960.83	2,221	1,776
50	3,711.67	2,784	2,227
51	2,426.67	1,820	1,456
52	2,311.25	1,733	1,387
53	2,311.39	1,734	1,387
54	2,304.81	1,729	1,383
55	2,304.94	1,729	1,383
56	2,302.84	1,727	1,382
57	2,300.73	1,726	1,380
58	3,495.55	2,622	2,097
59	3,219.74	2,415	1,932
60	2,944.46	2,208	1,767
61	2,774.59	2,081	1,665
62	2,626.53	1,970	1,576
63	2,587.89	1,941	1,553
64	2,587.90	1,941	1,553
65	2,586.68	1,940	1,552
66	2,582.15	1,937	1,549
67	2,572.25	1,929	1,543
68	2,562.79	1,922	1,538
69	2,553.34	1,915	1,532
70	2,550.11	1,913	1,530
71	2,559.25	1,919	1,536
72	2,568.73	1,927	1,541
73	2,578.20	1,934	1,547
74	2,557.19	1,918	1,534
75	13,311.79	9,984	7,987
76	12,111.68	9,084	7,267
77	27,832.97	20,875	16,700
80	32,220.44	24,165	19,332
81	10,398.77	7,799	6,239
82	6,439.66	4,830	3,864
83	25,977.25	19,483	15,586
84	9,823.01	7,367	5,894
Total: 77	355,586.70	266,690.03	213,352.02

COMMERCIAL LOT NUMBER	LOT AREA (SF)	ALLOWABLE IMPERVIOUS SURFACE 85% (SF)
1	46,777.85	39,761
2	39,908.32	33,922
3	28,492.54	24,219
4	36,179.11	30,752
5	49,909.26	42,423
Total: 5	201,267.08	171,077.02



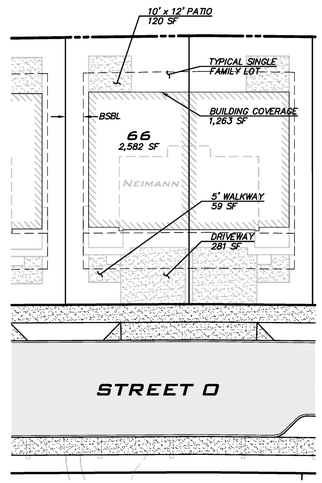
LOT COVERAGE CALCULATIONS

PROPOSED BUILDING COVERAGE:	13,355 SF (51%)
MAXIMUM ALLOWED BUILDING COVERAGE:	15,586 SF (60%)
*PROPOSED IMPERVIOUS:	16,599 SF (64%)
MAXIMUM ALLOWED IMPERVIOUS:	19,483 SF (75%)

*INCLUDES:
13,355 SF BUILDINGS
2,539 SF DRIVEWAYS
705 SF SIDEWALKS

TYPICAL SINGLE-FAMILY ATTACHED LOT COVERAGE DETAIL

SCALE: 1"=40'

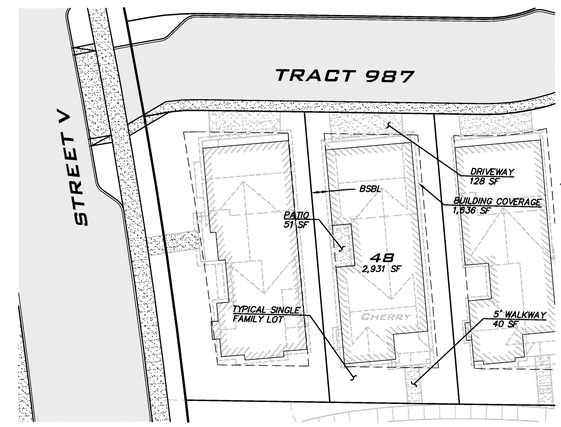


LOT COVERAGE CALCULATIONS

PROPOSED BUILDING COVERAGE:	1,263 SF (49%)
MAXIMUM ALLOWED BUILDING COVERAGE:	1,549 SF (60%)
PROPOSED IMPERVIOUS:	1,723 SF (67%)
MAXIMUM ALLOWED IMPERVIOUS:	1,936 SF (75%)

TYPICAL SINGLE FAMILY LOT COVERAGE DETAIL

SCALE: 1"=20'

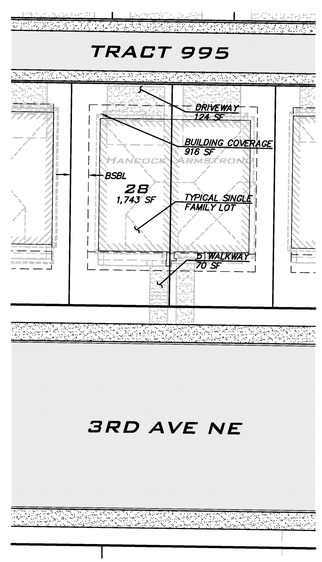


LOT COVERAGE CALCULATIONS

PROPOSED BUILDING COVERAGE:	1,636 SF (56%)
MAXIMUM ALLOWED BUILDING COVERAGE:	1,759 SF (60%)
PROPOSED IMPERVIOUS:	1,855 SF (63%)
MAXIMUM ALLOWED IMPERVIOUS:	2,198 SF (75%)

TYPICAL SINGLE FAMILY LOT COVERAGE DETAIL

SCALE: 1"=20'

