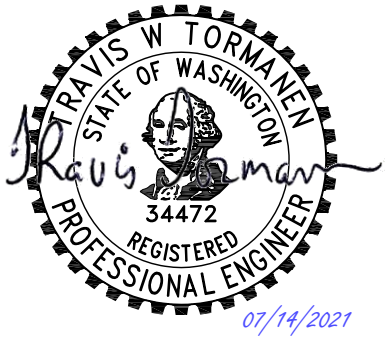
WINDSOR ENGINEERS

# LOGANS LANDING

## (WOODLAND, WA PROPOSED DEVELOPMENT)

## PRELIMINARY STORMWATER ASSESSMENT




07/14/2021

**JULY 14, 2021**


WINDSOR ENGINEERS

# MEMO

**To:** Ed Greer, Wyndham Enterprises

**Cc:** Shayne Olsen, Applicant

**From:** Travis Tormanen, Windsor Engineers

**Date:** July 14, 2021

**Subject:** Logans Landing (Woodland, WA Proposed Development)
Preliminary Stormwater Assessment
Windsor No. 21132

## INTRODUCTION

Logan's Landing is a proposed mixed-use development in Woodland, Washington. The project is on a 17.5-acre site. The site includes parcels 5068023, 50729, and a portion of 50730. The project is intended to meet requirements of the C-2 zoning district.

Windsor Engineers is tasked with evaluating stormwater requirements and complying with applicable codes. This report is a preliminary assessment of stormwater facilities that will be needed for the proposed development.

## CITY REQUIREMENTS

The City of Woodland (Via memo from Josh Finley, City Consulting Engineer, Gray & Osborne; June 15, 2021) provided the following input regarding stormwater:

1. Design for management of stormwater quantity and quality for site and street improvements shall be in accordance with City standards as identified in WMC 15.12 and the Engineering Standards. Generally, the City uses the Puget Sound manual for quantity and quality design standards.
2. Erosion control and construction stormwater requirements shall be in accordance with WMC. This portion of the code refers to the Western Washington manual.
3. A Stormwater Technical Information Report shall be prepared for the project in accordance with WMC 15.12.180.

## STORMWATER STRATEGY

The proposed stormwater facility is in the northerly portion of the site. Stormwater will be collected from catch basins along Franklin Street and piped to the stormwater facility, properly treated, and detained, then released to the existing facility adjacent to the north. Additional stormwater swales will be constructed to collect runoff from the surface parking areas.

Stormwater Concept Plan Drawings are attached to this memo as 'Attachment 1'.

## BELMONT LOOP INTEGRATION

The existing storm facility to the north will become part of the strategy for Logan's Landing stormwater discharge. The retention features of Logan's Landing will ensure that peak discharge rates are appropriate.

The cover page and the storm drainage page of the Belmont Loop / Pacific Park Center drawings are included with this memo as “Attachment 2”.

The first three pages of the storm report for that project are attached as ‘Attachment 3’. That report will create excellent background information for an integrated plan.

## NEXT STEPS OF ANALYSIS

Windsor Engineers is performing field work the week of July 19-23. A Preliminary Technical Information Report included updated drawings are then being prepared. The stormwater concepts as described in this memo and the attachments will be updated to incorporate new information.

## REFERENCE INFORMATION

The following files have been assembled and will be referenced as the Stormwater Technical Information Report is developed.

**(Hydrology Folder – Preliminary)**

- USDA Natural Resources Conservation Service, *Map Unit Description: Maytown Silt Loam 0 to 3 percent slopes – Cowlitz County, WA,* June 2021
- USDA Natural Resources Conservation Service*, Map Unit Description: Newberg Fine Sandy Loam, 0 to 3 percent slopes - Cowlitz County, WA,* June 2021
- USDA Natural Resources Conservation Service, *Cowlitz Area Washington No 53 Soils Map*
- USDA Natural Resources Conservation Service, *Cowlitz Area Washington No 53 Soils Map*

**(Pacific Park Center folder)**

- Lawson Land Services, Inc., Pacific Park Center Binding Site Plan Phase 3, May 2004
- K Germunson Surveying, Inc., *Pacific Park Center Binding Site Plan Phase 3 Revision,* June 2012
- Lawson Land Services, Inc., *Pacific Park Center Binding Site Plan Phase 3,* August 2004
- Lawson Surveying & Engineering, Inc., *Pacific Park Center Record Drawings Phase 2*, June 1998.
- Lawson Surveying & Engineering, Inc., *Pacific Park Center Record Drawings*, *Phase 2,* December 2000.
- Lawson Surveying & Engineering, Inc., *Pacific Park Center Record Drawings*, *Phase 3* April 2002.

**(Pre-App docs)**

- AKS Engineering & Forestry, LLC, Belmont Road Option 2 Jeffries Woodland Apartments, March 2021
- Clark County Fire & Rescue, *Commercial Pre-Application Notes: Woodland,* July 2020
- Clark County Fire & Rescue, *Pre-Application Fire and Life Safety Comments: Woodland,* June 2021
- Townzen & Associates, Inc., *General Commercial Building Package Submittal*
- Gray & Osborne, Inc., *Logan’s Landing Pre-App Review Comments,* June 2021
- City of Woodland, WA Community Development Department, *Site Plan Review Checklist,* August 2019
- City of Woodland, WA Community Development Department, *Recommended Street Tree Planting List,* June 2008
- City of Woodland, WA Community Development Department, *Pre-Application Conference - Logan’s Landing – PRE-21-008,* June 2021

**(Main Folder)**

- Brennen Kauffman – The Daily News, Woodland council discusses future of city's housing market, June 2021.
- Wyndham Enterprises, LLC. *Logans Landing Preliminary Site Plan*, June 2021
- Northern Land Surveying, LLC, *Existing Conditions Survey for Shayne Olsen with Aerial*, May 2021
- Northern Land Surveying, LLC, *Existing Conditions Survey for Shayne Olsen*, May 2021
- RW Beck, *City of Woodland Comprehensive Flood Hazard and Drainage Management Plan,* January 2000

Attachments:

1) Logan's Land Stormwater Concept Plan
2) Pacific Park Center – Cover Page and Storm Drainage Drawings
3) Pacific Park Center – Stormwater Report, pages 1-3

# LOGAN'S LANDING - STORMWATER CONCEPT PLAN

## 0 FRANKLIN ST
## WOODLAND, WA 98674
## PARCEL NUMBERS 50680023, 50729, AND 50730

ATTACHMENT 1: LOGAN'S LANDING STORMWATER CONCEPT PLAN DRAWINGS (5 SHEETS)

