NORTH SANTIAM PAVING CO.

SITE DEVLOPMENT AND ROADWAY CONTRACTORS • CCB# 53247

PO Box 516 - Stayton, OR 97383 • Office: 503-769-3436 • Fax: 503-769-7358 • www.nspor.com

Ida Street Tri-Plex
Preliminary Drainage Impact Analysis

Stayton, Oregon 97393

Owner:
The Kardboard Box LLC
PO Box 617
Stayton, Oregon 97383

Engineer of Record:
Levi Warriner, PE
North Santiam Paving
41203 Kingston-Lyons Drive
PO Box 516
Stayton, Oregon 97383
503-769-3436
leviw@nspor.com

NORTH SANTIAM PAVING CO.

SITE DEVLOPMENT AND ROADWAY CONTRACTORS • CCB# 53247

PO Box 516 - Stayton, OR 97383 • Office: 503-769-3436 • Fax: 503-769-7358 • www.nspor.com

Existing Conditions and Developed Conditions

The site is located on the north side of Ida Street, west of the intersection of Evergreen Avenue and Ida Street. Ida Street is paved with a crown typical section. The existing lot is 10,602 square feet. The lot will have a tri-plex with a paved driveway and associated landscaping.

The City of Portland Stormwater Management Manual allows the simplified method to be used if infiltration rates exceed 2in/hr and there will be less than 10,000 sf of impervious surface. The proposed development will create 6,657 sf of new impervious surface. Previous infiltration testing was completed in 2018 for a potential development on the same site that showed infiltration rates exceeded the 2in/hr. See Appendix A for results. Since both criteria are met for the simplified method, a rain garden was chosen. Per the simplified method, the rain garden size is 10% of the impervious area. The size of the rain garden will be 698 sf. The rain garden will have a maximum ponding depth of 12”, before it will overflow towards the driveway approach and onto Ida Street. See attached typical section per City of Portland SMM in Appendix B. See Appendix C for pre and post developed conditions.

NORTH SANTIAM PAVING CO.

SITE DEVLOPMENT AND ROADWAY CONTRACTORS • CCB# 53247

PO Box 516 - Stayton, OR 97383 • Office: 503-769-3436 • Fax: 503-769-7358 • www.nspor.com

APPENDIX A

Location:	Bochsler Addition	Date:	4/18/2018	Test Hole Number:	1	Trial Number:	1
Depth to Bottom of Hole:	3'	Test Method		Open Pit Falling Head	Soaking Time		
					7:07-11:07		

Time	Time Interval (Minutes)	Measurement (Feet)	Drop in Water Level (Feet)	Infiltration Rate (in/hr)	Remarks
11:10	0	2.49	-	-	Filled to 12" water line
11:20	10	2.6	0.11	7.92	
11:30	10	2.70	0.10	7.2	
11:40	10	2.8	0.10	7.2	
11:50	10	2.91	0.11	7.92	
12:00	10	3.01	0.10	7.2	
12:10	10	3.11	0.10	7.2	
			Avg Infiltration Rate (in/hr)	7.44	

Location:	Bochsler Addition	Date:	4/18/2018	Test Hole Number:	1	Trial Number:	2
Depth to Bottom of Hole:	3'	Test Method		Open Pit Falling Head			

Time	Time Interval (Minutes)	Measurement (Feet)	Drop in Water Level (Feet)	Infiltration Rate (in/hr)	Remarks
12:20	0	2.53	-	-	Filled with 12"
12:30	10	2.63	0.10	7.2	
12:40	10	2.73	0.10	7.2	
12:50	10	2.83	0.10	7.2	
13:00	10	2.93	0.10	7.2	
13:10	10	3.02	0.09	6.48	
13:20	10	3.11	0.09	6.48	
			Avg Infiltration Rate (in/hr)	6.96	

Location:	Bochsler Addition	Date:	4/18/2018	Test Hole Number:	1	Trial Number:	3
Depth to Bottom of Hole:	3'	Test Method		Open Pit Falling Head			

