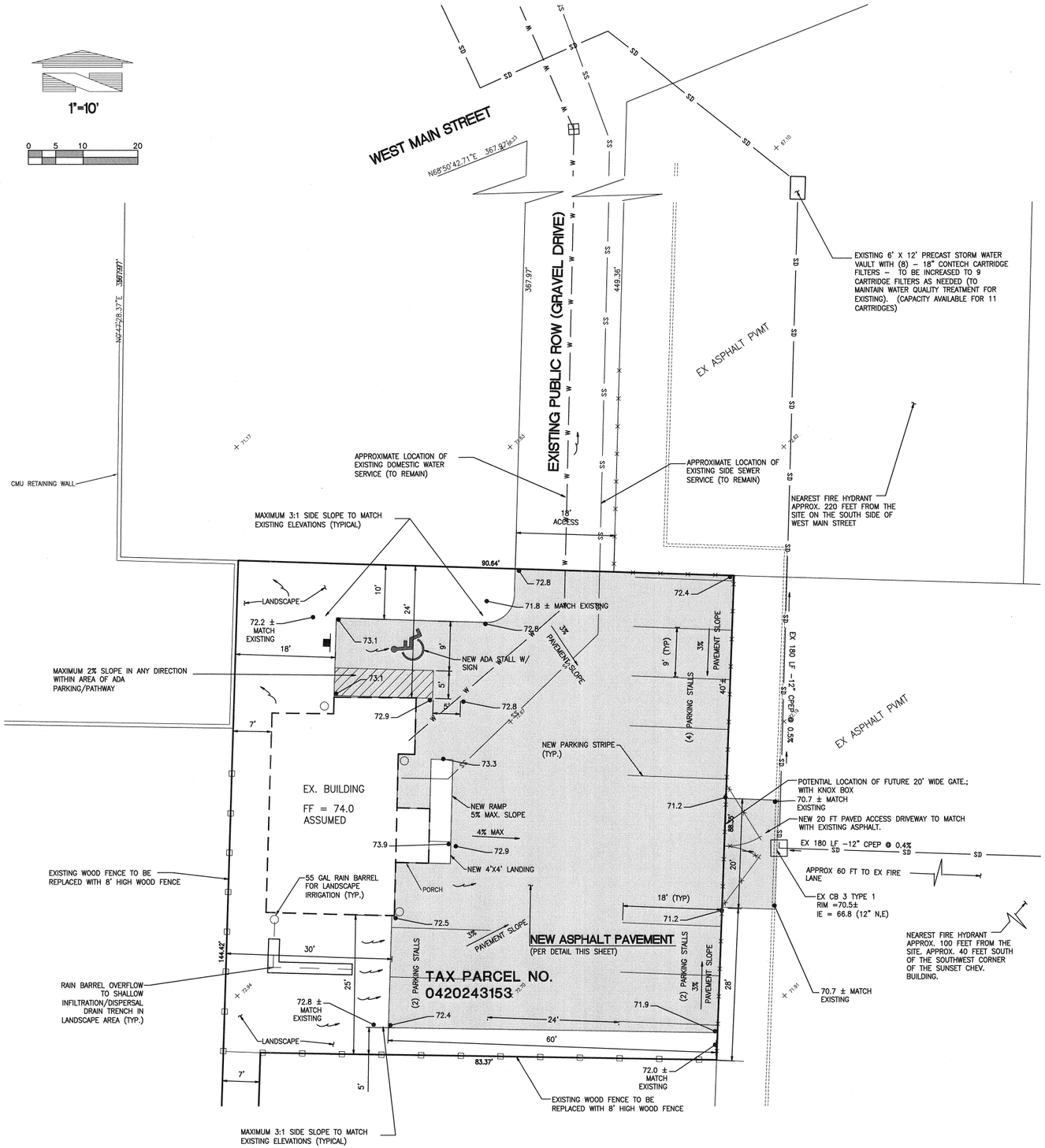
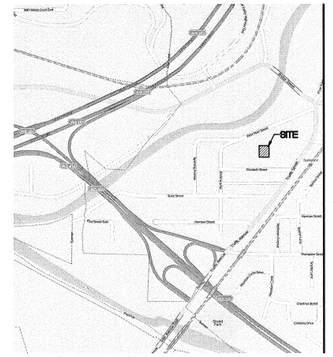
PRELIMINARY SITE, STORM DRAINAGE, GRADING AND UTILITY PLAN





VICINITY MAP
N.T.S.

LEGAL DESCRIPTION

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EXCEPT THE SOUTH 53 FEET THEREOF.

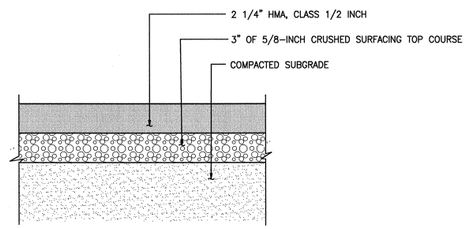
ZONING

MEDIUM DENSITY RESIDENTIAL

PROJECT SIZE:

PARCEL A = 8035± SF = 0.18 AC
PARCEL B = 368± SF = 0.01 AC

AREA OF NEW IMPERVIOUS = 0.11 ACRES (LESS THAN 5000 SQ. FT.)



ASPHALT PAVING SECTION DETAIL

N.T.S. INSTALLATION PER GEOTECHNICAL RECOMMENDATIONS,

COORDINATING CONSULTANT

BRANBAR, LLC
18215 72ND AVE. S
KENT, WA 98032
PHONE: 425-656-7477
FAX: 425-251-8782
EMAIL: "BARRY ANDERSON" <BRANBAR.LLC@GMAIL.COM>

No.	Date	By	Chkd.	Appr.	Revision

Title: SITE PLAN

SUNSET COMMERCIAL RESIDENCE

For:

ROMAN I LLC
910 TRAFFIC AVE
SUMNER, WA 98390
CONTACT: BARRY ANDERSON

JASON GUY HUBBELL — STATE OF WASHINGTON — 38950 — REGISTERED PROFESSIONAL ENGINEER — 3/25/13

Scale: Horizontal 1"=10' Vertical NA

Designed KEH Drawn RDC Checked KEH Approved JGH
Date 3-08-13 Date 3-16-13 Date 3-19-13

CBULL Xref: ----

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CIVIL ENGINEERING, LAND PLANNING, SURVEYING, ENVIRONMENTAL SERVICES

Job Number 13213

Sheet 1 of 1

File:P:\13000s\13213\preliminary\13213--PGM.dwg Date/Time:7/10/2013 3:29 PM Scale:1" = 1'

PRELIMINARY
STORMWATER SITE PLAN REPORT

Proposed Parking Lot Site Improvements
Sunset Chevrolet/Morrison Property

638½ West Main Street
Sumner, Washington

City File Nos. PRJ2010-00012 and SIT2013-0013

Prepared for:
Barry Anderson
Branbar LLC
18215 – 72nd Avenue South
Kent, WA 98032

July 11, 2013
Our Job No. 13213

BARGHAUSEN CONSULTING ENGINEERS, INC.

CIVIL ENGINEERING, LAND PLANNING, SURVEYING, ENVIRONMENTAL SERVICES
18215 72ND AVENUE SOUTH KENT, WA 98032 (425) 251-6222 (425) 251-8782 FAX
BRANCH OFFICES ◆ OLYMPIA, WA ◆ SACRAMENTO, CA ◆ TEMECULA, CA
www.barghausen.com

TABLE OF CONTENTS

Tab 1.0

1.0 PROJECT OVERVIEW

This report accompanies the preliminary site, stormwater and grading plans and SEPA application for the parking lot improvement at the Sunset Chevrolet site. The project is located adjacent to and immediately west of the Sunset Chevrolet automobile dealership located at 910 Traffic Avenue, Sumner, Washington. The site is a 0.19-acre parcel that was previously in a residential use and is located 370 to 450 feet south of West Main Street, 170 to 250 feet northwesterly of Traffic Avenue, and 130 feet northerly of Elizabeth Street. The site is Tax Parcel No. 0420243153.

