



**DUNCANSON**  
*Company, Inc.*

January 18, 2023

DCI 22391.001

Lauren Russell, AICP  
City of Beaverton Community Development  
12725 SW Millikan Way  
Beaverton, OR 97076

Subject: **Comcast Beaverton Generator**  
**CU2022-0011/DR2022-0135**

Dear Lauren:

This letter provides responses to the Stormwater Report and Site Development Review comments in your November 3, 2022, review letter..

**Other Requirements**

1. Storm Report

- a. Please show how the existing storm runoff from the onsite generator area is conveyed to the existing stormwater filter. The storm report shows that the existing storm filter treats this area, but it is unclear how runoff reaches the filter from areas other than the parking lot.

Response: Runoff from the proposed generator area sheet flows south across the rock surfacing and concrete slabs, over the sidewalk and then over the parking lot pavement to an existing catch basin in the middle of the parking lot. That catch basin is connected to the stormfilter with a 12-inch ductile iron pipe. See attached photo narrative.

- b. Please provide calculations showing that the existing storm water filter is properly sized to treat the entire impervious area from the site.

Response: Sizing calculations for the existing stormfilter are contained in the Stormwater Site Plan report prepared by SvR for the previous development of the site. The cover page, stormfilter flow calculation and contributing area map from that report have been added as Appendix C to our stormwater report. The area of the current generator addition project is entirely within the 0.907 acre basin modeled for the stormfilter sizing. The calculations show the basin was modeled as 100% impervious (C = 1.0). Standard CWS water quality storm precipitation values were used.

**Preliminary Staff Comments**

2. Site Development Comments

Add Clean Water Services detail number 945, erosion control notes for sites less than one acre

[Response: The ESC Notes on ESC-1 were the notes from CWS 945. They have been replaced by the detail itself now on sheet ESC-2](#)

Please call if you have any questions. Thanks.

Sincerely,

**Duncanson Company, Inc.**

A handwritten signature in black ink, appearing to read "Harold M. Duncanson". The signature is fluid and cursive, with a long horizontal stroke at the end.

Harold M. Duncanson, P.E.

President

Enclosure



Photo 1—Sidewalk and general ground slope to south in front of existing level generator pad.



Photo 2—Approx 1.3% slope to south from Photo 1 above.



Photo 3—Approx 1.2% slope to south across sidewalk at parking lot.



Photo 4—Parking lot sloping south to existing catch basin.



Photo 5—Approx 3.8% slope to south in parking lot from Photo 4 above.

# Drainage Report

Comcast

Comcast - Beaverton

PROJECT LOCATION:

1750 NW 173<sup>RD</sup> AVE

(Permit #: CU2022-0011/DR2022-0135)

Engineer: Duncanson Company  
145 SW 155<sup>th</sup> Street, # 102  
Seattle, WA 98166  
Contact: Harold Duncanson  
P: 206-244-4141  
e: haroldd@duncansonco.com



Date: 1/18/2023

DCI Project: 22391.001



DUNCANSON

Company, Inc.

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## Section 1—Project Overview & Maps

This Project involves 3 generators at an existing Comcast telecommunication facility. The generators will rest on an 1,832 square foot concrete pad. A 15-foot-tall CMU wall will be constructed on the south and west side of the generator pad. Current surface conditions in the project area consist of gravel surface and concrete pads. The building to the north of the project area and the asphalt parking lot to the south of the project area were developed in 2000. Runoff treatment for the Project area is currently provided by a Stormfilter that was constructed as part of the previous development. See Section 2 for additional discussion.

The site is flat. Runoff appears to sheet flow to the south into the adjacent parking lot where it is intercepted by a catch basin. The existing buildings on this property are also connected to the storm drain system in the parking lot. Adjacent properties are office/commercial with their own collection systems. There is no upstream runoff to the project area.

The NRCS Websoilsurvey identifies site soils to be Dayton silt loam, which are Hydrologic Group D soils.

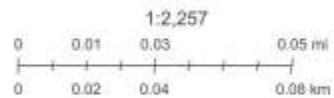
### Maps/Figures

- A. Upstream Basin—Surrounding properties are developed with their own collection and conveyance systems so there is no upstream run-on to the Project Area. Figure 1.A shows the site and surrounding area for general reference.
- B. Downstream Basin—A downstream basin map is included as Figure 1.B.
- C. Site Plan—A Site Plan is included as Figure 1.C.
- D. Existing Stormwater Facilities—Refer to Figure 1.D
- E. Proposed Stormwater Facilities— Refer to Figure 1.E





August 3, 2022



**DUNCANSON COMPANY, INC.**  
 Civil Engineering · Surveying · Land Planning  
 145 SW 155th Street, Suite 102  
 Seattle, Washington 98166  
 Phone 206.244.4141  
 Fax 206.244.4455