Time	Time Interval (Minutes)	Measurement (Feet)	Drop in Water Level (Feet)	Infiltration Rate (in/hr)	Remarks
13:27	0	2.55	-	-	Filled with 12"
13:37	10	2.65	0.10	7.20	
13:47	10	2.75	0.10	7.20	
13:57	10	2.84	0.09	6.48	
14:07	10	2.93	0.09	6.48	
14:17	10	3.02	0.09	6.48	
14:27	10	3.11	0.09	6.48	
			Avg Infiltration Rate (in/hr)	6.72	

Location:	Bochsler Addition	Date:	4/18/2018	Test Hole Number:	2	Trial Number:	1
Depth to Bottom of Hole:	3'	Test Method		Open Pit Falling Head		Soaking Time	
						7:09-11:09	

Time	Time Interval (Minutes)	Measurement (Feet)	Drop in Water Level (Feet)	Infiltration Rate (in/hr)	Remarks
11:12	0	2.66	-	-	Filled to 12" water line
11:22	10	2.76	0.10	7.20	
11:32	10	2.86	0.10	7.20	
11:42	10	2.95	0.09	6.48	
11:52	10	3.04	0.09	6.48	
12:02	10	3.13	0.09	6.48	
12:12	10	3.22	0.09	6.48	
			Avg Infiltration Rate (in/hr)	6.72	

Location:	Bochsler Addition	Date:	4/18/2018	Test Hole Number:	2	Trial Number:	2
Depth to Bottom of Hole:	3'	Test Method		Open Pit Falling Head			

Time	Time Interval (Minutes)	Measurement (Feet)	Drop in Water Level (Feet)	Infiltration Rate (in/hr)	Remarks
12:22	0	2.65	-	-	Filled with 12"
12:32	10	2.74	0.09	6.48	
12:42	10	2.83	0.09	6.48	
12:52	10	2.92	0.09	6.48	
13:02	10	3.01	0.09	6.48	
13:12	10	3.1	0.09	6.48	
13:22	10	3.18	0.08	5.76	
			Avg Infiltration Rate (in/hr)	6.36	

Location:	Bochsler Addition	Date:	4/18/2018	Test Hole Number:	2	Trial Number:	3
Depth to Bottom of Hole:	3'	Test Method		Open Pit Falling Head			

Time	Time Interval (Minutes)	Measurement (Feet)	Drop in Water Level (Feet)	Infiltration Rate (in/hr)	Remarks
13:29	0	2.68	-	-	Filled with 12"
13:39	10	2.77	0.09	6.48	
13:49	10	2.86	0.09	6.48	
13:59	10	2.95	0.09	6.48	
14:09	10	3.03	0.08	5.76	
14:19	10	3.11	0.08	5.76	
14:29	10	3.19	0.08	5.76	
			Avg Infiltration Rate (in/hr)	6.12	

Location:	Bochsler Addition	Date:	4/18/2018	Test Hole Number:	3	Trial Number:	1
Depth to Bottom of Hole:	3'	Test Method		Open Pit Falling Head	Soaking Time		
					7:10-11:10		

Time	Time Interval (Minutes)	Measurement (Feet)	Drop in Water Level (Feet)	Infiltration Rate (in/hr)	Remarks
11:14	0	2.61	-	-	Filled to 12" water line
11:24	10	2.74	0.13	9.36	
11:34	10	2.87	0.13	9.36	
11:44	10	3	0.13	9.36	
11:54	10	3.12	0.12	8.64	
12:04	10	3.24	0.12	8.64	
12:14	10	3.36	0.12	8.64	
			Avg Infiltration Rate (in/hr)	9.00	

Location:	Bochsler Addition	Date:	4/18/2018	Test Hole Number:	3	Trial Number:	2
Depth to Bottom of Hole:	3'	Test Method		Open Pit Falling Head			

Time	Time Interval (Minutes)	Measurement (Feet)	Drop in Water Level (Feet)	Infiltration Rate (in/hr)	Remarks
12:25	0	2.6	-	-	Filled with 12"
12:35	10	2.73	0.13	9.36	
12:45	10	2.85	0.12	8.64	
12:55	10	2.97	0.12	8.64	
13:05	10	3.08	0.11	7.92	
13:15	10	3.19	0.11	7.92	
13:25	10	3.3	0.11	7.92	
			Avg Infiltration Rate (in/hr)	8.40	

