

Technical Information Report

For

Totemwood Townhomes
18601 35th Ave NE
Arlington, WA 98223

Review Agency

City of Arlington

Project Site Location

18601 35th Ave NE
Arlington, WA 98223

Prepared By

Northwest Civil Engineers, PLLC
(425) 440-9238



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1. EXECUTIVE SUMMARY

This Technical Information Report provides design analysis and technical information required for developing treatment and drainage of the Totemwood Townhomes project. This TIR documents the Site condition and Existing drainage; Project impacts; and Treatment concepts.

Compliance with Project Drainage Requirements

The stormwater treatment, drainage, and temporary erosion control standards set forth in the 2012 DOE's SMMWW (2014 updates) and the Title 20 of the Arlington Municipal Code. Additionally, stormwater treatment also references City's Stormwater Comprehensive Plan dated October 2010.

Multi-family development activities will bring impacts on two major aspects:

- Natural hydrologic cycle by adding impervious surfaces
- Environmental impact by producing pollution-generating storm runoff that causes water quality problems

As this Project will result in more than 5,000 square feet of new impervious surface area and thus triggers all nine (9) Minimum Requirements. Investigations and design effort have been made to all the minimum requirements yet mostly focus on Flow control, Water quality, and Erosion control. Per lab results from the Geotechnical exploration, infiltration BMPs are applied extensively for flow control mitigation, in forms of infiltration trench with variations. Pretreatment is applied where the pollution-generating surfaces, which is the access road and the 35th Ave NE.

Offsite Analysis

The project site situates on a flat terrain. Field walkthrough and online investigation indicates no bypass flows from neighboring properties. Likewise, outflow discharge is not available since all developed flows will be mitigated onsite. No further offsite analysis is conducted.

Conveyance System

As indicated above, this development applies infiltration to mitigate all flows and no enclosed or open channel system planned onsite. Backwater analysis is not performed.

3. EXISTING SITE CONDITIONS, SOILS, AND EXISTING DRAINAGE SYSTEM

Totemwood Townhomes is a redevelopment project on 18601 35th Ave NE in Arlington, WA (see Figure 1). This subject parcel occupies 0.954 acres or 41,556 square feet of parcel size, zoned as R-Mod with tax ID 310521-002-010-00, currently with a single-family home located in the neighborhood mixed with single-family homes and low-density multi-family homes. This Project site is in a close vicinity to the Arlington Regional Airport, classified as the Sub-District B. A neighborhood church across the street of 35th Ave NE which is the only non-residential business on the 35th Ave from the Y-intersection northerly to the 188th Street NE.

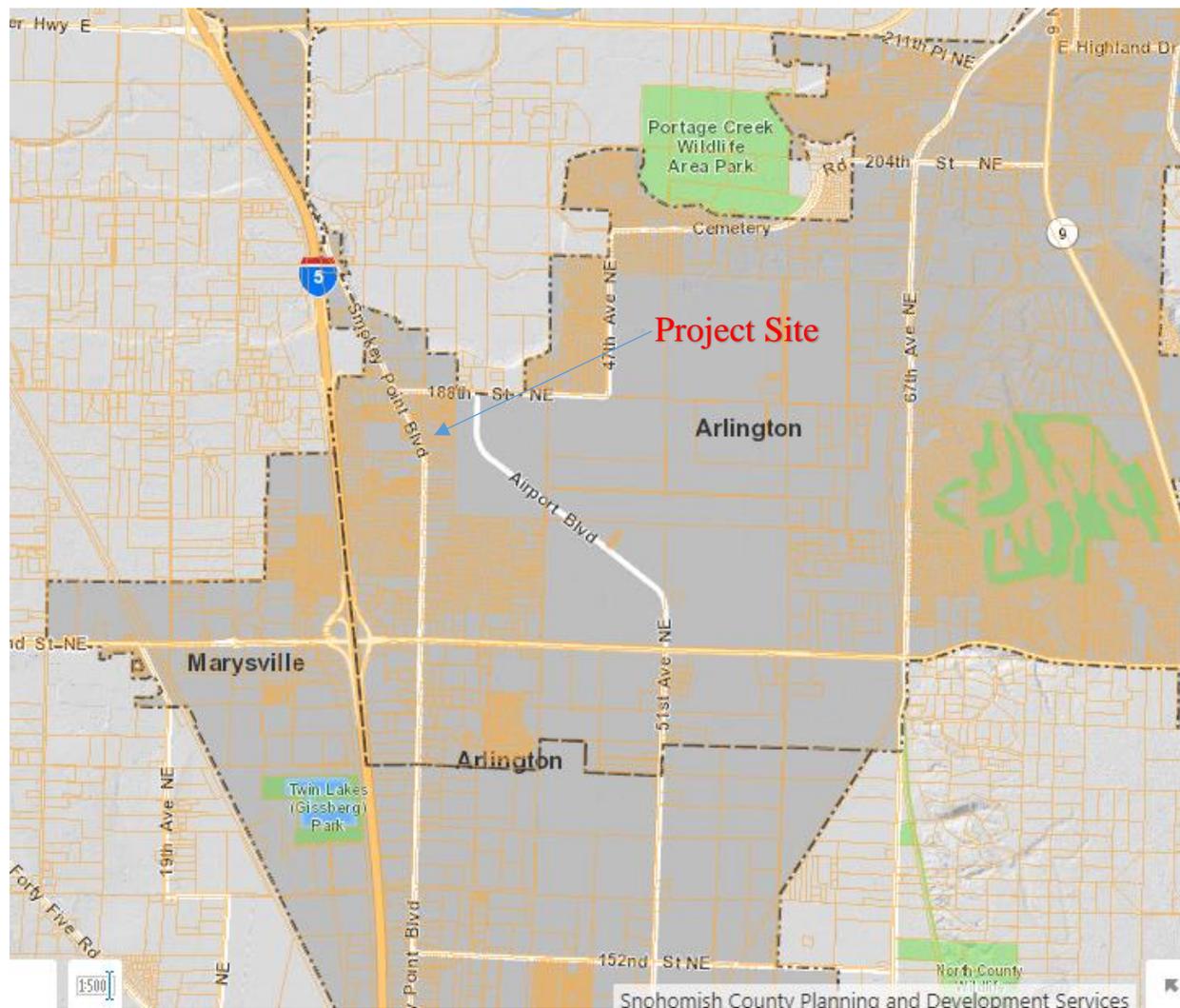


Figure 1 – Vicinity Map

Per the City's Stormwater Comprehensive Plan (October 2010) Map 4 – Watershed Hierarchy, the Project site is located within the Lower Portage Creek Basin of the WRIA 5 – Stillaguamish Basin, just inside the south border of WRIA-5 from WRIA-7. Figure 2 in Page 4 shows current existing stormwater treatment & drainage systems in this neighborhood. Existing stormwater treatment for recent residential developments

within immediate vicinity adjacent indicates extensive applications of infiltration. No flooding or other stormwater issues are identified in the Stormwater Comprehensive Plan within one-mile diameter of the vicinity of the Project site.

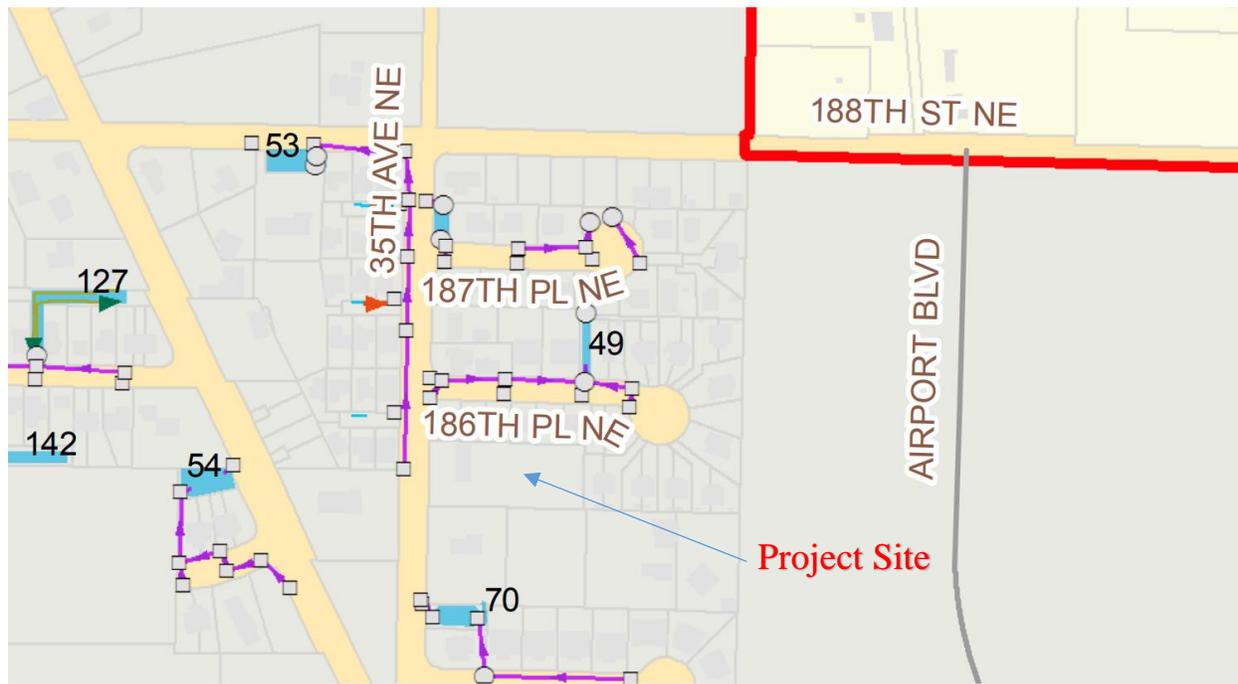


Figure 2 – Existing Drainage Systems in the Immediate Vicinity

The Site is wooded on its east portion of the property and is currently served by it’s own water well and septic tank. In addition to the existing single-family home structure, there are two auxiliary structures, including the shed(s), deck, septic tank, and a 5-foot diameter asphalt lined fishpond. No natural wetland observed onsite.



Figure 3 – Existing driveway, north

Figure 3 on the right was taken in February 2022. This depression was noticed since November 2021 which indicates where the surface flow from existing impervious surfaces from building roofs and concrete porch typically gather.

A geotechnical exploration and report conducted in January 2022 outlines the preliminary information, conclusions, and recommendations for the project. The lab results measured 96 inch per hour and recommends the Design infiltration rate of 40 inches per hour. Groundwater is detected at 10 feet below the existing surface.

