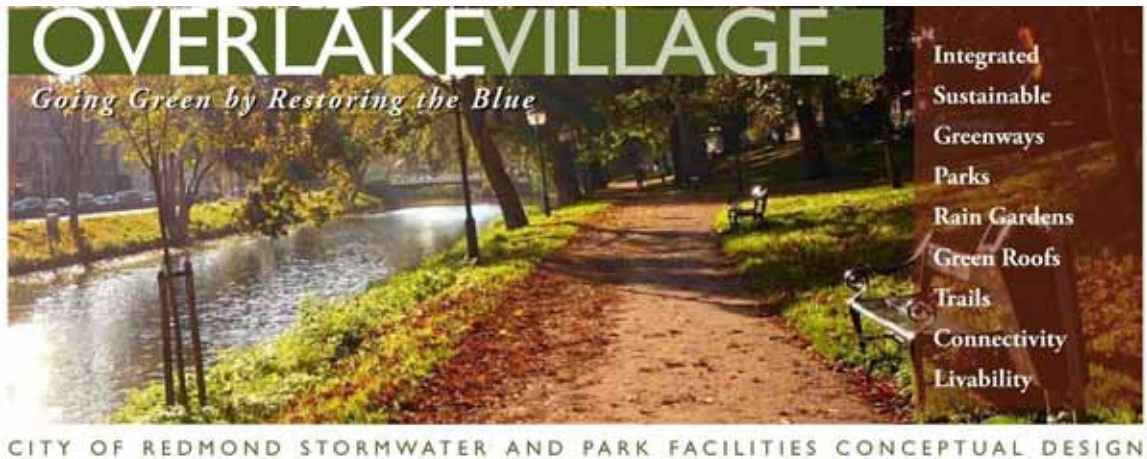


DRAFT



Technical Memorandum
Summary of Field Work
Overlake Village Stormwater and Park Facilities
Conceptual Design

City of Redmond 12/28/2009
Draft Document Released for
Public Records Request

This document is a working draft, not intended for public release. City staff are working with the consultant to produce a final document that will be posted to the City website in the near future. There may be inaccurate information or mistakes within this draft document that has not had the benefit of a complete City review and approval.

Users of this draft are encouraged to review the final document when it is available.

Submitted to:
City of Redmond
15670 NE 85th Street
Redmond, WA 98073

Prepared by:
Otak, Inc.
10230 NE Points Drive, Suite 400
Kirkland, WA 98033
Otak Project No. 31470

June 30, 2009



Technical Memorandum

Summary of Field Work

Overlake Village Project Overview

The Overlake Village Stormwater and Park Facilities Conceptual Design project has been initiated by the City of Redmond to develop a conceptual design that best integrates regional stormwater treatment, detention facilities, and park facilities into the Overlake Village neighborhood. Collocated facilities are desired to minimize land requirements and to offer visiting residents an enhanced experience through the melding of environmental protection and park functions.

The City's Master Plan & Implementation Strategy for the Overlake Neighborhood defines proposed actions for three districts within its boundaries: the Residential Area in the northeast, the Employment Area in the central-west area, and Overlake Village in the southerly area. The boundaries of the Overlake Neighborhood and its three districts are shown in Figure 1 of Attachment A. The City's concept plan for Overlake Village is shown in Figure 2 of Attachment A.



Field Work Purpose and Scope

The purpose of the field work task is to provide information to input and guide the development of the project's conceptual design. The task scope of work includes (1) field reconnaissance of the project area including potential stormwater and park development sites, (2) identification of the conveyance system points of entry and exit from the two potential sites, and (3) field checking of invert elevations at critical locations within the existing conveyance system.

Project Base Mapping

Current GIS data was obtained from the City including utilities, edge of pavement, right of way, stormwater pipes including upstream and downstream inverts, storm water manholes and catch basins including rim elevations, and aerials. Northwest Hydraulic Consultants (NHC) developed basin boundaries for the Overlake Village and evaluated the conveyance system during construction of the basin hydraulic model. NHC supplied Otak with its GIS based information for use in this project. Base maps of the project have been prepared at a 1"=100' scale as a part of this task. The base maps cover the area between 148th Avenue NE

Technical Memorandum
Summary of Field Work
Continued

to the west and 152nd Avenue NE to the east, and SR 520/152nd Avenue NE to the north and NE 20th Street to the south (see Attachment B).

Field Reconnaissance

Field reconnaissance of the project site was performed during June 2009 by Otak team members. Existing development within Overlake Village is typically low rise commercial and retail. The PS Business Park, Safeway and other commercial/retail properties are located between 148th Avenue NE and 152nd Avenue NE, north of NE 24th Street. The Group Health property, Microsoft and commercial retail properties are located to the east of 152nd Avenue NE and north of NE 24th Street. Sears retail and auto service centers and one story retail buildings are located between 148th Avenue NE and 152nd Avenue NE, south of NE 24th Street.



The potential stormwater facility sites were field reviewed as was the conveyance system through those sites. The northernmost entry point to the project area conveyance system is at the SR 520 corridor and 152nd Avenue NE. Other key points within the conveyance system include manholes in the 152nd Avenue NE, NE 24th Street and NE 20th Street.

From review of the project stormwater system, a total of six manhole/catch basins were identified where verification of City GIS invert elevations would be warranted in order to confidently develop stormwater facility concepts. The locations of these manhole/catch basins include the entry and exit storm drains from the two facility study areas above and below NE 24th Street. The six locations were visited and photographed during the field reconnaissance. The six locations are shown in Figure 3 of Attachment A. Photograph locations are shown in Figure 4 of Attachment A. The photolog is included in Attachment C.

Technical Memorandum
Summary of Field Work
Continued

Stormwater Conveyance Critical Invert Analysis

The critical inverts were determined from a review of the base mapping and concept plan. Otak staff surveyed rim elevation and all inverts associated with the six critical stormwater manholes/catch basins. Survey grade GPS equipment and total station instruments were used for the survey and the data was referenced to City of Redmond datum by measuring a published City benchmark. The estimated relative vertical accuracy is 0.15 feet with a 95% confidence.

The results of the survey and comparison to City GIS information is provided in Table 1 below. The majority of the inverts are within a few tenths of a foot of the City GIS values. However at CB #1, the invert elevation values found by field survey are typically in excess of 6 feet lower than the GIS data. One invert at CB #4 and two inverts at CB #6 (East) are significantly higher than given in the GIS data. Inverts that were substantially different than the GIS values were subjected to a second review by Otak, which confirmed the Otak values as correct. The Otak field survey inverts will be used in the development of stormwater facilities for the conceptual design.