**FIGURE 1.A - PROJECT AREA**

Scale: As Noted

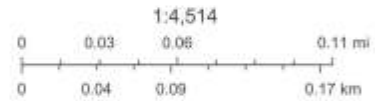
Drawn: DLS

Job No. 22391001

# Beaverton Utilities Viewer



August 3, 2022



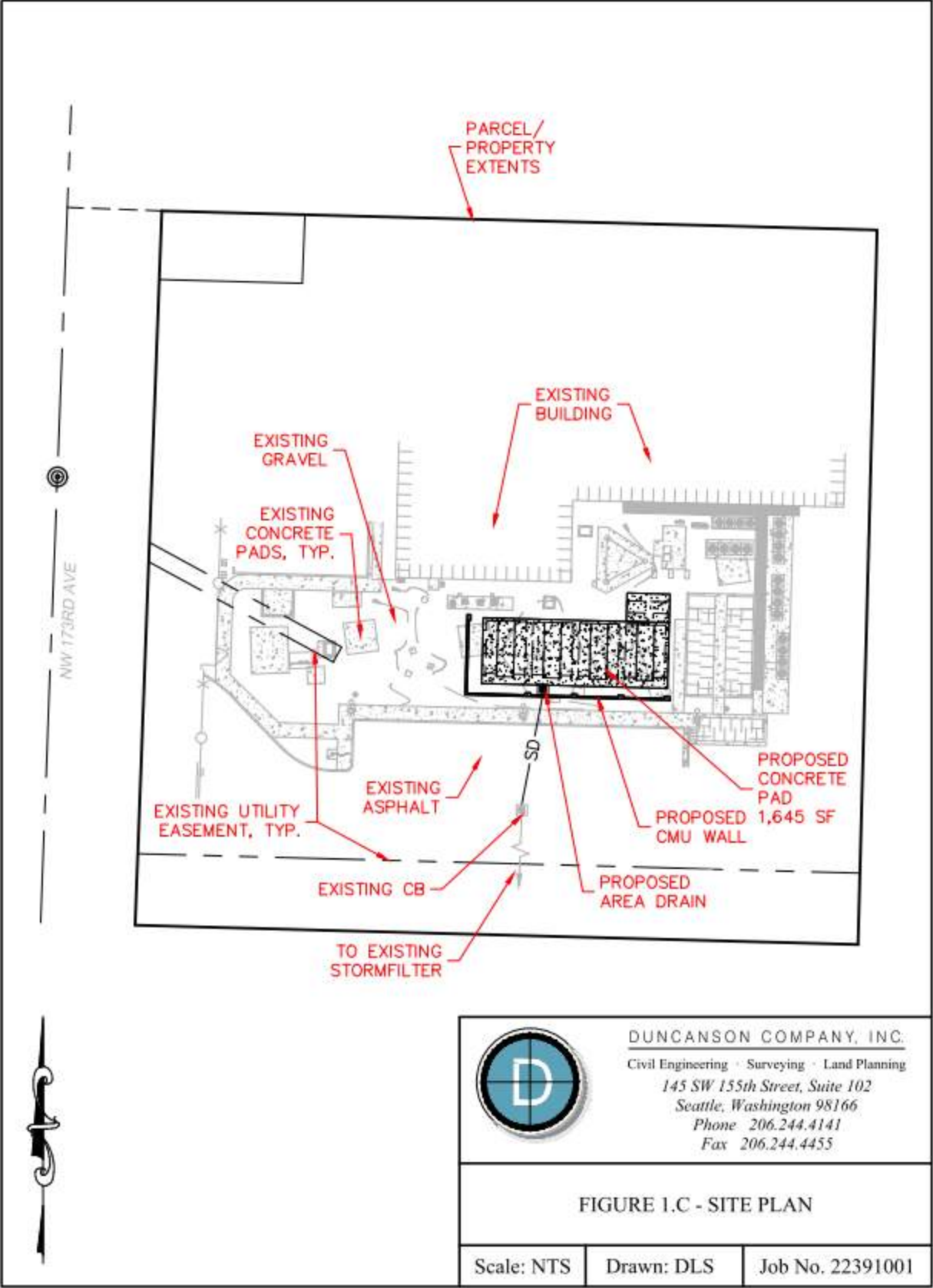
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145 SW 155th Street, Suite 102  
Seattle, Washington 98166  
Phone 206.244.4141  
Fax 206.244.4435