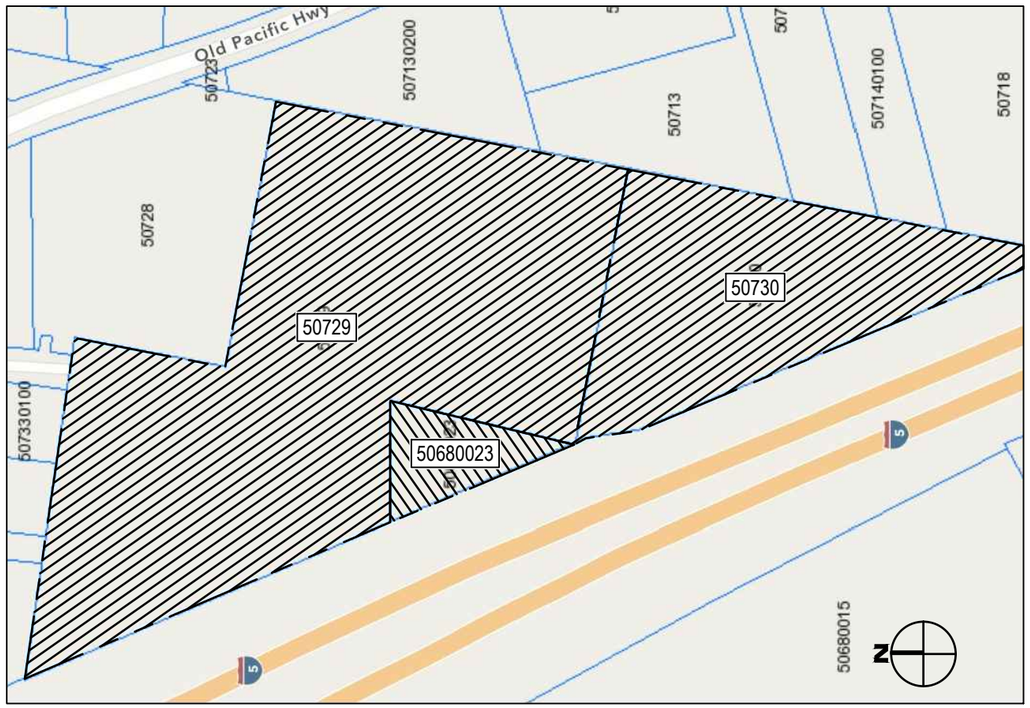

**OWNER**
LOGAN PARTNERS, LLC
P.O. BOX 1940
BEND OR, 97709

**APPLICANT**
WYNDHAM ENTERPRISES, LLC
CONTACT: ED GREER
PHONE: (360) 904.4964
EMAIL: ED@ED-GREER.NET
13023 NE HWY 99 #7-126
VANCOUVER WA, 98686

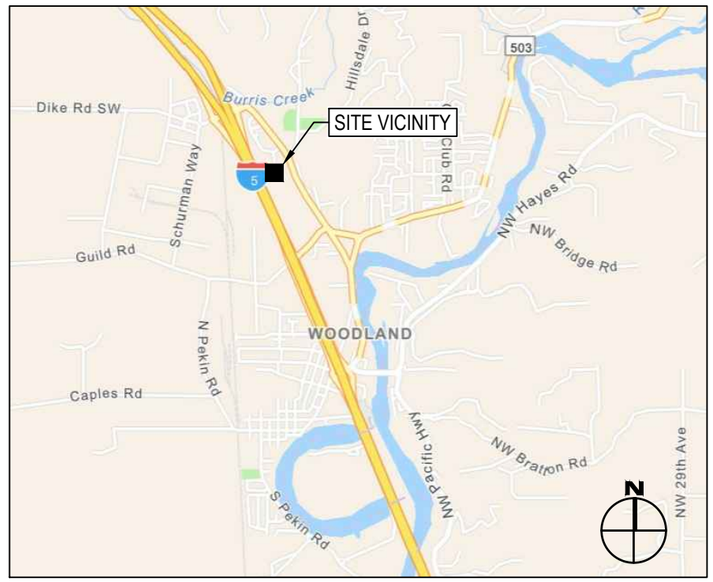
**ENGINEER**
WINDSOR ENGINEERS
CONTACT: TRAVIS TORMANEN
PHONE: (360) 903.9281
EMAIL: TTORMANEN@WINDSORENGINEERS.COM
12009 NE 99TH #1460
VANCOUVER WA, 98682


**SHEET INDEX**






PARCELS
NTS




VICINITY MAP
NTS

EROSION CONTROL INSPECTION REQUIRED
CONTACT INSPECTION SERVICES BEFORE YOU BEGIN ANY SITE WORK

811
Know what's below.
Call before you dig.
CAUTION: UTILITY INFORMATION IS APPROXIMATE. VERIFY ALL UTILITIES PRIOR TO CONSTUCTION.