Table 1
Critical Invert Field Survey Results

	Otak Survey						City of Redmond GIS				Elevation Δ	
	Northing	Easting	Rim Elev.	Inverts	Dir.	Elev.	Rim	Inverts	Dir.	Elev.	Rim	Inverts
CB #1	235094.220	1318839.539	336.77	36" CONC	SW	321.47	343.3	36" RCP	S	327.95	6.53	6.48
				36" CONC	NE	321.77		36" CSP	NE	328.05		6.28
				18" CMP	E	322.37		18" CAP	E	328.50		6.13
				24" CONC	E	325.07		24" CONC	NE	331.43		6.36
				24" CONC	S	328.47		-	S	-		n/a
				8" CMP	S	331.07		15" RCP	SE	335.45		4.38
												0.00
CB #2	234425.493	1318179.730	337.19	30" CONC	E	313.93	336.96	30" CONC	E	313.57	-0.23	-0.36
				30" CONC	W	314.01		30" CONC	W	313.65		-0.36
				24" CONC	S	314.84		unknown	S	unknown		-
				12" HDPE	NE	327.89		unknown	NE	unknown		-
CB #3	234424.250	1318833.968	327.17	42" CONC	S	310.07	326.95	36" CONC	S	310.31	-0.22	0.24
(72")				36" CONC	N	310.72		36" CONC	N	310.28		-0.44
				30" CONC	W	310.97		30" CONC	W	311.09		0.12
				24" CONC	E	311.22		-	-	-		n/a
CB #4	233050.927	1318288.543	306.24	48" CONC	S	295.29	306.32	48" CONC	S	295.57	0.08	0.28
(96")				48" CONC	E	295.49		48" CONC	E	295.23		-0.26
				8" CMP	SE	299.14		12" CAP	SE	296.50		-2.64
CB #5	232209.058	1318267.606	303.88	48" CONC	S	290.93	-	48" CONC	S	290.72	N/a	-0.21
(96")				48" CONC	N	290.95		48" CONC	N	290.78		-0.17
								-				
CB #6(E)	231799.524	1317740.506	295.31	48" HDPE	W	272.75	295.1	48" CSP	W	272.48	-0.20	-0.27
(72")				48" HDPE	NE	285.36		48" HDPE	NE	272.50		-12.86
				8" CMP	S	285.91		12" CAP	SE	283.9		-2.01
				-	-	-		12" CONC	E	285.14		n/a
				-	-	-		12" CONC	NW	-		n/a
CB #6(W)	231799.347	1317731.343	295.27	48" HDPE	W	271.97	295.67	48" CSP	W	271.43	0.40	-0.54
(60")				48" HDPE	E	272.12		48" CSP	E	272.53		0.41
				30" HDPE	N	272.82		unknown	N	unknown		n/a
				12" CONC	N	289.52		-	-	-		n/a
				12" PVC	S	284.27		12" PVC	S	284.37		0.10

