

HAZELWOOD PLAZA, 61 RESIDENTIAL UNITS

222 NE 102nd Ave. Portland, OR



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PROJECT DESCRIPTION

The Hazelwood Plaza is a 61 unit affordable housing apartments new development, comprised of two 5 story wood framed buildings, with elevator served each one and a common tuck-under parking.

These one and two bedrooms residences will serve seniors, one and two person households, special needs individuals, and low income young families.

Located in the NE of Portland the site is well connected with all parts of the city by public transportation as explained below in the neighborhood and transportation analysis.

The intention is to insert in the urban surrounding a two building complex that will be easily identifiable by the end users. The utilization of architectural elements will adjust the ground floor to the human scale and the addition of some components like planters and short term bicycle parking will create a friendly pedestrian environment as well as the entrance plaza. The combination of a ground brick wall with wood elements, as the mentioned benches and planters, glazed storefronts and the public/privet plaza will add a strong community filling to the pedestrian environment.

The ground floor is an active area composed by a manager office, three live/work units, support rooms and the two entrance lobbies. The two glazed lobbies are open to the street and to the entrance plaza between the two buildings. The lobbies located in each floor are open to 102nd. Ave. through curtain walls that make clear the function behind them and distinguish the main access. Each building has also a secondary entrance located at the end of each one. At the second floor, near the two floor' lobbies were located a community and fitness rooms opened to a 1,600 sf roof garden for both buildings' common use.

The common parking located in the ground floor behind the active and support areas is hidden from the street. A concrete fence and a planter all along the rear property line, works as a barrier in order to avoid visual contact from de neighboring properties. As required by PBOT the parking garage has only one entry /exit gate.

The creation of two buildings with the in-between plaza, in addition to an articulated front elevation intent to break down a long uninterrupted mass on 102nd. Ave. As well the 2 foot recessed areas, the deep parking entrance and the plaza in the ground floor. This volumetric treatments combined with the color panels, the different material and the metal balconies results in a more sculptural and modulated building.

Our goal is to comply and certify for Enterprise Green Communities' criteria for affordable housing, emphasizing in the use of sustainable green materials and water and energy treatment in order to reduce the consume and the waste. Low energy appliances and Energy star lighting products, double glazed windows, composition shingles with a lifetime warranty, development and Implementation of an Erosion Control Site Plan, onsite Infiltration system for roof drains, R-21 insulation for walls and Tyvec sheeting, local materials within 500 miles as much as possible, shower heads limiting water flow, efficient lavatory and kitchen faucets, high efficient toilets, are part of the projected material and appliances to be used in order to comply with the required green certification for affordable housing.

- Property Address 222 NE 102nd Avenue
- No. Residential Units 61
- Gross Building Area 59,018 sq. ft.
- No. Buildings 2
- No. of Floors 5 floors w/ tuck under parking
- Site Area 24,338 sq. ft.

- Building Construction First Fl. concrete structure and concrete block walls, and wood framing in floors 2 to 5.
- Roof Type Low Pitch Seamed Metal or Green Shingles
- Building Exterior In factory Prefinished metal cladding (Centria Concept Series), prefinished cement board lap siding (Hardieplank, James Hardie) Thin brick groun floor cladding (Endicot, Manganess Ironspot), metal balcony railings, vinyl windows.
- HVAC System Split Air conditioning

APARTMENT TYPES

| Unit Type | Quantity |
|-----------|----------|
| Live/Work | 3 |
| 1 BR | 47 |
| 2 BR/1BA | 11 |

ZONING

Base Zone: CM; mixed Commercial / residential
Gateway Plan District

DESIGN GUIDELINES

Gateway Regional District Design Guidelines

MODIFICATION REQUESTS

Ground Floor Active Use Requirement (33.526.280 D.2)

The Ground Floor Active Use requires that 50% of the ground floor of walls that front a sidewalk, the building must contain 25'-0" deep interior spaces.

Request: in order to allow a better screening of the parking garage from the 102nd. street and a more efficient design and operation of the parking garage we request to reduce to 13'-8" deep of the live / work units located at the front of the building.