TRAVIS W TORMANEN
STATE OF WASHINGTON
24472
REGISTERED
PROFESSIONAL ENGINEER
PRELIMINARY

**WINDSOR ENGINEERS**
Duluth, MN | Vancouver, WA
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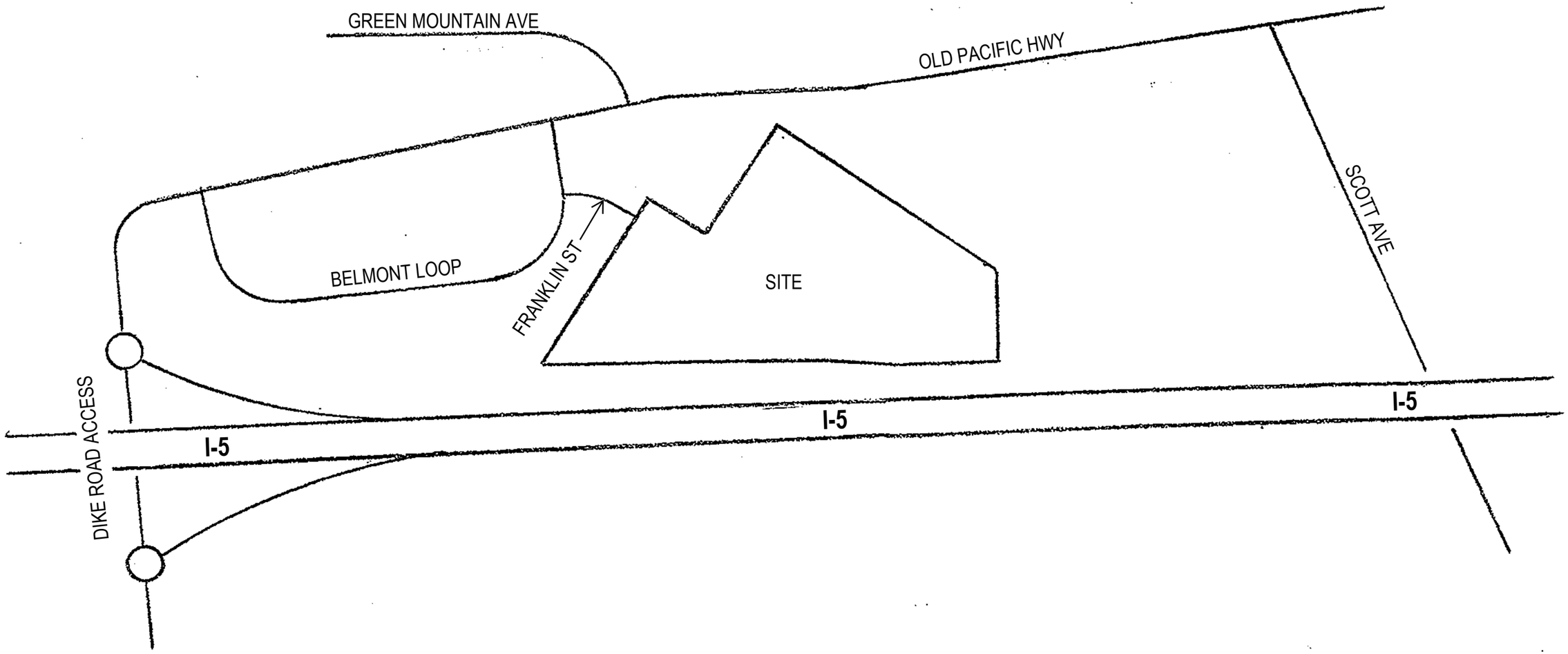
Project No: 21132

**LOGAN'S LANDING**
Woodland
WA 98674

COVER
CS1




## PLAN: EXISITING

N.T.S.

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24472
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PRELIMINARY

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**LOGAN'S LANDING**

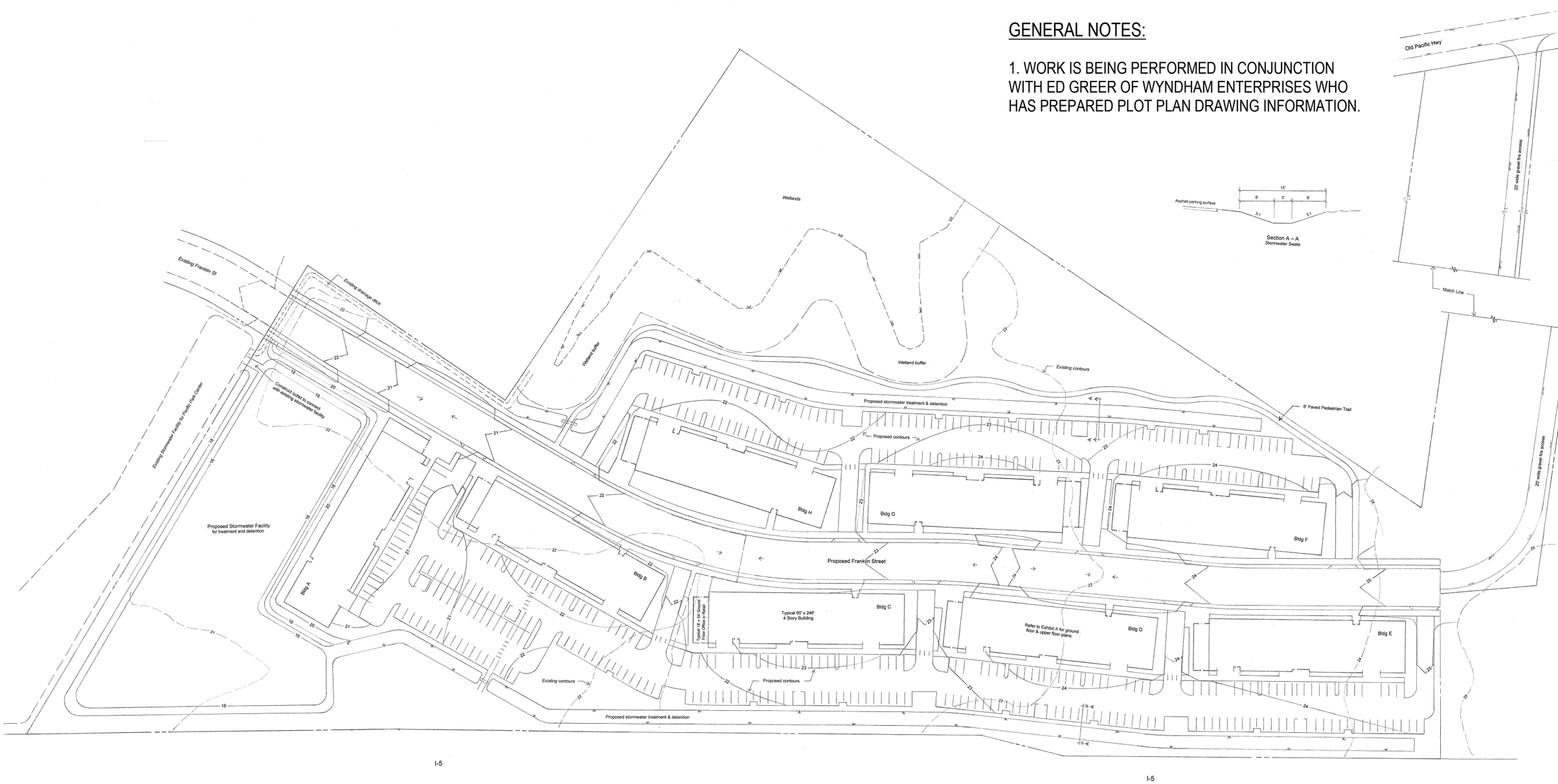
Woodland
WA 98674

EXISTING CONDITIONS

XC1

## GENERAL NOTES:

1. WORK IS BEING PERFORMED IN CONJUNCTION WITH ED GREER OF WYNDHAM ENTERPRISES WHO HAS PREPARED PLOT PLAN DRAWING INFORMATION.