4. PROPOSED SITE CONDITIONS AFTER DEVELOPMENT

The Project will construct 6 duplex structures with 25-foot wide U-shape access road and underground utilities – see Figure 2 for the proposed Site plans. As the first step of the Project, Minor Plat application will be submitted along with the Land Use permit for subdivision into 6 residential lots, with their sizes ranging from 5,742 to 8,238 square feet. *Table 1* below summarizes the proposed lot size, the hard surface by roof, road, and sidewalk from each proposed lot:

Prop. Plats	Roof Area (sf)	Sidewalk (sf)	Road (sf)	Imp Total	Pervious (sf)	Total Area (sf)	%
Lot 1	1944.32	478.5	1740	4162.82	1579.2	5742.02	72.50%
Lot 2	1943.97	478.5	1740	4162.47	1579.8	5742.27	72.49%
Lot 3	1944.34	484	1760	4188.34	1619.63	5807.97	72.11%
Lot 4	1944.29	484	1760	4188.29	1619.92	5808.21	72.11%
Lot 5	1860.14	682.74	2881.62	5424.5	2814.22	8238.72	65.84%
Lot 6	1859	678.17	2863.86	5401.03	2833.99	8235.02	65.59%
Park	0	224.97	600	824.97	1155.08	1980.05	41.66%
Subtotal	11496.06	3510.88	13345.48		13201.84	41554.3	66.04%

Table 1 – Surface Cover Type at Post-Development Conditions

5. EROSION CONTROL RISK ASSESSMENT AND COUNTERMEASURES

This project site is in a flat terrain. Topographic survey indicates the average grade of approximately 0.4% across the site latitudinally and longitudinally. Yet the construction will cause erosion issues resulted from construction activities and afterwards. The development plans do include site preparation with temporary erosion and sediment control BMPs necessary for construction. *Table 2* below summarizes countermeasures for erosion and sediment risks to be enacted during the construction.

ESC Categories	Proposed Measures
Clearing Limits	The clearing limits on the north and south sides of the project are mostly bound by existing trees and bushes and, will be protected by high visibility construction fencing. Access road to the 80th Ave will remain in place during construction and the north side protected by high visibility fence. The east clearing limit will be marked by high visibility construction fencing to protect the existing significant trees.
Cover Measures	There are no steep slopes on the construction site. If a steep slope is encountered, straw wattle can be used to reduce runoff velocities. Areas that will not be paved or turf after construction should be seeded or sodded as soon as possible.
Perimeter Protection	Silt fence or wattle will be used on the perimeter of the clearing limits in the locations where the adjacent ground is downslope of the project site. Sediment build-up at silt fences and wattles will removed when sediment is 6" high at silt fence or 3" from the top of the wattle.
Traffic Area Stabilization	Stabilized construction entrances will be installed at all construction vehicle access points.
Sediment Retention	Silt fence and wattle installed around the project perimeter should be sufficient for sediment retention because the project site is so flat and runoff will flow over undisturbed grass before reaching the silt fence, reducing flow velocities even more and removing sediment along the way.
Surface Water Collection	The majority of the site is flat and will either infiltrate into the native soil, or will sheet flow towards the driveway access. A temporary ditch will be built next to the roadway with gravel dikes and, need to be pumped to a storage tank temporarily holding surface water if it becomes a nuisance to construction activities.
Dewatering Control	Groundwater will unlikely be encountered during construction, however, if it is, it will likely accumulate in the storage tank by a pump. This water will need to be pumped from a pit built in the neighboring property on the west via a construction easement agreement.
Dust Control	If dust become a problem, the contractor will spray water on exposed soils without creating runoff.

Table 2: Summary of ESC measures

6. OFF-SITE ANALYSIS

From the City's Stormwater Comprehensive Plan, infiltration BMP is extensively used in close vicinity of the Project, for both the Right-of-Way and development flows. Walkthroughs in the Site and around the neighborhood verified the documented description.

Approx. 65% of the parcel area on the east side has minimal surface flow, because of the wooded state and soft soil. Surface flows from the existing hard surfaces drift westward and settles on the depression between the north driveway and the 35th Ave and infiltrated into the earth.

The 35th Ave NE has a flat grade of 0.4% towards south. One inlet across the street from the northern driveway catches mostly the street drainage from the north for the west half of the street and direct them northerly till the 188th Street NE then turn westerly to an infiltration facility via enclosed storm pipes. On the side of 35th Ave NE where the Project fronts, excessive surface flows are mostly infiltrated into the ground along grassed and wooded shoulders, before entering the improved gutter. North of the Project site's northern driveway, concrete curb, gutter and sidewalk are established for the housing development. Two stormwater inlets around street corners across the 186th Place NE then lead easterly into an infiltration ditch for this neighborhood.

All these three inlets have minimum vertical clearances from their inverts to grates, not applicable to receive any conveyed flows, which is indictive of infiltration as the primary treatment methodology.

7. FLOW CONTROL ANALYSIS AND LOW IMPACT DEVELOPMENT DESIGN

This Section describes hydrologic modeling, treatment facility selection and sizing, as well as performance standards. The hydrologic analysis of the runoff conditions for this project are attached at the end of this Report. All analyses modeled using by WWHM2012 version 17 which is corresponding to the DOE SMMWW 2012 with Updates in 2014 (the Manual).

According to the Manual's Flow control standards, the 100-year, 24-hour storm peak flow event for the developed or proposed land cover configurations shall be comparable to the 100-year, 24-hour storm peak flow event discharging from the site at historic conditions. SMMWW2014 requires that the discharge rate from the developed or proposed land cover forms must not exceed the discharge rate during the existing land cover form for the 100-year, 24-hour storm event, by 0.1 cubic feet per second (cfs). Hence flow control BMPs are sized to mitigate flows in exceedance of the pre-developed peak flow durations, for the range of pre-developed discharge rates from 50% of the 2-year peak flow up to the full 50-year peak flow. The pre-developed condition is fully forested land cover.

Threshold Discharge Areas (TDAs)

The entire project site is considered one Threshold Discharge Area; meanwhile the curb & gutter installations along the street-front direct storm runoff from the east half of the ROW to the south. Therefore, the proposed development includes 2 task areas – right-of-way (of 35th Ave NE) and on-site. *Table 3 below* summarize land cover types in post-development conditions from on-site and right-of-way areas:

Tributary Area		Pvmt.	Roof	Sidewalk & Dwy.	Pervious	Total Area
½ 35 th Ave NE	Sq Ft	2,640	---	971	280	3,891
	Acres	0.061	---	0.022	0.006	0.089

Table 3: Tributary Areas – 35th Ave NE Right-of-Way

The proposed development will subdivide the property into 6 lots plus an open-space area yet they will jointly own and use the mitigation facilities. On-site stormwater treatments are provided with two infiltration facilities – in the access road and in the courtyard. In the access road, infiltration is applied along with Grasscrete to receive and infiltrate surface water from the sidewalk and the alley road, all in impervious surface as the developed land cover, shown in the *Table 4* below:

Tributary Area		Road	Sidewalk	Pervious	Total Area
186 th Court NE	Sq Ft	13,345	3,511	-	16,856
	Acres	0.306	0.081	-	0.387

Table 4: Tributary Areas – Access Road and Sidewalk

The infiltration trench in the courtyard is designed to received and infiltrate surface water from the building roofs and, excess surface water from the landscaped courtyard and the mini-park strip area near the 35th Ave frontage. Tributary areas to this facility are listed in the *Table 5* below:

Tributary Area		Road	Roof	Pervious	Total Area
Structures & common space areas	Sq Ft	-	11,497	7,458	18,956
	Acres	-	0.264	0.171	0.435

Table 5: Tributary Area – 6 dwellings and courtyard

Flow Control BMP selection

As stated in the previous sections, Infiltration is the primary surface water mitigation approach due to the good infiltration rate. Stormwater treatment facilities observed in the immediate vicinities also support this methodology.

Pervious pavement was considered for both sidewalk and roadways, both on the 35th Ave NE and the access road. Since the sidewalk in the development site do not apply pervious concrete due to the clearance reason, application of pervious sidewalk on the 35th Ave makes sense when concrete mix & pour activity is scheduled separately from the onsite sidewalk pouring.

The Grasscrete infiltration strip is determined when comparing with the porous asphalt. Both are infiltration BMPs yet the porous asphalt pavement has the disadvantage of maintenance in the long run. As a comparison, the Grasscrete filled with gravel or grass with a facility liner as a pretreatment layer. It needs to provide the required pavement structural support (R-value) meanwhile offers treatment & infiltration functionalities. Additionally, ease in maintenance operations when removing and replacing the Crete and underneath infiltration media are the reason this BMP form is selected.

Results from WWHM2012 modeling input and output data for these three above mentioned infiltration trenches are compiled in the *Attachment B, C & D* of this Report.

Hydraulic Modeling

When determining the Design infiltration rate, the stormwater analysis adapted DOE's design requirements for infiltration trenches with soils considered a treatment BMP. Correction factor of 4 is applied to the measured infiltration rate of 96 inch/hr. when modeling the infiltration trench with Grasscrete on top; while the recommended design infiltration rate of 40 inch/hr. applied when modeling the infiltration trench in courtyard.

Historic site condition (i.e., fully forested) is applied as the pre-developed land cover form. Developed land cover forms include following:

- Roofs from proposed dwellings: Surface water will be directed to the infiltration trench at 8 feet distance via downspouts and enclosed underdrains;
- Sidewalk and access road: Regular concrete sidewalk instead of pervious concrete is applied per the clearance requirement to the structure. The one-way-only access road is also designated as the impervious surface;
- Pervious areas modeled as lawn or grass include the “mini-park” open space and the common area of all dwellings. The 5-foot setback will be landscaped with plants can be modeled as pasture.

8. WATER QUALITY ANALYSIS AND DESIGN

Water quality treatment must be provided on projects which create 5,000 square feet of new plus replaced pollution generated impervious surface (PGIS). This project is subject to Basic Water Quality treatment requirements for the proposed driveways and roadway accesses.

Table 6 below summarizes new and replaced PGIS in each TDA.

Tributary Area		Pvmt.	Sidewalk	Total
35 th Ave NE	Sq Ft	2,640	1,320	3,960
	Acres	0.061	0.030	0.091
Project on-site	Sq Ft	13,328	3,532	16,860
	Acres	0.306	0.081	0.387

Table 6: Water Quality Tributary Area Summary

Design Criteria

Design of the treatment liner follows SWWMM (2014), Vol. 3, Section 3.3.7, the determination whether the soil suitability criteria. The applicable criteria are:

- Cation Exchange Capacity (CEC) > 5%
- Organic Content > 1%
- Measured (initial) saturated hydraulic conductivity < 12 in./hr.
- One foot depth of soil with above characteristics

Described in page 9 of the Geotechnical Report, Table 4, the measured CEC and Organic Content Results does not satisfy the above requirements. Pre-treatment of storm runoff is hence required.

Facility Liners are intended to reduce the likelihood that pollutants in stormwater reaching groundwater. SMMWW V-4.4 provides guidelines that Treatment liners amend the soil with slow infiltration rates to be less than 2.4 inch/hr. When modeling using WWHM2012 software, CAVFS (compost amended vegetated filter strip) is applied as the pretreatment liner and ASTM100 as the liner media. From the table 1 in Page 56 of the WWHM2012 User Manual, ASTM100 provides the maximum hydraulic conductivity of 3.40 cm/hr. (or 1.34 inch/hr.), the closest in kind in satisfying this requirement.

Water Quality BMP selection

Infiltration BMPs – permeable pavement and underlying storage gallery as treatment liners are proposed to all roadway accesses except sidewalks & driveways.

In Totemwood project site, runoff from ‘run-on’ surface – regular concrete sidewalks will sheet flow into the pavement and infiltrate thru the Grasscrete and its underlying galleries. This ‘first flush’ runoff from pollution-generating surfaces including driveways and roadways, contains higher contaminant concentrations that will be mostly retained by the underlying gravel storage, treatment layer and geotextile.

Comparing with other pre-treatment devices such as oil-water separator, application of a facility Liner allows sheet flow form to remain, rather than converting then into a concentrated flow form. This is more suitable for the Site with a very limited hydraulic head.