FIGURE 1.B - DOWNSTREAM BASIN

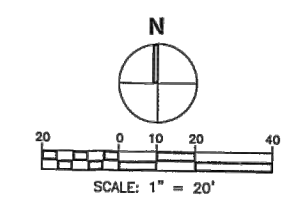
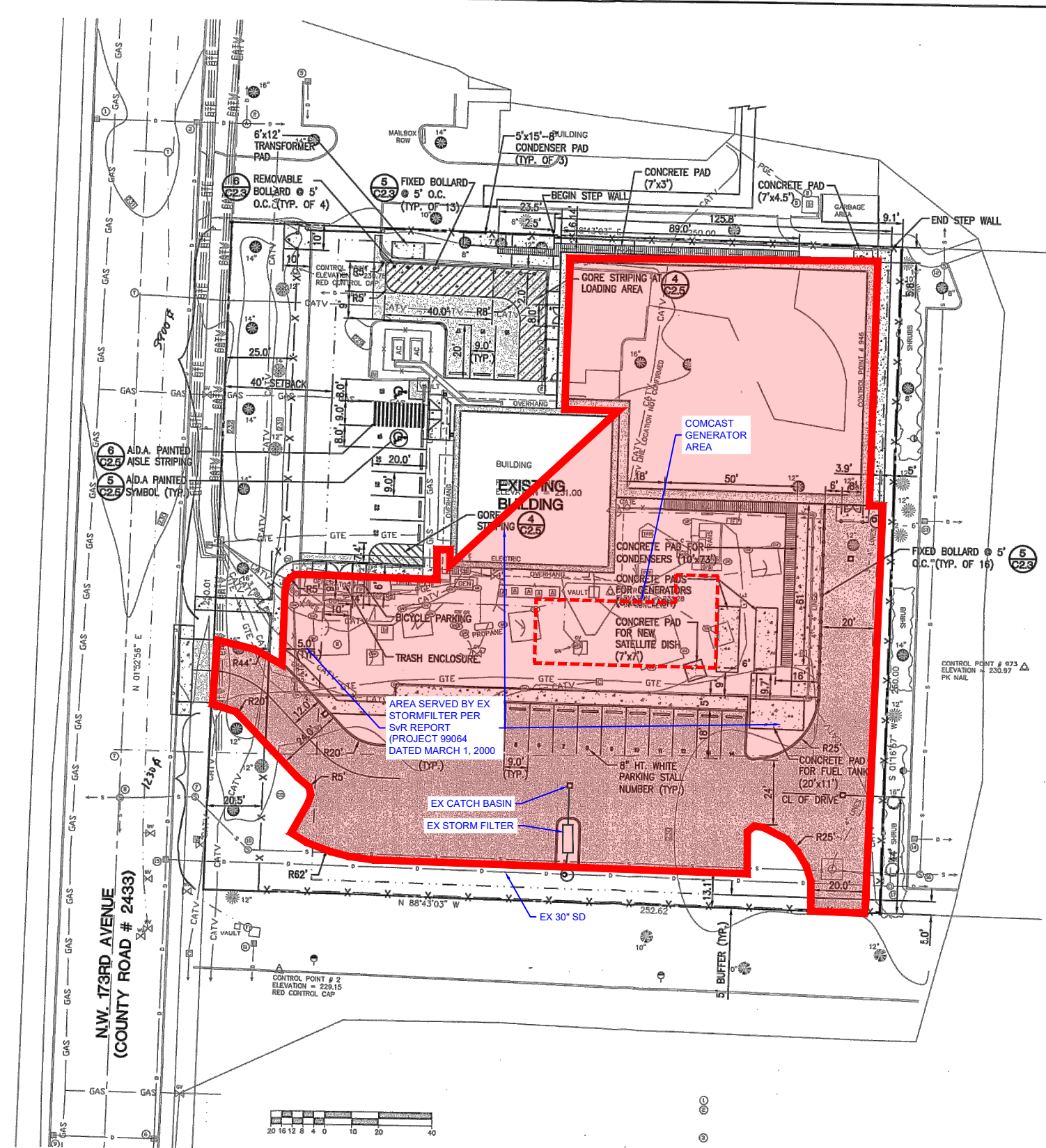
Scale: As Noted

Drawn: DLS

Job No. 22391001



bsa\_jaycul.dwg G:\pbc\99064c\ 99064c 24x36 1x20 4/28/00 2:43 pm



**LEGEND**

- WHEELSTOP
- CATCH BASIN
- STEP WALL
- X- CHAIN LINK FENCE
- - - BUILDING SETBACK/LANDSCAPE BUFFER
- CURB
- [Pattern] ASPHALT PAVEMENT
- [Pattern] CONCRETE PAVEMENT

- NOTES:**
1. A DIGITAL COPY OF THE LAYOUT DRAWING IN AUTOCAD VER. 14 WILL BE PROVIDED FOR HORIZONTAL CONSTRUCTION LAYOUT.
  2. SEE STRUCTURAL DRAWINGS FOR CONCRETE PAD DETAILS.
  3. SEE SHEET C1.0 FOR PROJECT BENCHMARK.
  4. FOR TRASH ENCLOSURE, SEE STRUCTURAL AND ARCHITECTURAL DRAWINGS.
  5. SEE SHEET C2.1 FOR NOTES.

**EXISTING PARKING**  
 12 STALLS INCLUDING:  
 1 STANDARD ADA STALL

**PROPOSED PARKING**  
 23 STALLS INCLUDING:  
 1 VAN ADA STALL  
 1 STANDARD ADA STALL  
 BICYCLE PARKING: 2 SPACES W/ RACK

**SQUARE FOOTAGES**  
 SITE: 63,155 SF  
 IMPERVIOUS: 49,900 SF  
 BUILDING COVERAGE: 13,743 SF  
 PERVIOUS: 13,255 SF  
 TOTAL PERVIOUS COVERAGE: 21%  
 BUILDING/SITE COVERAGE: 22%

**PARKING LOT LANDSCAPING REQUIRED FOR SOUTH LOT (10 OR MORE VEHICLES)**  
 REQUIRED: 310 SF  
 PROVIDED: 770 SF



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 Seattle, WA 98104  
 Phone: 206.223.0326  
 FAX: 206.223.0125