Technical Memorandum
Summary of Field Work
Continued

Attachments

Attachment A—Figures

Figure 1—Vicinity Map

Figure 2—Overlake Village Concept Plan

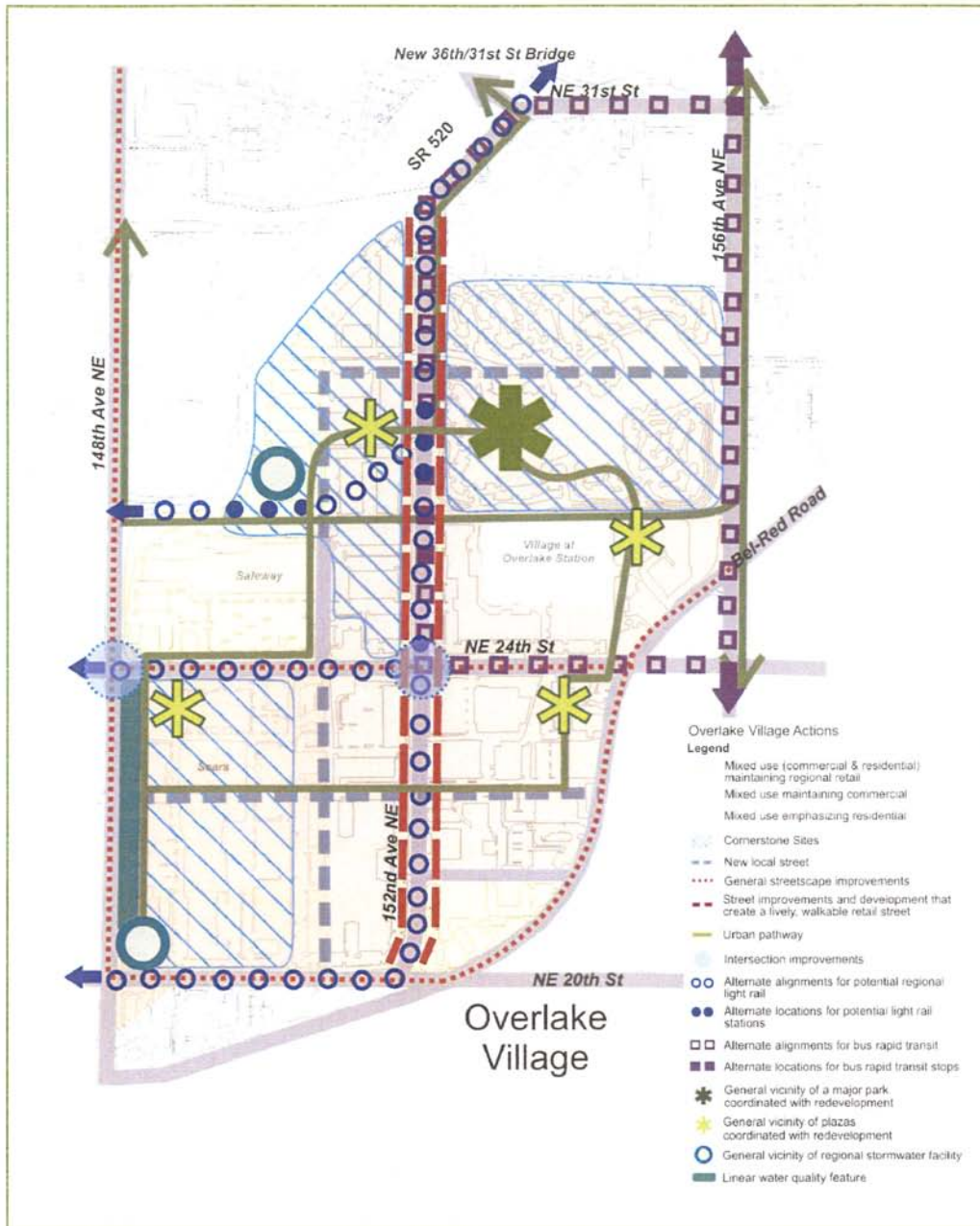
Figure 3—Critical Invert Locations

Figure 4—Field Photo Locations

Attachment B—Project Base Mapping

Attachment C—Reconnaissance Photolog

Attachment A—Figures



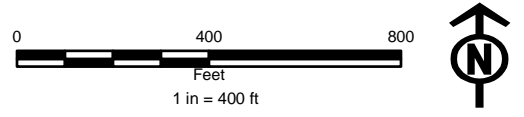
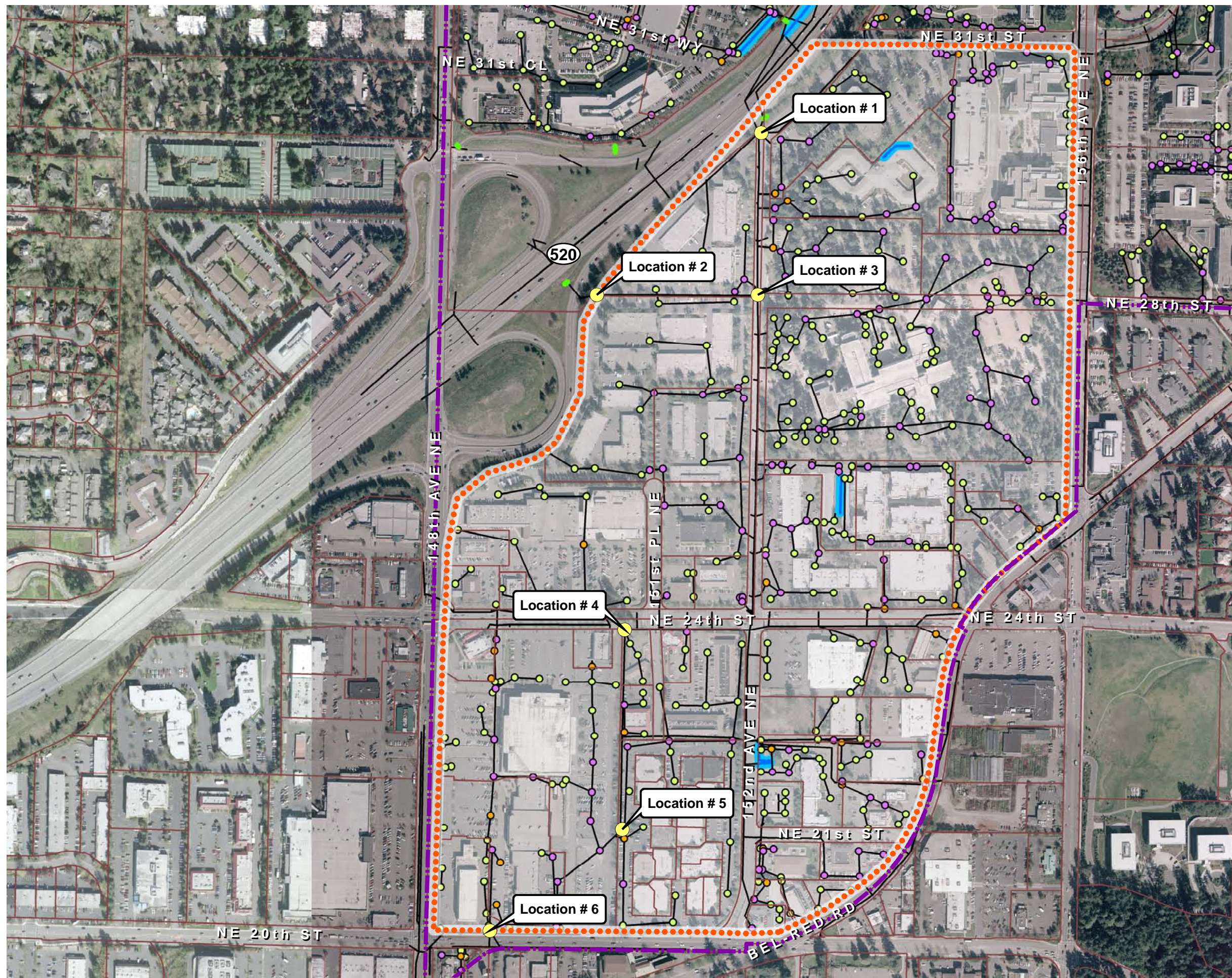
Source: Redmond Overlake Master Plan & Implementation Strategy 12/5/09