Section A – A
Stormwater Swale




# PLAN: OVERALL

N.T.S.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**LOGAN'S LANDING**

Woodland
WA 98674

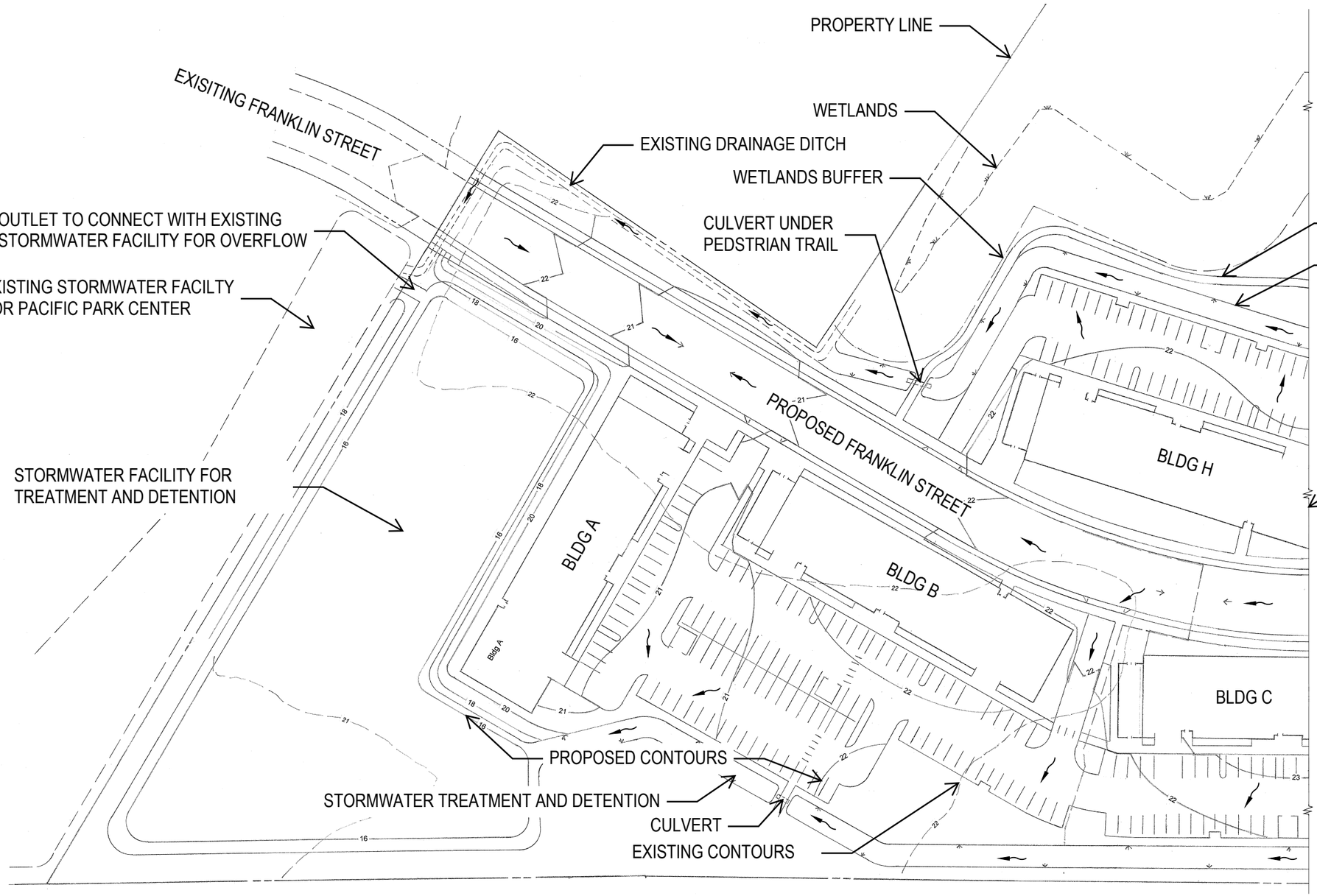
PLOT PLAN

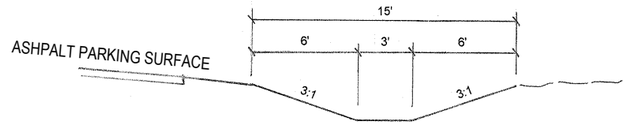
PP1

## GENERAL NOTES:

1. FIELD INVESTIGATIONS UNDERWAY TO VERIFY SOIL CONDITIONS AND INFILTRATIONS RATES

2. ADDITIONAL INFORMATION INCLUDING A FULL PRELIMINARY TIR WILL BE SUBMITTED FOLLOWING COORDINATION AND ANALYSIS




## DETAIL: STORMWATER SWALE

N.T.S.

## PLAN: STORMWATER ONE

0' 80' 160'