The rectangular shaped parcel includes a stem extending south in the direction of Elizabeth Street. Access to the parcel is currently proposed from the Sunset Chevrolet property an existing access via a gravel driveway is available from a City Right-of-Way via access strip of 18 feet width to West Main Street.

Please refer to Figure 1 in Appendix A for a Vicinity Map.

This Preliminary Stormwater Site Plan and accompanying preliminary site storm drainage and grading plans are submitted to the City of Sumner for a SEPA review. The report describes the analysis and design of the stormwater drainage facilities, including preliminary storm drainage calculations. The 2005 Department of Ecology Stormwater Management Manual for Western Washington (SMMWW) as adopted and modified by the City of Sumner has been utilized for this report.

The proposed project consists of the addition slightly less than 5,000 square feet of pollution-generating impervious surface. Nine (9) parking stalls will be constructed including one ADA accessible stall.

The proposal will retain the existing home for other uses. The proposal also includes the construction of a ramp and landing for ADA accessibility. Landscaping will be provided. When complete, the project will have a total of 0.14 acres of impervious surfaces including the newly 0.03 acres of existing roof area. Approximately 0.05 acres will be pervious landscaping.

Tab 2.0

2.0 EXISTING CONDITIONS SUMMARY

The existing site conditions consist of a nearly level parcel with an existing residence, gravel access driveway, and walks. Portions of the parking areas and landscaping have recently been removed and replaced with gravel and pavement surfacing. Other than the building downspout drains, no known formal storm drainage facilities exist on the parcel. No ponds, streams, runoff, ditches, or any other informal storm facilities exist, either on or immediately adjacent the parcel.

Prior to any grading this site was a crested ridge in relationship to the surrounding topography area. Based on the available aerial topographic mapping, the majority of the parcel drains from higher central portion to the east and northwest. Given the small size of the parcel and the underlying soils we assume that storm drainage was in the form of sheet flow and infiltration within the first few inches of topsoils. The native soils are indicative of riverbank deposits from the nearby White River and consist of silty fine sands that are moisture-sensitive. These are classified as Puyallup fine sandy loam within the Hydraulic Group B type soil. These soils are generally not suited for infiltration at the necessary depth of storm drainage systems.

There are no known sensitive or critical areas such as fuel tanks, wells, or septic systems located on or immediately adjacent to the site. A CMU concrete retaining wall is located on and adjacent property to the northwest of the site. The site is not located within a 100-year FEMA flood hazard zone.

Erosion potential for on the site is limited to exposed soils. The developed site will be stabilized by paving and/or landscaping.

There are utilities on the site including sanitary sewer, water, gas, and electrical that service the existing residential building. The existing water service and sanitary side sewer are provided by the City of Sumner. No new services are proposed.

We understand that the existing residential building will be utilized as a “satellite” office to serve the Sunset Chevrolet Dealership located on the east boundary of the parcel. Construction will be limited to providing parking, driveway and access for ADA use.

We understand the existing 18-foot wide Right-of-Way where the existing driveway is not sufficient for emergency vehicle access. This is due to the length and width. Emergency vehicle access is proposed from the adjacent Sunset Chevrolet where compatible fire lanes, distances, widths exist.

Tab 3.0

3.0 POST-DEVELOPED CONDITIONS SUMMARY

The post-developed condition will be a parking lot and access drive will be provided to the east. This project is considered as an expansion of the adjacent Sunset Chevrolet dealership.

The storm drainage facilities and improvements to the Sunset Chevrolet facility with a related Building Permit No. 2011-00035 occurred during 2011 and 2012. As identified within the basin plan and Stormwater Site Plan for that project is the Sumner West Main LLC property which corresponds to this parcel. Our review of these calculations indicates that this system is fully capable of handling the additional tributary runoff. The proposal consists of sheet flowing the parking lot to connect with the existing adjacent downstream storm facility constructed for Sunset Chevrolet.

Tab 4.0

4.0 OFF-SITE ANALYSIS REPORT

There is no evidence or indication of flooding or overtopping of the storm system nor is there any indication of problems within the storm drainage facility on or adjacent to the project. Please reference the qualitative analysis and field inspection information contained within the earlier report provided for the Sunset Chevrolet remodel addition for the lack of problems in the storm drainage system.

All drainage from the subject properties are directed to northerly to West Main Street, there the stormwaters are conveyed to the White River.

Tab 5.0

5.0 PRELIMINARY PERMANENT STORMWATER CONTROL PLAN

Part A Existing Site Hydrology

The existing site consists of approximately 0.03 acres of impervious roof area. Approximately 0.02 acres consists of gravel driveways and approximately 0.14 acres of pervious surfaces.

Part B Developed Site Hydrology

This project will result in a slight increase in the impervious area which will be directed and controlled by the proposed stormwater discharge to the Sunset Chevrolet stormwater system. Areas that are to remain as landscaping as well as the existing building area will be proposed as infiltration and sheet flow to the surrounding areas. There will be no change in the coverage for the building and landscape areas.

There are no significant changes to the building or landscape areas since the drainage pattern for these areas generally remains unchanged. Since there are no downstream drainage problems known under the current condition, we proposed that the use of rain barrels and an infiltration trench for roof downspout runoff will simulate the existing conditions.

Part D Flow Control System

Given the parcel size flow control is not required. To comply with the intended Flow Control Minimum Requirement No. 5, the proposal consists of utilizing a rain barrel to capture the roof runoff for later use for landscape irrigation and an overflow to a subsurface roof drain infiltration trench constructed according to Figure 3.2 Typical Downspout Infiltration Trench from the 2005 DOE SMMWW.

Part E Water Quality System

Water Quality is not required; however, the proposal consists of extending the roof drain runoff to connect to an adjacent catch basin within the Sunset Chevrolet recent development. An analysis of this system showed that with the addition 0.11 acre of parking lot runoff tributary to this system that an additional stormwater filter cartridge will be needed within the storm vault located at the southeast corner of the Sunset Chevrolet development. This will assure that the existing system will maintain compliance with Water Quality requirements. This consists of 6- by 12-foot precast vault with currently eight 18-inch filters. The vault appears to have a capacity of 12 filters and there should be no consequence to installing an additional cartridge and it will treat the 6-month 15-minute flow rate as required by DOE.

Part F Conveyance System Analysis and Design

The on-site conveyance system consists of sheet flow to an existing catch basin. This existing catch basin is located on the west perimeter of the Sunset Chevrolet site, grate capacity is available. A review of the conveyance calculations provided within the Sunset Chevrolet remodel addition report indicates that a surcharging condition occurs within this system. Surcharging occurred during the prescribed 100-year storm event.

Backwater modeling utilizes a spreadsheet based on the King County Surface Water Design Manual backwater spreadsheet. This indicates that the headwater elevations are as much as much as 2 feet below catch basin rim elevations. The addition of this 0.11 acre of tributary area is somewhat incidental and only represents less than 2 percent

of the total 7.7 acres tributary to this storm drain system. There are no detrimental consequences to the hydraulic performance within the system. The final reports will include this appropriate hydraulic analysis to demonstrate this.