K:\project\31470\GIS\mxds\TechMemo_SummaryOfProjectRelatedData

Figure 2
Overlake Village Strategies

Overlake Village Stormwater and
Park Facilities Conceptual Design

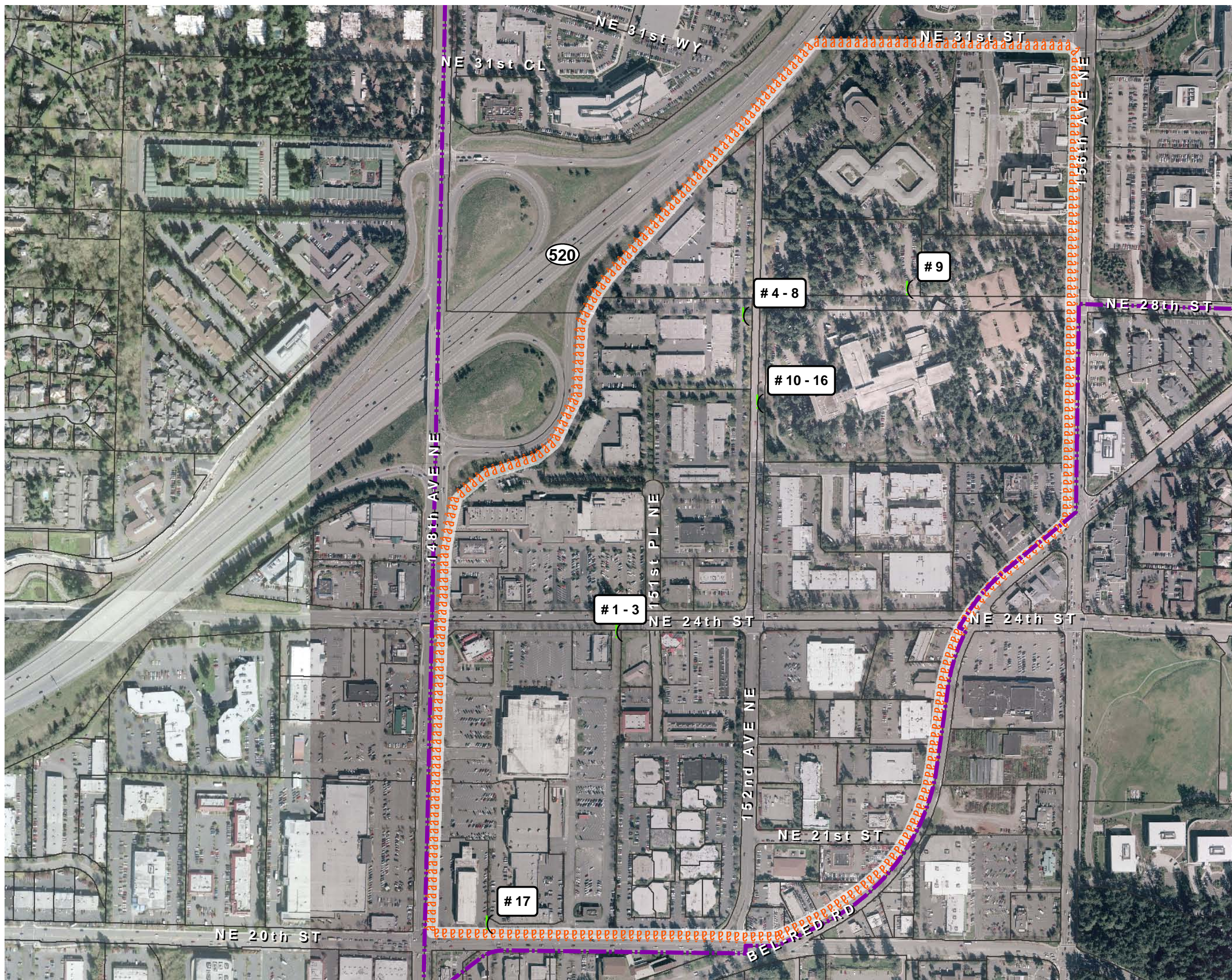




- Legend**
- Redmond City Limit
 - Overlake Village Boundary
 - Catch Basin
 - CS
 - Manhole
 - Bioswale Edge
 - Culvert
 - Pipe
 - Bioswale
 - Parcel Boundary
 - Key Locations

Figure 3
Critical Invert Locations

Overlake Village Stormwater and
Park Facilities Conceptual Design



0 400 800
Feet
1 in = 400 ft

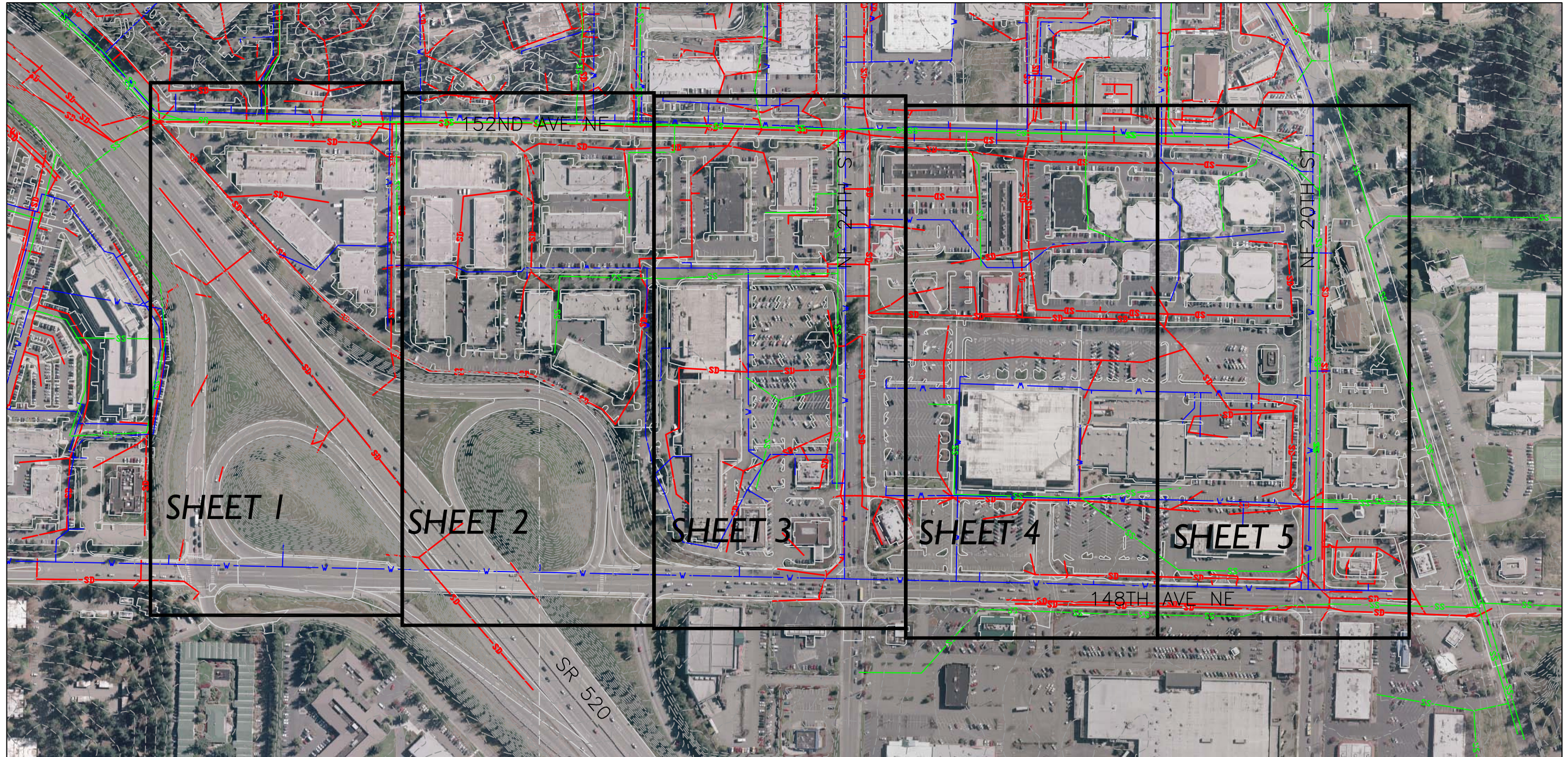
Legend

-  Redmond City Limit
-  Overlake Village Boundary
-  Parcel Boundary
-  Photo Locations