Previously, Grasscrete at parking spaces or designated waste receptacle collections was implemented in a similar residential project in King County by NWCE. Grasscrete application varies from the standard CAVFS due to its shorter path and the flow “vertically” infiltrates from grass layer, then drain rocks, amended soil liner, then into the native soil.

Hydraulic Modeling

Analysis outputs from WWHM2012 are attached in the end of this Report. Calculations in *Attachment C* for CAVFS and then infiltration show that facility functions for water quality be infiltrating at least 91% of the runoff file, via infiltration through soils meeting DOE treatment soil requirements. Facilities sized for flow control typically infiltrates much more than 91%.

9. FINANAICL GUARANTEES AND LIABILITY

This project will disturb slightly over one acre of land from both ROW improvements and onsite developments and, will be subject to the NPDES permit. No other permits are acknowledged at this time.

All required bonds, facility summaries, and/or covenants will be per the City of Arlington's guidelines for the final construction permit approval.

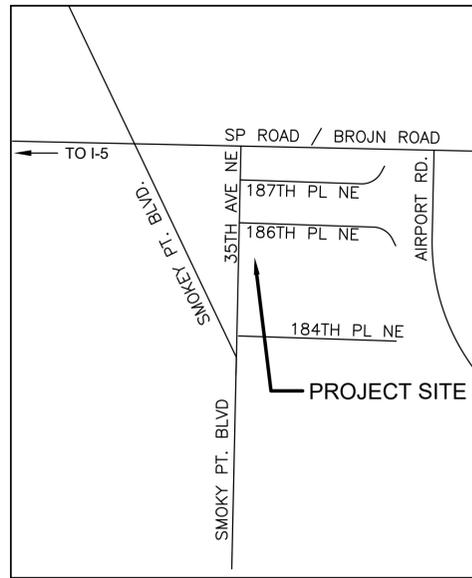
10. REFERENCES

2012 Stormwater Management Manual for Western Washington (SMMWW)	December 2014
Stormwater Comprehensive Plan, City of Arlington	October 2010
Geotechnical Engineering Report, South Sound Geotechnical Consulting	January 2022

11. ATTACHMENTS

- A. Design plans, profiles, and details
- B. WWHM2012 Analysis for BMP on 35th Ave NE
- C. WWHM2012 Analysis for BMP on 186th Ct. NE (access road)
- D. WWHM2012 Analysis for BMP in Totemwood courtyard

ATTACHMENT A
PLANS, PROFILES, DETAILS



VICINITY MAP

TAX PARCEL ID
310521-002-010-00

ZONING CODE
R-MOD

USE CLASSIFICATION
ZSC

AIRPORT PROTECTION DIST.

BUILDING HEIGHT
35 FEET

MERIDIAN
WA STATE PLANE COORDINATE SYSTEM (NORTH ZONE)
NAD83(2011)
(BASED ON FAST STATIC GPS MEASUREMENTS AND OPUS SOLUTION)

DATUM
NAVD 88
(BASED ON FAST STATIC GPS MEASUREMENTS AND OPUS SOLUTION)

LEGAL DESCRIPTION
THE SOUTH 132 FEET OF THE WEST HALF OF THE FOLLOWING DESCRIBED TRACT:

BEGINNING AT THE SOUTHWEST CORNER OF THE WEST HALF OF THE NORTHWEST QUARTER OF SECTION 21, TOWNSHIP 31 NORTH, RANGE 5 EAST, W.M.; THENCE NORTH 582 FEET TO POINT OF BEGINNING; THENCE NORTH 198TH; THENCE EAST 660 FEET, MORE OR LESS TO THE EAST LINE OF SUBDIVISION; THENCE SOUTH 198 FEET; THENCE WEST 660 FEET, MORE OR LESS, TO POINT OF BEGINNING, IN SNOHOMISH COUNTY, WASHINGTON;

EXCEPT 35TH AVENUE NORTHEAST;

SITUATE IN THE COUNTY OF SNOHOMISH, STATE OF WASHINGTON.

OWNER/DEVELOPER

ARQOZB LLC
CONTACT: PAUL BERNDT/WEIMING BIAN
PO BOX 60147
SHORELINE, WA 98160-0147
TEL: 425-440-9238
EMAIL: WEIMING.BIAN@OUTLOOK.COM

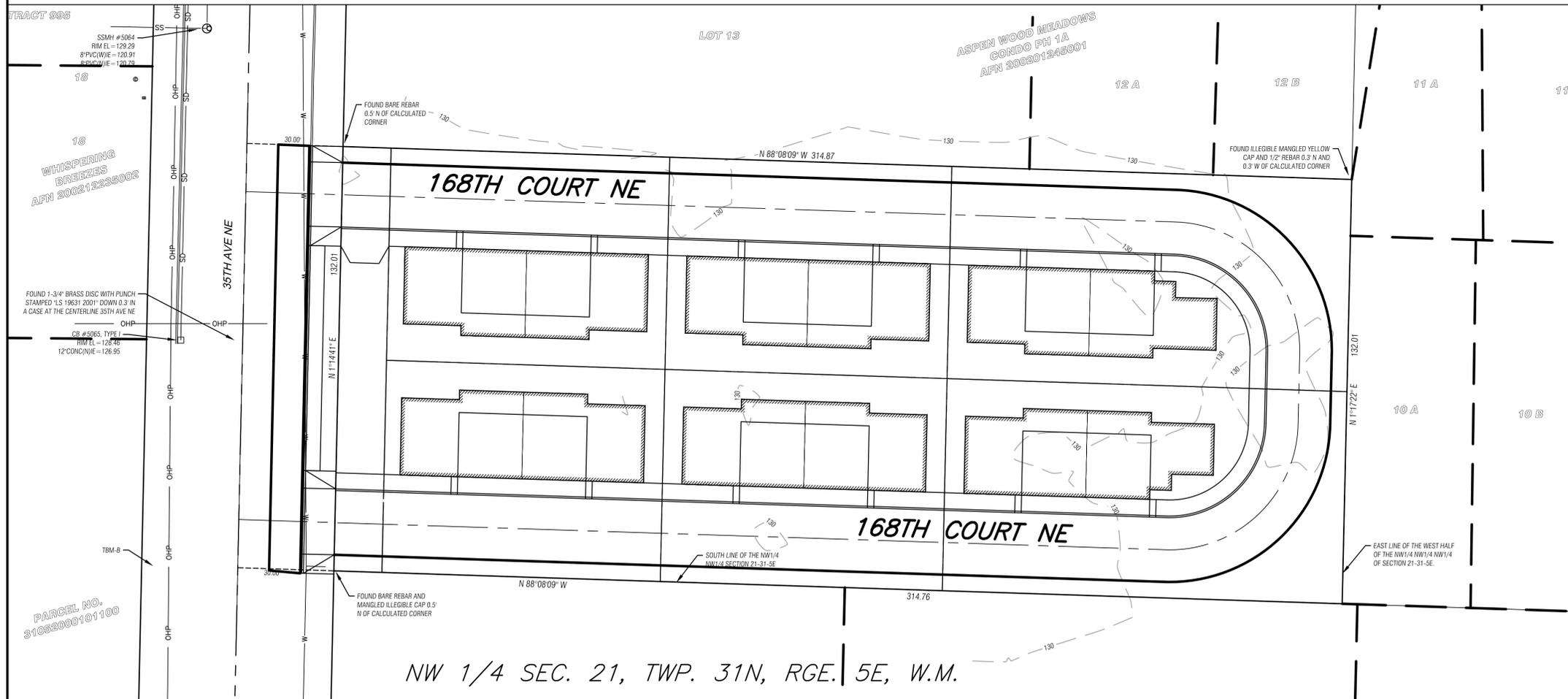
ARCHITECT
TBD

ENGINEER

NORTHWEST CIVIL ENGINEERS PLLC
CONTACT: WEIMING BIAN, PE
TEL: (425) 440-9238
EMAIL: WEIMING.BIAN@OUTLOOK.COM

PROJECT SIZE AND COVERAGE

TOTAL LOT SIZE	41,555 SQ. FT.
TOTAL BUILDABLE AREA	SQ FT
EX. BUILDING FOOTPRINT	2,702 SQ. FT.
EX. PAVED AREA	532 SQ FT
EX. SIDEWALK	0 SQ FT
TOTAL EX. HARDSCAPE	5,534 SQ. FT.
BUILDING FOOTPRINT	11,452 SQ FT
PAVEMENT AREA	13,329 SQ FT
SIDEWALK	3,784 SQ FT
DRIVEWAYS	0 SQ FT
TOTAL HARDSCAPE	28,565 SQ FT
COVERAGE	68.74%



PLAN SHEET INDEX

- 1 COVER SHEET
- 2 SURVEY PLAN
- 3 REMOVAL & TESC PLAN
- 4 CIVIL SITE PLAN
- 5 ACCESS ROAD PROFILE
- 6 STORMWATER PLAN
- 7 WATER EXTENSION PLAN
- 8 SEWER EXTENSION PLAN
- 9 SEWER EXTENSION PROFILE
- 10 LANDSCAPING PLAN
- 11 LANDSCAPING DETAILS

C:\Users\NCE\OneDrive\2021 Arlington\CAD design\18601 CoverSheet.dwg, ANSI-D: 22x34, NCE, April 29, 2022 9:54 AM

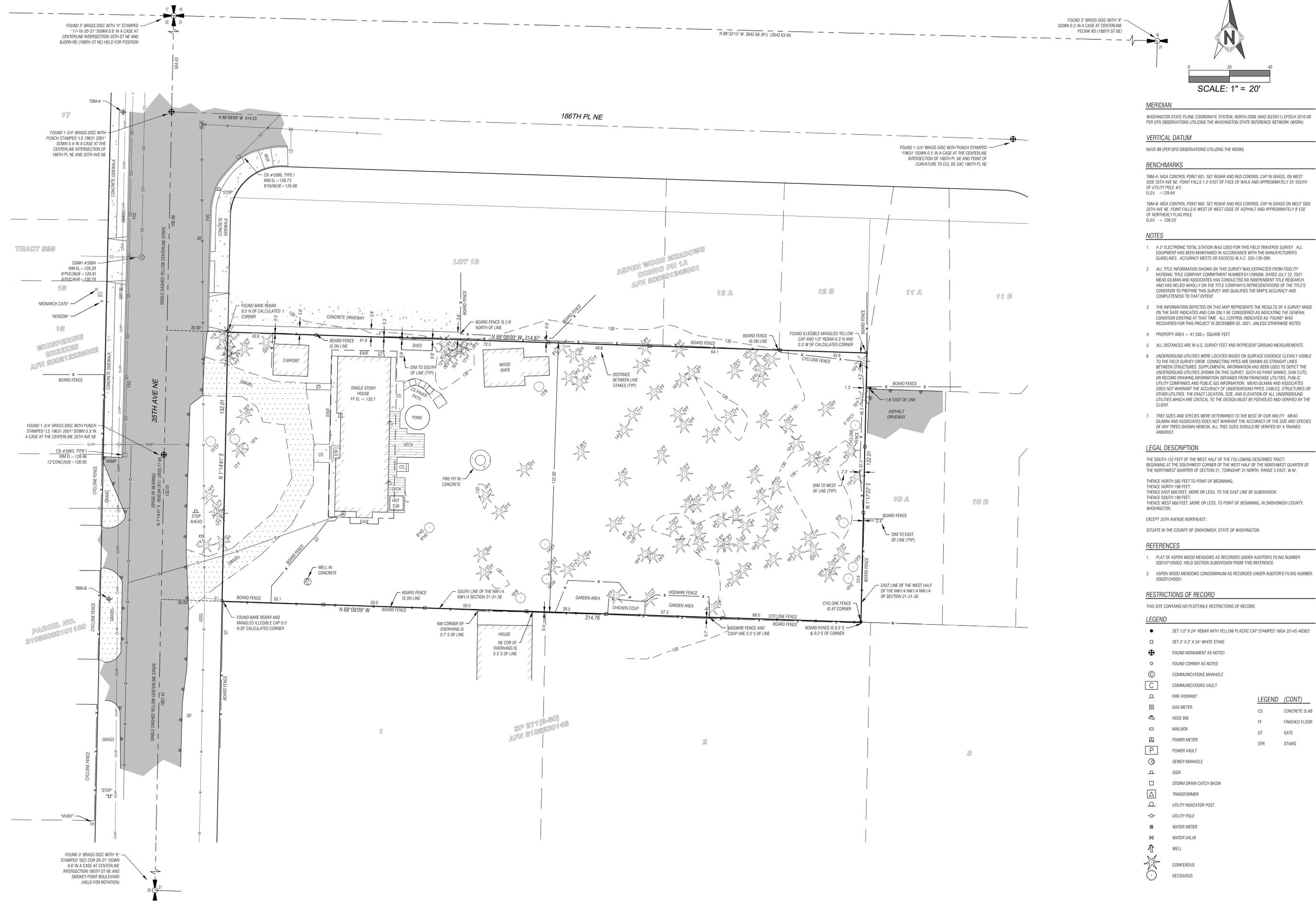
ONE INCH AT FULL SIZE
REVISIONS
REV DATE IMAGE
DRAWN BY CHECKED BY APPROVED BY
WORK ORDER #:
DESCRIPTION