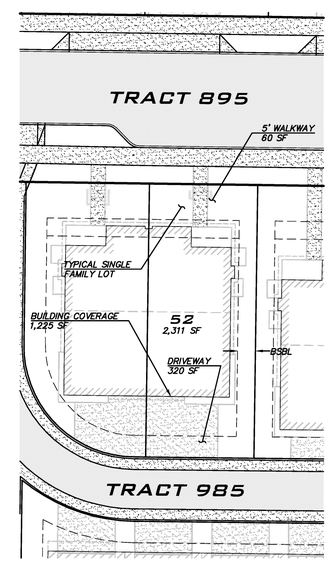


LOT COVERAGE CALCULATIONS

PROPOSED BUILDING COVERAGE:	918 SF (53%)
MAXIMUM ALLOWED BUILDING COVERAGE:	1046 SF (60%)
PROPOSED IMPERVIOUS:	1,110 SF (64%)
MAXIMUM ALLOWED IMPERVIOUS:	1,307 SF (75%)

TYPICAL SINGLE FAMILY LOT COVERAGE DETAIL

SCALE: 1"=20'



LOT COVERAGE CALCULATIONS

PROPOSED BUILDING COVERAGE:	1,225 SF (53%)
MAXIMUM ALLOWED BUILDING COVERAGE:	1,386 SF (60%)
PROPOSED IMPERVIOUS:	1,605 SF (69.5%)
MAXIMUM ALLOWED IMPERVIOUS:	1,733 SF (75%)

TYPICAL SINGLE FAMILY LOT COVERAGE DETAIL

SCALE: 1"=20'

BUILDING NOTES

1. FOOTPRINTS SHOWN ARE PRELIMINARY AND SUBJECT TO CHANGE.
2. BUILDING COVERAGE = HORIZONTAL SURFACE AREA OF ROOF PER DMC 14.06.035.

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SCALE: AS NOTED
PROJECT MANAGER: BRETT K. PUDISTS, PE
PROJECT ENGINEER: BRETT K. PUDISTS, PE
DESIGNER: AARON LANCE
ISSUE DATE: 5/26/2017

NO	DATE	BY	REVISIONS

PRELIMINARY PLAT DATA
DUV DIV I
MINOR MODIFICATION
TO PRELIMINARY PLAT
CITY OF DUVALL WASHINGTON

BRETT K. PUDISTS STATE OF WASHINGTON 37925 REGISTERED PROFESSIONAL ENGINEER
5/26/17

JOB NUMBER: 16-123
SHEET NAME: GN-02
SHT 3 OF 7

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May 26, 2017 – 2:53pm – User alance
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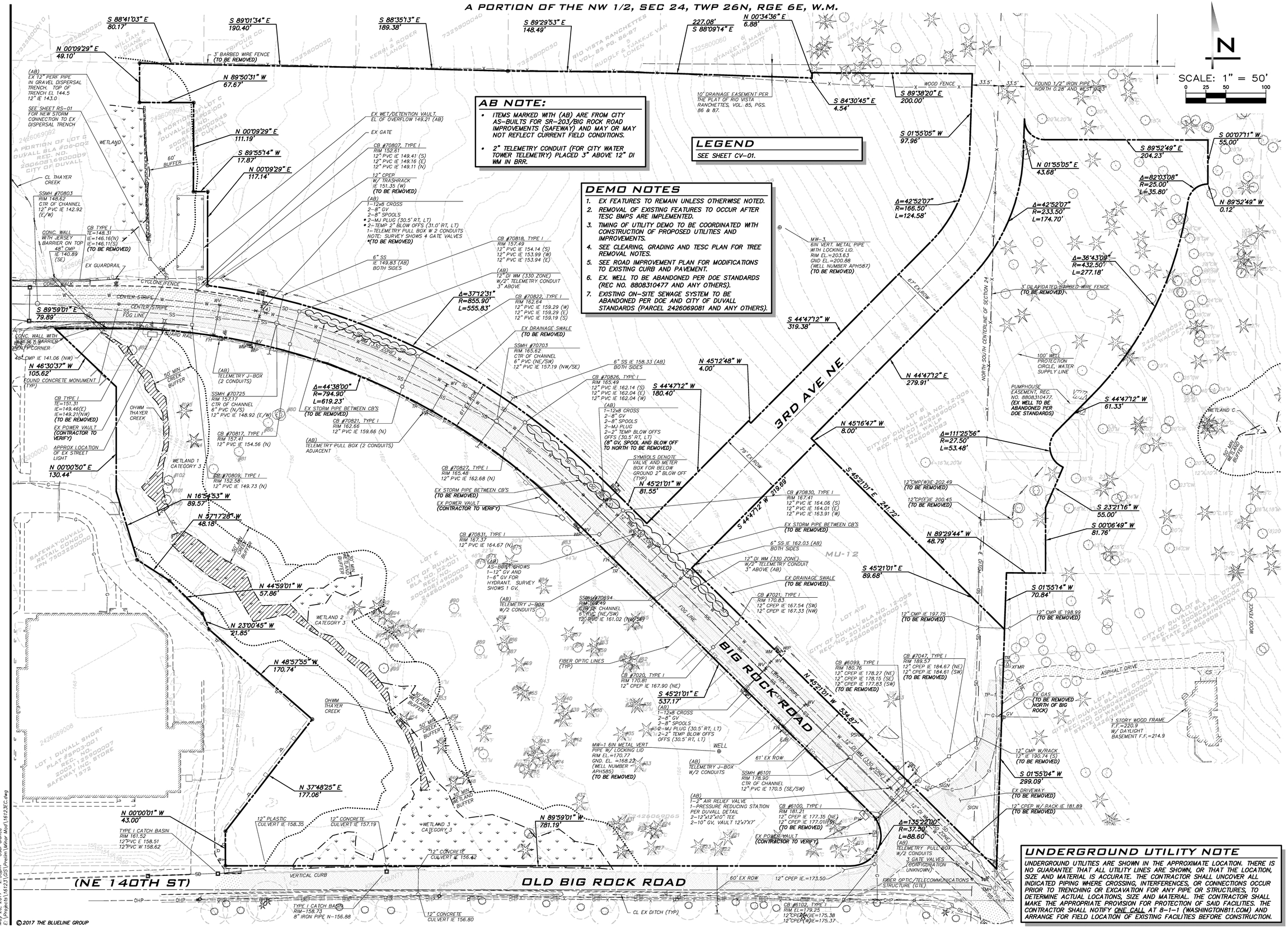
A PORTION OF THE NW 1/2, SEC 24, TWP 26N, RGE 6E, W.M.