N

PRELIMINARY
TRAVIS W TORKELSON
STATE OF WASHINGTON
24472
REGISTERED
PROFESSIONAL ENGINEER

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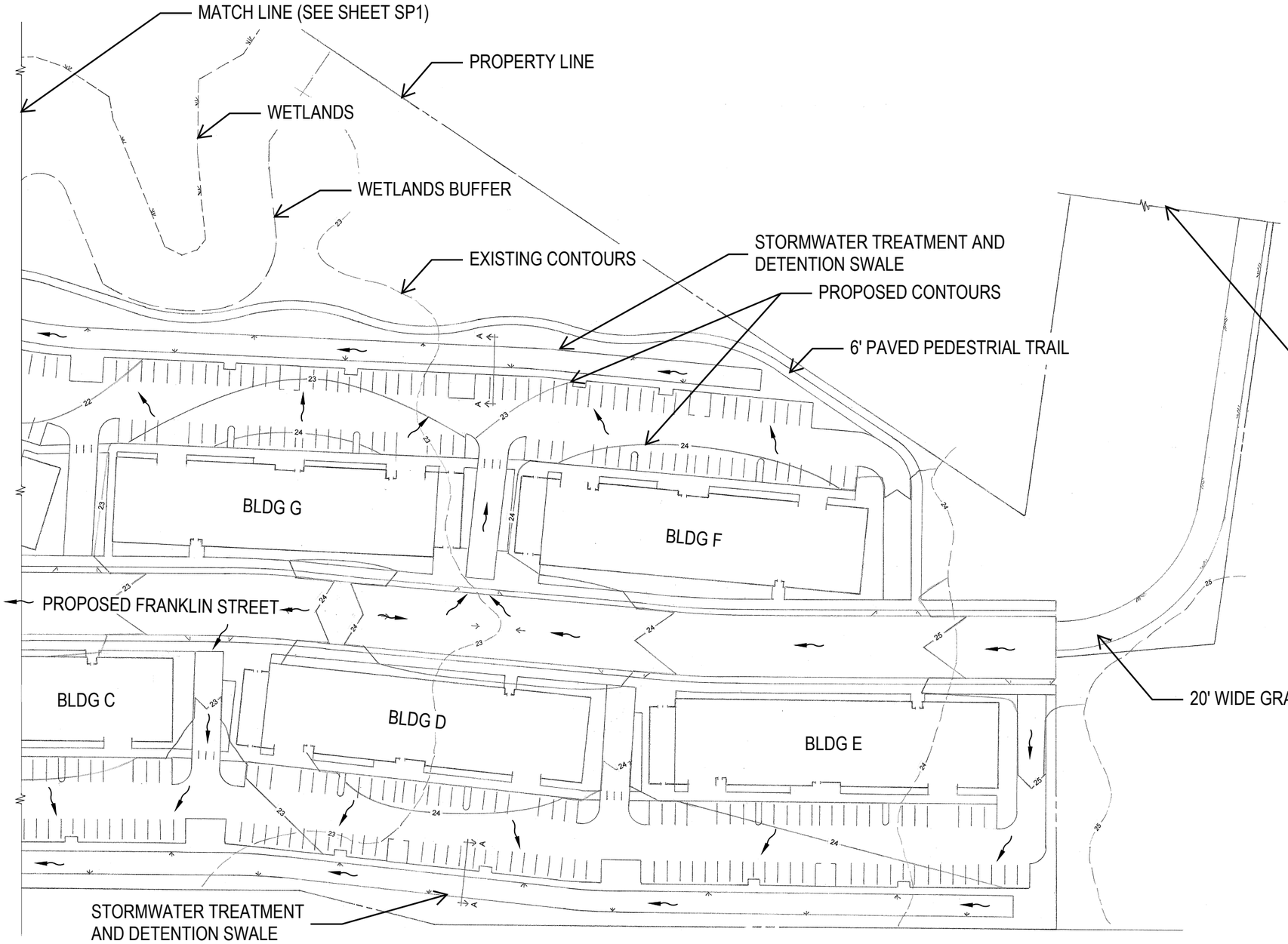
Project No: 21132

**LOGAN'S LANDING**
Woodland
WA 98674

STORMWATER PLAN ONE

# SP1




PLAN: STORMWATER TWO

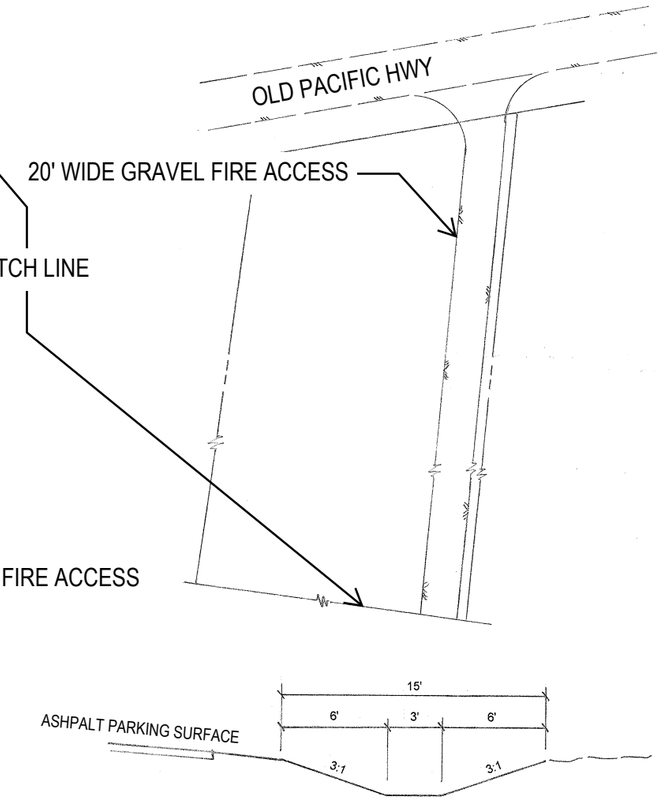
0' 80' 160'

N

## GENERAL NOTES:

1. FIELD INVESTIGATIONS UNDERWAY TO VERIFY SOIL CONDITIONS AND INFILTRATIONS RATES

2. ADDITIONAL INFORMATION INCLUDING A FULL PRELIMINARY TIR WILL BE SUBMITTED FOLLOWING COORDINATION AND ANALYSIS




DETAIL: STORMWATER SWALE

N.T.S.