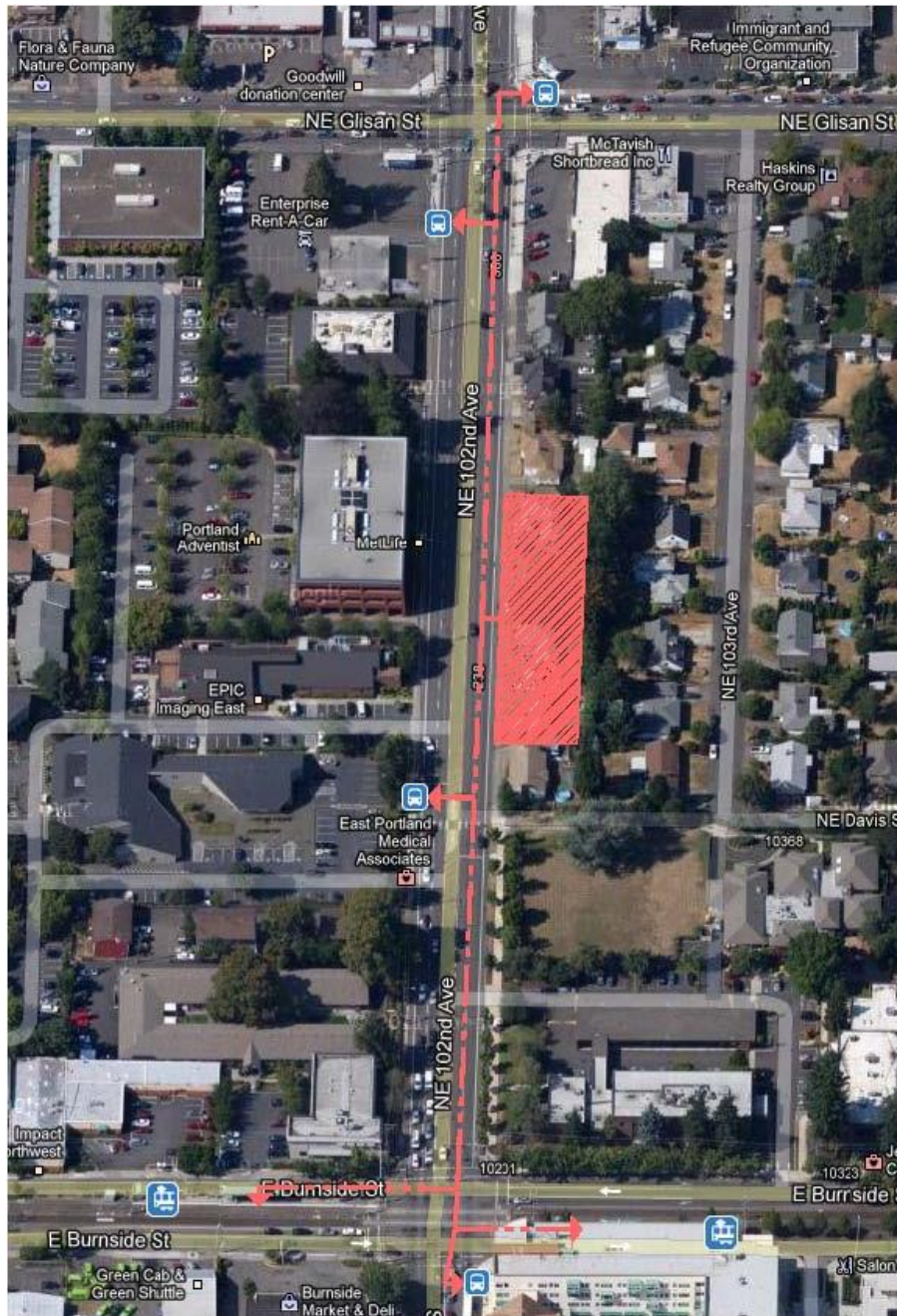
Loading Parking Standards (33.266319 D.b)

Size of loading spaces. Required loading spaces must meet the standards of this subsection.

b. Standard B: The loading space must be at least 18 feet long, 9 feet wide, and have a clearance of 10 feet.

Request: A 16 foot deep loading space instead of the 18 feet required with 5 feet clearance.

IMMEDIATE VICINITY PUBLIC TRANSPORTATION STOPS GATEWAY REGIONAL CENTER DESIGN GUIDELINES



ground level

Incorporating stormwater management systems into surface parking areas

New development adjacent to 102nd should support the improved street by incorporating a setback with landscape plantings and trees between the building and sidewalk

Orienting larger building volumes to the street, creating a multistory built edge, increases opportunities for the development of quieter private

Integrating building setback areas that function as extensions of the sidewalk along main streets

Incorporating landscape plantings and/or trees along 102nd or high volume streets

Developing a strong street orientation along residential or commercial streets

Incorporating large ground floor windows facing the sidewalk

Orient semi-public building spaces to the sidewalk and street

Orienting main entrances and/or lobbies to the sidewalk

Incorporate building mechanical equipment and/or service areas in a manner that does not detract from the pedestrian environment

Consolidating motor vehicle access points

Use design principles and building materials that convey quality and permanence

Developing residential buildings that provide foundations for new communities

Making design decisions involving the building's exterior that increase the building's "visual texture"

Integrate the different ground-level building elements with the building's architecture

Using integrated systems of building elements to provide a human scale at the

HAZELWOOD

Hazelwood is a large neighborhood (2,587 acres, about 4 square miles), but not the largest in Portland, Oregon. However, it has the most residents, with 23,332 people*.

The Hazelwood neighborhood includes the **Gateway Urban Renewal Area** (658.5 acres), Gateway Transit Center (served by three light rail lines and six bus lines), Mall 205 Shopping Center, Adventist Medical Center (hospital), several smaller shopping centers (Gateway Shopping Center, Plaza 205, 205 Place and Menlo Park Plaza), and more than 800 businesses. Much of the neighborhood falls within the boundaries of the Gateway Area Business Association.

There are several parks in the neighborhood -- Cherry Park, Cherry Blossom Park, East Holladay Park, Lincoln Park, North Powellhurst Park, Ventura Park, Hazelwood HydroPark and Community Garden, the Stark Street Triangle and the Glendoveer Golf Course and Fitness Trail. Some of them are very small; others are undeveloped.

Schools in Hazelwood include the David Douglas High School campus & district offices, Menlo Park Elementary, Cherry Park Elementary, Ventura Park Elementary, Lincoln Park Elementary, Reynold's Four Corners Elementary, St. Therese School, Harmony Montessori, Portland Adventist Academy, Arthur Academy, and the Portland campus of the Walla Walla School of Nursing. The Parkrose School District also serves part of the neighborhood, although none of its schools are located in Hazelwood.

The MAX Green Line runs north-south along the western boundary of the neighborhood and the original MAX Blue Line runs eastward through the middle. MAX stops at four locations in Hazelwood: Gateway Transit Center (Red, Blue, & Green Lines), Main Street (Green), 102nd & 122nd Avenue (Blue), and two locations on the neighborhood edge, 148th Avenue (Blue) & Division Street (Green).