Figure 4
Photo Locations

Overlake Village Stormwater and
Park Facilities Conceptual Design

Attachment B—Project Base Mapping

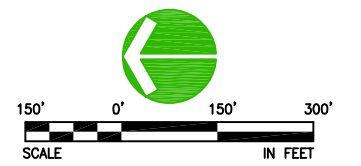


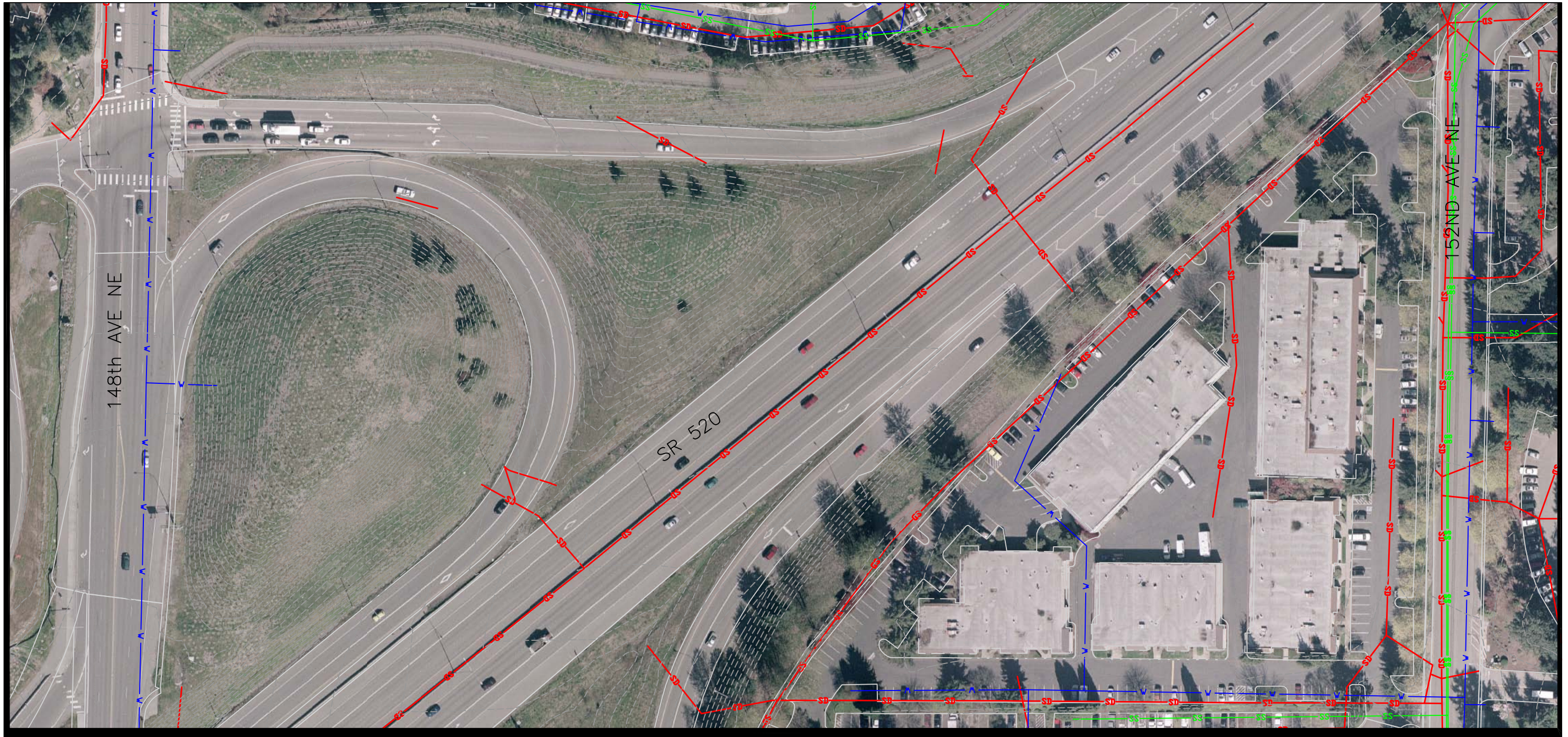
LEGEND

- | | | | |
|---|----------------|---|------------|
|  | Storm Drain |  | Water Line |
|  | Sanitary Sewer |  | Contour |

**KEY SHEET
BASE MAPPING**

Overlake Village Stormwater and Park
Facilities Conceptual Design.