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TCI APPROVAL <span style="float: right;">00-234</span>																							
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<b>PROJECT ARCHITECT:</b> Laurence Sherman, Architect 615 Second Ave, Suite 632 Seattle, WA 98104-2200 (206) 521-9091 Fax: (206) 521-9095																							
<b>PROJECT MANAGER:</b> IBI Group 1001 S.W. 5th Avenue Suite 1100 Portland, OR 97204 (503) 702-6512 Fax: (503) 220-1815																							
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PROJECT TITLE																							
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Beaverton, Oregon Regional Signal Transport Systems Rebuild																							
BEAVERTON PRIMARY HUB PHASE II 1750 NW 173rd AVE. BEAVERTON, OR 97006																							
SHEET TITLE																							
<b>CIVIL SITE PLAN AND LAYOUT</b>																							
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PROJECT	SHEET C1.1																						
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Written dimensions shall have precedence over scaled dimensions. Contractors shall verify and be responsible for all dimensions and conditions on the job and the architect shall be informed of any variations from the drawings and conditions shown on the drawing. Shop drawings shall be submitted to the architect for approval before proceeding with fabrication.																							

CLIENT:

CLIENT:

IMPLEMENTATION TEAM/CLIENT:

CIVIL ENGINEER:

**DUNCANSON**  
 Company, Inc.  
 145 SW 155th Street, Suite 102  
 Seattle, Washington 98166  
 Phone 206.244.4141  
 Fax 206.244.4455

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REV	DATE	DESCRIPTION
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-	-	-
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PROJECT:

**COMCAST BEAVERTON**

1750 NW 173RD AVE  
 BEAVERTON, OR 97006

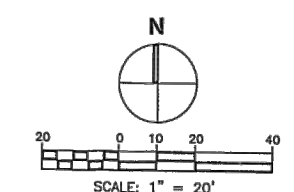
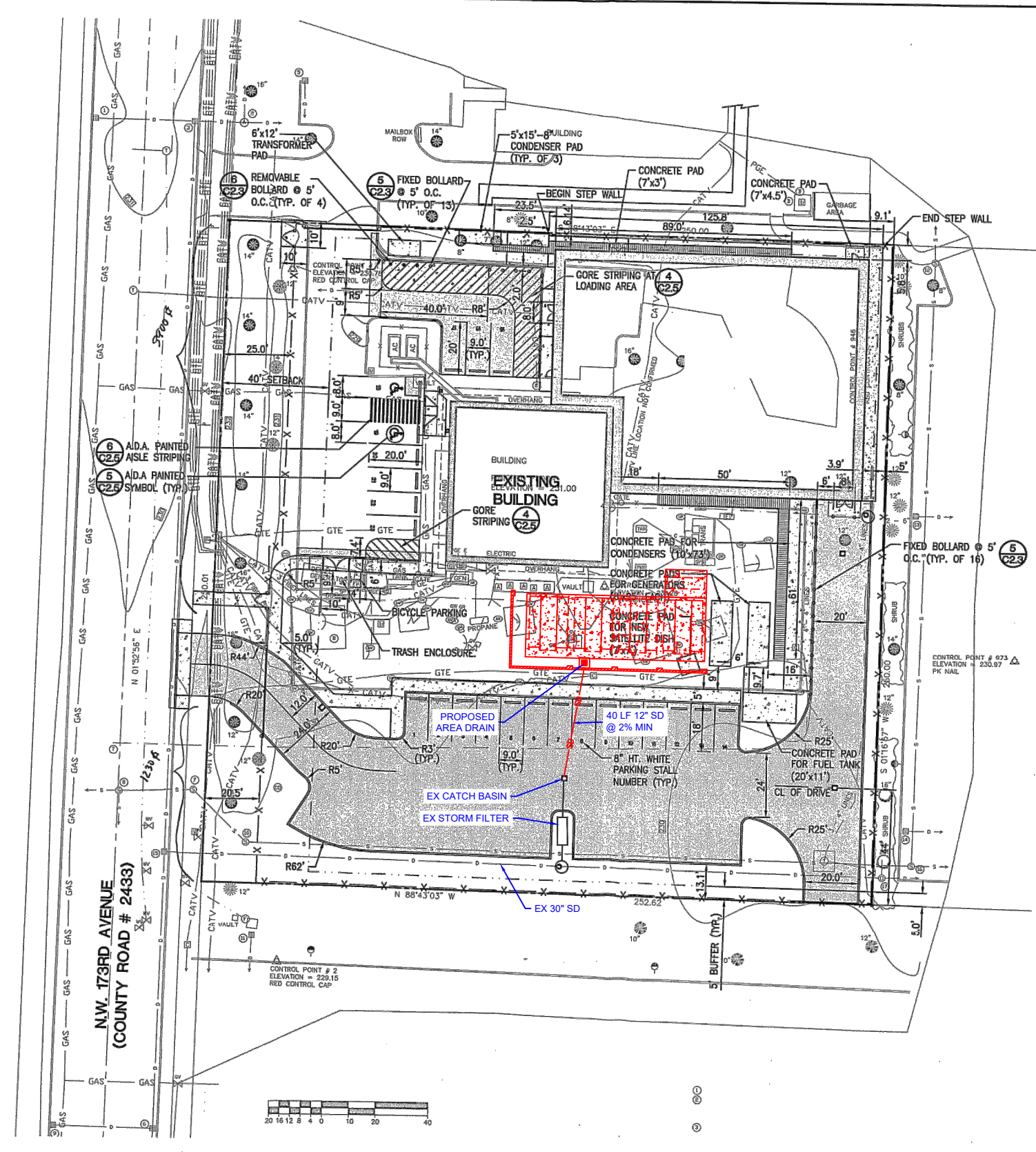
SHEET TITLE:

**EXISTING STORMWATER FACILITIES**

PROJECT NUMBER: -	DATE: 9/13/2022
DRAFTER: DLS	PROFESSIONAL OF RECORD: HMD
REVISION NO: -	SHEET NO: -

00-234

FIGURE 1.D - EXISTING STORMWATER FACILITIES



**LEGEND**

- WHEELSTOP
- CATCH BASIN
- STEP WALL
- X CHAIN LINK FENCE
- - - BUILDING SETBACK/LANDSCAPE BUFFER
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REV	DATE	DESCRIPTION
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-	-	-
-	-	-

PROJECT:

**COMCAST BEAVERTON**  
1750 NW 173RD AVE  
BEAVERTON, OR 97006

SHEET TITLE:

**PROPOSED STORMWATER FACILITIES**

PROJECT NUMBER: -	DATE: 9/13/2022
DRAFTER: DLS	PROFESSIONAL OF RECORD HMD
REVISION NO:	SHEET NO:

**FIGURE 1.E -- PROPOSED STORMWATER FACILITIES**

## Section 2—Calculations

The Project is subject to Clean Water Services Design & Construction Standards “CWS”. Per CWS 4.08.1.d, the impervious surface requiring mitigation is as follows:

### Stormwater Quality

Stormwater Quality treatment is already being provided for the Project area by a Stormfilter that was constructed as part of an earlier development on the property.

### Stormwater Quantity

Area = All New and Modified Impervious area

Area = 1,832 SF

This is a Small Project—Hydromodification Category 1. Per CWS 4.03.7.a.1, a fee-in-lieu payment is proposed for 1,832 SF of stormwater quantity mitigation.

## Peak Flow Comparison for Downstream Conveyance Impacts

Peak runoff rates (25-year, 24-hour) were computed for the existing and postdeveloped conditions of the Project Site in order to ascertain possible impact to the downstream conveyance system described below. The NRCS TR-55 (WinTR-55) method was used with CWS precipitation values (3.90 inches) and a Type 1A rainfall distribution. The Dayton Silt Loam soils were considered Type D when selecting CN values. The various land coverages for the existing and postdeveloped conditions are summarized in the table below. Stormwater model input and results report information is included in Appendix B.

The analysis shows that the Comcast project will result in no detectable change (<0.01 CFS) to runoff leaving the property. The Project is so small that it results in 0.00 CFS runoff for both the existing and post redevelopment conditions. Therefore, the Project will have no detectable impact on the downstream conveyance system.

DCI Job: 22391.001	Comcast Beaverton	
Area Summaries for Tax Lot 1N131AB01400		
for TR-55 Stormwater Modeling		
<b>Existing Conditions</b>		
Description	Area (SF)	Area (AC)
Concrete	501	0.012
Gravel	1,331	0.031
Total Impervious	1,832	0.042
<b>Post Redeveloped Condition</b>		
Description	Area (SF)	Area (AC)
Concrete	1,645	0.038
Gravel	187	0.004
Total Impervious	1,832	0.042

## Section 3—Downstream Conveyance

This downstream conveyance summary is based on review of available records, GIS and aerial imagery.

### Component 1—Sheet Flow

Runoff from the Project area sheet flows south across a gravel surface area, concrete sidewalk, then asphalt parking lot.

### Component 2—Onsite Catch Basin and Stormfilter

Runoff is picked up by private catch basin at the Site's parking lot. Per the stormwater plans from the previous development on this property, runoff is then routed through a Stormfilter for treatment. This Stormfilter is then connected to a 30-inch storm drain along the property's southern boundary.

### Component 3—Storm Drain Main

Runoff continues west in a 30-inch storm drain, which runs to NW 173<sup>rd</sup> Avenue. Runoff then continues south in a pipe system under the east margin of NW 173<sup>rd</sup> Avenue.

## Section 4—Hydromodification Assessment

The project involves 1,832 SF of new impervious surface. Pursuant to CWS Table 4-2, the Project falls under Hydromodification Category 1.

## Section 5—Narrative/Summary

This is a small project with only 1,832 SF of modified impervious surface. Disturbed area will be approximately 3,520 SF. A fee in lieu is proposed for stormwater quantity mitigation, as on-site implementation is impractical due to topography.