The Hazelwood **boundaries** are roughly NE Halsey on the north; NE/SE 148th Ave on the east; SE Division on the south and the I-205 freeway on the west. The Mill Park neighborhood is also within these general boundaries, surrounded on three sides by the Hazelwood neighborhood. The Mill Park neighborhood is roughly bounded by SE Stark on the north, SE 130th on the east, SE Division on the south and SE 112th on the west.

GATEWAY NEIGHBORHOOD

GENERAL

The subject market area is in northeast Portland in Multnomah County and is near the Interstate-205 freeway. This area is generally known as the Gateway neighborhood and is approximately five miles east of Portland's city center. The general boundaries are NE Division Street on the south, NE Glisan Street on the north, SE 162nd Avenue on the east, and Interstate-205 on the west. Single and multi-family residential are the dominating land uses in the immediate market area, with significant commercial development along major arterials.

RESIDENTIAL DEVELOPMENT

Residential development within the neighborhood has been steady over the past 30 years. The residential development is primarily single family oriented, and constructed between 1950 and 1980. The single family residential development is primarily on 5,000 to 10,000 sq. ft. lots and is comprised of fair to good quality homes. Given the built-up nature of the neighborhood, most of the newer housing

stock has occurred east of the subject neighborhood. However, “in-fill” construction continues in the immediate area on under-utilized parcels with a majority of homes built since 1990 priced within an “affordable” range from \$175,000 to \$300,000. Residential land is mostly developed, and future residential development is anticipated on the vacant small or under-utilized sites, scattered throughout the neighborhood, similar to the subject development. The housing stock throughout the neighborhood has historically been in the low to mid-range with regard to quality and appeal.

COMMERCIAL DEVELOPMENT

There is a significant commercial development along major arterials in the subject market area. The major east/west arterials are SE Stark, SE Washington, SE Division, and E Burnside; and the major north/south arterials are SE 82nd Avenue, SE 122nd Avenue, and SE 162nd Avenue. Most intersections have retail centers with a variety of service-related commercial developments. The I-205 shopping mall is located on SE Stark Street near the Interstate-205 freeway.

Office development in the area ranges from older, fair quality buildings to newer, average quality structures. Office development typically consists of two to three-story buildings, of wood frame or masonry construction, ranging in size from 10,000 to 30,000 sq. ft. Overall, the market area is well served by commercial development.

INDUSTRIAL DEVELOPMENT

The subject market is near the Columbia Corridor, which is in the vicinity of Interstate 84 and the Columbia River, and one of Portland’s major industrial centers. This area benefits from good access to major freeways, local arterials, and the Portland International Airport. Most development in this area has occurred northeast of the subject market in the vicinity of NE 181st Avenue and includes the Rockwood Industrial Park, Banfield Corporate Park, and Albertson’s Corporate Distribution Center. Other uses in the area include the Boeing parts manufacturing facility, light, and general industrial facilities, and office park development.

The I-84 Corporate Center is located in Troutdale near the airport, between I-84 and NE Marine Drive. Other notable industrial developments in the area include the Clear Creek Industrial Park near the intersection of NE Glisan Street and NW Fairview/NE 223rd Avenue, and the Reynolds Metals Company aluminum facility. The aluminum plant has been closed and is in the process of being dismantled and site contamination remediate. This action will result in 300 to 400 acres of usable land for future development. Catellus Development is holding 426 acres of industrial land on the south side of NE Marine Drive, west and east of NE 185th Avenue, for future industrial development. The extensive industrial development near the subject market provides a stable base for the area.

TRANSPORTATION

The neighborhood is well served by major road systems, I-205 and I-84. There is good access to both of these freeway systems from the neighborhood, and both provide access to I-5. The major east/west corridors are SE Stark Street, SE Powell, SE Division, E Burnside Street, NE Halsey, and NE Glisan Street, all of which lead to the central business district of the City of Portland to the west and to the commercial core of Gresham and outlying communities to the east.

Tri-Met (Tri-County Metropolitan Transportation District) provides public bus service throughout the neighborhood. The Banfield Light Rail system, part of the Metropolitan Area Express (MAX), serves the area with a trolley-type rail system that follows E Burnside. The rail line has a positive impact on the area in terms of improved accessibility to and from the Portland central business district. Air transportation services are provided by the Portland International Airport located approximately five miles north of the neighborhood. The light rail system has been extended to the airport which has also benefited the neighborhood.

DEVELOPMENT TEAM

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Project Manager, Project Design

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Architect of Record

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Ken Valentine, P.E. - Associate Principal

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Landscape Architect

Stephen J. McHugh, MCH Construction Company

Construction Manager



Harper
Houf Peterson
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Hazelwood Plaza

CTY-01

Preliminary Stormwater Management Report

Prepared For:

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March 19, 2014

Prepared By:

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HHPR

ENGINEERS ♦ PLANNERS
LANDSCAPE ARCHITECTS ♦ SURVEYORS

Designer's Certification Statement

I hereby certify that this Stormwater Management Report for the Hazelwood Plaza has been prepared by me or under my supervision and meets minimum standards of the City of Portland and normal standards of engineering practice. I hereby acknowledge and agree that the jurisdiction does not and will not assume liability for the sufficiency, suitability, or performance of the drainage facilities designed by me.

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Project Description

The Hazelwood Plaza project is located at the intersection of NE 102nd Avenue and NE Davis Street. A 60 unit residential building with parking area will be constructed. Stormwater management for the site will be with combination of flow-thru planter and a drywells for on-site infiltration.