Location:	Bochsler Addition	Date:	4/18/2018	Test Hole Number:	3	Trial Number:	3
Depth to Bottom of Hole:	3'	Test Method		Open Pit Falling Head			

Time	Time Interval (Minutes)	Measurement (Feet)	Drop in Water Level (Feet)	Infiltration Rate (in/hr)	Remarks
13:34	0	2.62	-	-	Filled with 12"
13:44	10	2.74	0.12	8.64	
13:54	10	2.85	0.11	7.92	
14:04	10	2.96	0.11	7.92	
14:14	10	3.07	0.11	7.92	
14:24	10	3.18	0.11	7.92	
14:34	10	3.29	0.11	7.92	
			Avg Infiltration Rate (in/hr)	8.04	

NORTH SANTIAM PAVING CO.

SITE DEVLOPMENT AND ROADWAY CONTRACTORS • CCB# 53247

PO Box 516 - Stayton, OR 97383 • Office: 503-769-3436 • Fax: 503-769-7358 • www.nspor.com

APPENDIX B

3.2.9 Rain Gardens

Rain gardens are landscape depressions designed to capture, store, and infiltrate stormwater runoff. They do not include underdrains, liners, or formal walls, and the native soils are amended rather than replaced with an imported soil blend.

Design

Site Suitability: The measured infiltration rate of the soil must be at least 2 inches per hour.

Catchment Area: Stormwater runoff from a catchment area of up to 10,000 ft^2 can be managed by multiple rain gardens. Up to 5,000 ft^2 of impervious area can drain to an individual rain garden.

Setbacks: Table 3-10 shows standard setback requirements for rain gardens. Setbacks are measured from the typical high water level in the rain garden.

Table 3-10. Standard Setbacks for Rain Gardens[1]

Setback to	Distance (ft)
Property lines along parcels[2]	5
Foundations	10
Drainfields downslope of the rain garden	100
Top of grade breaks > 3 ft high and top of slopes ≥ 25%, downslope of the rain garden	5 times the slope height up to 100 ft
Top of slopes > 50% and > 10 ft high, downslope of the rain garden	200

1. These setbacks apply to both onsite and offsite foundations, drainfields, grade breaks, and slopes.
2. No setbacks are required for property lines with the right-of-way.

Inflow: Conveyance of stormwater runoff to the rain garden through flexible downspout extensions is prohibited. Conveyance options include the following:

- An aboveground, gutter-grade downspout extension that drains directly to areas that can accommodate stormwater runoff without crossing walkways or draining onto driveways, patios, or other impervious surfaces.
- An underground downspout extension, daylighting into the rain garden, that is watertight within the 2-ft or 6-ft setback to the building.
- A rock-filled drainage channel that is lined with waterproof sheeting (e.g., 30-mm ethylene propylene diene terpolymer (EPDM)) within the 2-ft or 6-ft setback to the building.

Access: The design must provide safe access for maintenance of the rain garden and access to adjacent buildings or infrastructure. Paths, gates, and covers must be safely accessible.

Pollution Prevention: Do not use chemically treated products with the potential for leaching pollutants (e.g., railroad ties, treated lumber, recycled crushed asphalt, and galvanized metals). Minimize the need for toxic or potentially polluting materials

such as herbicides, pesticides, and fertilizers. These materials create the risk of spills, misuse, and draining or leaching of pollutants into the rain garden and surrounding areas.

Sizing: The footprint of the rain garden, measured at the elevation of the overflow and including side slopes, must be at least 10% of the impervious area draining to it.

Dimensions and Slopes:

- Minimum freeboard (vertical distance between the overflow rim and the top of rain garden rim): 2 inches.
- Ponding depth (vertical distance between the top of the soil and the elevation of an overflow rim, such as a standpipe grate): 12 inches.
- Maximum side slope: 3 horizontal to 1 vertical (3:1). A side slope of 2:1 may be allowed if there are erosion control protections such as vegetative cover and larger boulders.
- Minimum bottom width: 2 feet.
- Grades must slope away from foundations and neighboring properties.