AB NOTE:

- ITEMS MARKED WITH (AB) ARE FROM CITY AS-BUILTS FOR SR-203/BIG ROCK ROAD IMPROVEMENTS (SAFEWAY) AND MAY OR MAY NOT REFLECT CURRENT FIELD CONDITIONS.
- 2" TELEMETRY CONDUIT (FOR CITY WATER TOWER TELEMETRY) PLACED 3" ABOVE 12" DI WM IN BRR.

LEGEND

SEE SHEET CV-01.

DEMO NOTES

1. EX FEATURES TO REMAIN UNLESS OTHERWISE NOTED.
2. REMOVAL OF EXISTING FEATURES TO OCCUR AFTER TESC BMPS ARE IMPLEMENTED.
3. TIMING OF UTILITY DEMO TO BE COORDINATED WITH CONSTRUCTION OF PROPOSED UTILITIES AND IMPROVEMENTS.
4. SEE CLEARING, GRADING AND TESC PLAN FOR TREE REMOVAL NOTES.
5. SEE ROAD IMPROVEMENT PLAN FOR MODIFICATIONS TO EXISTING CURB AND PAVEMENT.
6. EX. WELL TO BE ABANDONED PER DOE STANDARDS (REC NO. 8808310477 AND ANY OTHERS).
7. EXISTING ON-SITE SEWAGE SYSTEM TO BE ABANDONED PER DOE AND CITY OF DUVALL STANDARDS (PARCEL 2426069081 AND ANY OTHERS).

UNDERGROUND UTILITY NOTE

UNDERGROUND UTILITIES ARE SHOWN IN THE APPROXIMATE LOCATION. THERE IS NO GUARANTEE THAT ALL UTILITY LINES ARE SHOWN, OR THAT THE LOCATION, SIZE AND MATERIAL IS ACCURATE. THE CONTRACTOR SHALL UNCOVER ALL INDICATED PIPING WHERE CROSSING, INTERFERENCES, OR CONNECTIONS OCCUR PRIOR TO TRENCHING OR EXCAVATION FOR ANY PIPE OR STRUCTURES, TO DETERMINE ACTUAL LOCATIONS, SIZE AND MATERIAL. THE CONTRACTOR SHALL MAKE THE APPROPRIATE PROVISION FOR PROTECTION OF SAID FACILITIES. THE CONTRACTOR SHALL NOTIFY ONE CALL AT 8-1-1 (WASHINGTON811.COM) AND ARRANGE FOR FIELD LOCATION OF EXISTING FACILITIES BEFORE CONSTRUCTION.