Existing Site Conditions

The existing site was developed as four single family home sites. The homes have been demolished and the sites cleared of all debris. There is no evidence the previous homes were connected to a storm sewer system. The project fronts to NE 102nd Avenue. The storm system within 102nd Avenue is a series of catch basins flowing to sediment manholes and ultimately to sumps.

Proposed Site Improvements

The proposed building covers nearly 100% of the available space. The bottom floor will include parking and a few living spaces along the 102nd Avenue frontage. Water quality will be provided by a flow through planter located along the easterly property line and disposal will be provided by two drywell sumps located under the building.

The site impervious surfaces will be managed per the 2008 City of Portland Stormwater Management Manual (SWMM). Per the SWMM, the Stormwater Infiltration and Discharge Hierarchy is to be used to determine the feasibility of the stormwater option to be used for the site.

The following addresses each category in the Hierarchy;

Category 1: Requires total onsite infiltration with vegetated infiltration facilities.

The proposed impervious area will flow to a stormwater planter and drywell to infiltrate all stormwater from the site.

Category 2: Requires total onsite infiltration with a vegetated facility that overflows to a subsurface infiltration facility.

The proposed impervious area will flow to a stormwater planter and drywell to infiltrate all stormwater from the site.

Category 3: Requires onsite detention with vegetated facilities that overflow to a drainage way, river, or storm-only pipe.

This category is not applicable, a drainage way, river, or storm-only pipe is not available to this site

Category 4: Required onsite detention with vegetated facilities that overflow to the combined sewer system.

This category is not applicable, a combined sewer is not available to this site.

Conclusion

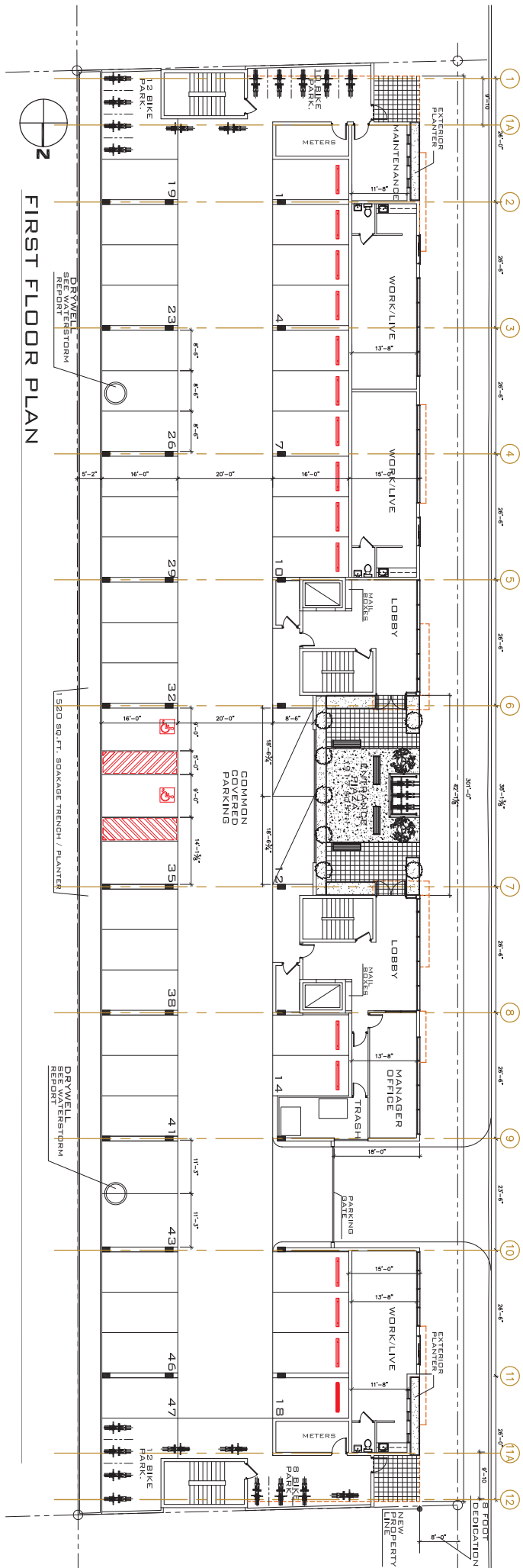
The proposed stormwater management for the site falls under Category 2 of the Stormwater Infiltration and Discharge Hierarchy.

Sizing calculations for the stormwater planter and drywell can be found in the Appendix of this report. Below is a summary table;

| | Area | Treatment | Discharge |
|-----------------------|----------|--------------------------|-----------|
| Roof/Building/Parking | 20,480sf | Flow-thru planter (100%) | Drywell |

Appendix

Maps and Calculations



FIRST FLOOR PLAN

HAZELWOOD PLAZA - 60 RESIDENTIAL UNITS 222-312 NE 102ND. AVE. PORTLAND OR

02-20-14

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SITE OBSERVATIONS AND CONDITIONS

Surface Conditions

The property is located at 222 NE 102nd Avenue in Portland, Oregon as shown on the attached **Site Plan**. The site is relatively flat, with topography varying by only a few feet. Several residences, reportedly with basements, were located on the property several years ago and have since been demolished. The ground surface has been disturbed from that activity, and depressions from the house footprint locations are evident, along with overgrown gravel entry drives. Site vegetation is generally limited to grass and weeds, with several scattered deciduous trees. The site is bordered by residential properties to the south, east and north.

Subsurface Conditions

General – Subsurface conditions at the site were explored on May 13, 2013 by completing 3 test pits (TP-1 through TP-3) to depths up to 16 feet below the existing ground surface (bgs) using a John Deere 310E backhoe weighing approximately 15,000 pounds. Approximate exploration locations are shown on the attached **Site Plan**. Specific subsurface conditions observed at each exploration are described in the attached **Test Pit Logs**.