Overflow: The design should indicate where excess stormwater runoff will safely flow in heavy rainfall. Overflow routes should be planted or covered in rock to prevent erosion. A piped overflow is allowed if an overflow route is not feasible.

Erosion Control at Stormwater Entrances: Install a layer of river rock or flagstones at stormwater entrances to dissipate the energy of incoming stormwater runoff in cases where inflow is concentrated. Plastic splash blocks are not allowed.

Soil Amendment: Amend the native soil with 3 inches of yard-debris compost and blend to a depth of 12 inches below grade.

Mulch (optional): The surface can be mulched with 2-3 inches of dark (aged) medium hemlock mulch. Manure-based compost is prohibited. Mulch should be weed-free and applied 2 to 3 inches thick to fully cover the soil between plants.

Planting: See Section 3.2.12.1.

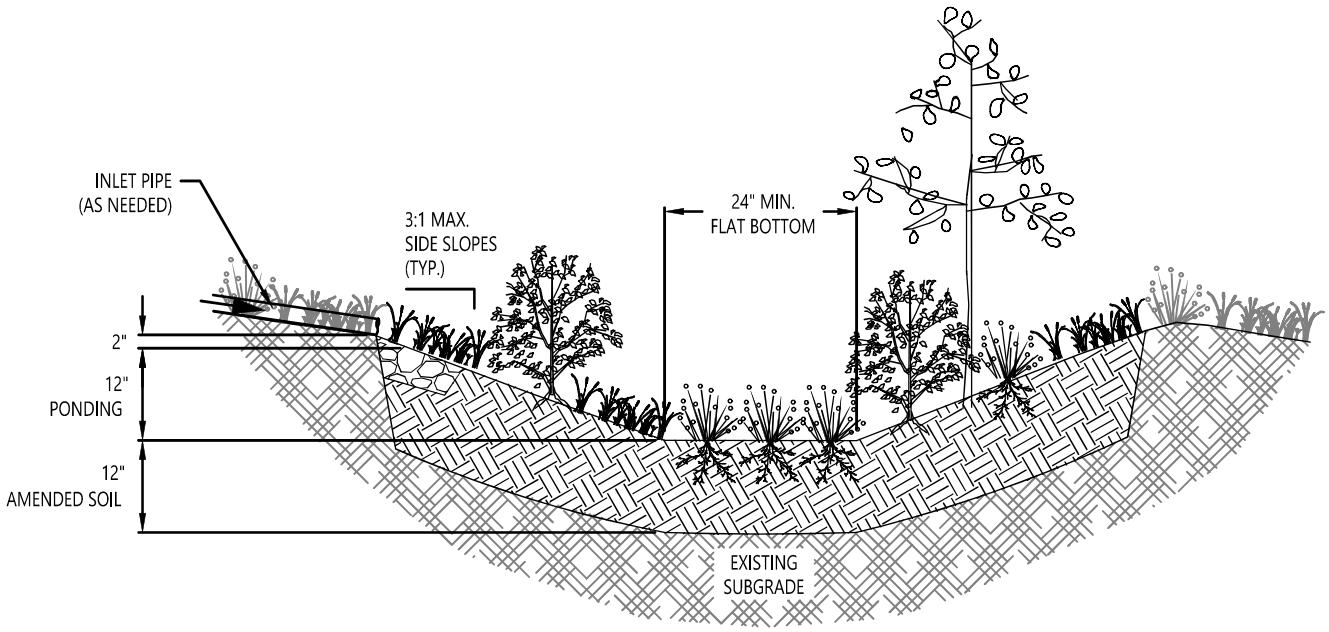
Construction Guidance

See Section 3.2.12.2.

Typical Detail

See *Facility Details - Simplified Approach* for the typical detail.