TRAVIS W TORKELSON
STATE OF WASHINGTON
24472
REGISTERED
PROFESSIONAL ENGINEER
PRELIMINARY

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**LOGAN'S LANDING**

Woodland
WA 98674

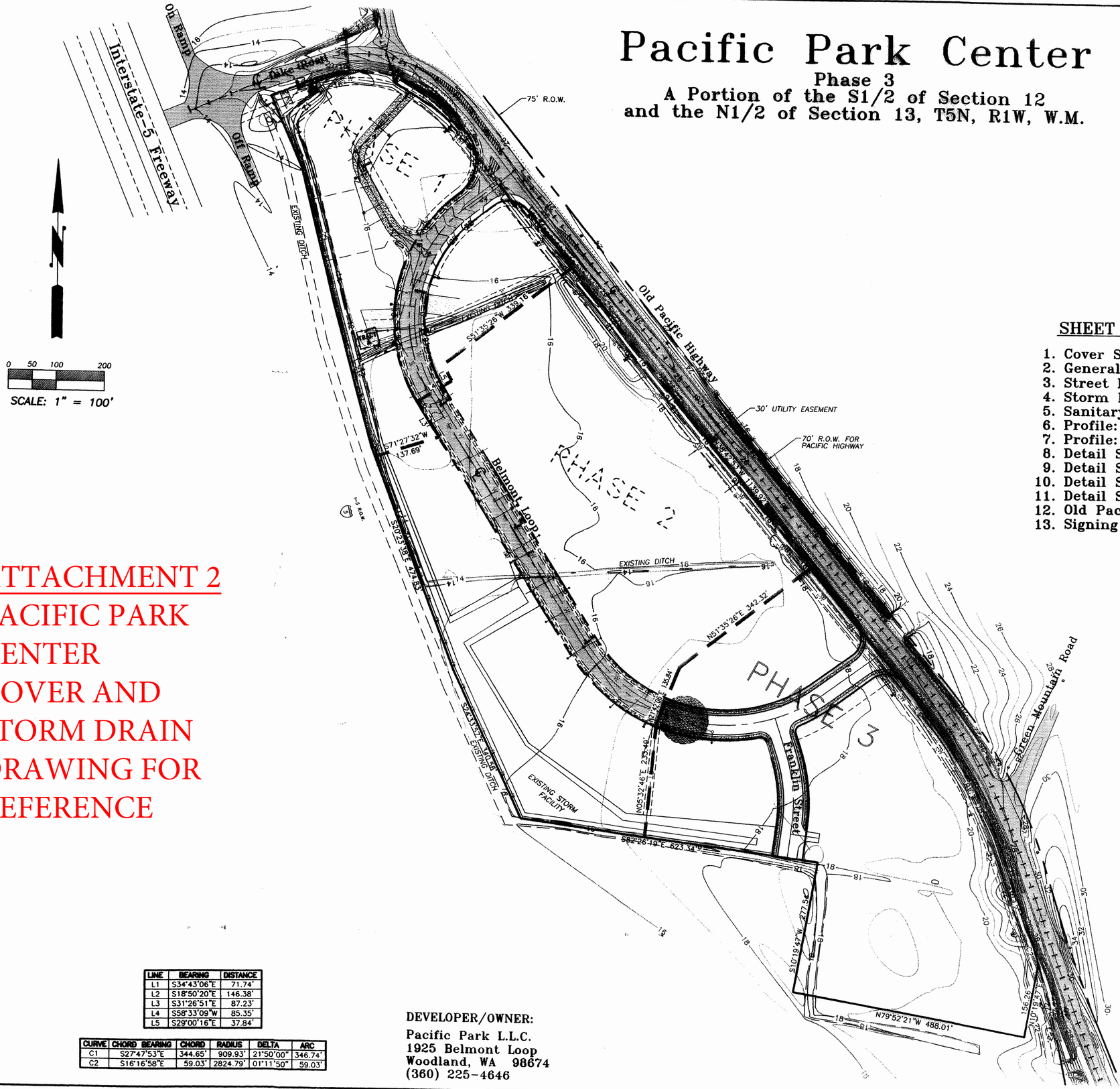
STORMWATER PLAN 2

SP2

# Pacific Park Center

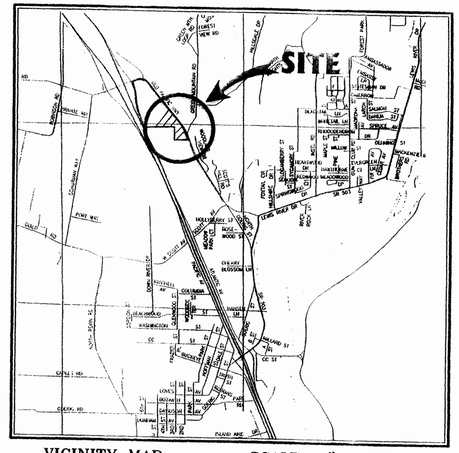
## Phase 3

### A Portion of the S1/2 of Section 12 and the N1/2 of Section 13, T5N, R1W, W.M.




0 50 100 200

SCALE: 1" = 100'




VICINITY MAP SCALE: 1" = 2000'

## SHEET INDEX:



ATTACHMENT 2
PACIFIC PARK CENTER
COVER AND STORM DRAIN DRAWING FOR REFERENCE

| LINE | BEARING | DISTANCE |
|---|---|---|
| L1 | S34°43'06"E | 71.74' |
| L2 | S18°50'20"E | 146.38' |
| L3 | S31°26'51"E | 87.23' |
| L4 | S58°33'09"W | 85.35' |
| L5 | S29°00'16"E | 37.84' |

| CURVE | CHORD BEARING | CHORD | RADIUS | DELTA | ARC |
|---|---|---|---|---|---|
| C1 | S27°47'53"E | 344.65' | 909.93' | 21°50'00" | 346.74' |
| C2 | S16°16'58"E | 59.03' | 2824.79' | 01°11'50" | 59.03' |

**DEVELOPER/OWNER:**
Pacific Park L.L.C.
1925 Belmont Loop
Woodland, WA 98674
(360) 225-4646

### LEGEND

EXISTING
- MANHOLE
- CLEANOUT
- UTILITY POLE
- WATER VALVE
- WATER METER
- CATCH BASIN
- FIRE HYDRANT
- C/L — CENTER LINE
- FENCE LINE
- SEWER LINE
- WATER LINE
- FIBER OPTIC LINE
- STORM LINE
- EXISTING ASPHALT PAVEMENT
- GRAVEL

RECEIVED
SEP 16 2002
CITY OF WOODLAND

**"RECORD DRAWINGS"**
I, John G. Lawson certify these to be "Record" drawings as of April 9, 2004
JOHN G. LAWSON, PE, PLS
* Denotes field verification
Items not lined out are not field verified

95-901 Ph3
Pacific Park Center - Phase 3

JOHN G. LAWSON — STATE OF WASHINGTON — REGISTERED PROFESSIONAL ENGINEER
EXPIRES: 05/10/2003

CITY OF WOODLAND APPROVAL

Robert A. Landerholm 6-17-02
PUBLIC WORKS DIRECTOR DATE

| NO. | REVISIONS: | DATE: | APPR. BY: |
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| 1 | | | |
| 2 | | | |
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Date: 05/06/02
Dwg. Name: 95092C1-3
Horiz. Scale: 1" = 100'
Vert. Scale: N/A
Drawn by: MCB
Checked by: TSW

LSE LAWSON SURVEYING & ENGINEERING, INC.
113 South Parkway Avenue
Battle Ground, WA 98604 (360) 687-0500