In general, subsurface conditions include surficial topsoil (redeveloped in fill or disturbed surface soils after demolition of houses) ranging in thickness from 7 inches to 11 inches underlain by fill and native sands and gravels. Under the topsoil test pits TP-2 and TP-3 encountered fill. In TP-2 this fill consisted of stiff gravelly silt to a depth of 2.5 feet. In TP-3 the fill consisted of very dense slightly cemented gravel fill to a depth of 4 feet (inferred as imported recycled crushed concrete) underlain by loose gravels and cobbles to a depth of 6 feet. This likely represents a basement area as reported in a site interview with the southern bordering resident. Below the topsoil and fill the native soils generally consisted of medium dense gravels and coarse sand with trace to little silt, and occasional lenses of trace to some silt and fine sand.

Laboratory Testing – Laboratory testing resulted in moisture contents of 12% in the upper sandy gravel with some silt, 2% to 8% in the underlying sand and gravels, and 19% to 26% in a sand lens encountered in TP-2. One fines content test in test pit TP-1 at a depth of 6 feet indicated 1.2% fines. Test results are summarized in the attached **Moisture Contents**, and **Fines Contents**.

Infiltration Testing – We completed a constant head, constant flow rate infiltration test in test pit TP-2 near the eastern side of the property in gravelly medium to coarse sand with trace silt to clean (fines content of 1.2%). The rate was very high, typical of low fines content sands and gravels in this area.

| <u>Test Pit/Depth</u> | <u>Soil Tested</u> | <u>Unfactored rate (in³/hr/in²) *</u> |
|-----------------------|--------------------|---|
| TP-1/6 feet | Sand with some gr. | 1,780* |

* these values are unfactored and not to be used for design

Groundwater – We did not observe ground water seepage, and ground water is mapped as deep in this area.

Drywell Calculations

Assuming 100% of the site would be routed to the drywell system.
Total to Drywell = 0.48cfs (25-yr peak)

The geotechnical report has given an infiltration rate of 1200 inches per hour and a design rate of 500 in/hr was used.

Groundwater was not encountered.

Infiltration Calculations:

Q (25-year peak flow) 0.48 cfs

Design Infiltration Rate 500 in/hr (FACTOR OF SAFETY APPLIED)

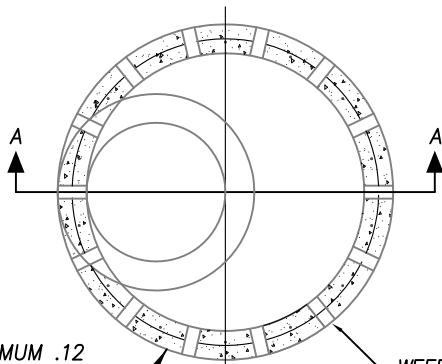
| Drywell Design (side and bottom area) | Depth (ft) | Diameter (ft) | Wetted Area (sf) |
|--|---------------|------------------|---------------------|
| | <u>4</u> | <u>6</u> | <u>75</u> |

Q_{inf} (Maximum infiltration rate per drywell) 0.58 cfs/drywell

Number of Drywells 2

Total Infiltration Capacity 1.16 cfs

Note: Drywell diameter is effective diameter of drain rock surrounding a standard 48" perforated section



VERTICAL REINFORCING STEEL MINIMUM .12 SQ IN PER FOOT. CIRCUMFERENTIAL REINFORCING STEEL IN ACCORDANCE WITH ASTM C478 (.12 SQ IN PER FOOT)

WEEP HOLE 14-2 1/4" SQUARE OR 2 3/8" ROUND HOLES, EQUALLY SPACED OR APPROVED EQUAL.

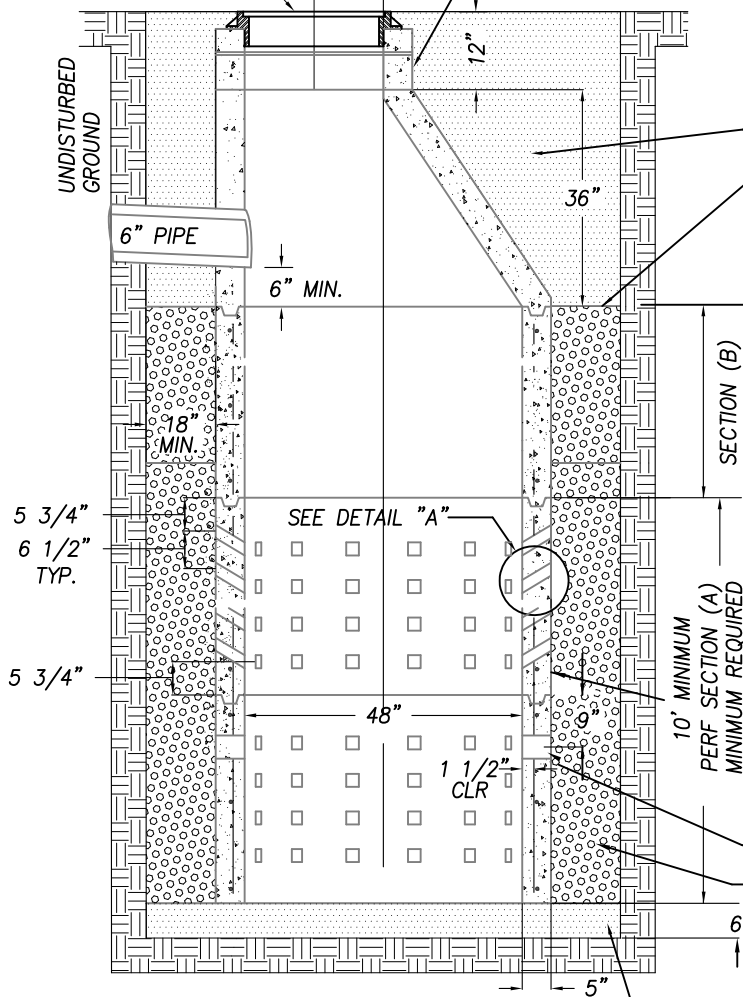
PLAN

STANDARD MANHOLE FRAME AND COVER

GRADE RINGS MINIMUM 3" MAXIMUM 12"