# Appendix A

## City of Beaverton Stormwater Management Worksheet



Stormwater Management Worksheet

Site Development Division

sitedevelopmentplansubmit@beavertonoregon.gov

Date Submitted: 9/12/2022
Designed per EDM version: JAN 2019
Designed per CWS version: DEC 2019

This form replaces the Certified Impervious Surface Area Inventory and Water Quality Facility Information Sheet.
(This does not replace the development stormwater report)

Project Name: Comcast Beaverton
Project Disturbed Area per Site Development Application and EPSC plans: 3,520 SF
Tax Lot(s): 1N131AB01400
Land Use Case file # (s):
City of Beaverton Site Development Permit Application # if known (e.g. SD2020-1234):

Stormwater Conveyance Related Questions

Project area that is not in roadway right-of-way (AKA Onsite)

Predevelopment / Pre-Redevelopment impervious area: 1,832 Sq-Ft
A) Post development / Post-Redevelopment impervious area: 1,832 Sq-Ft
Net Difference: 0 Sq-Ft

Notes (optional):

Note: The Clean Water Services Rates and Charges Resolution and Order shows how to measure/determine impervious area.

Stormwater Quantity Questions

Project area that is not in roadway right-of-way (AKA Onsite)

Post development / Post-Redevelopment impervious area that does not receive quantity mitigation (unmanaged impervious area) 1,832 Sq-Ft

Project roadway right-of-way frontage improvement area (AKA Offsite)

Impervious area as measured from roadway crown to edge of right-of-way that does not receive quantity mitigation (unmanaged impervious area) 0 Sq-Ft

Notes (optional):

**Stormwater Hydromodification Questions**

Project area that is not in roadway right-of-way (AKA Onsite)

Post development / Post-Redevelopment impervious area that does not receive hydromodification mitigation (unmanaged impervious area) 1,832 Sq-Ft

Project roadway right-of-way frontage improvement area (AKA Offsite)

Impervious area as measured from roadway crown to edge of right-of-way that does not receive hydromodification mitigation (unmanaged impervious area) 0 Sq-Ft

Notes (optional): \_\_\_\_\_

**Stormwater Quality Questions**

Project area that is not in roadway right-of-way (AKA Onsite)

Post development / Post-Redevelopment impervious area that does not receive surface water treatment (unmanaged impervious area) 0 Sq-Ft

Project roadway right-of-way frontage improvement area (AKA Offsite)

Impervious area as measured from roadway crown to edge of right-of-way that does not receive surface water treatment (unmanaged impervious area) 0 Sq-Ft

Notes (optional): Project area is served by an existing Stormfilter that was part of previous development on the property in 2000.

**Stormwater Utility Billing Setup Questions – Not to be used for Single Family Residential**

For sites that have other than single family lots, please identify the area in Sq-Ft that will be assigned to the site, per **A** above.

**A)** Post development / Post-Redevelopment impervious area: 1,832 Sq-Ft

**City / CWS annual report to Oregon DEQ as required via the NPDES-Watershed based permit and the associated stormwater management plan** (some questions are repetitive from above).

Post development / Post-Redevelopment impervious area added with this project with stormwater treatment: 0 Sq-Ft

Post development / Post-Redevelopment impervious area added with this project without stormwater treatment: 0 Sq-Ft

Post development / Post-Redevelopment impervious area added with this project with vegetated LIDA stormwater treatment facilities: 0 Sq-Ft

Post development / Post-Redevelopment impervious area added with this project structural stormwater treatment facilities (such as stormwater filters): 0 Sq-Ft

Total new impervious surface area (in Sq-Ft) related to this development / redevelopment project: 0 Sq-Ft

Total replaced impervious surface area (in Sq-Ft) related to this development / redevelopment project: 3,520 Sq-Ft

**Please list the Low Impact Development Approaches (LIDA):**

<i>Low Impact Development Approaches (LIDA)</i>				
	<u>Public/Private</u>	<u>Low Impact Development Approach Used *</u>	<u>Type of surface being treated (e.g. pavement)</u>	<u>Drainage area treated (Sq-Ft)</u>
1	NA			
2				
3				
4				

**\* reference Table 4-3 of the CWS Design and Construction Standards**

Notes (optional): \_\_\_\_\_

**Application Information – name, title, company name, and signature of person submitting this form:**

\_\_\_\_\_

(Digital signature acceptable)

\_\_\_\_\_

---

**References:**

CWS Rates and Charges Resolution and Order:

<http://www.cleanwaterservices.org/for-residents/utility-billing/our-rates/>

CWS Design and Construction Standards:

<http://www.cleanwaterservices.org/permits-development/design-construction-standards/>

Stormwater Management Plan Best Management Practices:

<http://cleanwaterservices.org/media/1920/stormwater-management-plan.pdf>

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**Acronyms used on this form**