Pacific Park Center
Phase 3
Cover Sheet

Job #: 95-092
SHEET #13
1 OF

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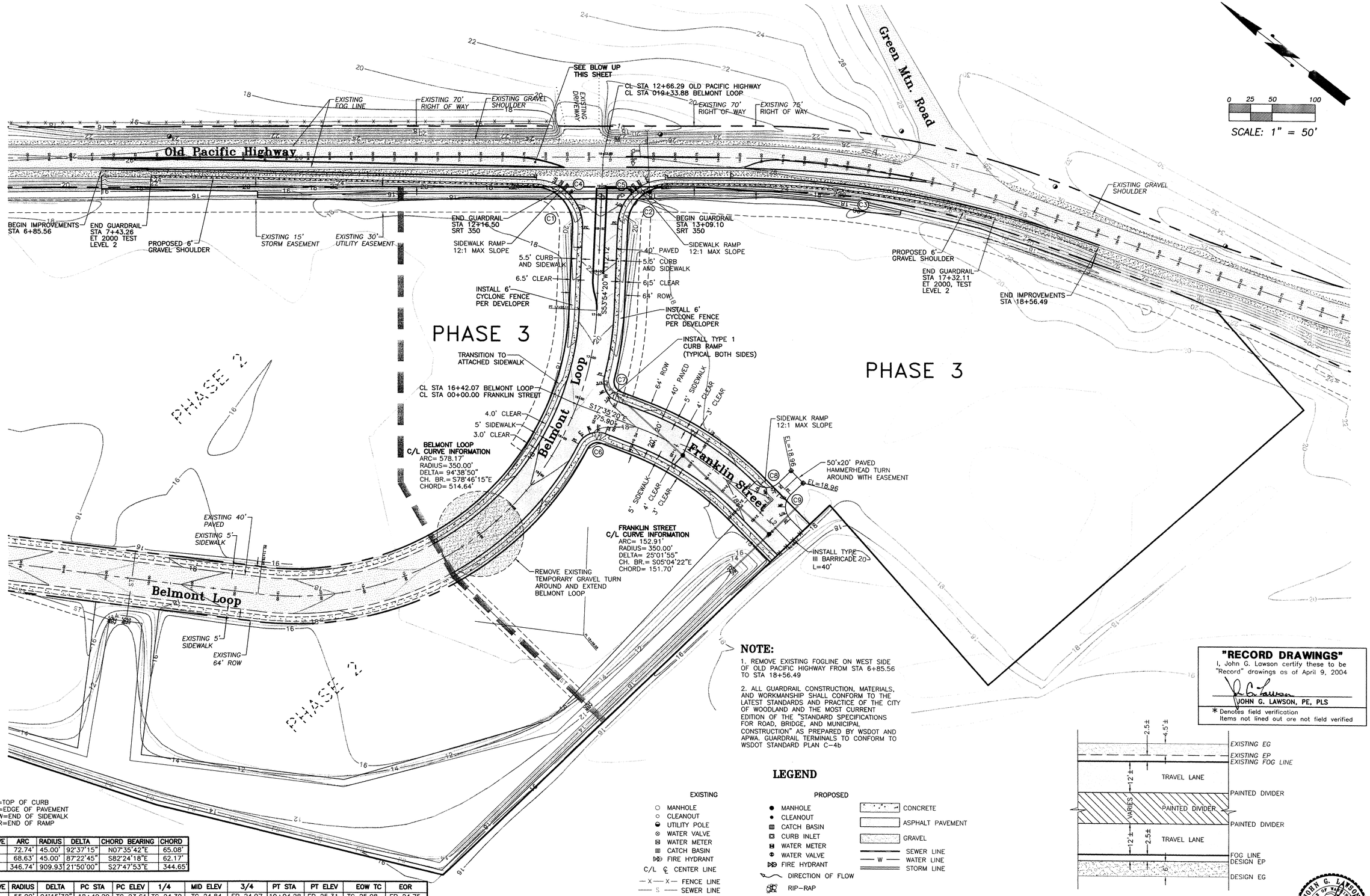


## NOTE:

1. REMOVE EXISTING FOGLINE ON WEST SIDE OF OLD PACIFIC HIGHWAY FROM STA 6+85.56 TO STA 18+56.49

2. ALL GUARDRAIL CONSTRUCTION, MATERIALS, AND WORKMANSHIP SHALL CONFORM TO THE LATEST STANDARDS AND PRACTICE OF THE CITY OF WOODLAND AND THE MOST CURRENT EDITION OF THE "STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION" AS PREPARED BY WSDOT AND APWA. GUARDRAIL TERMINALS TO CONFORM TO WSDOT STANDARD PLAN C-4b

## LEGEND

**EXISTING**

- MANHOLE
- CLEANOUT
- UTILITY POLE
- WATER VALVE
- WATER METER
- CATCH BASIN
- FIRE HYDRANT
- C/L ℄ CENTER LINE
- —X—X— FENCE LINE
- —S— SEWER LINE
- —W— WATER LINE
- —FO— FIBER OPTIC LINE
- —ST— STORM LINE
- ASPHALT PAVEMENT
- GRAVEL

**PROPOSED**

- MANHOLE
- CLEANOUT
- CATCH BASIN
- CURB INLET
- WATER METER
- WATER VALVE
- FIRE HYDRANT
- DIRECTION OF FLOW
- RIP-RAP
- CONCRETE
- ASPHALT PAVEMENT
- GRAVEL
- SEWER LINE
- W WATER LINE
- STORM LINE

TC=TOP OF CURB
EP=EDGE OF PAVEMENT
EOW=END OF SIDEWALK
EOR=END OF RAMP

| CURVE | ARC | RADIUS | DELTA | CHORD BEARING | CHORD |
|---|---|---|---|---|---|
| C1 | 72.74' | 45.00' | 92°37'15" | N07°35'42"E | 65.08' |
| C2 | 68.63' | 45.00' | 87°22'45" | S82°24'18"E | 62.17' |
| C3 | 346.74' | 909.93' | 21°50'00" | S27°47'53"E | 344.65' |

| CURVE | RADIUS | DELTA | PC STA | PC ELEV | 1/4 | MID ELEV | 3/4 | PT STA | PT ELEV | EOW TC | EOR |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C4 | 55.00' | 91°15'32" | 18+49.29 | TC 23.61 | TC 24.39 | TC 24.84 | EP 24.97 | 19+04.28 | EP 25.31 | TC 25.08 | EP 24.75 |
| C5 | 55.00' | 87°55'51" | 18+55.94 | TC 23.80 | TC 24.22 | TC 24.97 | EP 24.95 | 19+10.98 | EP 25.21 | TC 25.12 | EP 24.77 |
| C6 | 25.00' | 83°27'30" | 16+02.11 | TC 18.71 | TC 18.78 | TC 18.63 | TC 18.41 | 0+42.43 | TC 18.31 | | |
| C7 | 25.00' | 83°27'30" | 0+42.43 | TC 18.31 | TC 18.42 | TC 18.91 | TC 19.38 | 16+82.03 | TC 19.51 | | |
| C8 | 20.00' | 88°33'49" | 2+39.04 | EP 18.46 | EP 18.26 | EP 18.03 | EP 17.85 | 2+20.004 | EP 17.76 | | |
| C9 | 20.00' | 90°00'00" | 2+79.04 | EP 18.35 | EP 18.27 | EP 18.23 | EP 18.28 | 2+59.04 | EP 18.46 | | |

| LINE | BEARING | DISTANCE |
|---|---|---|
| L1 | N82°33'25"W | 60.00' |
| L2 | S07°26'35"W | 70.22' |




EP=EDGE OF PAVEMENT
EG=EDGE OF GRAVEL

**BLOW UP**
NOT TO SCALE

**"RECORD DRAWINGS"**
I, John G. Lawson certify these to be "Record" drawings as of April 9, 2004

JOHN G. LAWSON, PE, PLS

* Denotes field verification
Items not lined out are not field verified

JOHN G. LAWSON — STATE OF WASHINGTON — 11989 — REGISTERED PROFESSIONAL ENGINEER
EXPIRES: 05/10/2005

| NO. | REVISIONS: | DATE: | APPR. BY: |
|---|---|---|---|
| 1 | | | |
| 2 | | | |
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| 4 | | | |
| 5 | | | |