- SW-112 Rain garden



1. Setbacks: 10 feet from edge of facility to building foundations; 5 feet to property lines; zero setback from public right-of-way where approved.
2. Overflow: A rain garden must include an overflow route that safely directs runoff to a disposal point in heavy rainfall. Overflow routes must drain away from building foundations and adjacent properties. Overflow routes must be planted or covered with rock to limit erosion.
3. Amended Soil: Amend native soil with 3 inches of yard debris compost, blend to a depth of 12 inches.
4. Plants: Minimum container size is 1 gallon. In inundated areas (Zone A), install 80 herbaceous plants or 72 herbaceous plants and 4 small shrubs per 100 sf. In drier upland areas above the rim of the overflow (Zone B), install 7 large or small shrubs and 70 groundcover plants. If project area is over 200 sf consider installing a tree.
5. Entrance Erosion Control: Install riprap at stormwater entrances to reduce erosive power of incoming water.
6. Mulch (Optional): The surface can be mulched with 2 inches of dark (aged) medium hemlock mulch.
7. See SWMM Chapter 3 for guidance.

INSPECTION INFORMATION

SCHEDULE INSPECTION (IVR): 503-823-7000, CODE #487. 2 INSPECTIONS REQUIRED.

- Inspection #1: Location, size, depth
- Inspection #2: Soil, plants, elevations, inlet protection

- DRAWING NOT TO SCALE -

NORTH SANTIAM PAVING CO.
SITE DEVLOPMENT AND ROADWAY CONTRACTORS • CCB# 53247
PO Box 516 - Stayton, OR 97383 • Office: 503-769-3436 • Fax: 503-769-7358 • www.nspor.com

APPENDIX C

GENERAL NOTES:

1. THIS MAP DOES NOT CONSTITUTE A PROPERTY BOUNDARY SURVEY.
2. CONTOURS AT 1' INTERVALS.
3. THE LOCATION AND DESCRIPTIONS OF EXISTING UTILITIES SHOWN ON THE DRAWINGS ARE COMPILED FROM AVAILABLE RECORDS AND/OR FIELD SURVEYS. THE ENGINEER OR UTILITY COMPANIES DO NOT GUARANTEE THE ACCURACY OR THE COMPLETENESS OF SUCH RECORDS. CONTRACTOR SHALL FIELD VERIFY SIZES AND LOCATIONS OF ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION.

(X) KEYED NOTES:

- S. SAWCUT ASPHALT OR CONCRETE. SAWCUT CONCRETE AT NEAREST TOOLED JOINT.
- P. PROTECT EXISTING OBJECT OR UTILITY.
- P1. PROTECT EXISTING CURB AND ASPHALT.
- R. REMOVE EXISTING SIDEWALK.
- R1. REMOVE EXISTING CHAIN LINK FENCE ALONG PROPERTY FRONTAGE.
- R2. REMOVE EXISTING SIDEWALK AND CURB FOR NEW DRIVEWAY APPROACH.
- R3. REMOVE EXISTING ADA RAMP AND CURB FOR NEW ADA RAMP.
- R4. RELOCATE EXISTING SIGN OUTSIDE OF NEW ADA RAMP.
- R5. REMOVE EXISTING DRIVEWAY AND CURB FOR NEW DRIVEWAY APPROACH. REMOVE EXISTING ASPHALT BEHIND DRIVEWAY AS NEEDED.

LEGEND

- SITE PROPERTY LINE
- NEIGHBORING PROPERTY LINE
- CENTER LINE
- EASEMENTS
- SANITARY SEWER LINE
- STORM SEWER LINE
- WATER LINE
- GAS LINE
- OVERHEAD POWER
- COMMUNICATION LINE
- FENCE LINE
- EDGE OF GRAVEL
- EDGE OF PAVEMENT
- SANITARY SEWER MANHOLE
- SANITARY SEWER CLEANOUT
- STORM SEWER MANHOLE
- STORM SEWER CATCH BASIN
- WATER VALVE
- WATER METER
- FIRE HYDRANT
- POWER POLE
- ELECTRICAL BOX
- COMMUNICATION MANHOLE
- COMMUNICATION VAULT
- GAS METER
- SIGN
- = EXISTING CONCRETE
- = EXISTING ASPHALT/GRAVEL DRIVEWAY

SCALE 1" = 10'