Tab 6.0

6.0 ANALYSIS OF THE MINIMUM REQUIREMENTS

The City of Sumner utilizes the 2005 DOE Stormwater Management Manual for Western Washington with amendments and corrections. Per the 2005 DOE SMMWW, new development shall comply with Minimum Requirements Nos. 1 through 5 for new or replaced impervious surfaces and the land disturbed if the project:

- Creates or adds 2,000 square feet or greater of new replaced or new plus replaced impervious surface; or

- Has a land disturbing activity of 7,000 square feet or greater.

The proposed project will increase the impervious area by slightly less than 5,000 square feet.

Given the size of this project, we have identified five Minimum Requirements for stormwater management applicable to this development.

Minimum Requirement No. 1: Preparation of Stormwater Site Plan.

Response: This report and the associated plans have been prepared in accordance with this requirement.

Minimum Requirement No. 2: Construction Stormwater Pollution Prevention.

Response: A Construction Stormwater Pollution Prevention Plan (CSWPPP) is required for the project. A site-specific CSWPPP will be prepared by the contractor in accordance with the NPDES Construction Stormwater General Permit. This is required since the project adds greater than 2,000 square feet of new or replaced impervious surface area. Since the project is less than one acre, an NPDES Permit is not required. A Temporary Sediment and Erosion Control Plan will be submitted with the Final Stormwater Site Plan after the SEPA review. This will be site-specific and provide additional direction and guidance for the contractor through construction. The Construction Stormwater Pollution Prevention Plan will be kept on site at all times.

Minimum Requirement No. 3: Source Control of Pollution.

Response: All known, available, and reasonable Source Control BMPs will be applied to this project. Source Control BMPs shall be selected, designed, and maintained in accordance with the 2005 DOE SMMWW and will include the following:

- Cover and containment protection from all chemicals, liquid products, petroleum products, and non-hazardous waste that may be present on the site.

- Maintenance and repair of vehicles which may result in oil spillage will be conducted off site.

- Pollutions including waste material and demolition debris during construction will be handled and disposed of in a manner that does not cause contamination to surface water.

- Good housekeeping practices, use of garbage facilities, etc., will be implemented as appropriate.

Minimum Requirement No. 4: Preservation of Natural Drainage Systems and Outfalls.

Response: The proposed development discharges to the existing storm drainage system within Main Street and this will be maintained and all runoff from the development area will continue to discharge at this location.

Minimum Requirement No. 5: On-Site Stormwater Management.

Response: As mentioned, the proposal is to comply with the intent of this requirement by providing for the infiltration dispersal of the roof runoff to the landscape areas. This requirement requires that projects employ On-Site Stormwater Management BMPs to infiltrate, disperse, and retain stormwater runoff on site to the maximum extent feasible without causing flooding or erosion impacts. We recognize that the on-site soils and conditions for this site do not meet the guidelines contained within the 2005 DOE SMMWW in every aspect. It is our opinion that there would be no detrimental consequence to comply with the intent of utilizing this roof downspout dispersal system.

Conclusion

The project is designed to meet the City of Sumner stormwater management regulations covered under Chapter 13 of the Sumner Municipal Code.

Detention facilities are not required in accordance with the 2005 DOE SMMWW. Treatment of stormwater is not required; however, given the proposed downstream tributary route connection, water quality will be included to ensure that this system operates as designed.

Downstream impacts are not anticipated as concluded from the previous analysis and the analysis of this addition.

Per the 2005 DOE SMMWW, new development shall comply with Minimum Requirements Nos. 1 through 5 for new or replaced impervious surfaces and the land disturbed if the project:

- Creates or adds 2,000 square feet or greater of new replaced or new plus replaced impervious surface; or

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The proposed project will increase the impervious area by slightly less than 5,000 square feet.

Tab 7.0

7.0 CONSTRUCTION STORMWATER POLLUTION PREVENTION PLAN

A site-specific tailored Construction Stormwater Pollution Plan will be provided by the Contractor.

Tab 8.0

8.0 SPECIAL REPORTS AND STUDIES

Not Applicable.

Tab 9.0

9.0 OTHER PERMITS

Other permits for this project site include:

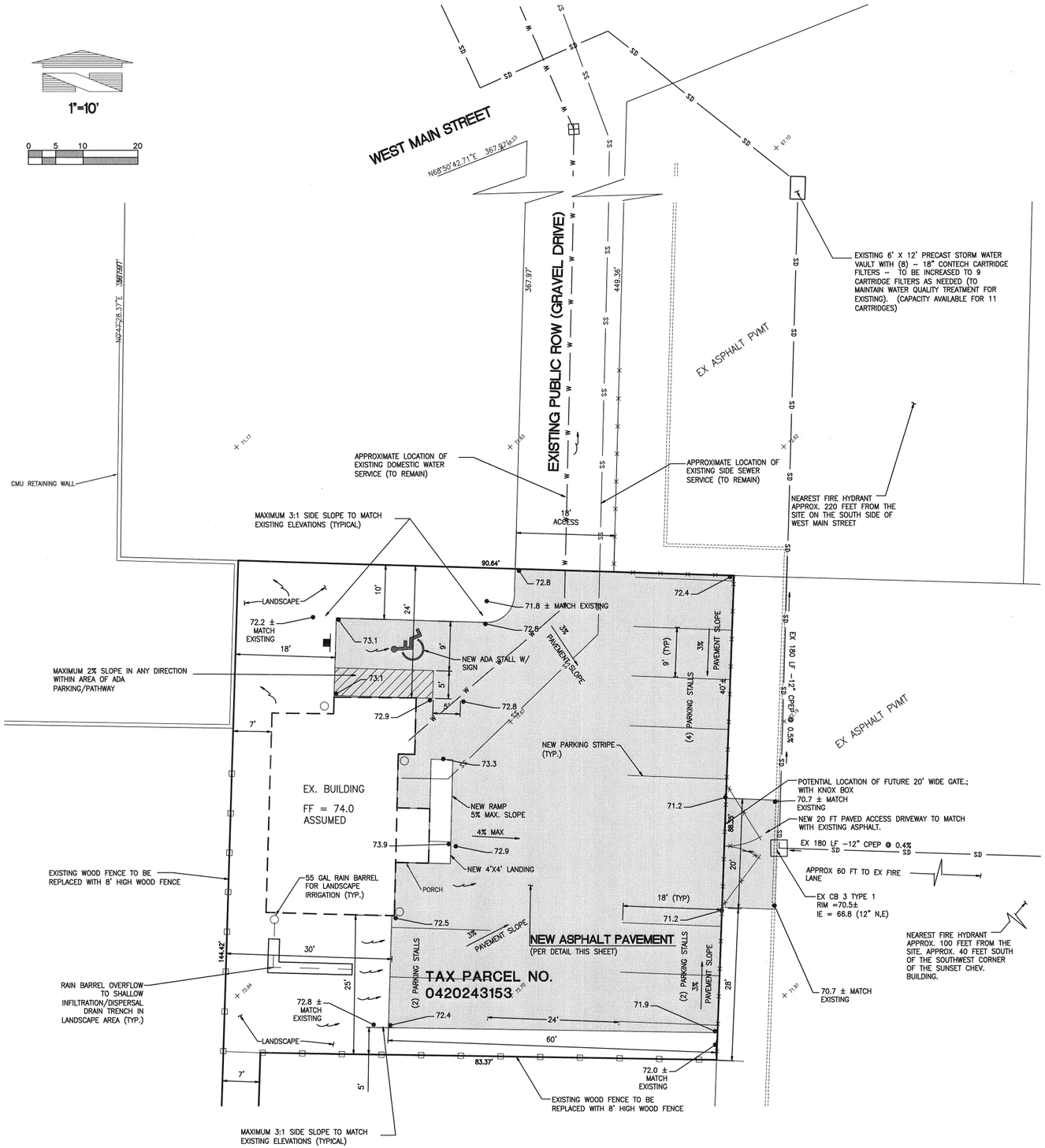
Civil Permits as required and determined for paving by the City of Sumner.