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REVISIONS

EXISTING CONDITIONS
DUV DIV I
MINOR MODIFICATION
TO PRELIMINARY PLAT
CITY OF DUVALL WASHINGTON

BRETT K. PUDISTS STATE OF WASHINGTON 37925 REGISTERED PROFESSIONAL ENGINEER
5/26/17

JOB NUMBER: 16-123
SHEET NAME: EC-01
SHT 4 OF 7

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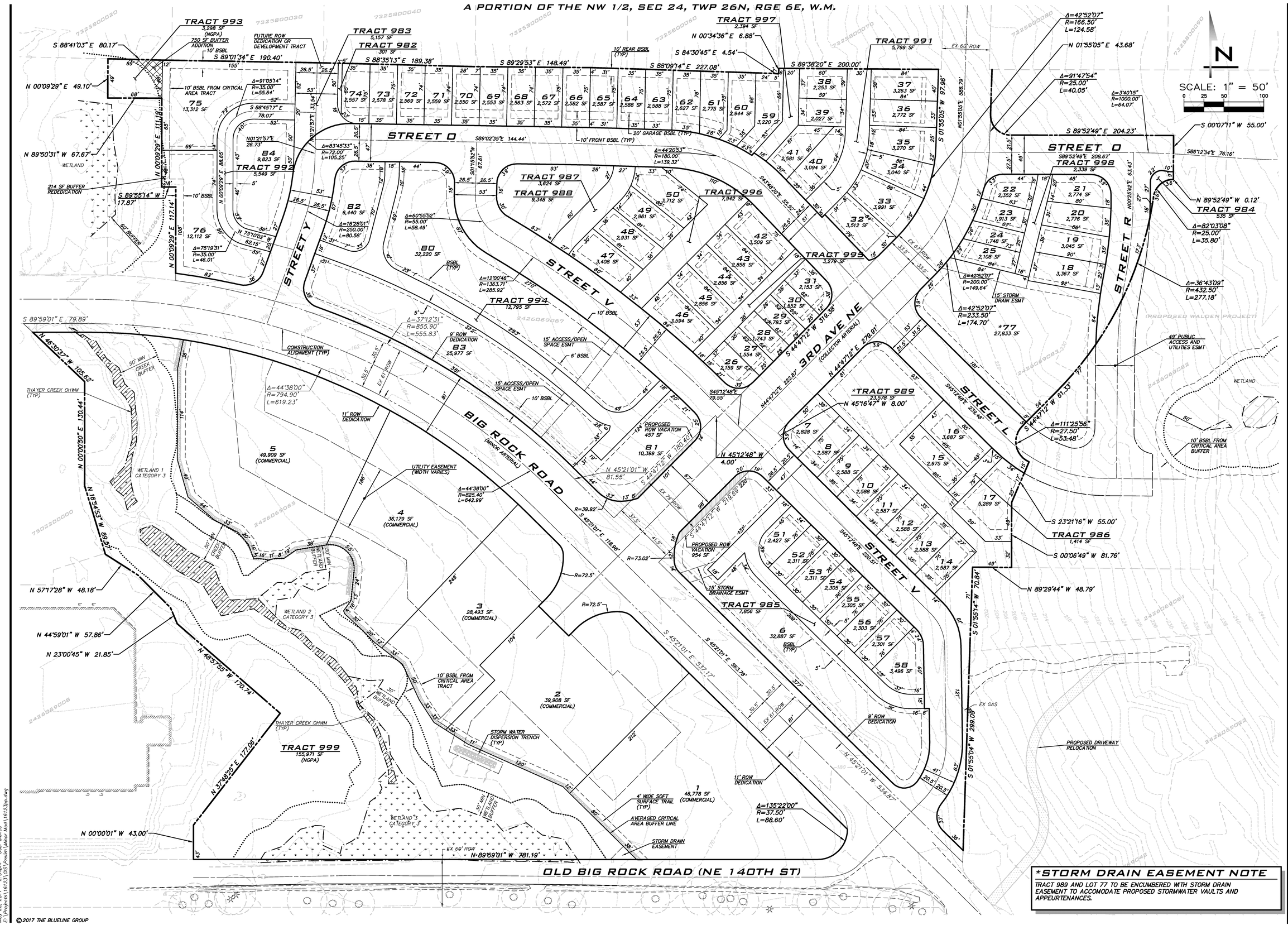
A PORTION OF THE NW 1/2, SEC 24, TWP 26N, RGE 6E, W.M.



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DESIGNER: AARON LANCE
ISSUE DATE: 5/26/2017

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PRELIMINARY PLAT
DUV DIV I
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TO PRELIMINARY PLAT
CITY OF DUVALL WASHINGTON

BRETT K. PUDISTS
STATE OF WASHINGTON
37925
REGISTERED PROFESSIONAL ENGINEER
5/26/17

JOB NUMBER: 16-123
SHEET NAME: PP-01
SHT 5 OF 7

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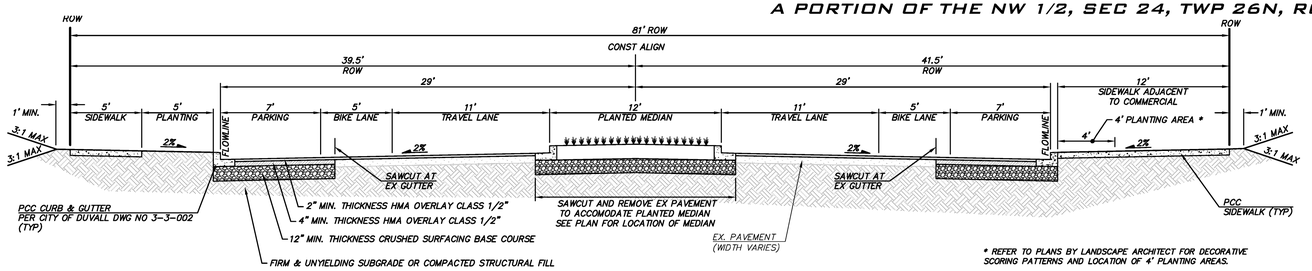
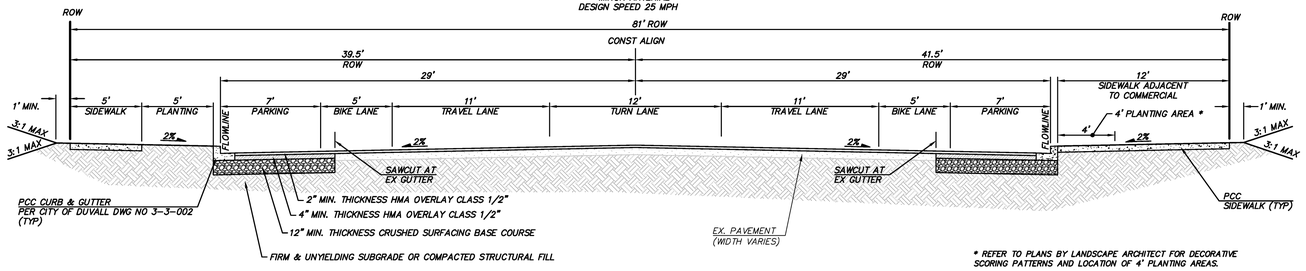