AKA: Also Known As

CWS: Clean Water Services

D&C: Design and Construction Standards

EPSC: Erosion Prevention and Sediment Control

CoB: City of Beaverton

DEQ: State of Oregon Department of Environmental Quality

LIDA: Low Impact Development Approaches

NPDES: National Pollutant Discharge Elimination System

SDC: System Development Charge

Sq-Ft: Square Foot

SWM: Surface Water Management

Form Revised 01/2021

**Clear Form**

## Appendix B

### Peak Runoff Calculations (WinTR-55)

WinTR-55 Current Data Description

--- Identification Data ---

User: DanS Date: 9/12/2022  
Project: Comcast Beaverton Units: English  
SubTitle: Areal Units: Acres  
State: Oregon  
County: Washington  
Filename: C:\Users\dans\Desktop\Beaverton Hydrology Model\Beaverton Runoff.w55

--- Sub-Area Data ---

Name	Description	Reach	Area(ac)	RCN	Tc
Existing		Outlet	0.04	93	0.1
Postdev		Outlet	0.04	97	0.1

Total area: .08 (ac)

--- Storm Data ---

Rainfall Depth by Rainfall Return Period

2-Yr (in)	5-Yr (in)	10-Yr (in)	25-Yr (in)	50-Yr (in)	100-Yr (in)	1-Yr (in)
2.5	3.1	3.45	3.9	.0	.0	.0

Storm Data Source: User-provided custom storm data  
Rainfall Distribution Type: Type IA  
Dimensionless Unit Hydrograph: <standard>

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Washington County, Oregon

Storm Data

Rainfall Depth by Rainfall Return Period

2-Yr (in)	5-Yr (in)	10-Yr (in)	25-Yr (in)	50-Yr (in)	100-Yr (in)	1-Yr (in)
2.5	3.1	3.45	3.9	.0	.0	.0

Storm Data Source: User-provided custom storm data  
Rainfall Distribution Type: Type IA  
Dimensionless Unit Hydrograph: <standard>



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Washington County, Oregon  
Watershed Peak Table

Sub-Area or Reach Identifier	Peak Flow by Rainfall Return Period			
	2-Yr (cfs)	5-Yr (cfs)	10-Yr (cfs)	25-Yr (cfs)
-----				
SUBAREAS				
Existing	.00	.00	.00	.00
Postdev	.00	.00	.00	.00
REACHES				
OUTLET	.00	.00	.00	.00

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Washington County, Oregon

Hydrograph Peak/Peak Time Table

Sub-Area or Reach Identifier	Peak Flow and Peak Time (hr) by Rainfall Return Period			
	2-Yr (cfs) (hr)	5-Yr (cfs) (hr)	10-Yr (cfs) (hr)	25-Yr (cfs) (hr)

-----  
SUBAREAS

Existing	.00 n/a	.00 n/a	.00 n/a	.00 n/a
----------	------------	------------	------------	------------

Postdev	.00 n/a	.00 n/a	.00 n/a	.00 n/a
---------	------------	------------	------------	------------

REACHES

OUTLET	.00	.00	.00	.00
--------	-----	-----	-----	-----

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Sub-Area Summary Table

Sub-Area Identifier	Drainage Area (ac)	Time of Concentration (hr)	Curve Number	Receiving Reach	Sub-Area Description
Existing	.04	0.100	93	Outlet	
Postdev	.04	0.100	97	Outlet	
Total Area:	.08 (ac)				

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Sub-Area Time of Concentration Details

Sub-Area Identifier/	Flow Length (ft)	Slope (ft/ft)	Mannings's n	End Area (sq ft)	Wetted Perimeter (ft)	Velocity (ft/sec)	Travel Time (hr)
Existing SHALLOW	100	0.0200	2.5				0.010
						Time of Concentration	0.1 =====
Postdev SHALLOW	100	0.0200	2.5				0.010
						Time of Concentration	0.1 =====

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Washington County, Oregon

Sub-Area Land Use and Curve Number Details

Sub-Area Identifier	Land Use	Hydrologic Soil Group	Sub-Area Area (ac)	Curve Number
Existing	Paved parking lots, roofs, driveways	D	.012	98
	Gravel (w/ right-of-way)	D	.032	91
	Total Area / Weighted Curve Number			.04
			===	==
Postdev	Paved parking lots, roofs, driveways	D	.038	98
	Gravel (w/ right-of-way)	D	.004	91
	Total Area / Weighted Curve Number			.04
			===	==

## Appendix C

### Original StormFilter Calculations



DESIGN COMPANY

*4100000000*

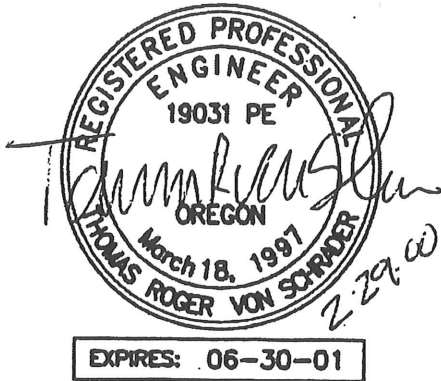
## STORMWATER SITE PLAN

# AT&T BEAVERTON MASTER HEADEND BEAVERTON, OR

Prepared for:

The IBI Group  
Portland, OR

March 1, 2000



EXPIRES: 06-30-01

Prepared by: SvR Design Company  
1008 Western Avenue, Suite 301  
Seattle Wa 98104