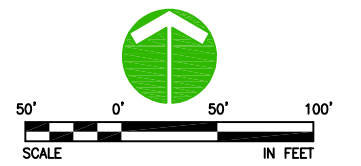


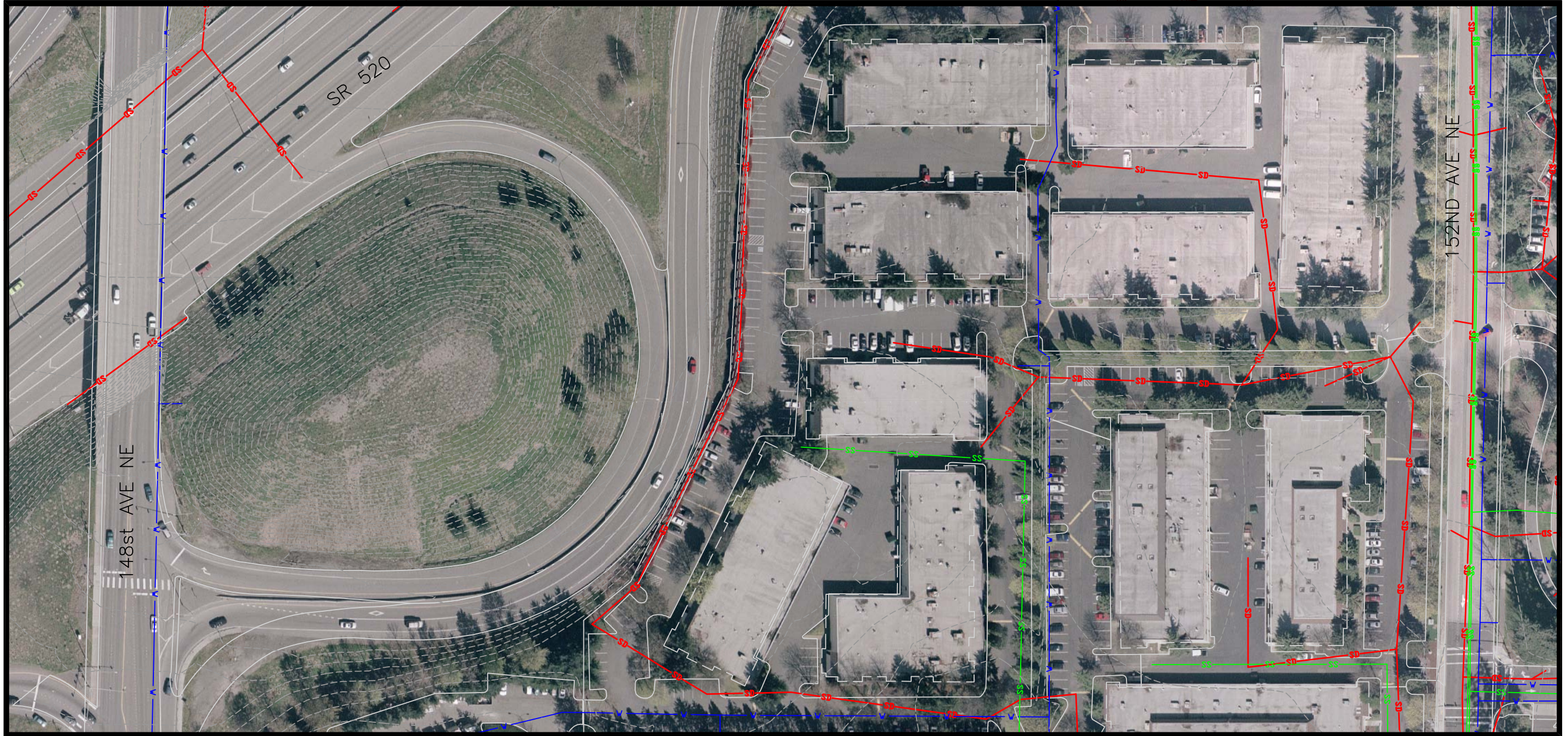
LEGEND

- | | | | |
|--|----------------|--|------------|
| | Storm Drain | | Water Line |
| | Sanitary Sewer | | Contour |

**SHEET 1
BASE MAPPING**

Overlake Village Stormwater and Park
Facilities Conceptual Design.



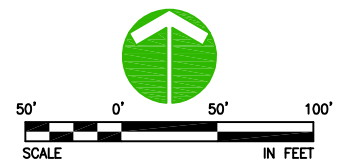


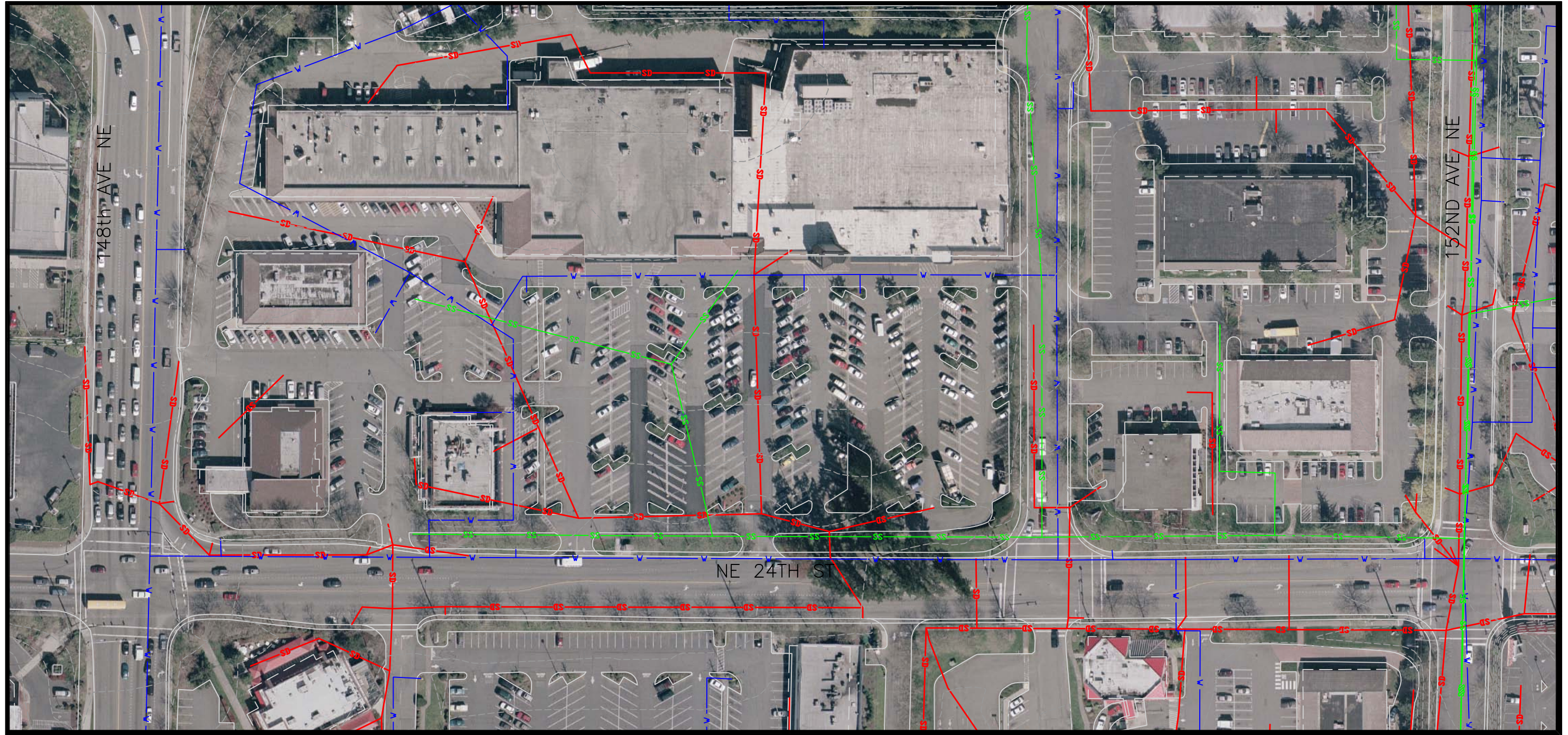
LEGEND

- | | | | |
|---|----------------|---|------------|
|  | Storm Drain |  | Water Line |
|  | Sanitary Sewer |  | Contour |

**SHEET 2
BASE MAPPING**

Overlake Village Stormwater and Park
Facilities Conceptual Design.