BIG ROCK ROAD - WITH PARKING & MEDIAN

NOT TO SCALE

MINOR ARTERIAL
DESIGN SPEED 25 MPH



BIG ROCK ROAD - WITH PARKING & TURN LANE

NOT TO SCALE

MINOR ARTERIAL
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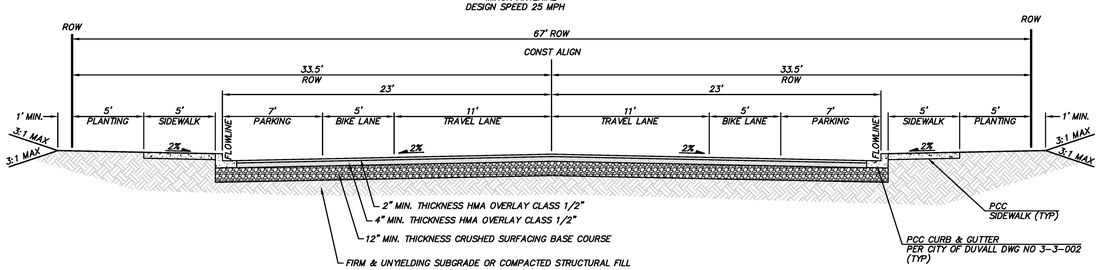

3RD AVENUE - WITH PARKING

NOT TO SCALE

COLLECTOR ARTERIAL
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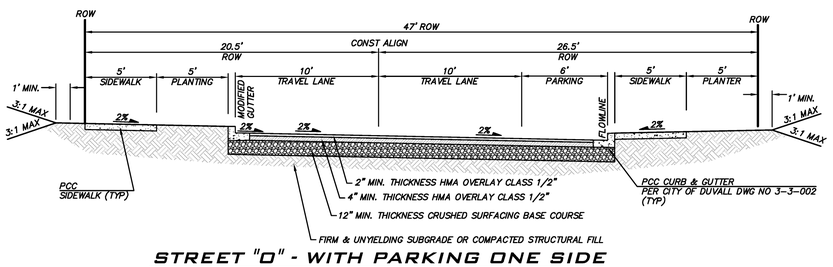
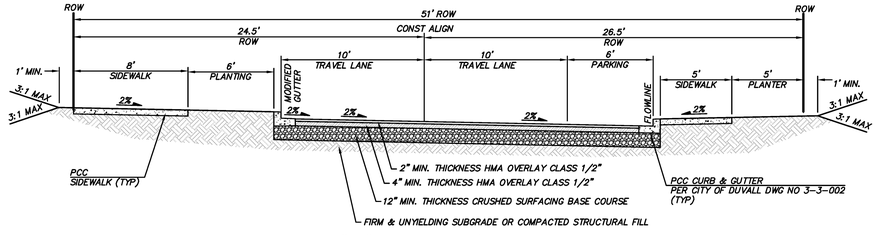