ENDORSEMENTS	
SIGNATURE	DATE
DRAWN: WB	03/15/2022
CHECK:	



PROJECT TYPE	TOWNHOME DEVELOPMENT	SHEET	1 OF 11
PROJECT NAME	TOTEMWOOD TOWNHOMES	CLASS \ SHEET	
PROJECT ADDRESS	16801 35TH AVE NE ARLINGTON, WA 98223	CITY	ARLINGTON
		SCALE	1" = 10'
		REV. NO.	0



FOUND 3" BRASS DISC WITH "X" STAMPED "17-16-20-21" DOWN 0.6' IN A CASE AT CENTERLINE INTERSECTION 35TH ST NE AND BOORN RD (188TH ST NE) HELD FOR POSITION

N 89°32'15" W 2642.66 (R1) (2642.63 M)



MERIDIAN

WASHINGTON STATE PLANE COORDINATE SYSTEM, NORTH ZONE (NAD 83/2011) EPOCH 2010.00 PER GPS OBSERVATIONS UTILIZING THE WASHINGTON STATE REFERENCE NETWORK (WSRN)

VERTICAL DATUM

NAVD 88 (PER GPS OBSERVATIONS UTILIZING THE WSRN)

BENCHMARKS

TBM-A: MGA CONTROL POINT 601. SET REBAR AND RED CONTROL CAP IN GRASS, ON WEST SIDE 35TH AVE NE. POINT FALLS 1.5' EAST OF FACE OF WALK AND APPROXIMATELY 25' SOUTH OF UTILITY POLE #2. ELEV. = 129.54'
 TBM-B: MGA CONTROL POINT 600. SET REBAR AND RED CONTROL CAP IN GRASS ON WEST SIDE 35TH AVE NE. POINT FALLS 5' WEST OF WEST EDGE OF ASPHALT AND APPROXIMATELY 9' ESE OF NORTHERLY FLAG POLE. ELEV. = 128.53'

NOTES

- A 5" ELECTRONIC TOTAL STATION WAS USED FOR THIS FIELD TRAVERSE SURVEY. ALL EQUIPMENT HAS BEEN MAINTAINED IN ACCORDANCE WITH THE MANUFACTURERS' GUIDELINES. ACCURACY MEETS OR EXCEEDS W.A.C. 332-130-090.
- ALL TITLE INFORMATION SHOWN ON THIS SURVEY WAS EXTRACTED FROM FIDELITY NATIONAL TITLE COMPANY COMMITMENT NUMBER 611290008, DATED JULY 22, 2021. MEAD GILMAN AND ASSOCIATES HAS CONDUCTED NO INDEPENDENT TITLE RESEARCH, AND HAS RELIED WHOLLY ON THE TITLE COMPANY'S REPRESENTATIONS OF THE TITLES' CONDITION TO PREPARE THIS SURVEY AND QUALIFIES THE MAP'S ACCURACY AND COMPLETENESS TO THAT EXTENT.
- THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF A SURVEY MADE ON THE DATE INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITION EXISTING AT THAT TIME. ALL CONTROL INDICATED AS "FOUND" WAS RECOVERED FOR THIS PROJECT IN DECEMBER 02, 2021, UNLESS OTHERWISE NOTED.
- PROPERTY AREA = 41,556 = SQUARE FEET.
- ALL DISTANCES ARE IN U.S. SURVEY FEET AND REPRESENT GROUND MEASUREMENTS.
- UNDERGROUND UTILITIES WERE LOCATED BASED ON SURFACE EVIDENCE CLEARLY VISIBLE TO THE FIELD SURVEY CREW. CONNECTING PIPES ARE DRAWN AS STRAIGHT LINES BETWEEN STRUCTURES. SUPPLEMENTAL INFORMATION HAS BEEN USED TO DEPICT THE UNDERGROUND UTILITIES SHOWN ON THIS SURVEY, SUCH AS PAINT MARKS, SAW CUTS, OR RECORD DRAWING INFORMATION OBTAINED FROM FRANCHISE UTILITIES, PUBLIC UTILITY COMPANIES AND PUBLIC GIS INFORMATION. MEAD GILMAN AND ASSOCIATES DOES NOT WARRANT THE ACCURACY OF UNDERGROUND PIPES, CABLES, STRUCTURES OR OTHER UTILITIES. THE EXACT LOCATION, SIZE, AND ELEVATION OF ALL UNDERGROUND UTILITIES WHICH ARE CRITICAL TO THE DESIGN MUST BE POLOLED AND VERIFIED BY THE CLIENT.
- TREE SIZES AND SPECIES WERE DETERMINED TO THE BEST OF OUR ABILITY. MEAD GILMAN AND ASSOCIATES DOES NOT WARRANT THE ACCURACY OF THE SIZE AND SPECIES OF ANY TREES SHOWN HEREON. ALL TREE SIZES SHOULD BE VERIFIED BY A TRAINED ARBORIST.

LEGAL DESCRIPTION

THE SOUTH 132 FEET OF THE WEST HALF OF THE FOLLOWING DESCRIBED TRACT, BEGINNING AT THE SOUTHWEST CORNER OF THE WEST HALF OF THE NORTHWEST QUARTER OF SECTION 21, TOWNSHIP 31 NORTH, RANGE 5 EAST, W.M.:
 THENCE NORTH 582 FEET TO POINT OF BEGINNING;
 THENCE NORTH 198 FEET;
 THENCE EAST 660 FEET, MORE OR LESS, TO THE EAST LINE OF SUBDIVISION;
 THENCE SOUTH 198 FEET;
 THENCE WEST 660 FEET, MORE OR LESS, TO POINT OF BEGINNING, IN SNOHOMISH COUNTY, WASHINGTON.
 EXCEPT 35TH AVENUE NORTHEAST,
 SITUATE IN THE COUNTY OF SNOHOMISH, STATE OF WASHINGTON.

REFERENCES

- PLAT OF ASPEN WOOD MEADOWS AS RECORDED UNDER AUDITORS' FILING NUMBER 200107105003, HELD SECTION SUBDIVISION FROM THIS REFERENCE.
- ASPEN WOOD MEADOWS CONDOMINIUM AS RECORDED UNDER AUDITORS' FILING NUMBER 200201245001.

RESTRICTIONS OF RECORD

THIS SITE CONTAINS NO PLOTTABLE RESTRICTIONS OF RECORD.

LEGEND

- SET 1/2" X 24" REBAR WITH YELLOW PLASTIC CAP STAMPED "MGA 35145 48383"
- SET 2" X 2" X 24" WHITE STAKE
- ⊕ FOUND MONUMENT AS NOTED
- FOUND CORNER AS NOTED
- ⊙ COMMUNICATIONS MANHOLE
- ⊚ COMMUNICATIONS VAULT
- ⊛ FIRE HYDRANT
- ⊜ GAS METER
- ⊝ HOSE BIB
- ⊞ MAILBOX
- ⊟ POWER METER
- ⊠ POWER VAULT
- ⊡ SEWER MANHOLE
- ⊢ SIGN
- ⊣ STORM DRAIN CATCH BASIN
- ⊤ TRANSFORMER
- ⊥ UTILITY INDICATOR POST
- ⊦ UTILITY POLE
- ⊧ WATER METER
- ⊨ WATER VALVE
- ⊩ WELL
- ⊪ CONIFEROUS
- ⊫ DECIDUOUS

LEGEND (CONT)