Date: 02/25/04
Dwg Name: 95092C2-3
Horiz. Scale: 1" = 50'
Vert. Scale: N/A
Drawn by: MCB
Checked by: TSW

LSE LAWSON SURVEYING & ENGINEERING, INC.
113 South Parkway Avenue
Battle Ground, WA 98604 (360) 687-0500

# Pacific Park Center
## Phase 3
## Street Improvements

Job #: 95-092

SHEET # 3 OF 13

M:\95-092\Const Phase 3\95092C2-3.dwg Apr 09, 2004-3:15pm

ATTACHMENT 3
PACIFIC PARK CENTER STORMWATER
REPORT, PAGES 1-3

# Pacific Park Center

Stormwater Report

# 95-092

*Lawson Surveying & Engineering, Inc.*

By Tim Wines

August, 2000

## PROJECT OVERVIEW

Pacific Park Center is located on approximately 30 acres in Woodland, Washington in Sections 12 and 13, Township 5 North, Range 1 West of the Willamette Meridian between the Interstate 5 (I-5) off-ramp and Old Pacific Highway, South of the Dike Access Road.

Currently the site consists of the previous improvements to Phase I of Pacific Park Center, along with approximately 27 acres of pasture. These improvements include an existing structure and 560 lineal feet of 40-foot wide road. The site is primarily flat with Old Pacific Highway elevated 8'-10' above the site along the East side.

There are three ditch systems collecting runoff from the site, which drain North to Burris Creek. The first ditch is adjacent to Old Pacific Highway and is approximately 2,300 feet in length. This ditch collects all the run-off from the Old Pacific Highway along with additional flow coming through a culvert located in the vicinity of the junkyard on the east side of Old Pacific Highway. It conveys the stormwater north along the eastern boundary of the site, thence, through an existing 24" concrete culvert into Burris Creek.

The second ditch is a ditch system within the site that was apparently installed for previous agricultural use of the property and is approximately 2,400 feet in length. It begins near the east boundary of the project approximately three quarters of the way down the site. It flows west to the western boundary line then turns north and parallels the boundary line of the site collecting one additional ditch as it goes. These ditches cut across the site to collect various portions of the runoff throughout the property. Previously, this ditch connected to the paralleling ditch located in the State right-of-way and followed the same path thereafter. However, with the improvements to Phase I of Pacific Park Center, the stormwater runoff generated from the site was routed through a 36" N-12 culvert directly into Burris Creek.

The third ditch is located on the southern and western boundary lines of the project and conveys stormwater North along the I-5 right-of-way to an existing culvert crossing under the Dike Access Road at the intersection of the I-5 off/on ramps. This ditch conveys the stormwater runoff generated from the southern 1/3 of the property, I-5 Northbound, and the property South of the site, to Burris Creek.

These ditches are classified as regulated wetlands under Section 404 of the Clean Water Act. A wetland permit has been approved by the U.S Army Corps of Engineers. The wetlands on the site would be subject to the Woodland Critical Areas Regulation (WMC 15.08). Most of the upland vegetation on the site consists of field grasses. Deciduous trees are located adjacent to the south and southwest property lines.

## STORMWATER DESIGN

Stormwater detention for Pacific Park Center will be accomplished in a single pond. This pond will be of irregular shape and will be located along the northern, western and southern boundaries of the site. The pond was originally designed and constructed to detain the stormwater run-off generated from the improvements to Phase I of Pacific Park Center. However, it was anticipated that the pond would be enlarged to accommodate the stormwater detention required for the improvements to Phases II and III. The pond was designed to minimize impacts to the property while enabling maximum efficiency for the disposal of the stormwater generated from the development of the site. As can be seen on the construction drawings, one of the conveyance ditches currently dissecting Phase II of the site will be filled. The remaining conveyance channels will be enlarged to provide storage capacity for the detention facility. To enable this, the pond has been designed with a flat bottom and will act as a wet pond for both water-quality treatment and support of hydrophytic vegetation. By designing the bottom of the pond flat, we will enhance the opportunity for the wetland vegetation to be established and maintained year-round within the pond.

Upon completion of Phase I, it was discovered that during larger storm events the elevation of Burris Creek rose above the bottom of the pond, creating backwater into the existing detention system. To minimize the impact from the increased stage of Burris Creek during these larger stormwater events, a flap valve will be installed on the end of the 36" N-12 culvert previously installed for outlet of the detention facility. This flap valve will prevent Burris Creek from back-flowing stormwater runoff into the detention facility during significant rainfall events.

## HYDROLOGIC DESIGN

The SCS Soils Manual of Cowlitz County indicates that the soil type on this site is a Godfrey Silt Loam. Soil characteristics matching those of a Godfrey Silt Loam were verified in a soil investigation performed by Braun Intertech on August 13, 1996. This soil is a slow draining soil that has been assigned to hydrologic group "D" for use with the Santa Barbara Urban Hydrograph program. Runoff curve numbers used in generating hydrographs were determined based on this classification and by using Table III-1.3 of the Puget Sound Manual.

The Santa Barbara Urban Hydrograph program was used to estimate runoff flow rates for this site. Existing condition hydrographs were generated for the 2, 25, and 100-year storm events to establish peak release stormwater runoff rates. These rates are 4.87, 12.89, and 20.34 cfs for the 2, 25, and 100-year storms respectively. In addition the pond was designed to release the 2-year storm event at ½ the predeveloped release rate. Developed condition hydrographs were generated using the detention pond as a design point. For post-developed conditions, it was assumed that 85% of the site would be impervious while 15% would be landscaping. The hydrographs were then routed through