STREET "O" - WITH PARKING ONE SIDE

NOT TO SCALE

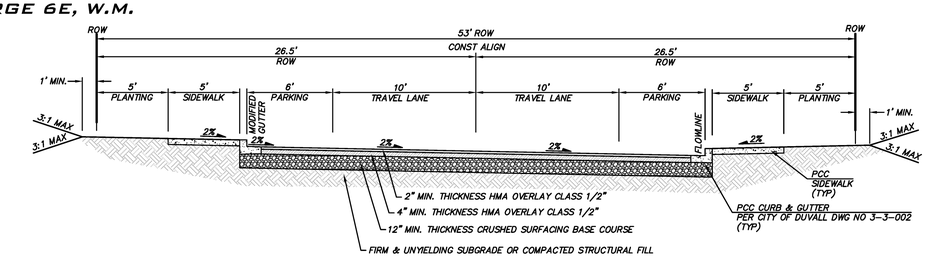
SUBCOLLECTOR
DESIGN SPEED 25 MPH



STREET "O" - WITH 8' WIDE WALK

NOT TO SCALE

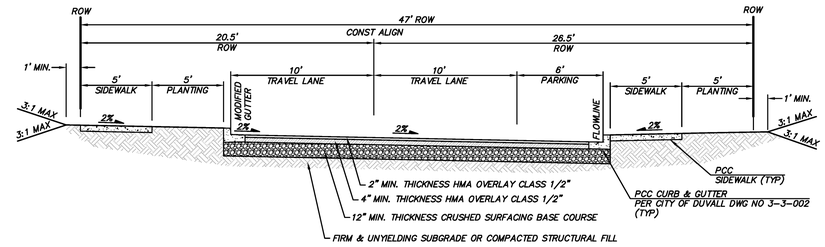
SUBCOLLECTOR
DESIGN SPEED 25 MPH



STREET "V" - WITH PARKING

NOT TO SCALE

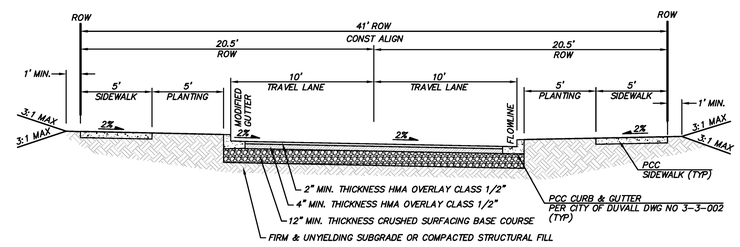
SUBACCESS
DESIGN SPEED 25 MPH



STREET "V" - WITH PARKING ONE SIDE

NOT TO SCALE

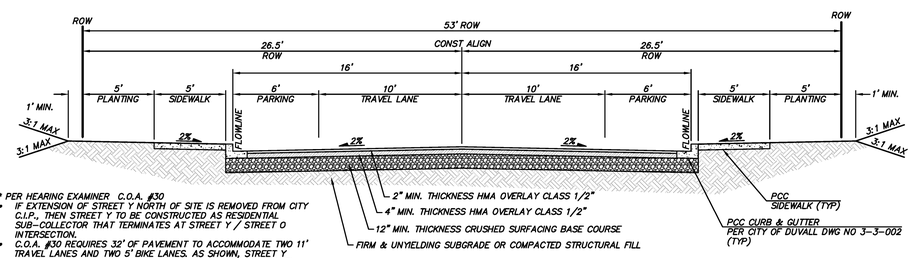
SUBACCESS
DESIGN SPEED 25 MPH



STREET "V" - NO PARKING

NOT TO SCALE

SUBACCESS
DESIGN SPEED 25 MPH



* PER HEARING EXAMINER C.O.A. #30
- IF EXTENSION OF STREET Y NORTH OF SITE IS REMOVED FROM CITY C.I.P., THEN STREET Y TO BE CONSTRUCTED AS RESIDENTIAL SUB-COLLECTOR THAT TERMINATES AT STREET Y / STREET O INTERSECTION.
- C.O.A. #30 REQUIRES 32' OF PAVEMENT TO ACCOMMODATE TWO 11' TRAVEL LANES AND TWO 5' BIKE LANES. AS SHOWN, STREET Y PROVIDES 32' OF PAVEMENT TO ACCOMMODATE TWO 10' TRAVEL LANES AND TWO 6' PARKING. AREAS WITHOUT PARKING HAVE 22' OF PAVEMENT TO ACCOMMODATE TWO 11' TRAVEL LANES.

STREET "Y" - WITH PARKING

NOT TO SCALE

* COLLECTOR ARTERIAL
DESIGN SPEED 25 MPH

HARDSCAPE NOTES

- SIDEWALKS AND PLANTER STRIPS SHOWN ON CIVIL PLANS ARE PER CITY STANDARD DETAILS.
- LANDSCAPE PLANS INCLUDE ADDITIONAL DETAIL RELATED TO DECORATIVE PAVING TYPES AND LOCATIONS IN SELECT AREAS. THIS IS ESPECIALLY RELEVANT ALONG BIG ROCK ROAD, AT OPEN SPACE TRACTS, AT CONCRETE CROSSWALKS AND INTERSECTIONS AND ALONG PROMENADE WALK SHOWN ON LANDSCAPE PLANS.
- CONTRACTOR TO REFER TO LANDSCAPE PLANS PRIOR TO INSTALLING HARDSCAPE AND NOTIFY LANDSCAPE ARCHITECT IF DISCREPANCIES ARISE.

TYPICAL ROAD SECTION NOTES

1. ADDITIONAL SUBGRADE TREATMENTS MAY BE REQUIRED DEPENDING ON SOIL CONDITIONS. SEE CITY OF DUVALL SEC. 3-4.02 & 3-4.03 AND GEOTECHNICAL RECOMMENDATIONS.
2. CONCRETE CURB, GUTTER & SIDEWALKS SHALL HAVE A MINIMUM BASE CONSISTING OF 6-INCHES OF 5/8-INCH CRUSHED ROCK PLACED UPON A FIRM AND UNYIELDING SUBGRADE.
3. SIDEWALK SUBJECT TO VEHICULAR TRAFFIC TO BE 6" THICKNESS PCC (5" THICK IF NOT SUBJECT TO VEHICLE LOADING).
4. DEPTH OF PAVEMENT AND ROADWAY BASE MATERIALS IS MIN COMPACTED DEPTH.

UNDERGROUND UTILITY NOTE

UNDERGROUND UTILITIES ARE SHOWN IN THE APPROXIMATE LOCATION. THERE IS NO GUARANTEE THAT ALL UTILITY LINES ARE SHOWN, OR THAT THE LOCATION, SIZE AND MATERIAL IS ACCURATE. THE CONTRACTOR SHALL UNCOVER ALL INDICATED PIPING WHERE CROSSING, INTERFERENCES, OR CONNECTIONS OCCUR PRIOR TO TRENCHING OR EXCAVATION FOR ANY PIPE OR STRUCTURES, TO DETERMINE ACTUAL LOCATIONS, SIZE AND MATERIAL. THE CONTRACTOR SHALL MAKE THE APPROPRIATE PROVISION FOR PROTECTION OF SAID FACILITIES. THE CONTRACTOR SHALL NOTIFY ONE CALL AT 8-1-1 (WASHINGTON811.COM) AND ARRANGE FOR FIELD LOCATION OF EXISTING FACILITIES BEFORE CONSTRUCTION.

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PROJECT ENGINEER: BRETT K. PUDISTS, PE
DESIGNER: AARON LANCE
ISSUE DATE: 5/26/2017

NO	DATE	BY

REVISIONS

ROAD SECTIONS

DUV DIV I
MINOR MODIFICATION
TO PRELIMINARY PLAT
CITY OF DUVALL WASHINGTON

BRETT K. PUDISTS
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SHT 6 OF 7

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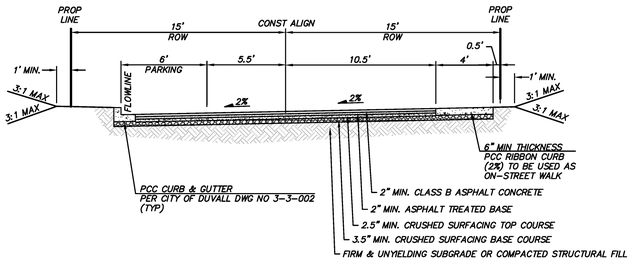
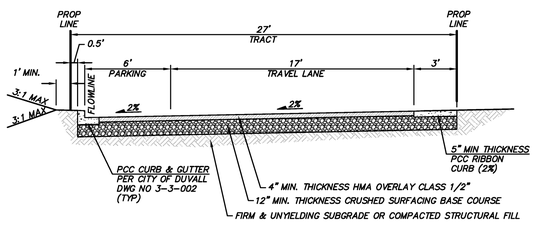