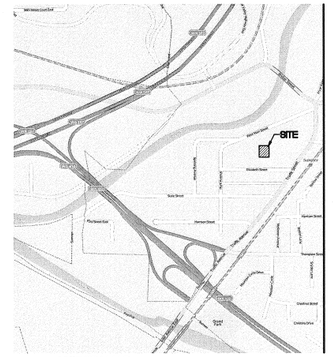
Tab 10.0

10.0 OPERATION AND MAINTENANCE MANUAL

An Operations and Maintenance Manual is not applicable for the paving of the parking lot. The Operations and Maintenance Manual for Sunset Chevrolet is applicable and enclosed within the following Stormwater Site Plan for the Sunset Chevrolet remodel/addition.

PRELIMINARY SITE, STORM DRAINAGE, GRADING AND UTILITY PLAN





VICINITY MAP
N.T.S.

LEGAL DESCRIPTION

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EXCEPT THE SOUTH 53 FEET THEREOF.

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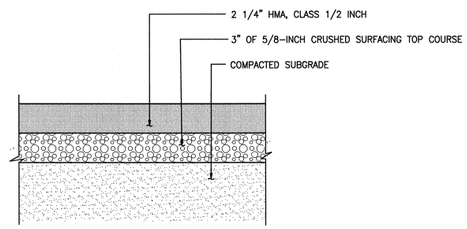
PARCEL B = 368± SF = 0.01 AC

AREA OF NEW IMPERVIOUS = 0.11 ACRES (LESS THAN 5000 SQ. FT.)



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COORDINATING CONSULTANT

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KENT, WA 98032
PHONE: 425-656-7477
FAX: 425-251-8782
EMAIL: "BARRY ANDERSON" <BRANBAR.LLC@GMAIL.COM>

No.	Date	By	Chkd.	Appr.	Revision

Title: SITE PLAN

SUNSET COMMERCIAL RESIDENCE

For:

ROMAN I LLC
910 TRAFFIC AVE
SUMNER, WA 98390
CONTACT: BARRY ANDERSON

JASON GUY HUBBELL — STATE OF WASHINGTON — 38950 — REGISTERED PROFESSIONAL ENGINEER — 3/25/13

Scale: Horizontal 1"=10' Vertical NA

Designed KEH Drawn RDC Checked KEH Approved JGH
Date 3-08-13 Date 3-16-13 Date 3-19-13

CBULL Xref: ----

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(425)251-8782 FAX
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Job Number 13213

Sheet 1 of 1

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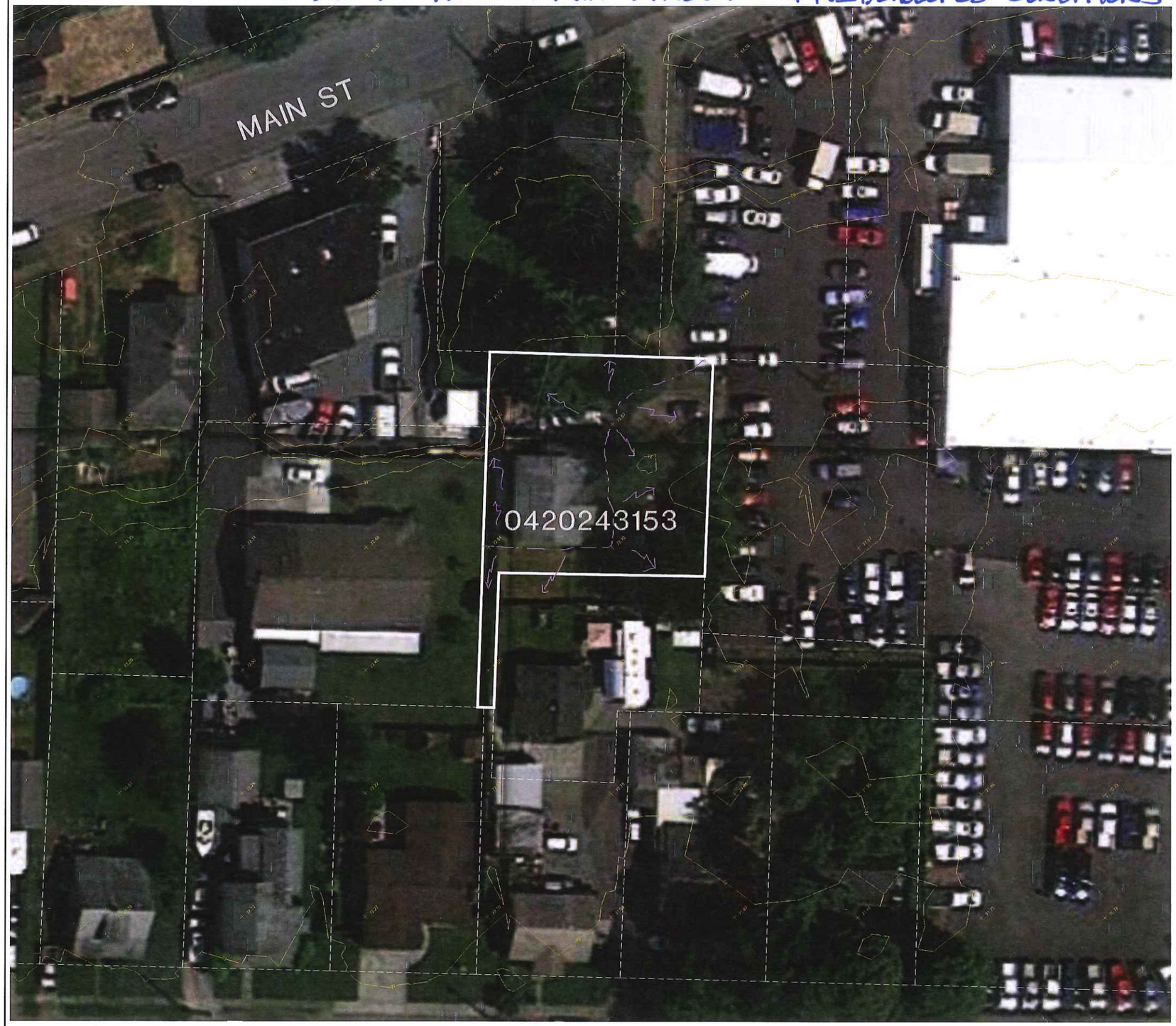
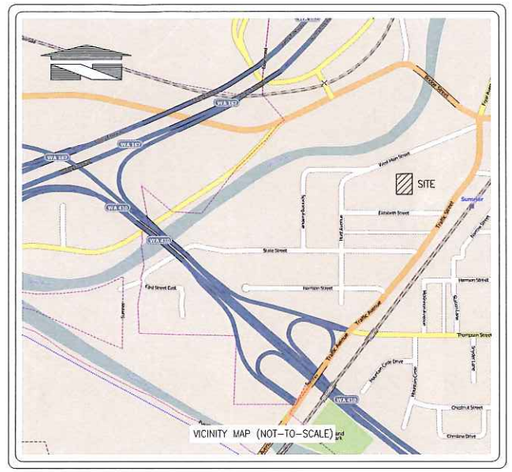
SUNSET CHEVROLET LIDAR EXHIBIT

638 ½ WEST MAIN STREET - PREDEVELOPED CONDITIONS EXHIBIT





N
W BARGHAUSEN CONSULTING ENGINEERS, INC. E
S

0 10 20 40
SCALE: 1"=20'

Project - subject parcel No 0420243153

NOTES:
LIDAR DATASET EXTRACTED FROM TILES 12056890 AND 12056860 IN THE PIERCE COUNTY 2010 LIDAR PROJECT. THE FLIGHT TIME FOR THESE DELIVERY TILES WAS ON 12/03/2010 THROUGH 12/10/2010.