- CS CONCRETE SLAB
- FF FINISHED FLOOR
- GT GATE
- STR STARS

DATE	REVISION



12/6/2021

MEAD GILMAN
 LAND SURVEYORS

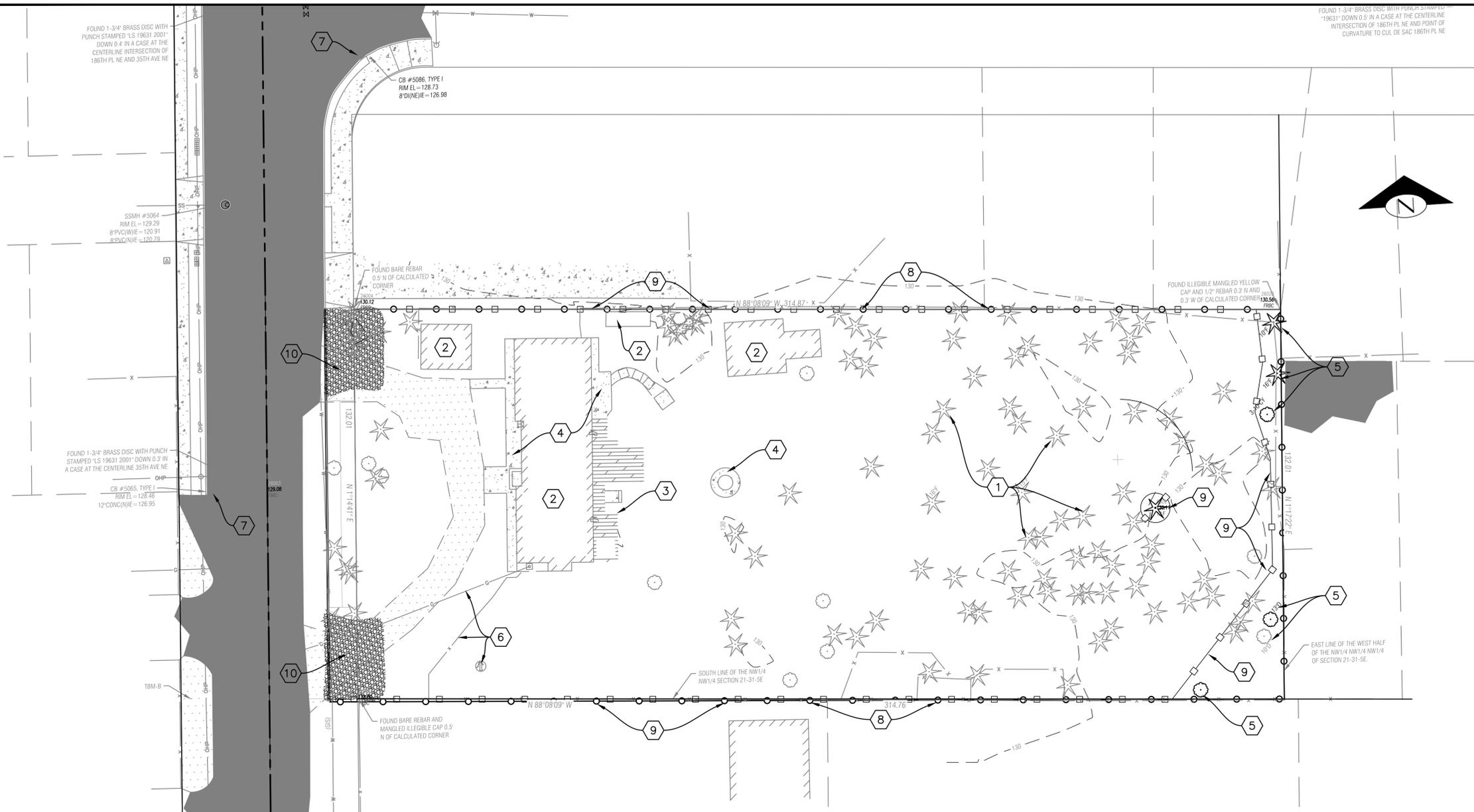


BIAN - ARLINGTON
 BOUNDARY & TOPOGRAPHIC SURVEY

WEIMING BIAN
 PO BOX 60147
 SHORELINE, WA 98160

DRAWN BY:	LR
REVIEWED BY:	MRP
JOB NO.	21178
SHEET	1 OF 1

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TESC NOTES

- 1 REMOVE EXISTING TREES (TYP)
- 2 REMOVE EXISTING STRUCTURE.
- 3 REMOVE EXISTING SEPTIC TANK IN WHOLE.
- 4 REMOVE EXISTING CONCRETE.
- 5 PROTECT EXISTING TREES TO REMAIN IN PLACE
- 6 REMOVE EXISTING UTILITIES
- 7 FILTER FABRIC FOR CATCH BASIN
- 8 CONSTRUCTION SILT FENCE
- 9 CONSTRUCTION HIGH VISIBILITY FENCE
- 10 CONSTRUCTION ENTRANCE



REMOVAL AND TESC PLAN

REV	DATE	IMAGE	DESCRIPTION

WORK ORDER #:	DESCRIPTION



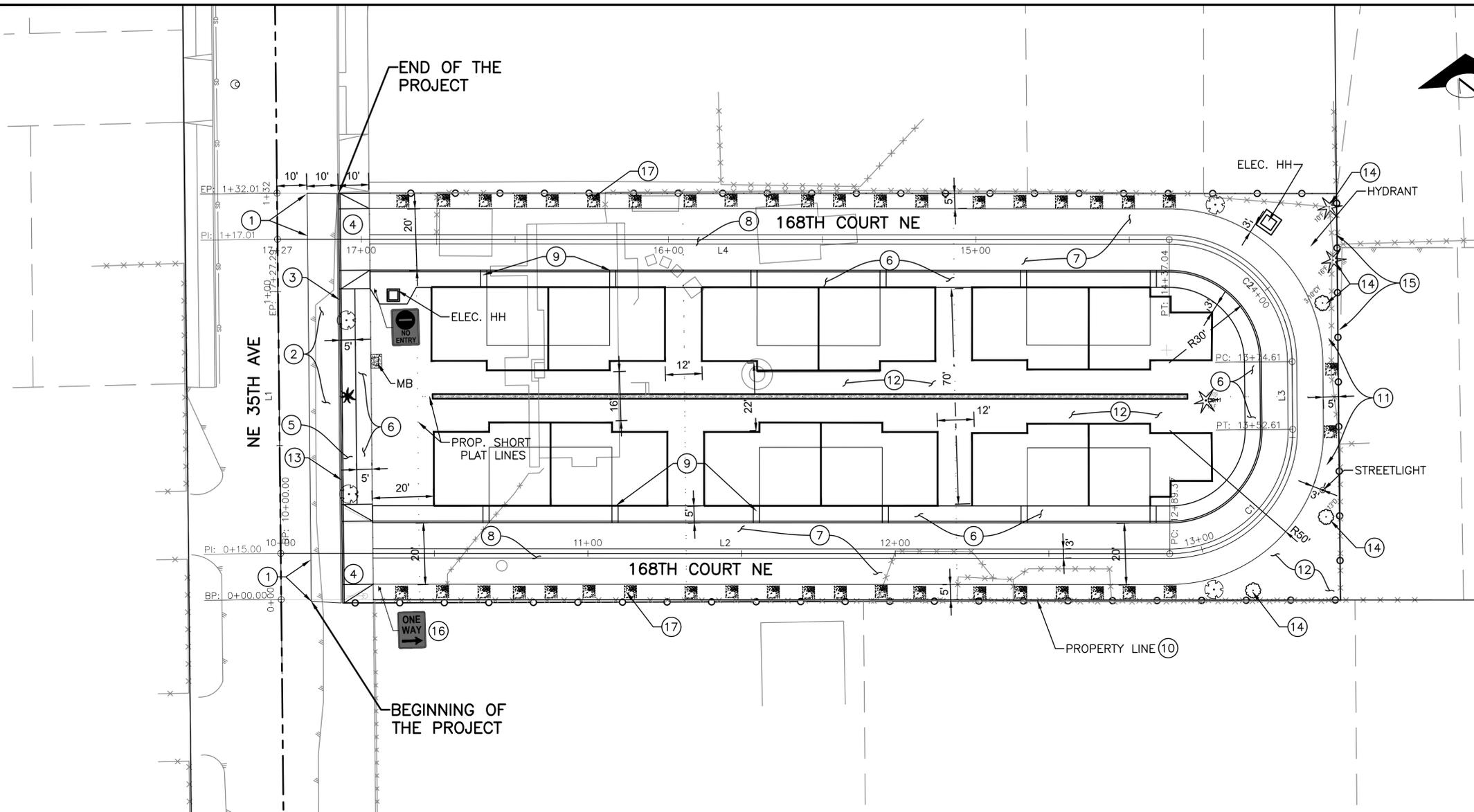
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DRAWN: WB	04/01/2022
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PROJECT TYPE	RESIDENTIAL DEVELOPMENT
PROJECT NAME	TOTEMWOOD TOWNHOMES
PROJECT ADDRESS	18601 35TH AVE NE ARLINGTON, WA 98223

SHEET	3 OF XX
CLASS / SHEET	C1
CITY	ARLINGTON
SCALE	
REV. NO.	0

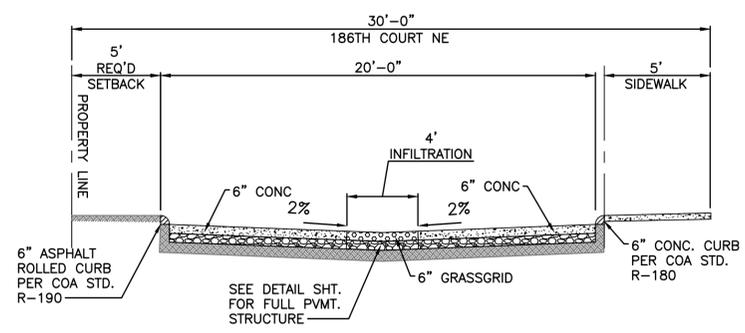
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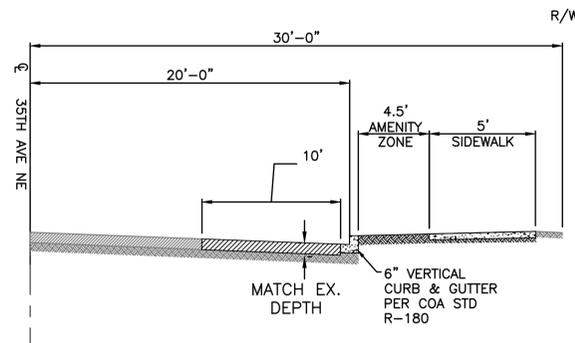
- UNLESS OTHERWISE NOTED:
- ASPHALT PAVEMENT
 - CONC SIDEWALK
 - CONC RDWY PVMT
 - GRASSCRETE
 - INFILTRATION TRENCH
 - PLANTING STRIP
 - ROW/PROPERTY LINE

CIVIL NOTES

- 1 SAWCUT EX. ASPHALT PAVEMENT 10' FROM 35TH AVE RDWY. CENTERLINE.
- 2 10' WIDE FULL DEPTH ASPH. PVMT. PER COA STD. R-020.
- 3 6" VERTICAL CURB AND GUTTER PER COA STD. R-180.
- 4 CONC. DRIVEWAY PER COA STD. TYPE 2 R-230.
- 5 4.5' WIDE PLANTING STRIP PER COA STD. R-280.
- 6 5' WIDE CONCRETE SIDEWALK PER COA STD. R-170.
- 7 CONC. PVMT. PER COA STD. R-020 (TO BE VERIFIED);
- 8 6" GRASSCRETE BY LATTICE OF CONC. OVER GRAVEL, SEE DETAIL SHOWN ON SHT. S1;
- 9 CONC. DWY. & VERT. C&G PER COA STD. R-230 & R-180.
- 10 CONSTRUCTION EROSION CONTROL PER SHT. S1
- 11 SLOPE @ 3:1 MAX. TO EXISTING GRADE. SEED WITH GRASS AFTER GRADING.
- 12 LANDSCAPING PER DETAIL SHOWN ON SHT. L1 & L2;
- 13 SLOTTED CURB SPACER PER DETAIL ON SHT. S1;
- 14 PROTECT EX. TREE TO REMAIN IN PLACE.
- 15 WOODEN FENCE (PERMANENT), TYPE TBD.
- 16 TRAFFIC SIGN PER COA STD. R-120.
- 17 BORDER SCREENING LANDCAPING, SEE SHT. L1& L2



"186TH COURT" NE



35TH AVE NE

Curve Table: Alignments					
Curve #	Radius	Length	Chord Direction	Start Point	End Point
C1	40.000	63.233	N46° 34' 36.60"E	(1311380.9924,427839.7194)	(1311422.2834,427878.7980)
C2	40.000	62.431	N43° 25' 23.40"W	(1311422.7785,427900.7936)	(1311384.0898,427941.6727)

Line Table: Alignments					
Line #	Length	Direction	Start Point	End Point	
L1	132.006	N01° 14' 40.82"E	(1311091.4474,427834.1351)	(1311094.3143,427966.0884)	
L2	289.372	S88° 08' 09.16"E	(1311091.7732,427849.1324)	(1311380.9924,427839.7194)	
L3	22.00	N1° 17' 22.36"E	(1311422.2834,427878.7980)	(1311422.7785,427900.7936)	
L4	290.254	N88° 08' 09.16"W	(1311384.0898,427941.6727)	(1311093.9890,427951.1144)	