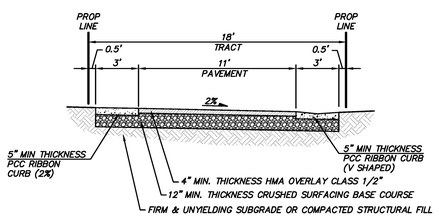
TRACT 991

NOT TO SCALE
PUBLIC ACCESS TRACT
DESIGN SPEED 20 MPH



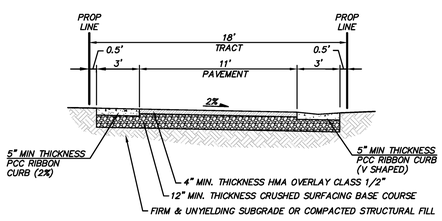
TRACT 987

NOT TO SCALE
PRIVATE ALLEY
DESIGN SPEED 20 MPH



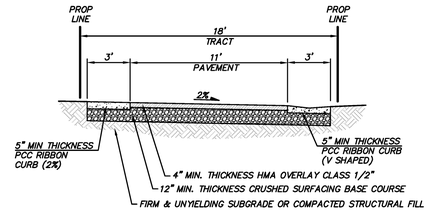
TRACT 994

NOT TO SCALE
PRIVATE ALLEY
DESIGN SPEED 20 MPH



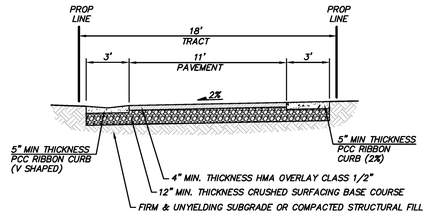
TRACT 998

NOT TO SCALE
PRIVATE ACCESS TRACT
DESIGN SPEED 20 MPH



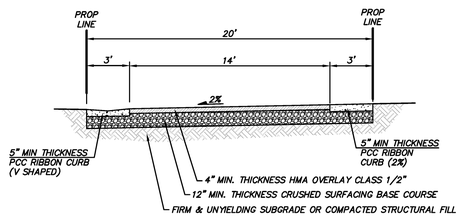
TRACT 985

NOT TO SCALE
PRIVATE ALLEY
DESIGN SPEED 20 MPH



TRACT 986

NOT TO SCALE
PRIVATE ACCESS TRACT
DESIGN SPEED 20 MPH



TRACT 992

NOT TO SCALE
PRIVATE ACCESS TRACT
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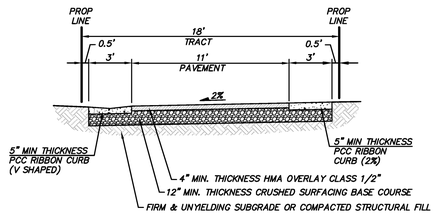
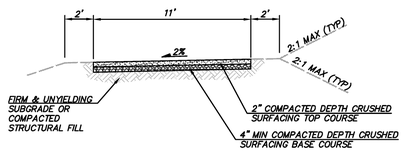