HORIZONTAL DATUM: NAD83 (PER PIERCE COUNTY GIS)

VERTICAL DATUM: NAVD88 (PER PIERCE COUNTY GIS)

THE LOT LINES ARE BASED UPON THE PIERCE COUNTY GIS TAX PARCEL SHAPEFILE.

Estimated pre-developed drainage direction/flow patterns (based on aerial topography)

estimated approximate hydologic boundary/ridge

Predeveloped - Existing Conditions Exhibit Figure A

Revision | No. | Date | By | Cnd. | Appr.

Title: LIDAR EXHIBIT
PTN OF THE SW1/4, OF THE SW1/4 OF SEC. 24, TWP. 20 N., RGE4 EAST, W. M.
PIERCE COUNTY STATE OF WASHINGTON

For: SUNSET CHEVROLET - - -

Scale: Horizontal 1"=20' Vertical

Designed —
Drawn STM
Checked BDG
Approved BDG
Date 03/13/2013

BARGHAUSEN CONSULTING ENGINEERS, INC.
18215 72ND AVENUE SOUTH
KENT, WA 98032
(425)251-6222
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CIVIL ENGINEERING, LAND PLANNING, SURVEYING, ENVIRONMENTAL SERVICES

Job Number 13213
Sheet 1 of 1

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BARGHAUSEN CONSULTING ENGINEERS - PIPE FLOW CALCULATOR
using the Rational Method & Manning Formula
Type IA SCS rainfall event 100 YEAR STORM

JOB NAME: 638 W Main St Sumner WA
JOB#: 13213

NOTE: ENTER DEFAULTS AND STORM DATA BEFORE BEGINNING

DEFAULTS	C=	0.9	n=	0.012
	d=	8	Tc=	10.3

A= Contributing Area (Ac)
C= Runoff Coefficient
Tc= Time of Concentration (min)
I= Intensity at Tc (in/hr)
d= Diameter of Pipe (in)
L= Length of Pipe (ft)
D= Water Depth at Qd (in)

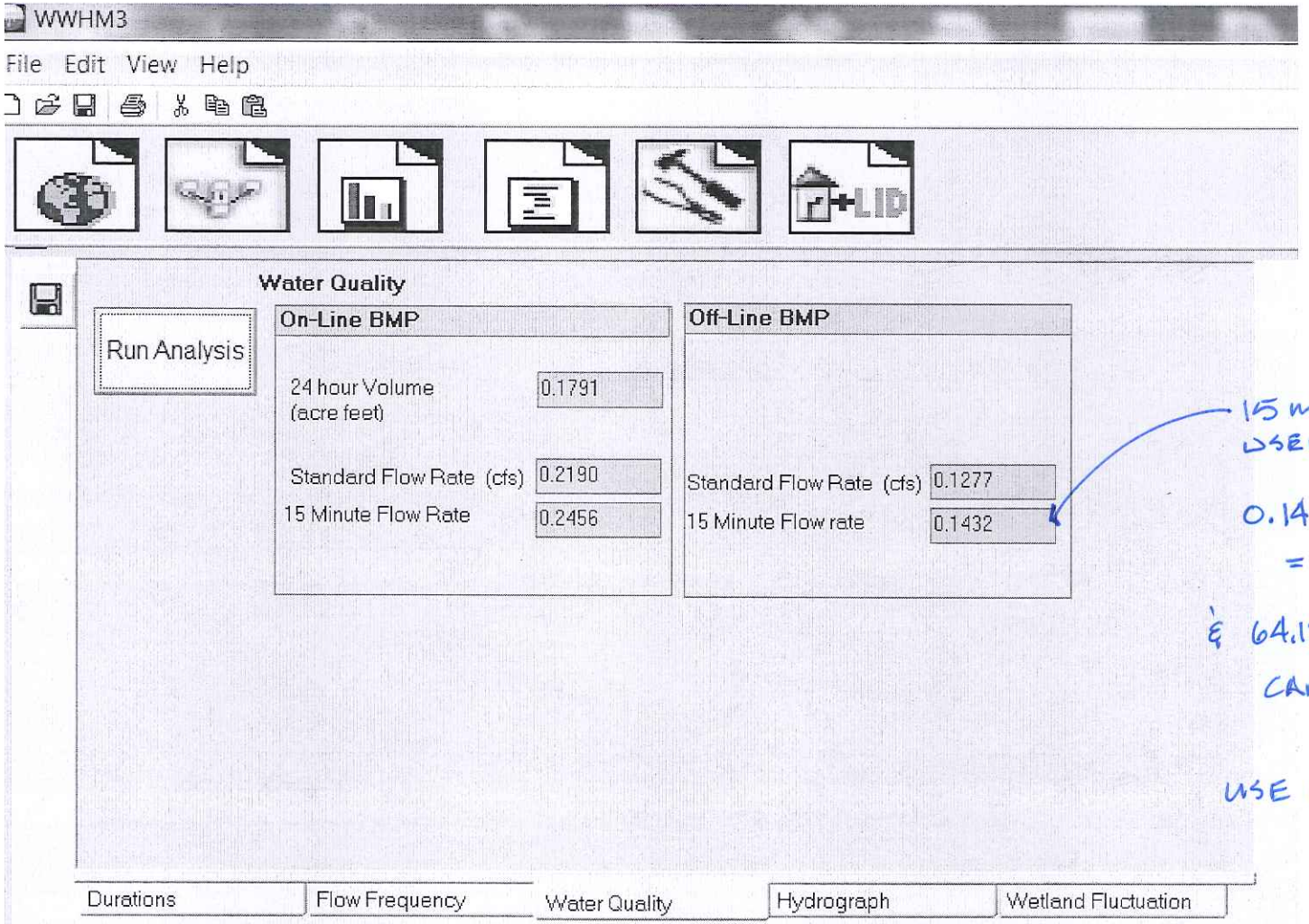
Qd= Design Flow (cfs)
Qf= Full Capacity Flow (cfs)
Vd= Velocity at Design Flow (fps)
Vf= Velocity at Full Flow (fps)
s= Slope of pipe (%)
n= Manning Roughness Coefficient
Tt= Travel Time at Vd (min)

COEFFICIENTS FOR THE RATIONAL METHOD "Ir"-EQUATION

STORM	Ar	Br
2YR	1.58	0.58
10YR	2.44	0.64
25YR	2.66	0.65
50YR	2.75	0.65
100YR	2.61	0.63

PRECIP=	4
Ar=	**2.61**
Br=	**0.63**

FROM	TO	A	s	L	d	Tc	n	C	SUM A	A*C	SUM A*C	I	Qd	Qf	**Qd/Qf**	D/d	D	Vf	Vd	Tt
CB1	EX CB3	0.11	1.00	45	6	5.0	0.012	0.9	0.11	0.10	0.10	3.79	0.37	0.61	**0.617**	0.579	3.47	3.10	3.28	0.23



15 MIN. FLOW RATE USED 0.143 CFS

$0.143 \times 7.48\ \text{GAL/FT}^3 \times 60\ \text{SEC/MIN} = 64.18\ \text{GAL/MIN}$

& $64.18 / 7.5\ \text{GAL/CART} = 8.5$ CARTRIDGES

USE (9) CARTRIDGES -

Basin 1 Mitigated

Subbasin Name: Basin 1 ☐ Designate as Bypass for POC:

Flows To :	Surface	Interflow	Groundwater

Area in Basin ☐ Show Only Selected

Available Pervious		Available Impervious		
☐ A/B, Forest, Flat	0	☐ ROADS/FLAT	0	
☐ A/B, Forest, Mod	0	☐ ROADS/MOD	0	
☐ A/B, Forest, Steep	0	☐ ROADS/STEEP	0	
☐ A/B, Pasture, Flat	0	☑ ROOF TOPS/FLAT	.39	*A)
☐ A/B, Pasture, Mod	0	☐ DRIVEWAYS/FLAT	0	
☐ A/B, Pasture, Steep	0	☐ DRIVEWAYS/MOD	0	
☐ A/B, Lawn, Flat	0	☐ DRIVEWAYS/STEEP	0	
☐ A/B, Lawn, Mod	0	☐ SIDEWALKS/FLAT	0	
☐ A/B, Lawn, Steep	0	☐ SIDEWALKS/MOD	0	
☐ C, Forest, Flat	0	☐ SIDEWALKS/STEEP	0	
☐ C, Forest, Mod	0	☑ PARKING/FLAT	1.21	*1.10 + 0.11 ACRE = 1.21 Ac.
☐ C, Forest, Steep	0	☐ PARKING/MOD	0	
☐ C, Pasture, Flat	0	☐ PARKING/STEEP	0	
☐ C, Pasture, Mod	0	☐ POND	0	
☐ C, Pasture, Steep	0			
☑ C, Lawn, Flat	.11			*A)
☐ C, Lawn, Mod	0			
☐ C, Lawn, Steep	0			

PerviousTota 0.11 Acres Impervious Total 1.6 Acres

Basin Total 1.71 Acres

*A) FROM FIG 5, APPENDIX 'C' - STORM WATER SITE PLAN SUNSET CHEVROLET REMODEL ADDITION REV. JUNE 2011

BCE# 13213

Office of the City Clerk
1104 Maple Street
Sumner, WA 98390
253-299-5500 – Phone
253-299-5509 – Fax

RECEIVED
City of Sumner
MAR 25 2013
HR - Adm

PAID
APR 03 2013
CITY OF SUMNER - TREASURER

Req#	-
Date Due:	4-1-13
Extended To:	
Extended To:	
Extended To:	

REQUEST FOR PUBLIC RECORDS

Name: BARRY ANDERSON E-mail: "BARRYANDERSON" < PRAIRIE

Street Address: 18215 72nd AVE SE City, State & Zip: KENT, 98032 LLC@GMAIL COM)

Home/Cell Phone: 206-371-1378 Business: 425-656-7477 Fax: 425-251-8782

RECORDS/INFORMATION BEING REQUESTED: (Please be specific and detailed/attach additional sheets if necessary. Failure to provide sufficient information to identify the record(s) may cause delays in providing the records.)

ALL STORM WATER RECORDS LAST TWO "LARGE EXPANSION PROJECTS SUNSET CHEV 910 TRAFFIC AVE, SUMNER, WA. 98390

REQUESTOR TO READ AND SIGN UPON SUBMITTING REQUEST

Agencies must respond within five business days of receiving a public records request by (1) providing the record; (2) acknowledging receipt and providing a reasonable estimate of the time the agency will require to respond; (3) deny the request. I understand that if a list of individuals is provided to me, it will neither be used for commercial purposes, to promote the election of an official, or promote or oppose a ballot proposition, as prohibited by RCW 42.17.130; nor is it construed as giving authority to give, sell or provide access to lists of individuals requested as prohibited by the Public Records Act. Further, I understand I will be charged a minimum of $0.15 per for normal sized pages and actual costs for reproduction of rolled plans, maps and other sized copies. In acknowledging receipt of a public records request that is unclear, an agency may ask the requestor to clarify what information the requestor is seeking.

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☐ **I wish to make an appointment to review the records indicated above before copies are made.**

Signature of Requestor **Date of Request** 3/25/13

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Responsible staff must advise the City Clerk within TWO working days if documents are not able to be produced within FIVE working days and provide an estimated for when documents will be available for production.

Was 5-Day Letter Sent? ☐ No ☐ Yes/Date: DEADLINE EXTENDED TO: (see above)

Notes:

☑ This Request Was Satisfied/Date: AHBL Stormwater Site Plan dated 7/17/11

☐ This Request Was Not Satisfied/Reason: (BLD 2011-00035)

☐ This Request Was Denied/Reason:

ACKNOWLEDGMENT OF RECEIPT OF RECORDS

Signature Acknowledging Receipt: **Date of Receipt:** 4/3/13

City Representative: JB **Number of Copies:** 88 @ .15¢ **Fee: $** 13.20

APPROVED FOR CONSTRUCTION
CITY OF SUMNER PUBLIC WORKS
By: Joe Date: 7/12/11

AHBL

Stormwater Site Plan

PREPARED FOR:

HHJ Architects PLLC
1409 Alexander Avenue East
Fife, WA 98424-1109
Contact: Mr. Roger Hansen

PROJECT:

Sunset Chevrolet Remodel/Addition
Sumner, Washington
210521.10

PREPARED BY:

Scott T. Kaul, PE, LEED® AP
Project Engineer

REVIEWED BY:

Todd C. Sawin, PE, LEED® AP
Project Manager

J. Matthew Weber, PE
Principal

March 2011
Revised June 2011

CITY OF SUMNER
RECEIVED
JUN 22 2011
COMMUNITY DEVELOPMENT

Rev 2 3/3 BLD2011-00035

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I hereby state that this Stormwater Site Plan for the Sunset Chevrolet Remodel/ Addition project has been prepared by me or under my supervision, and meets the standard of care and expertise that is usual and customary in this community for professional engineers. I understand that the City of Sumner does not and will not assume liability for the sufficiency, suitability, or performance of drainage facilities prepared by me.

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March 2011

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1.0 PROJECT OVERVIEW

1.1 Purpose and Scope

This Stormwater Site Plan accompanies the Site Development plans for the Sunset Chevrolet Remodel/Addition project. The project site is located on the southwest corner of the intersection of West Main Street and Traffic Avenue, at 910 Traffic Avenue, Sumner, WA. The existing car dealership and proposed building addition are located on Pierce County Tax Parcel Nos. 042024-3019, -3023, -3046, -3130, and -3132, totaling 3.18 acres. The new parking lot is located on Parcel Nos. 042024-3018, -3070, and -3141, totaling 0.50 acre. Refer to Figure 1 in Appendix A for a Vicinity Map.

This Stormwater Site Plan and accompanying plans are submitted to the City of Sumner for grading, paving, storm drainage, and building approval. This report describes the analysis and design of the stormwater drainage facilities. Both the analysis and design conform to the criteria outlined in the City of Sumner Municipal Code (SMC) Chapter 13.48, and the 2005 Washington State Department of Ecology (DOE) *Stormwater Management Manual for Western Washington (SMMWW)*, as adopted by the City of Sumner.

1.2 Existing Condition Summary

1.2.1 Existing Site Features

The project site is 3.68 acres of previously developed land located in the city of Sumner, Washington. The project is broken into two components for discussion. Component 1 consists of the existing car dealership. The existing car dealership is located on 3.18 acres and is fully developed in the existing condition. The dealership main building is 0.385 acre (16,797 square feet) and the detail shop and delivery center buildings are 0.076 acre (3,340 square feet).

The northern three parcels of the car dealership are in a drainage basin that discharges to Main Street. Runoff from the buildings and paving are collected by catch basins and routed into the Main Street conveyance system. The southern four parcels of the car dealership are in a drainage basin that discharges to Elizabeth Street. Runoff from the paving is collected by catch basins and routed to Elizabeth Street via 12-inch concrete pipe. Stormwater from the development drains to the White River within one-quarter mile of the site.