DETAIL "A"



1"-0" OR 3/4"-0" CRUSHED ROCK

GEOTEXTILE FABRIC, PER STANDARD SPEC 205.2.14 BETWEEN CRUSHED ROCK AND DRAIN ROCK.

NOTES:

1. ALL PRECAST SECTIONS SHALL CONFORM TO REQUIREMENTS OF ASTM C 478.
2. PROVIDE A MIN. OF 6" OF 1"-0" OR 3/4"-0" CLEAN CRUSHED ROCK UNDER ALL PIPES.
3. INVERT SHALL BE LEVEL AND SMOOTH.
4. PRECAST MANHOLE BASE AS SHOWN ON PLAN 4-06-3 MAY BE SUBSTITUTED FOR BASE SHOWN.
5. SUMP BARREL SHALL NOT BE PERFORATED WITHIN 48" OF THE CONE.

ENCASE WITH 1/4" OPENING HDPE NETTING CONFORMING TO ASTM D-1248 HELD IN PLACE WITH 3 STEEL BANDS PER SECTION.

LIFTING HOLES

1/2"-#4 CLEAN ROUNDED GRAVEL

1"-0" OR 3/4"-0" CRUSHED ROCK

SECTION A-A

NOTE:

CONTRACTOR SHALL SUBMIT ENGINEERING FOR DESIGN OF ALL DRYWELLS TAKING INTO ACCOUNT ALL LATERAL EARTH PRESSURES INCLUDING SURCHARGES FORM ADJACENT BUILDING FOUNDATIONS. CONTRACTOR SHALL ASSUME ALL ADJACENT BUILDING FOUNDATIONS HAVE BEEN DESIGNED WITH A 3,000PSF BEARING PRESSURE.

ALL DRY WELLS SHALL TEST TO THE MINIMUM GPM REQUIRED AS SPECIFIED ON THE PLANS. PROVIDE BUREAU OF BUILDINGS INSPECTOR OR AUTHORIZED SPECIAL INSPECTOR WITH RECORDED TEST DATA.

DRYWELL DETAIL

N.T.S.

Stormwater Planter Calculations

A 1300sf flow through planter is located along the easterly property line.

| Facility Name | Size (sf) | Storage Depth (inch)* | Area Treated | Impervious Area Treated | Discharge Point |
|---------------|-----------|-----------------------|--------------|-------------------------|-----------------|
| Planter | 1300 | 8 | Roof Area | 20,480 | Drywell |

The following pages are results from PAC.



Presumptive Approach Calculator ver. 1.2

Catchment Data

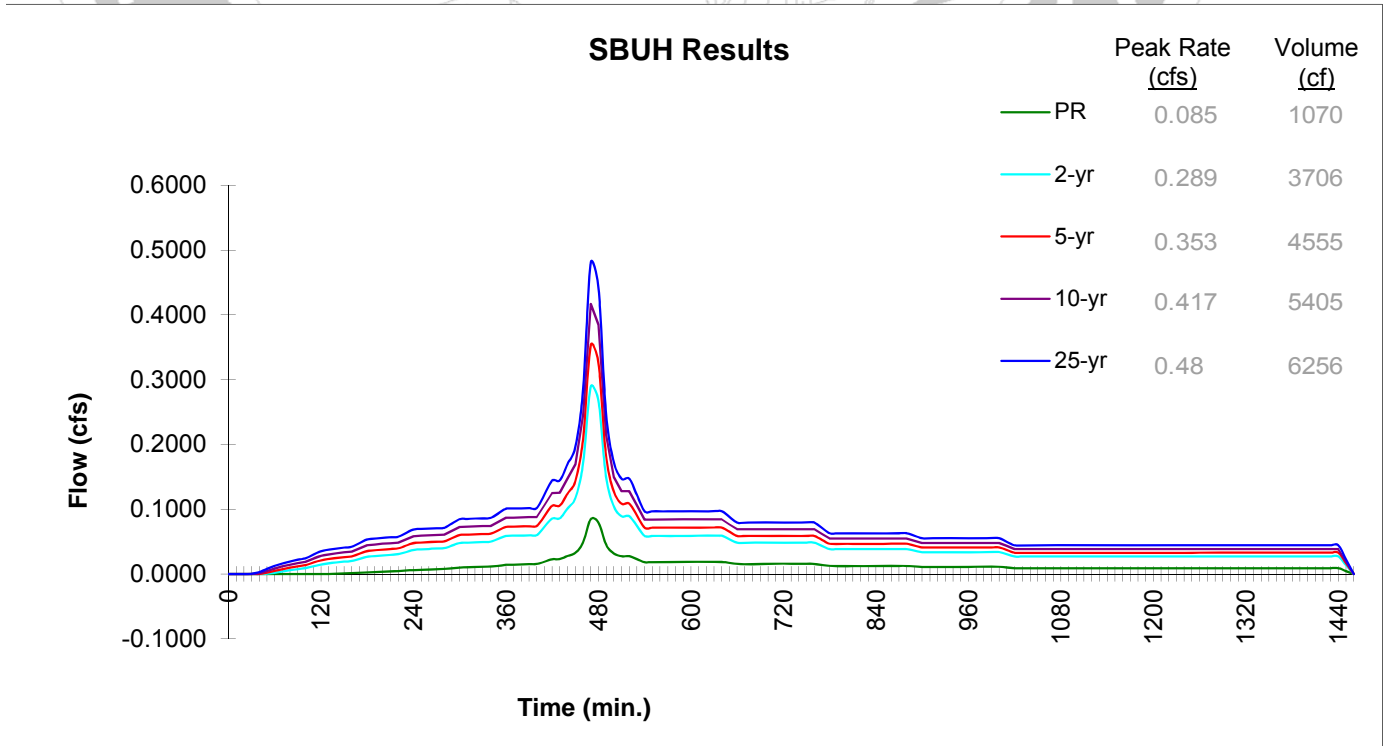
Project Name: Hazelwood Plaza
Project Address: 222-312 NE 102nd Ave
 Portland OR
Designer: JLB
Company: HHPR