Phone: (206) 223-0326

SvR #99064



# Storm Filter Calculations

According to Lee Walker @ U.S.A. and Jay Holtz @ Stormwater Management, use  $Q = CIA$

$$Q = CIA$$

where  $C = 1.0$

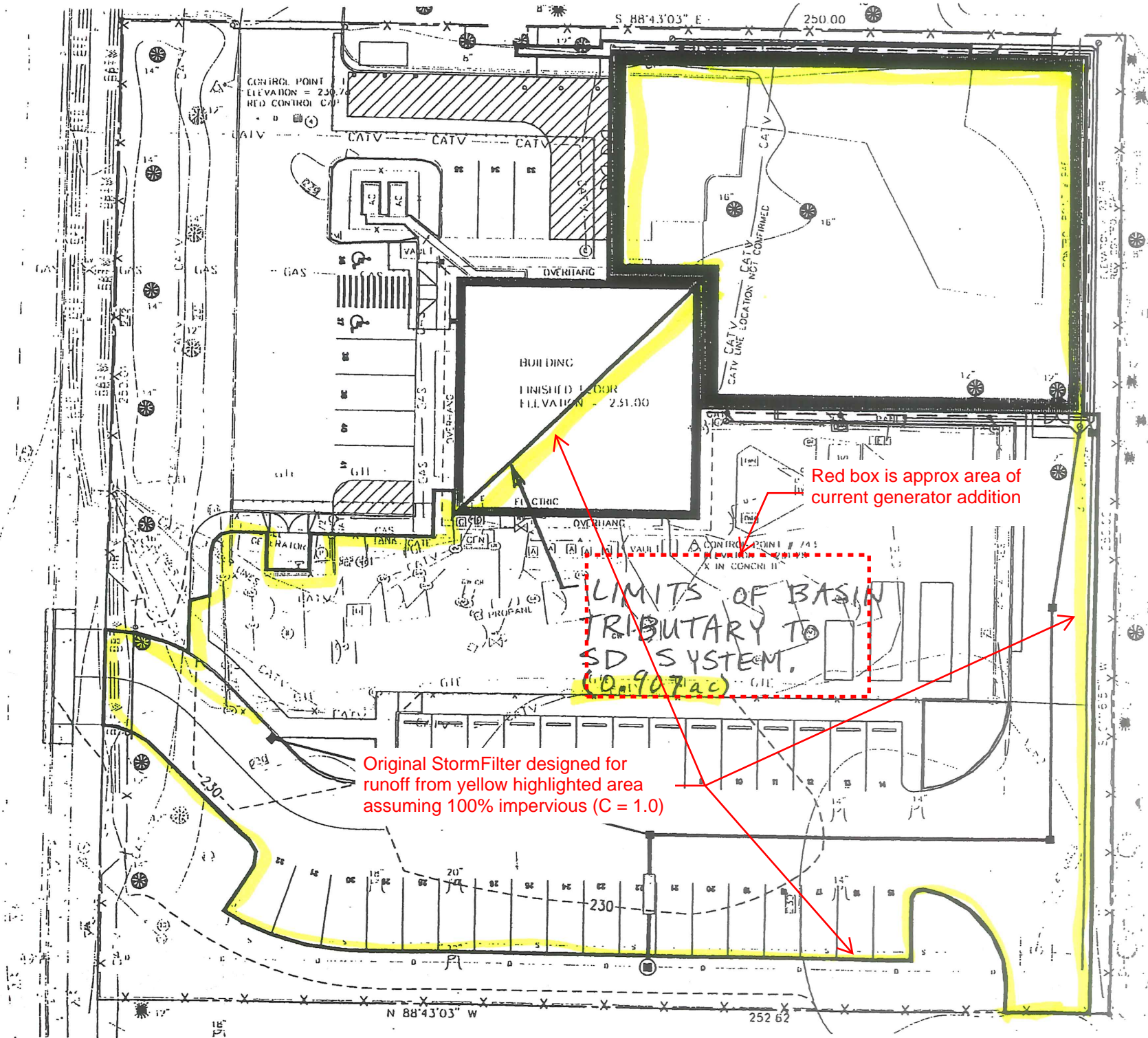
$i = 0.09 \text{ in/hr}$  (derived from U.S.A. design storm  $0.36 \text{"/hr}$  w/  $96 \text{ hr}$  return)  
 $A = \cancel{0.845} \text{ ac } 0.907 \text{ ac}$  (Area draining to storm filter)

$$= (1.0)(0.09)(\cancel{0.845})(0.907)$$
$$= 0.08 \text{ cfs}$$

Jay Holtz recommended the Stormwater Mgmt Linear Storm Filter w/ 3 cartridges



N.W. 173RD AVENUE (COUNTY ROAD # 2433)



CONTROL POINT  
ELEVATION = 250.74  
RED CONTROL CAP

BUILDING  
FINISHED FLOOR  
ELEVATION = 251.00

LIMITS OF BASIN  
TRIBUTARY TO  
SD SYSTEM.  
(0.907 ac)

Red box is approx area of  
current generator addition

Original StormFilter designed for  
runoff from yellow highlighted area  
assuming 100% impervious (C = 1.0)

N 88°43'03" W

252.62