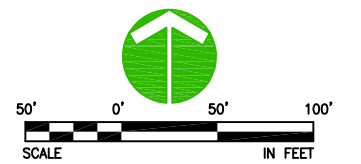


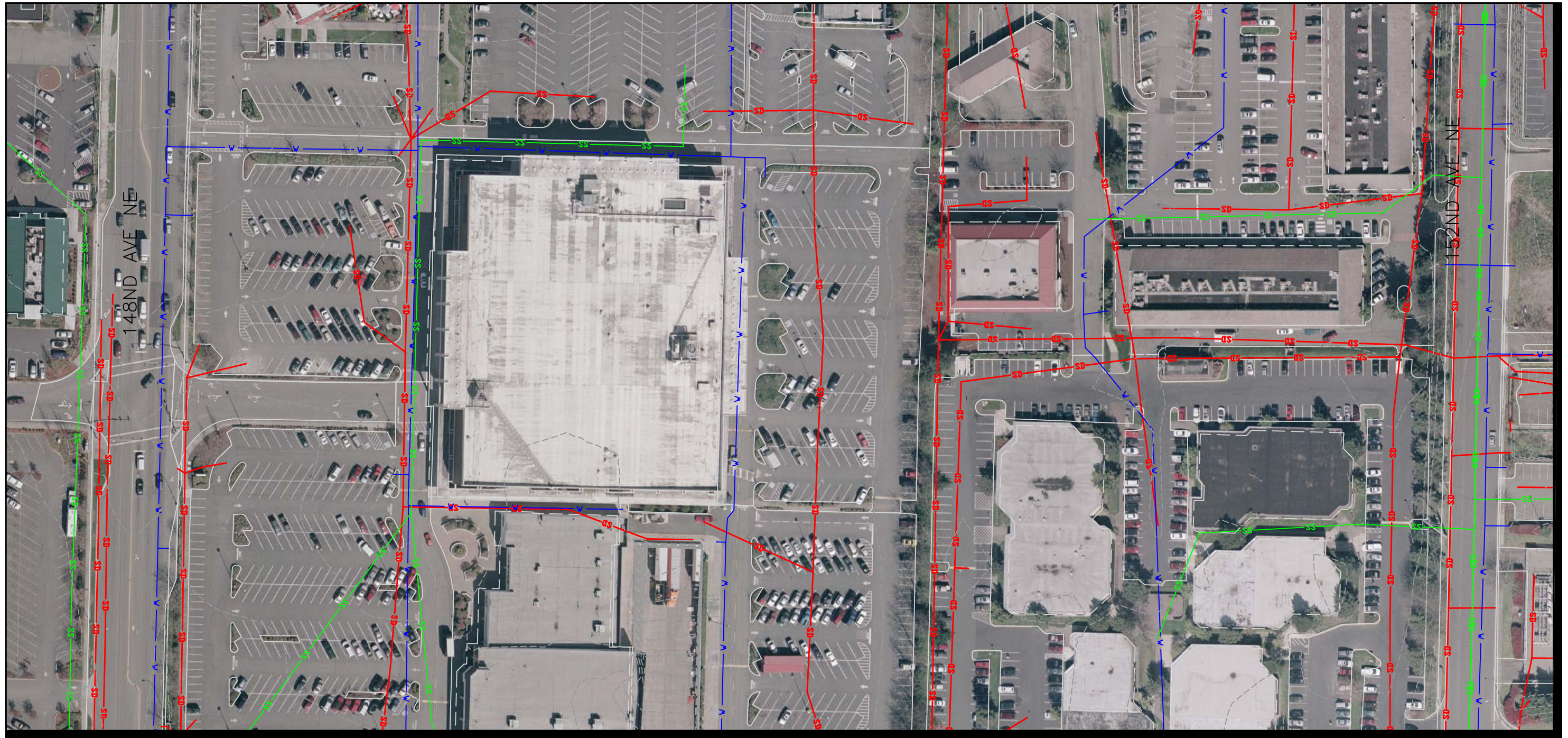
LEGEND

- | | | | |
|---|----------------|---|------------|
|  | Storm Drain |  | Water Line |
|  | Sanitary Sewer |  | Contour |