SITE PLAN

REV	DATE	IMAGE	DESCRIPTION

WORK ORDER #	DESCRIPTION



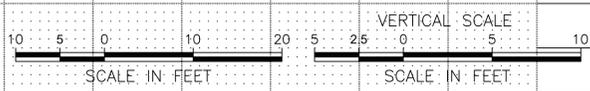
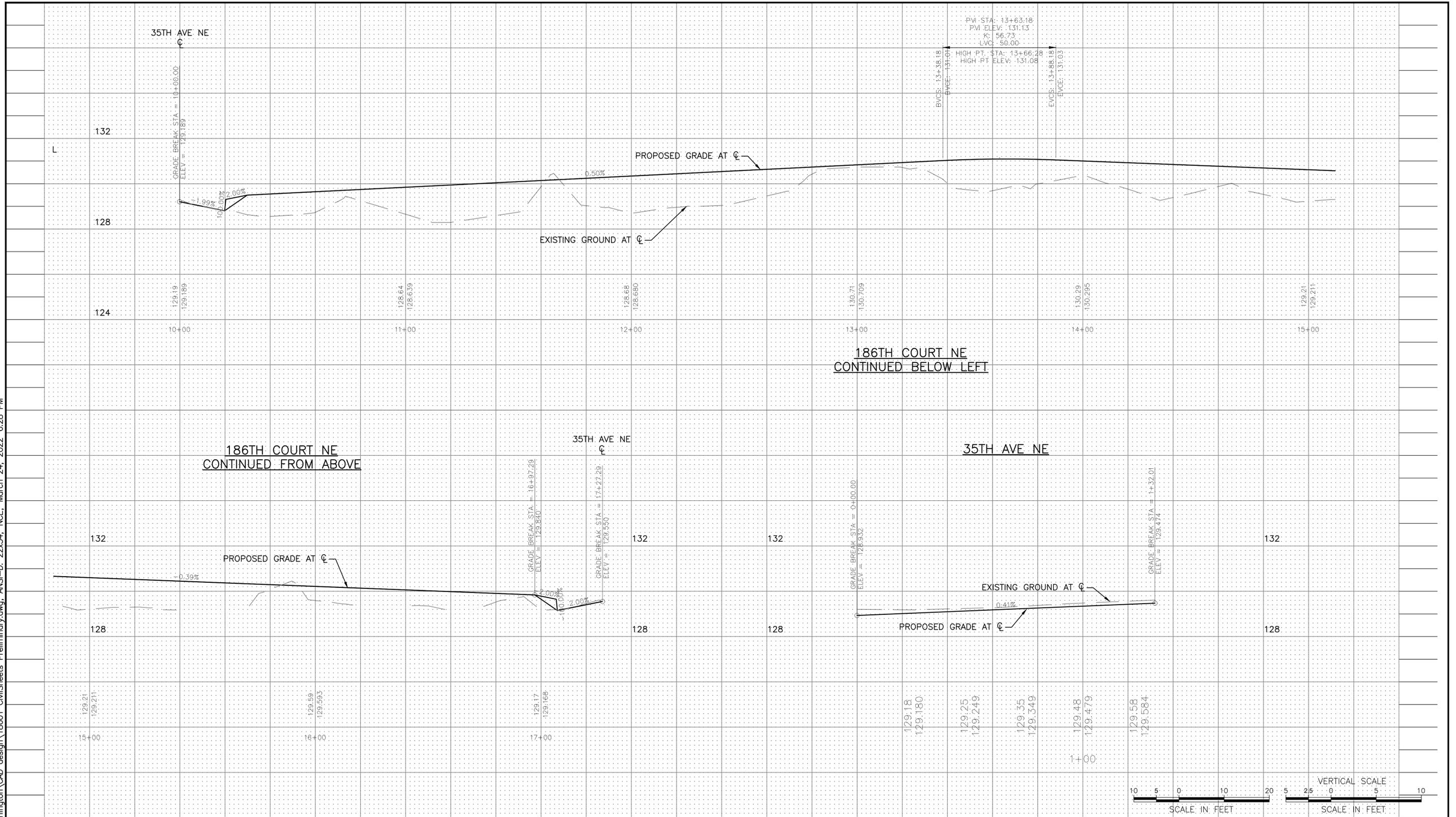
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PROJECT TYPE	RESIDENTIAL DEVELOPMENT
PROJECT NAME	TOTEMWOOD TOWNHOMES
PROJECT ADDRESS	18601 35TH AVE NE ARLINGTON, WA 98223

SHEET	4 OF XX
CLASS / SHEET	C2
CITY	ARLINGTON
SCALE	
REV. NO.	0

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ROADWAY PROFILES

REV	DATE	IMAGE	DESCRIPTION

WORK ORDER #:

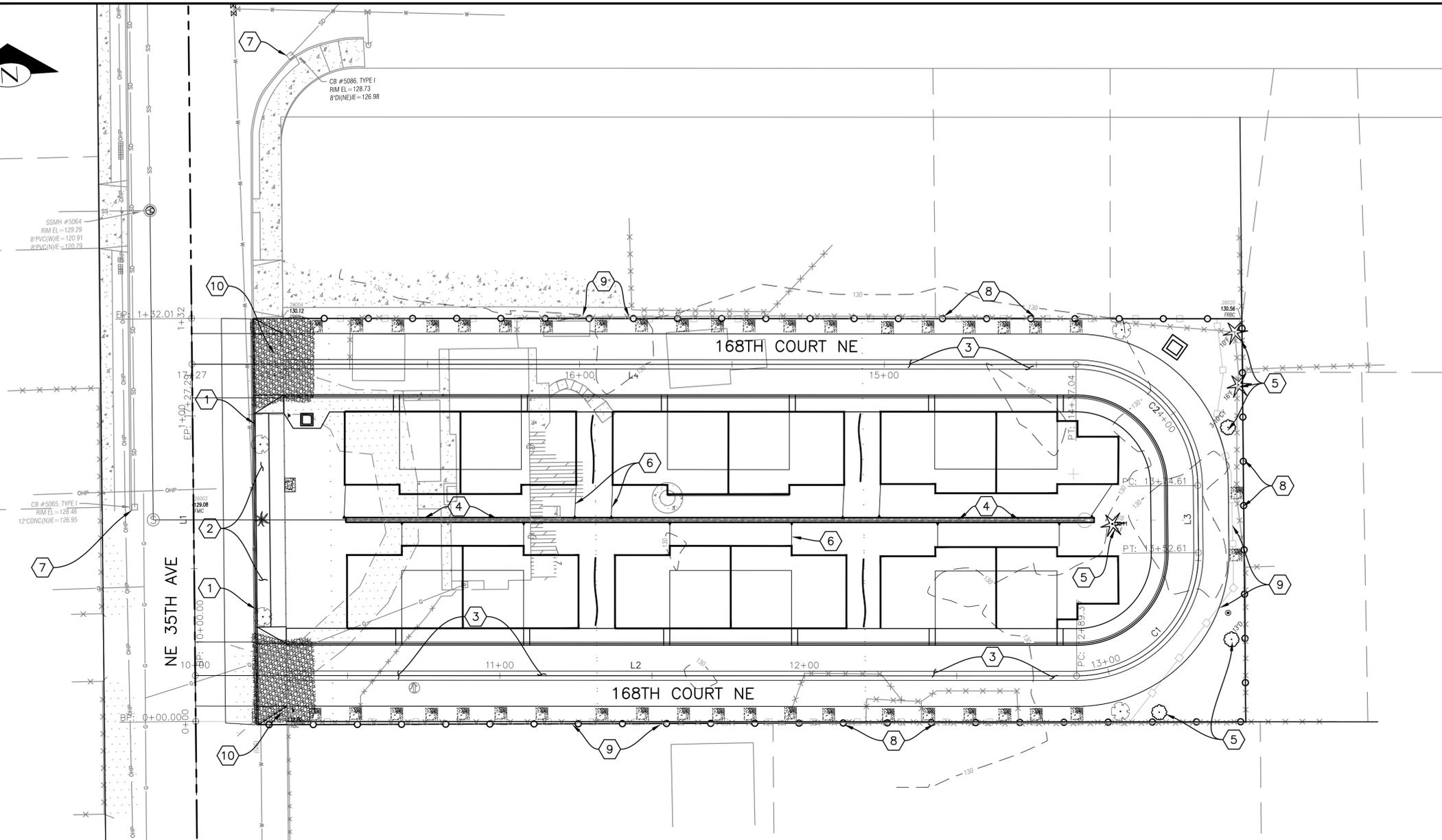


ENDORSEMENTS	
SIGNATURE	DATE
DRAWN: WB	04/01/2022
CHECK:	



PROJECT TYPE	RESIDENTIAL DEVELOPMENT	SHEET	5 OF XX
PROJECT NAME	TOTEMWOOD TOWNHOMES	CLASS / SHEET	C3
PROJECT ADDRESS	18601 35TH AVE NE ARLINGTON, WA 98223	CITY	ARLINGTON
SCALE		REV. NO.	0

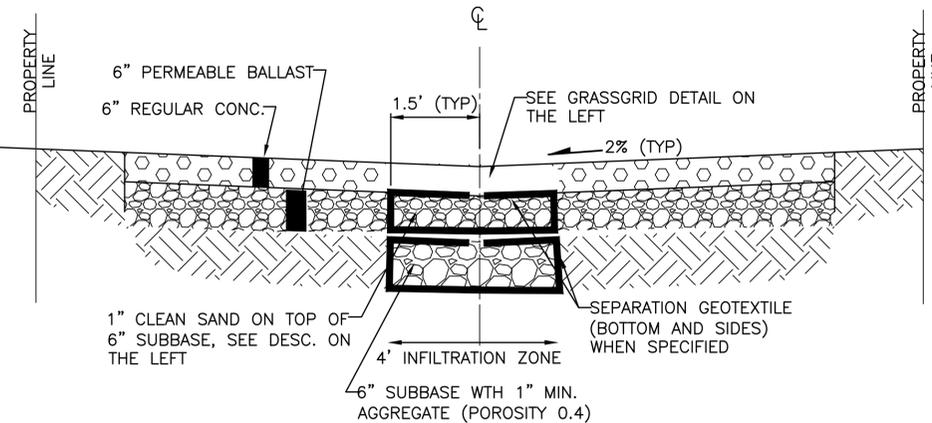
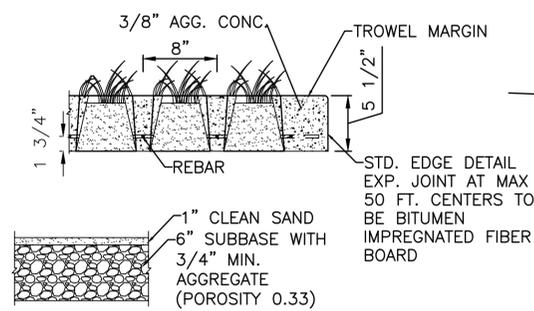
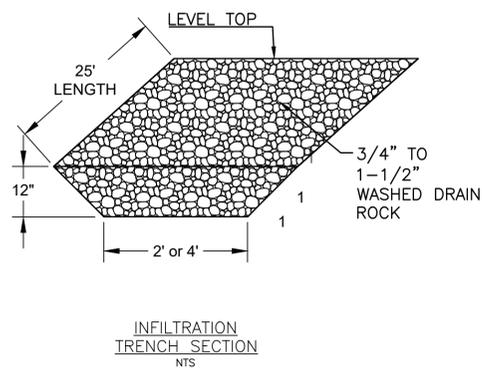
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- UNLESS OTHERWISE NOTED:
- ASPHALT PAVEMENT
 - CONC SIDEWALK
 - CONC RDWY PVMT
 - GRASSCRETE
 - INFILTRATION TRENCH
 - PLANTING STRIP
 - CONSTRUCTION ENTRANCE