Component 2 of this project is the existing residential parcels that have been acquired for the new parking lot. The new parking area is on 0.50 acre. The area consists of a single-family residence abutting Main Street, located on Parcel No. 042024-3018, and the remaining parcels are undeveloped.

The topographic survey of the project site areas has been prepared by AHBL and shows existing site conditions and elevations as required (see Appendix A, Figure 2 – Existing Conditions Map).

There are no known sensitive or critical areas, fuel tanks, groundwater wells, or septic systems located on or near the project site. The project is not located within a Superfund area, wellhead protection area, aquifer recharge area, or 100-year flood hazard zone. There is limited erosion potential onsite, and the developed site will be permanently stabilized with paving or landscaping.

1.2.2 Soils

A geotechnical engineering report was prepared by E3RA in March 2011. The onsite explorations indicated that the native soils consist of over bank deposits from the nearby White River. The soils are silty fine sands and very moisture sensitive. The soils are not conducive to infiltration. The Geotechnical Engineering Report is included as Appendix B of this report.

1.2.3 Utilities

Sanitary sewer, water, gas, electrical, and fire protection utilities service the existing building. These services will be maintained for the post-developed condition. A new oil/water separator will be provided for the expanded garage outside of the west entrance. An 8-inch water main will be looped through the parking lot to provide for two new fire hydrants. Lighting will be relocated to accommodate the building addition.

1.3 Post-Developed Conditions Summary

In the developed condition, the car dealership building and parking lot will be expanded. A 0.365-acre (15,900-square foot) addition will be provided on the south end of the existing building. Acquired residential lots will be used for additional parking. The new parking area is 0.50 acre and includes a 10.0-foot landscape buffer along the south, west, and north sides. As mentioned in the previous section of this report, the project is broken into two components for discussion.

Component 1 includes the existing building, the new addition, and the existing parking lot. The new building addition will remove 0.365 acres of pollution generating impervious surfaces that are tributary to the White River. The new building will create 0.380 acre of replaced pollution generating impervious surfaces. Additionally, stormwater from the new roof and a portion of the existing roof will be routed downstream of the existing connection within Main Street. This will reduce the demand on the Main Street storm conveyance system. All stormwater runoff will still discharge at the existing location to the White River. The Conveyance Analysis is described in more detail in Section 3.5 of this report.

Component 2 is the new parking lot. The parking lot will create approximately 18,125 square feet (0.42 acre) of impervious surface. All new impervious surfaces created onsite will be treated using a StormFilter® Vault prior to discharge to the conveyance network in Main Street. The water quality analysis is described in more detail in Section 3.4 of this report.

2.0 OFFSITE ANALYSIS

2.1 Qualitative Analysis

A field inspection of the upstream and downstream facilities was completed March 15, 2011. The temperature was in the 50s, and it was raining. The upstream basin consisted of portions of Traffic Avenue and Main Street, which are currently under construction. The remaining basin includes additional Sunset Chevrolet automobile parking located east of the project site and east of Traffic Avenue.

The field investigation confirmed the drainage path depicted on the survey. Drainage from the parking lot and building is collected onsite and discharged to Main Street at catch basin STCB 1250. Drainage is conveyed approximately 300 feet to the west into catch basin STCB 1202. Runoff is then directed north into the White River.

Drainage from the existing residence located directly west of the dealership on Parcel No. 042024-3018 sheet flows into Main Street and is collected at catch basin STCB [illegible]. Runoff from this area is directed north to STCB 1202, where it joins [illegible] from the dealership and the remainder of the [illegible]sin.

No evidence of flooding or overtopping of the storm structures was observed at the time of the investigation. The 12-inch storm pipe outfall to the White River could not be visually observed due to the steep slope and existing ground cover.

2.2 Quantitative Analysis

Capacity analysis calculations for the 25-year, 24-hour design event and the 100-year, 24-hour design event are provided in Appendix C. Maps are provided in Appendix C showing the project site survey and the tributary areas to the storm conveyance system, as determined using the Pierce County "CountyView" software. No pipe capacity issues were discovered downstream of our proposed connection location in the analysis of the 25-year and 100-year design storm events; additionally, the catch basin rims of STCB 1206 and STCB 1202 do not overtop.

The site and surrounding area is predominantly retail and light commercial uses. For the purpose of determining conveyance system capacity, a ratio of 90 percent impervious and 10 percent pervious was used for the commercial/industrial areas. A total existing basin area of 7.00 acres was used, based on GIS records and field reconnaissance. Impervious surfaces totaling 0.48 acre were included with the basin to account for replaced impervious surfaces that were routed from the Elizabeth Street Basin to the project basin.

2.3 Conclusion

The immediate basin is fully developed in the existing condition. Some of the most common and potentially destructive impacts of land development are erosion of down gradient properties and localized flooding. All drainage is collected via curb and gutter, and/or catch basins. The ultimate discharge is to a Flow Control Exempt Receiving Water. Because the site is fully developed in the proposed condition and discharge is to a Flow Control Exempt Receiving Water, erosion is not a concern.

The project will reroute some runoff from the current discharge location (runoff generated at the new building addition and part of the existing roof) contributory to STCB 1250, and convey the roof runoff with the new parking lot runoff to STCB 1206. Additionally, a portion of the drainage basin that is contributory to Elizabeth Street will be routed to Main Street to allow for treatment of all new and replaced impervious surfaces. Based on the conveyance analysis, the developed flows to STCB 1206 will have sufficient capacity to convey the fully developed flows to the White River. Capacity issues are not a concern for the developed project, and the development will discharge directly to the White River; therefore, onsite detention is not proposed or required for this project.

The project will remove 0.365 acre of pollution generating impervious surfaces from the basin, and will treat all new and replaced pollution generating impervious surfaces affected by this project to improve the water quality of the downstream surface waters. This project will not create any negative impacts to the water quality of the White River.

This downstream analysis has been prepared in accordance with the SMC. This project will not adversely affect the conveyance system or contribute to localized flooding problems, aquatic habitat impacts, upland erosion impacts, and impacts to surface water, groundwater, or sediment quality.

3.0 PERMANENT STORMWATER CONTROL PLAN

3.1 Pre-Developed Site Hydrology

The onsite area is roughly 3.18 acres. The car dealership is fully developed in the existing condition. The north half of the car dealership, including the existing buildings, is tributary to Main Street and is connected to the Main Street conveyance system at catch basin STCB 1250. The south half of the dealership is tributary to Elizabeth Street and is not included in our hydrology analysis.

The proposed parking lot is currently residential lots. The residential area is roughly 40 percent impervious in the existing condition. Runoff generated onsite is discharged to Main Street via surface flow and is collected in the grate of catch basin STCB 1206. Refer to Figure 2 of Appendix A for an Existing Conditions Map.

Upstream runoff from Traffic Avenue, Main Street, and additional property owned by Sunset Chevrolet is contributory to the conveyance system in Main Street, and has been analyzed to determine the cumulative effect on the conveyance pipes downstream of our connection location at STCB 1206. The approximate basin contributors are summarized below.

Sub-Basin	Cover	Area (acre)
Dealership	Paving	2.72
Dealership	Buildings	0.46
Residential	Impervious	0.20
Residential	Landscape	0.30
Main Street		0.34
Upstream - Offsite	Impervious	2.64
Upstream - Offsite	Pervious	0.34
TOTAL BASIN		**7.0**

3.2 Developed Site Hydrology

This project will remove existing paving (0.37 acre) and replace it with the proposed building addition. The stormwater conveyance improvements associated with this project will convey the new roof runoff plus portions of the existing roof runoff to a proposed discharge location at STCB 1206, downstream of the new parking lot. An existing catch basin tributary to Elizabeth Street will be replaced and runoff directed to the proposed conveyance system that discharges to STCB 1206. All surfaces, including roof and new and replaced impervious surfaces, will flow to a mechanical treatment device for water quality treatment prior to discharge to the proposed location at STCB 1206.