Catchment ID: A
Date: 03/19/14
Permit Number: 0

Run Time 3/19/2014 1:53:52 PM

| Drainage Catchment Information | |
|--|-----------------------|
| Catchment ID | A |
| Catchment Area | |
| Impervious Area | 20,480 SF |
| Impervious Area | 0.47 ac |
| Impervious Area Curve Number, CN_{imp} | 98 |
| Time of Concentration, T_c , minutes | 5 min. |
| Site Soils & Infiltration Testing Data | |
| Infiltration Testing Procedure: | Open Pit Falling Head |
| Native Soil Field Tested Infiltration Rate (I_{test}): | 10 in/hr |
| Bottom of Facility Meets Required Separation From High Groundwater Per BES SWMM Section 1.4: | Yes |
| Correction Factor Component | |
| CF_{test} (ranges from 1 to 3) | 2 |
| Design Infiltration Rates | |
| I_{dsgn} for Native (I_{test} / CF_{test}): | 5.00 in/hr |
| I_{dsgn} for Imported Growing Medium: | 2.00 in/hr |

Execute SBUH





Presumptive Approach Calculator ver. 1.2

Catchment ID: **A**

Run Time 3/19/2014 1:53:52 PM

Project Name: Hazelwood Plaza

Catchment ID: A

Date: 3/19/2014

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Instructions:

1. Identify which Stormwater Hierarchy Category the facility.
2. Select Facility Type.
3. Identify facility shape of surface facility to more accurately estimate surface volume, except for Swales and sloped planters that use the PAC Sloped Facility Worksheet to enter data.
4. Select type of facility configuration.
5. Complete data entry for all highlighted cells.

Catchment facility will meet Hierarchy Category: **2**

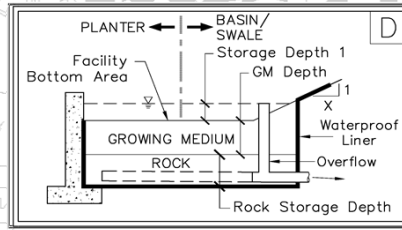
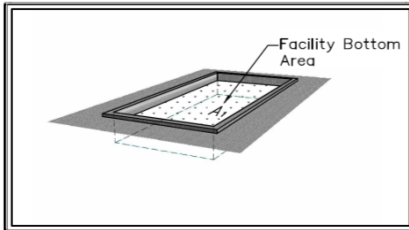
Goal Summary:

| Hierarchy Category | SWMM Requirement | RESULTS box below needs to display... | |
|--------------------|--|---------------------------------------|---|
| | | Pollution Reduction as a | 10-yr (aka disposal) as a |
| 2 | On-site infiltration through use of approved UIC facility (e.g. below grade rock storage, public infiltration sump system, private drywell or soakage trench.) | PASS | PASS or if FAIL, check box for disposal through separate approved UIC |

Facility Type = **Planter (Flat)**

Facility Shape: **Rectangle/Square**

Facility Configuration: **D**



Calculation Guide
Max. Rock Stor.
Bottom Area
1,300 SF

DATA FOR ABOVE GRADE STORAGE COMPONENT

Facility Bottom Area = **1,300** sf
 Bottom Width = **4.3** ft
 Facility Side Slope = **0** to 1
 Storage Depth 1 = **8** in
 Growing Medium Depth = **18** in
 Freeboard Depth = **N/A** in