STORMWATER NOTES

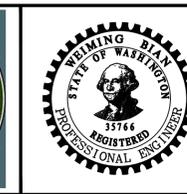
- ① 6-IN SCUPPER IN CURB.
- ② PLANTING STRIP W/ BIORETENTION SOIL.
- ③ GRASSCRETE PAVEMENT WITH GRASS OVER GRAVEL, SEE DETAIL IN SHT. XX
- ④ 15"(W)X12"(D)X245"(L) GRAVEL INFILTRATION TRENCH, SEE SECTION & MATERIAL DETAIL ON SHT. XX
- ⑤ EXISTING TREES TO REMAIN
- ⑥ 6" ROOF DRAIN TIGHT-LINE
- ⑦ FILTER FABRIC FOR CATCH BASIN
- ⑧ CONSTRUCTION SILT FENCE
- ⑨ CONSTRUCTION HIGH VISIBILITY FENCE
- ⑩ CONSTRUCTION ENTRANCE



STORMWATER PLAN

REV	DATE	IMAGE	DESCRIPTION

REVISIONS	DESCRIPTION



ENDORSEMENTS	
SIGNATURE	DATE
DRAWN: WB	02/20/2022
CHECK:	



PROJECT TYPE	RESIDENTIAL DEVELOPMENT
PROJECT NAME	TOTEMWOOD TOWNHOMES
PROJECT ADDRESS	18601 35TH AVE NE ARLINGTON, WA 98223

SHEET	6 OF XX
CLASS / SHEET	S1
CITY	ARLINGTON
SCALE	
REV. NO.	0

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SSMH #5064
RIM EL = 129.29
8" PVC W/IE = 129.91
R/EV/C/N/E = 120.79

CB #5063, TYPE 1
RIM EL = 128.46
12" CONC W/IE = 126.95

NE 35TH AVE

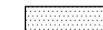
PROP. SHORT PLAT LINE (TYP)

168TH COURT NE

168TH COURT NE

10' WATER EASEMENT

UNLESS OTHERWISE NOTED:

-  ASPHALT PAVEMENT
-  CONC SIDEWALK
-  CONC RDWY PVMT
-  GRASSCRETE
-  INFILTRATION TRENCH
-  PLANTING STRIP
-  CONSTRUCTION ENTRANCE

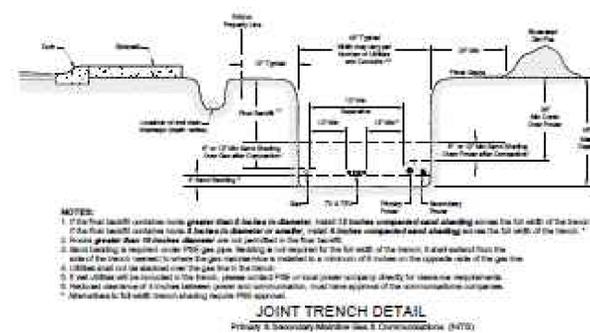


GENERAL NOTES

1. CONTRACTOR TO INSTALL WATER MAIN, SERVICE LINES, AND ALL APPURTENANCES PER CITY OF ARLINGTON ENGR. STD. CHAPTER 4 - WATER.
2. 80TH AVE NE IS A PUBLIC STREET. NE 177TH PLACE, NE BEECHWOOD DRIVE, & NE 177TH COURT ARE PRIVATE STREETS.
3. FOR STREET CENTERLINE ALIGNMENT DATA, SEE CIVIL SHEET C1.
4. DUE TO HIGH WATER PRESSURE, ALL UNITS WILL LIKELY REQUIRE INDIVIDUAL PRESSURE REGULATORS IN ACCORDANCE WITH THE UNIFORM PLUMBING CODE. BUILDER TO TEST, VERIFY AND INSTALL IF REQUIRED.
5. ROCKERIES, WALLS, DETENTION VAULT, OR OTHER PERMANENT STRUCTURES ARE NOT ALLOWED ON DISTRICT EASEMENTS OR OVER DISTRICT FACILITIES.
6. ALL PIPE LENGTHS SHOWN ARE 2-DIMENSIONAL LENGTHS.
7. ALL MECHANICAL JOINT FITTINGS TO BE RESTRAINED WITH "MEGALUG" MECHANICAL JOINT RESTRAINTS.

WATER CONSTRUCTION NOTES:

1. MOVE EXISTING HYDRANT BEHIND THE PROP. SIDEWALK. APPLY OPERATION CLEARANCE TO OTHER ABOVE GROUND FACILITIES.
2. INSTALL 8" X 8" X 6" DI TEE (MJ X MJ X FL) FOR FIRE HYDRANT CONNECTION AND CONCRETE BLOCKING.
3. INSTALL 8" WATER LINE PER ARLINGTON ENGR. STD. CHAPTER 4 - WATER.
4. INSTALL 12" X 12" X 8" TAPPING TEE (MJ X MJ X FL) AND CONCRETE BLOCKING PER ARLINGTON ENGR. STD. W-200.
5. INSTALL FIRE HYDRANT ASSEMBLY PER ARLINGTON ENGR. STD. W-010 AND 3'X3'X6"(D) CONCRETE PAD.
6. INSTALL 8" DI 90° BEND (MJ X MJ) AND CONCRETE BLOCKING PER STD. DETAIL W-160.
7. INSTALL 8" GATE VALVE (FL X MJ) BOX PER ARLINGTON ENGR. STD. W-190.
8. INSTALL 1" WATER SERVICE PER ARLINGTON ENGR. STD. CHAPTER 4 WITH METER 1' BEHIND CURB AND DOUBLE CHECK VALVE ASSEMBLY TO BE INSTALLED BEHIND METER. SEE STD. DETAIL W-040 AND W-090.



POWER, COMM., & GAS TRENCH SECTION

(FOR PLANNING PURPOSE ONLY)



WATER PLAN

REV	DATE	IMAGE	DESCRIPTION

ONE INCH AT FULL SIZE

DRAWN BY: CHECKED BY: APPROVED BY: WORK ORDER #:

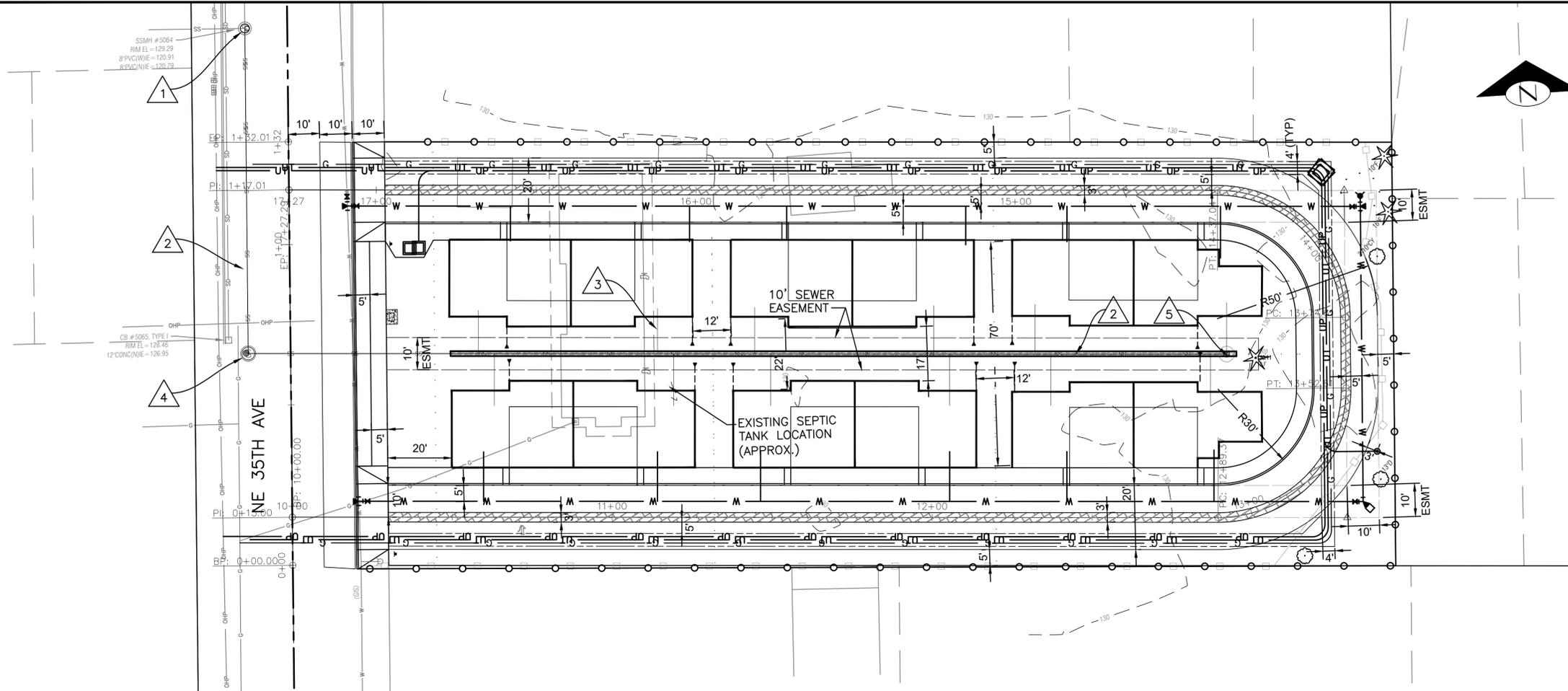


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SIGNATURE	DATE
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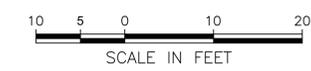
PROJECT TYPE	RESIDENTIAL DEVELOPMENT	SHEET	7 OF 10
PROJECT NAME	TOTEMWOOD TOWNHOMES	CLASS SHEET	W1
PROJECT ADDRESS	18601 35TH AVE NE ARLINGTON, WA 98223	CITY	ARLINGTON
		SCALE	
		REV. NO.	0

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UNLESS OTHERWISE NOTED:

-  ASPHALT PAVEMENT
-  CONC SIDEWALK
-  CONC RDWY PVMT
-  GRASSCRETE
-  INFILTRATION TRENCH
-  PLANTING STRIP
-  CONSTRUCTION ENTRANCE



SEWER PLAN – OPTION 1

GENERAL SEWER CONSTRUCTION NOTES

- 1 CONTRACTOR TO INSTALL SEWER MAIN, SIDE SEWERS, MANHOLES, AND ALL APPURTENANCES PER CITY OF ARLINGTON ENGR. STANDARD, CHAPTER 5 – SEWER.
- 2 35TH AVE NE IS A PUBLIC STREET. TOTEMWOOD COURT NE IS A PRIVATE STREET.
- 3 SEE CIVIL SHEET C1 FOR STREET CENTERLINE ALIGNMENT DATA.
- 4 ALL UNITS WILL LIKELY REQUIRE INDIVIDUAL PRESSURE REGULATORS IN ACCORDANCE WITH THE UNIFORM PLUMBING CODE. CONTRACTOR TO TEST, VERIFY, AND INSTALL WHEN THE REQUIREMENT IS ENFORCED.
- 6 CONTRACTOR TO REMOVE EXISTING SEPTIC TANK IN WHOLE.
- 7 SIDE SEWER TEES AND CLEANOUTS TO BE STAKED.
- 8 PERMANENT STRUCTURES ARE NOT ALLOWED ON UTILITY EASEMENTS NOR OVER UTILITIES.
- 9 ALL PIPE LENGTHS SHOWN ARE 2-DIMENTIAL LENGTHS.