The developed portions of the project site to remain that are not specifically addressed above will not be impacted by this project. Stormwater will follow the existing drainage paths. The approximate basin contributors to STCB 1206 are summarized below.

Sub-Basin	Cover	Area (acre)
Dealership	Replaced Paving	0.38
Dealership	Existing Paving	0.28
Dealership	Roof Area	0.39
New Parking	New Impervious	0.44
New Parking	New Landscape	0.11
Main Street	(STCB 1206)	0.32
TOTAL BASIN		**1.92**

Refer to Appendix C, Figures 1 and 2 for Basin Maps.

3.3 Flow Control System

This project exceeds the thresholds for redevelopment projects and must comply with Minimum Requirement #7, Flow Control. Based on City of Sumner Stormwater Management Regulations, the pipe systems shall be able to convey and contain at least the peak runoff rate of the 25-year design storm, with a minimum of 0.5 foot of freeboard between the hydraulic grade line and the top of the structure.

Because this project discharges to a Flow Control Exempt Receiving Water (the White River, downstream of Huckleberry Creek), and because the site is drained by entirely manmade conveyance that has adequate hydraulic capacity, flow control will not be provided, nor is it required for this project. Refer to section 3.5 for the conveyance system analysis.

3.4 Water Quality System

The new parking lot will create approximately 18,125 square feet of pollution generating impervious surface. The existing dealership site will create approximately 16,580 square feet of pollution generating impervious surface. This project exceeds the thresholds established by Minimum Requirement #6, Runoff Treatment. A mechanical treatment device (StormFilter® Vault) will be provided within the new parking area to collect and treat the water quality design flow rate determined using Western Washington Hydrology Model Version 3 (WWHM3), an approved continuous modeling software.

The vault's tributary basin includes the new parking lot; the replaced parking lot, in addition to some existing parking lot area; and the new building addition roof area. A 6-foot by 12-foot precast vault with eight 18-inch filters will be provided to meet treatment requirements. This vault will treat the 6-month, 15-minute flow rate, as required by DOE. The tributary basin is summarized on the following page.

Sub-Basin	Cover	Area (acre)
Dealership	Replaced Paving	0.38
Dealership	Existing Paving	0.28
Dealership	Roof Area	0.39
New Parking	New Impervious	0.44
New Parking	New Landscape	0.11
TOTAL BASIN		**1.60**

Refer to Appendix C, Figure 5 for supporting water quality calculations.

3.5 Conveyance System Analysis and Design

The onsite conveyance system consists of new storm and roof drain lines. These pipes have been sized to adequately convey anticipated flows for the site. The runoff anticipated from the 100-year storm for the site was calculated to be 1.75 cubic feet per second (cfs). The minimum slope of the proposed 12-inch conveyance pipe is 0.40 percent. The proposed pipe at 0.40 percent slope will convey 2.44 cfs under full flow conditions (calculation shown in Appendix C). The design of the onsite conveyance system is adequately sized to convey the 100-year storm event to the city storm system within the right-of-way. The table below summarizes the total developed basin (onsite and offsite) used to check backwater conditions at the project tie-in location within Main Street:

Sub-Basin	Cover	Area (acre)
Dealership	Replaced Paving	0.38
Dealership	Existing Paving	0.28
Dealership	Roof Area	0.39
New Parking	New Impervious	0.44
New Parking	New Landscape	0.11
Main Street	STCB 1206 & 1202	0.55
Upstream Basin	Impervious	4.97
Upstream Basin	Pervious	0.59
TOTAL BASIN		**7.71**

Conveyance calculations for the city system are discussed in Section 2.0.

4.0 DISCUSSION OF MINIMUM REQUIREMENTS

SMC Section 13.48.030 adopts the 2005 *SMMWW* with amendments or corrections. This manual identifies nine Minimum Requirements for stormwater management applicable to new development and redevelopment sites. The requirements are intended to provide for and promote the health, safety, and welfare of the general public.

4.1 Minimum Requirement #1: Preparation of a Stormwater Site Plan

This report and associated plans have been prepared in accordance with this requirement.

4.2 Minimum Requirement #2: Construction Stormwater Pollution Prevention

A Construction Stormwater Pollution Prevention Plan (SWPPP) is required for the project. The site-specific Construction SWPPP will be prepared by the contractor in accordance with the National Pollutant Discharge Elimination System (NPDES) Construction Stormwater General Permit. The Temporary Sediment and Erosion Control (TESC) Plans submitted with this Stormwater Site Plan will provide additional direction and guidance for the contractor during construction and will be used in conjunction with the Construction SWPPP. The Construction SWPPP, a standalone document, will be kept onsite at all times.

4.3 Minimum Requirement #3: Source Control of Pollution

The proposed project is required to provide source control of pollution. Following are proposed measures to be implemented as part of the civil plans.

- All discharges to the city sewer system (storm or sanitary sewers) require City of Sumner approval.
- All pollutants, including waste materials and demolition debris created onsite during construction, shall be handled and disposed of in a manner that does not cause contamination of surface water.
- Cover, containment, and protection from vandalism shall be provided for all chemicals, liquid products, petroleum products, and non-inert wastes present on the site (see Chapter 173-304 WAC for the definition of inert waste).
- Maintenance and repair of heavy equipment and vehicles, which may result in discharge or spillage of pollutants to the ground or into surface water runoff, must be conducted using spill prevention measures such as drip pans.
- Concrete Handling (BMP C151) and Sawcutting and Surface Pollution Prevention (BMP C152) shall be used to prevent or treat contamination of surface water runoff by pH modifying sources.

The Construction SWPPP provides details on the control of pollution during construction.

4.4 Minimum Requirement #4: Preservation of Natural Drainage Systems and Outfalls

The proposed development discharges to the White River via a 12-inch storm pipe in Main Street. All runoff from the developed area will continue to discharge at this outfall location.

4.5 Minimum Requirement #5: Onsite Stormwater Management

Onsite stormwater management Best Management Practices (BMPs) are not practical for the site due to the development area and site soils. The downstream conveyance system has adequate capacity to handle the developed flows. Onsite stormwater management is not proposed.

4.6 Minimum Requirement #6: Runoff Treatment

Over 5,000 square feet of pollution-generating impervious surface will be added as a part of these improvements; therefore, water quality treatment will be provided.

Runoff treatment is discussed in further detail in Section 3.4 of this report.

4.7 Minimum Requirement #7: Flow Control

This project exceeds the thresholds for redevelopment projects and must comply with Minimum Requirement #7, Flow Control.

Flow Control is discussed in further detail in Section 3.3 of this report.

4.8 Minimum Requirement #8: Wetland Protection

No wetlands will be affected by the proposed development. The stormwater from the project site does not discharge into a wetland, either directly or indirectly, through a conveyance system.

4.9 Minimum Requirement #9: Operation and Maintenance

See Appendix D for a copy of the Operations and Maintenance Manual. This manual shall be kept onsite in the maintenance room and be available for inspection by the City of Sumner. The maintenance and operations shall be the responsibility of Sunset Chevrolet.

5.0 Conclusion

The Sunset Chevrolet Remodel/Addition project has been designed to meet the City of Sumner Stormwater Management Regulations covered in Chapter 13.48 of the Sumner Municipal Code (SMC). Utilizing these criteria, it was determined that:

- Detention facilities are not required in accordance with the 2005 *SMMWW*.
- Treatment of stormwater is required for the new and replaced pollution generating impervious surfaces in accordance with the 2005 *SMMWW*.
- Downstream impacts are not anticipated as concluded from the Offsite Analysis.