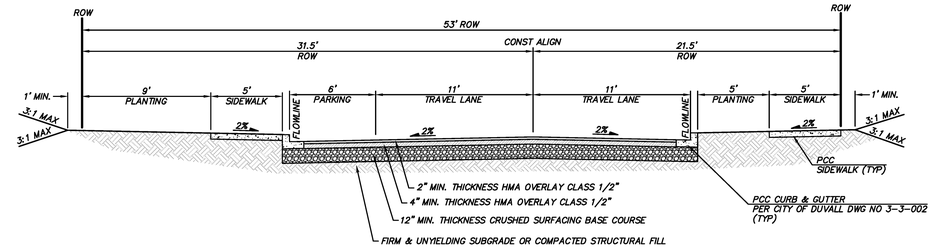
TRACT 995

NOT TO SCALE
PRIVATE ALLEY
DESIGN SPEED 20 MPH



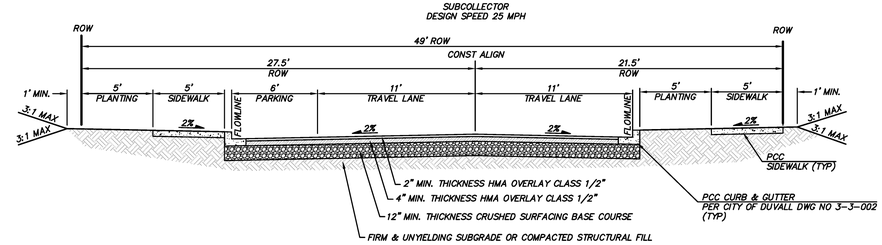
11' RELOCATED DRIVEWAY

NOT TO SCALE



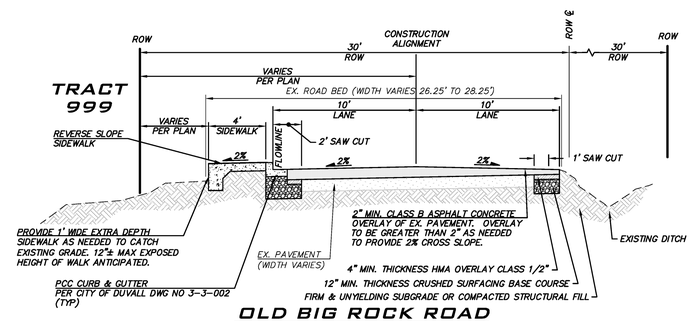
STREET "L" - PARKING ON ONE SIDE

NOT TO SCALE
SUBCOLLECTOR
DESIGN SPEED 25 MPH



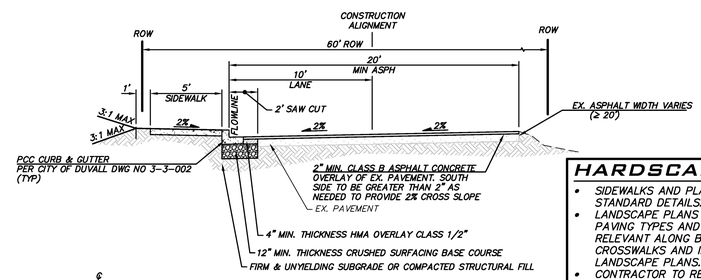
STREET "R" - PARKING ON ONE SIDE

NOT TO SCALE
SUBCOLLECTOR
DESIGN SPEED 25 MPH



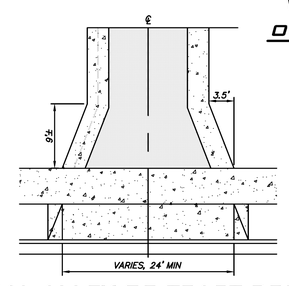
OLD BIG ROCK ROAD

NOT TO SCALE
SUBCOLLECTOR STA ±10+48 TO ±15+50
DESIGN SPEED 25 MPH



OLD BIG ROCK ROAD

NOT TO SCALE
SUBCOLLECTOR STA ±15+55 TO ±17+88
DESIGN SPEED 25 MPH



TYPICAL ALLEY OR TRACT DRIVEWAY APRON DETAIL

SCALE: 1" = 10'

HARDSCAPE NOTES

- SIDEWALKS AND PLANTER STRIPS SHOWN ON CIVIL PLANS ARE PER CITY STANDARD DETAILS.
- LANDSCAPE PLANS INCLUDE ADDITIONAL DETAIL RELATED TO DECORATIVE PAVING TYPES AND LOCATIONS IN SELECT AREAS. THIS IS ESPECIALLY RELEVANT ALONG BIG ROCK ROAD, AT OPEN SPACE TRACTS, AT CONCRETE CROSSWALKS AND INTERSECTIONS AND ALONG PROMENADE WALK SHOWN ON LANDSCAPE PLANS.
- CONTRACTOR TO REFER TO LANDSCAPE PLANS PRIOR TO INSTALLING HARDSCAPE AND NOTIFY LANDSCAPE ARCHITECT IF DISCREPANCIES ARISE.

TYPICAL ROAD SECTION NOTES

1. ADDITIONAL SUBGRADE TREATMENTS MAY BE REQUIRED DEPENDING ON SOIL CONDITIONS. SEE CITY OF DUVALL SEC. 3-4.02 & 3-4.03 AND GEOTECHNICAL RECOMMENDATIONS.
2. CONCRETE CURB, GUTTER & SIDEWALKS SHALL HAVE A MINIMUM BASE CONSISTING OF 6-INCHES OF 5/8-INCH CRUSHED ROCK PLACED UPON A FIRM AND UNYIELDING SUBGRADE.
3. SIDEWALK SUBJECT TO VEHICULAR TRAFFIC TO BE 6" THICKNESS PCC (5" THICK IF NOT SUBJECT TO VEHICLE LOADING).
4. DEPTH OF PAVEMENT AND ROADWAY BASE MATERIALS IS MIN COMPACTED DEPTH.

UNDERGROUND UTILITY NOTE

UNDERGROUND UTILITIES ARE SHOWN IN THE APPROXIMATE LOCATION. THERE IS NO GUARANTEE THAT ALL UTILITY LINES ARE SHOWN, OR THAT THE LOCATION, SIZE AND MATERIAL IS ACCURATE. THE CONTRACTOR SHALL UNCOVER ALL INDICATED PIPING WHERE CROSSING, INTERFERENCES, OR CONNECTIONS OCCUR PRIOR TO TRENCHING OR EXCAVATION FOR ANY PIPE OR STRUCTURES, TO DETERMINE ACTUAL LOCATIONS, SIZE AND MATERIAL. THE CONTRACTOR SHALL MAKE THE APPROPRIATE PROVISION FOR PROTECTION OF SAID FACILITIES. THE CONTRACTOR SHALL NOTIFY ONE CALL AT 8-1-1 (WASHINGTON811.COM) AND ARRANGE FOR FIELD LOCATION OF EXISTING FACILITIES BEFORE CONSTRUCTION.

BLUELINE
26 CENTRAL WAY, SUITE 420, KIRKLAND, WA 98033
P: 425.216.4051 F: 425.216.4052
WWW.THEBLUELINEGROUP.COM

SCALE: AS NOTED
PROJECT MANAGER: BRETT K. PUDISTS, PE
PROJECT ENGINEER: BRETT K. PUDISTS, PE
DESIGNER: AARON LANCE
ISSUE DATE: 5/26/2017

REVISIONS			
NO	DATE	BY	

ROAD SECTIONS & DETAILS

DUV DIV I
MINOR MODIFICATION
TO PRELIMINARY PLAT
CITY OF DUVALL WASHINGTON

BRETT K. PUDISTS
STATE OF WASHINGTON
37925
REGISTERED PROFESSIONAL ENGINEER
5/26/17

JOB NUMBER: 16-123
SHEET NAME: RD-02
SHT 7 OF 7

24x36
May 26, 2017 – 2:55pm – User alance
E:\Projects\16123\GIS\Prelim\Minor Mod\16123rd.dwg

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