BELOW GRADE STORAGE

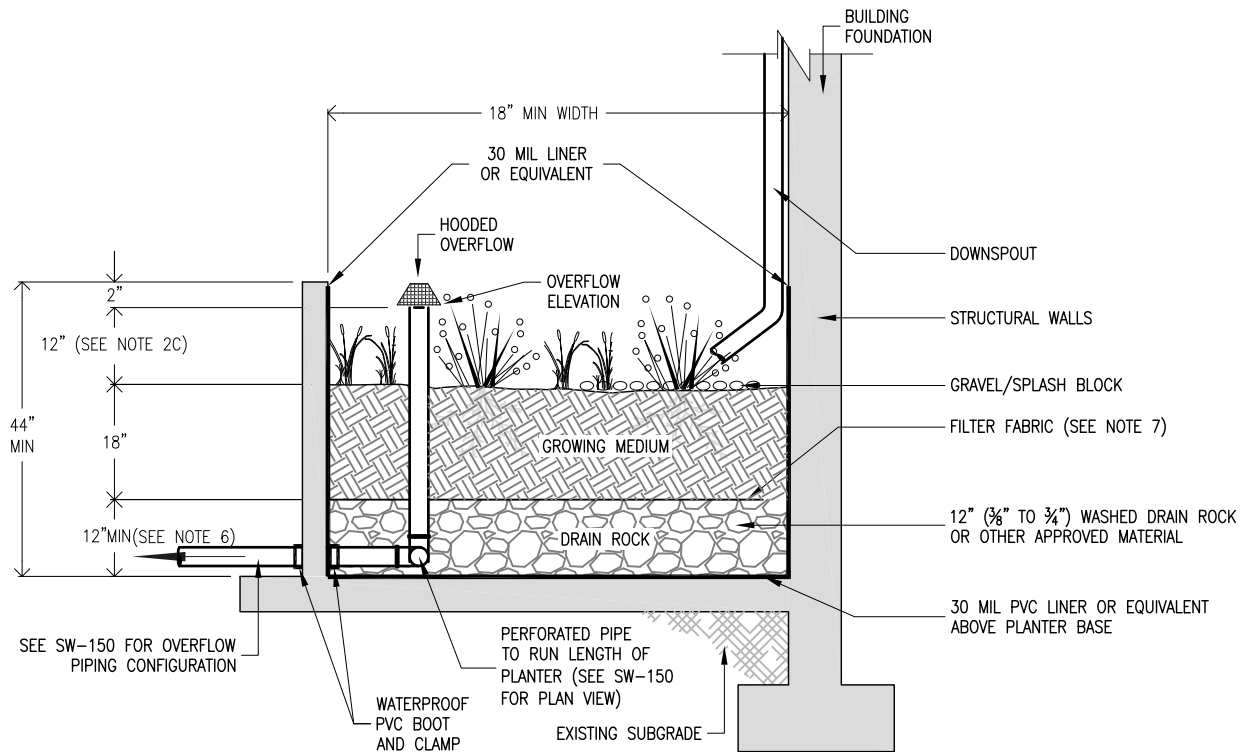
Surface Capacity at Depth 1 = **867** cf
 GM Design Infiltration Rate = **2.00** in/hr
 Infiltration Capacity = **0.060** cfs

Rock Storage Capacity = _____ cf
 Native Design Infiltration Rate = _____ in/hr
 Infiltration Capacity = _____ cfs

| | |
|---|---|
| RESULTS | Overflow Volume |
| Pollution Reduction PASS | 0 CF 3% Surf. Cap. Used Run PAC |
| <input checked="" type="checkbox"/> Disposal occurs in separate approved UIC. Refer to Storm Report for more information. | |

Current data has been imported:
 CTY01 PAC 03192014.xls 3/19/2014 1:53:53 PM

| |
|--|
| FACILITY FACTS |
| Total Facility Area Including Freeboard = 1,300 SF |
| Sizing Ratio (Total Facility Area / Catchment Area) = 0.063 |



1. Provide protection from all vehicle traffic, equipment staging, and foot traffic in proposed infiltration areas prior to, during, and after construction.
2. Dimensions:
 - a. Width of flow-through planter: 18" minimum.
 - b. Width of infiltration planter: 30" minimum.
 - c. Depth of planter (from top of growing medium to overflow elevation). Simplified: 12"; Presumptive: 6"- 18".
 - d. Slope of planter: 0.5% or less.
3. Setbacks (from centerline of facility):
 - a. Infiltration planters must be 10' from foundations and 5' from property lines.
 - b. Flow-through planters must be less than 30" in height above surrounding area if within 5 feet of property line.
4. Overflow:
 - a. Overflow required for Simplified Approach.
 - b. Inlet elevation must allow for 2" of freeboard, minimum.
 - c. Protect from debris and sediment with strainer or grate.
5. Piping: shall be ABS Sch.40, cast iron, or PVS Sch.40. 3" pipe required for up to 1,500 sq ft of impervious area, otherwise 4" min. Piping must have 1% grade and follow the Uniform Plumbing Code.
6. Drain rock:
 - a. Size for infiltration planter: 1½" - ¾" washed
 - b. Size for flow-through planter: ¾" washed
 - c. Depth for Simplified: 12"
 - d. Depth for Presumptive: 0-48", see calcs.
7. Separation between drain rock and growing medium: Use filter fabric (see SWMM Exhibit 2-4 Geotextile table) or a gravel lens (¾ - ¼ inch washed, crushed rock 2 to 3 inches deep).
8. Growing medium:
 - a. 18" minimum
 - b. See Appendix F.3 for specification or use sand/loam/compost 3-way mix.
9. Vegetation: Follow landscape plans otherwise refer to plant list in SWMM Appendix F. Minimum container size is 1 gallon. # of plantings per 100sf of facility area:
 - a. Zone A (wet) 115 herbaceous plants, OR
 - b. Zone A (wet) 100 herbaceous plants and 4 small shrubs.
10. Planter walls:
 - a. Material shall be stone, brick, concrete, wood, or other durable material (no chemically treated wood).
 - b. Concrete, brick, or stone walls shall be included on foundation plans.
11. Waterproof liner: Shall be 30 mil PVC or equivalent, for flow-through facilities.
12. Install washed pea gravel or river rock to transition from inlet or splash pad to growing medium.
13. Inspections: Call BDS IVR Inspection Line, (503) 823-7000, for appropriate inspections.

- DRAWING NOT TO SCALE -

STORMWATER MANAGEMENT MANUAL TYPICAL DETAILS

- Simplified / Presumptive Design Approach -

Planter

NUMBER

SW-130



Bureau of Environmental Services