**SHEET 3
BASE MAPPING**

Overlake Village Stormwater and Park
Facilities Conceptual Design



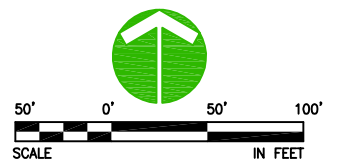


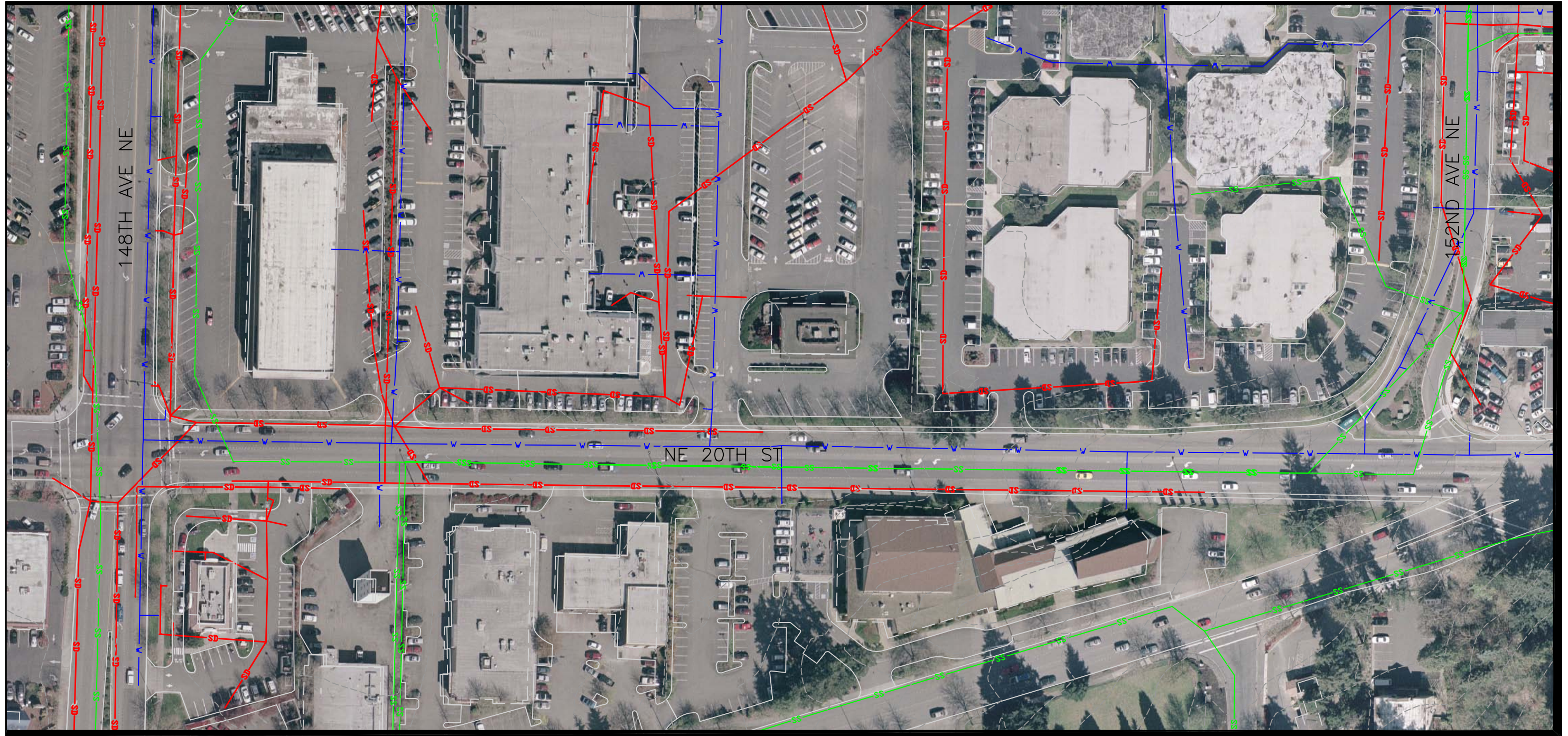
LEGEND

- | | | | |
|---|----------------|---|------------|
|  | Storm Drain |  | Water Line |
|  | Sanitary Sewer |  | Contour |

**SHEET 4
BASE MAPPING**

Overlake Village Stormwater and Park
Facilities Conceptual Design.



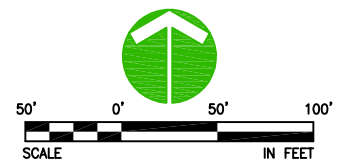


LEGEND

- | | | | |
|---|----------------|---|------------|
|  | Storm Drain |  | Water Line |
|  | Sanitary Sewer |  | Contour |

**SHEET 5
BASE MAPPING**

Overlake Village Stormwater and Park
Facilities Conceptual Design.



Attachment C—Reconnaissance
Photolog

Attachment C—Photolog



Photo #1—Critical conveyance invert location #4,
Southeast corner of NE 24th Street and 151st Place NE. Facing west.



Photo #2—Critical conveyance invert location #4,
Southeast corner of NE 24th Street and 151st Place NE. Facing south.

Attachment C—Photolog
Continued



Photo #3—Critical conveyance invert location #4,
Southeast corner of NE 24th Street and 151st Place NE. Facing east.



Photo #4— PS Business Park parking lot. Facing north.

Attachment C—Photolog
Continued



Photo #5— PS Business Park parking lot. Facing north.

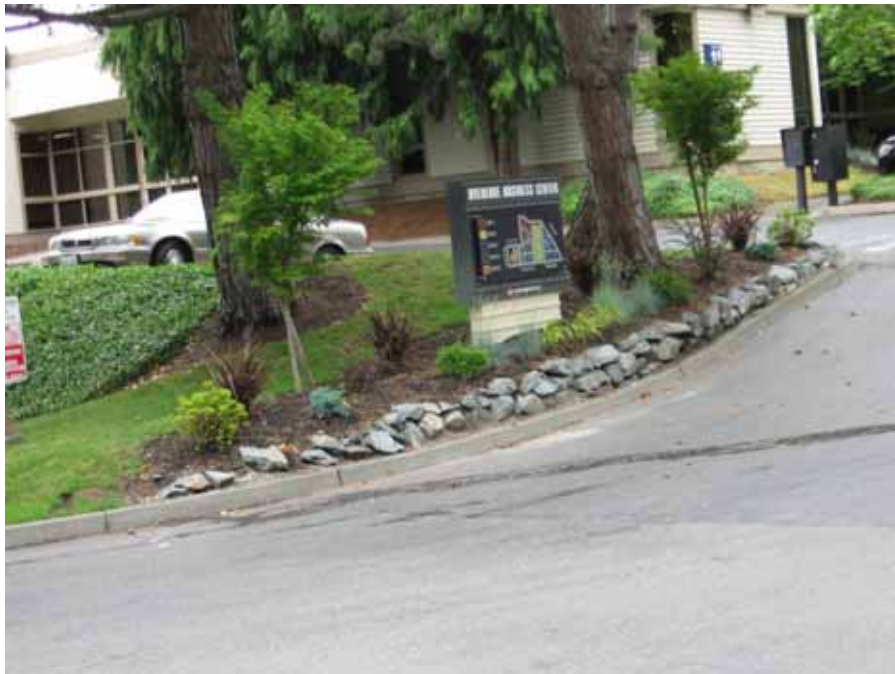


Photo #6— PS office parking lot, facing northwest.

Attachment C—Photolog
Continued



Photo #7— Critical conveyance invert location #3, 1
52nd Avenue NE. Facing northeast.



Photo #8—Critical conveyance invert location #3,
152nd Avenue NE. Facing southeast.



Photo #9—Group Health Eastside Hospital.



Photo #10—152nd Avenue NE. Facing north.

Attachment C—Photolog
Continued



Photo #11—152nd Avenue NE. Facing south.



Photo #12—152nd Avenue NE. Facing south.

Attachment C—Photolog
Continued



Photo #13—152nd Avenue NE. Facing north.



Photo #14—152nd Avenue NE, facing south.

Attachment C—Photolog
Continued



Photo #15—152nd Avenue NE, facing north.



Photo #16—PS Business Park parking lot, facing west.

Attachment C—Photolog
Continued



Photo #17—Critical conveyance invert location #6,
NE 20th Street, facing east.