TAX LOT 3001
PARCEL 1
PP 2024-072
29,407 SF

TAX LOT 3002
PARCEL 2
PP 2024-072
10,602 SF

TAX LOT 3000
PARCEL 3
PP 2024-072
9,696 SF

TAX LOT 2900

EXISTING HOUSE
313 EVERGREEN AVE

EVERGREEN AVENUE

IDA STREET

EXTG 30" SS

EXTG 16" WATER

10' PUE

10' PUE

2.99'
44.22'
60.59'
95.00'
99.61'
102.73'
101.89'
79.00'
95.00'
(30')
(20')
(30')

NORTH SANTIAM PAVING COMPANY
41203 KINGSTON-LYONS DRIVE, P.O. BOX 516
STAYTON, OREGON 97383
(503) 769-3436
LEWIS@NSPOR.COM
CONSTRUCTION • ENGINEERING • SURVEYING

IDA STREET TRI-PLEX

EXISTING CONDITIONS AND DEMO PLAN

CITY OF STAYTON
SW 1/4 SEC 10 T9S R1W WM TAX MAP 091W10CC TAX LOT 3002
MARION COUNTY, OREGON

REGISTERED PROFESSIONAL ENGINEER
OREGON
JANUARY 21, 2005
LEWIS D. WARNER
EXPIRES: 6-30-2026

PLOT DATE: 5/28/2025
REVISIONS:
DRAWN BY: LDW
CHECKED BY: LDW
JOB No: 25021
SCALE: 1" = 10'

SHEET
C2

GENERAL NOTES:

TOTAL SITE AREA: 10,602 SF
AREA LANDSCAPED: 3,606 SF (34%)

LANDSCAPING TO FOLLOW SMC 17.20.090

(X) KEYED NOTES:

1. INSTALL NEW SIDEWALK PER CITY OF STAYTON STD DWGS. WIDTH PER PLAN.
2. TRANSITION NEW SIDEWALK TO EXISTING SIDEWALK
3. INSTALL NEW 12' WIDE DRIVEWAY AND CURB PER CITY OF STAYTON STD DWGS. ASPHALT PATCH AS NECESSARY.
4. INSTALL NEW ADA RAMP PER CITY OF STAYTON STD DWGS. RELOCATE SIGN AND FENCE AS NEEDED FOR RAMP INSTALLATION.
5. INSTALL NEW DRIVEWAY AND CURB PER CITY OF STAYTON STD DWGS. ASPHALT PATCH AS NECESSARY.
6. INSTALL 5' WIDE CONCRETE PATH FROM SIDEWALK TO TRI-PLEX.
7. INSTALL CONCRETE APPROACH.
8. INSTALL STREET TREE.
9. FOR RAIN GARDEN LANDSCAPING FOLLOW CITY OF PORTLAND STD DWG SW-112.

LEGEND

= PROPOSED CONCRETE

= PROPOSED ASPHALT

= PROPOSED LANDSCAPE

SCALE 1" = 10'

TAX LOT 3001
PARCEL 1
PP 2024-072
29,407 SF

TAX LOT 3002
PARCEL 2
PP 2024-072
10,602 SF

TAX LOT 3000
PARCEL 3
PP 2024-072
9,696 SF

TAX LOT 2900

EXISTING HOUSE
313 EVERGREEN AVE

PROPOSED TRI-PLEX
SEE ARCHITECTURAL DRAWINGS

RAIN GARDEN

EVERGREEN AVENUE

IDA STREET

EXTG 30" SS

EXTG 16" WATER

10' PUE

NORTH SANTIAM PAVING COMPANY
41203 KINGSTON-LYONS DRIVE, P.O. BOX 516
STAYTON, OREGON 97383
(503) 769-3436
LEWIS@NSPOR.COM
CONSTRUCTION • ENGINEERING • SURVEYING

IDA STREET TRI-PLEX

CITY OF STAYTON MARION COUNTY, OREGON
SW 1/4 SEC 10 T9S R1W WM TAX MAP 091W10CC TAX LOT 3002

SITE PLAN

REGISTERED PROFESSIONAL ENGINEER
OREGON
JANUARY 31, 2001
LEWIS D. WARNER
EXPIRES: 6-30-2026

PLOT DATE: 5/28/2025
REVISIONS:
DRAWN BY: LDW
CHECKED BY: LDW
JOB No: 25021
SCALE: 1" = 10'

SHEET
C3