SEWER CONSTRUCTION NOTES

- 1 CONNECT TO EX. SEWER MANHOLE-X. CORE DRILL AND INSTALL KOR-N-SEAL MANHOLE ADAPTER. RECHANNEL MANHOLE BOTTOM. SEE ARLINGTON CITY ENGR. STD. DETAIL SS-100.
- 2 INSTALL 8" PVC SEWER MAIN PER ARLINGTON CITY ENGR. STD.
- 3 INSTALL 6" PVC SIDE SEWER STUB, PER ARLINGTON CITY ENGR. STD. SEWER DETAIL SS-090 AND 2-WAY CLEANOUT PER SS-080.
4. INSTALL 48" MANHOLE TYPE 1 PER ARLINGTON CITY ENGR. STD DETAIL SS-010.
- 5 INSTALL SEWER DROP CONNECTION PER COA ENGR. STD. DETAIL SS-060.

REV	DATE	IMAGE	DESCRIPTION

REVISIONS	DESCRIPTION

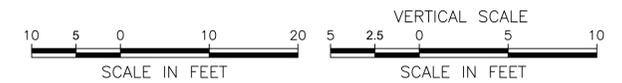
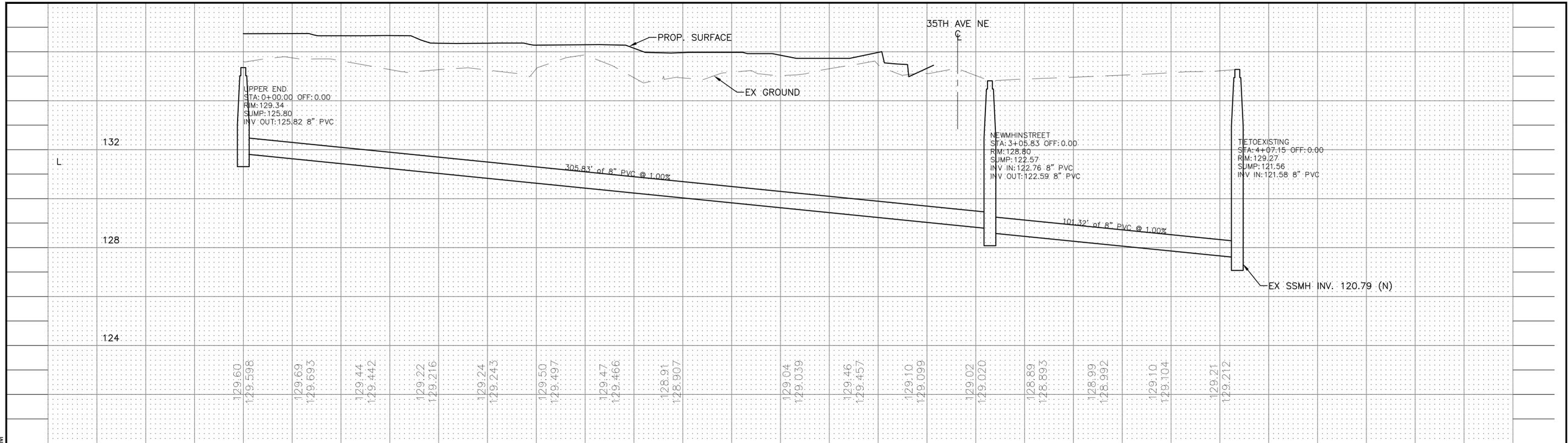


ENDORSEMENTS	
SIGNATURE	DATE
DRAWN: WB	04/01/2022
CHECK:	



PROJECT TYPE	RESIDENTIAL DEVELOPMENT	SHEET	8 OF 10
PROJECT NAME	TOTEMWOOD TOWNHOMES	CLASS / SHEET	SS1
PROJECT ADDRESS	18601 35TH AVE NE ARLINGTON, WA 98223	CITY	ARLINGTON
SCALE		REV. NO.	0

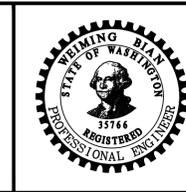
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SEWER EXTENSION PROFILE

REV.	DATE	IMAGE	DESCRIPTION

DESCRIPTION



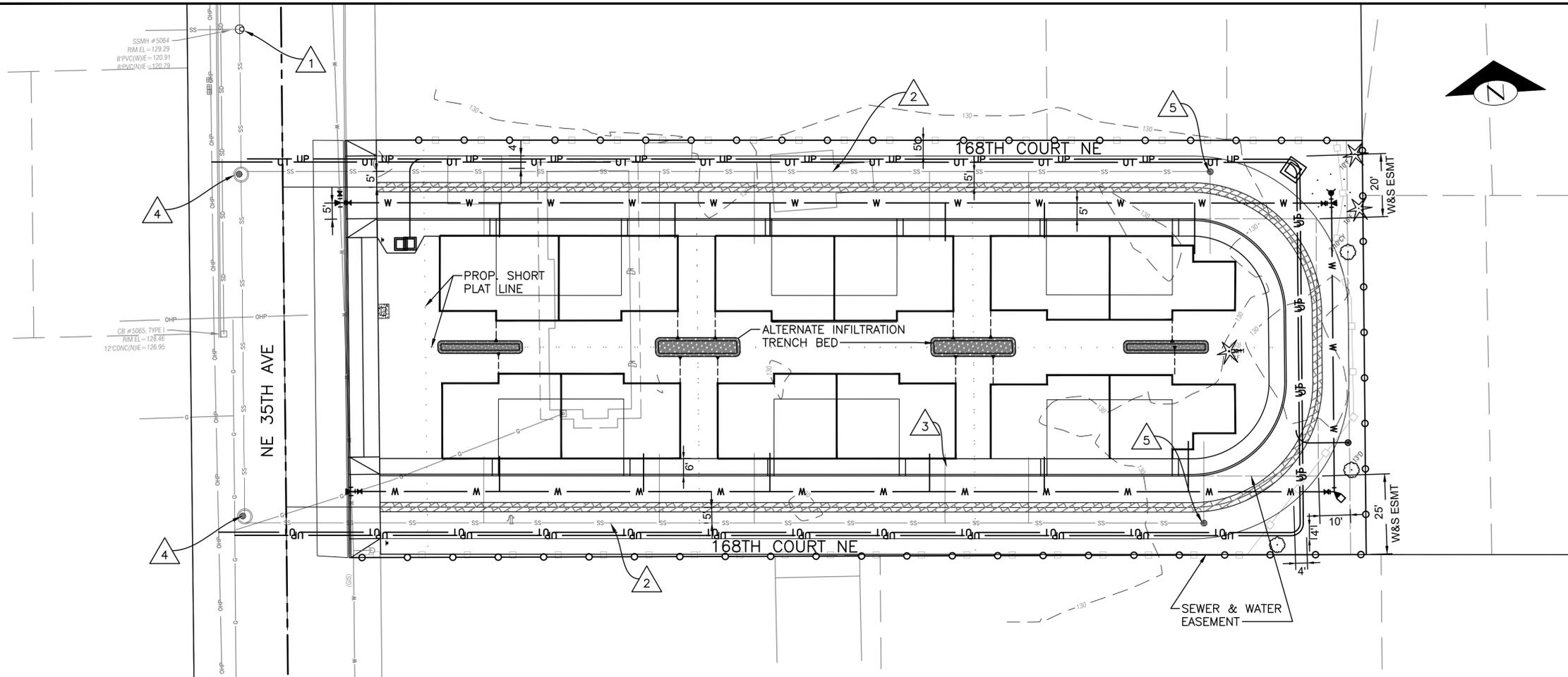
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DRAWN: WB	04/01/2022
CHECK:	



PROJECT TYPE	RESIDENTIAL DEVELOPMENT
PROJECT NAME	TOTEMWOOD TOWNHOMES
PROJECT ADDRESS	18601 35TH AVE NE ARLINGTON, WA 98223

SHEET	9 OF 10
CLASS / SHEET	SS2
CITY	ARLINGTON
SCALE	
REV. NO.	0

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- UNLESS OTHERWISE NOTED:
- ASPHALT PAVEMENT
 - CONC SIDEWALK
 - CONC RDWY PVMT
 - GRASSCRETE
 - INFILTRATION TRENCH
 - PLANTING STRIP
 - CONSTRUCTION ENTRANCE

GENERAL SEWER CONSTRUCTION NOTES

- 1 CONTRACTOR TO INSTALL WATER MAIN, SERVICES LINES, AND ALL APPURTENANCES PER CITY OF ARLINGTON UTILITY STANDARD WATER DETAILS.
- 2 CONTRACTOR TO INSTALL SEWER MAIN, SIDE SEWERS, MANHOLES, AND ALL APPURTENANCES PER CITY OF ARLINGTON UTILITY STANDARD SEWER DETAILS.
- 3 35TH AVE NE IS A PUBLIC STREET. TOTEMWOOD COURT NE IS A PRIVATE STREET.
- 4 SEE CIVIL SHEET C1 FOR STREET CENTERLINE ALIGNMENT DATA.
- 5 ALL UNITS WILL LIKELY REQUIRE INDIVIDUAL PRESSURE REGULATORS IN ACCORDANCE WITH THE UNIFORM PLUMBING CODE. CONTRACTOR TO TEST, VERIFY, AND INSTALL WHEN THE REQUIREMENT IS ENFORCED.
- 6 CONTRACTOR TO REMOVE EXISTING SEPTIC TANK IN WHOLE.
- 7 SIDE SEWER TEES AND CLEANOUTS TO BE STAKED.
- 8 PERMANENT STRUCTURES ARE NOT ALLOWED ON UTILITY EASEMENTS NOR OVER UTILITIES.
- 9 ALL PIPE LENGTHS SHOWN ARE 2-DIMENTIAL LENGTHS.

SEWER CONSTRUCTION NOTES

- 1 CONNECT TO EX. SEWER MANHOLE-X. CORE DRILL AND INSTALL KOR-N-SEAL MANHOLE ADAPTER. RECHANNEL MANHOLE BOTTOM. SEE ARLINGTON CITY ENGR. STD. DETAIL SS-100.
- 2 INSTALL 8" PVC SEWER MAIN PER ARLINGTON CITY ENGR. STD.
- 3 INSTALL 6" PVC SIDE SEWER STUB, PER ARLINGTON CITY ENGR. STD. SEWER DETAIL SS-090 AND 2-WAY CLEANOUT PER SS-080.
- 4 INSTALL 48" MANHOLE TYPE 1 PER ARLINGTON CITY ENGR. STD DETAIL SS-010.
- 5 INSTALL SEWER DROP CONNECTION PER COA ENGR. STD. DETAIL SS-060.



SEWER PLAN — OPTION 2

ONE INCH AT FULL SIZE REVISIONS <table border="1"> <tr> <th>REV</th> <th>DATE</th> <th>IMAGE</th> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </table> DRAWN BY: CHECKED BY: APPROVED BY: WORK ORDER #: DESCRIPTION	REV	DATE	IMAGE					ENDORSEMENTS SIGNATURE DATE DRAWN: WB 04/01/2022 CHECK:	PROJECT TYPE RESIDENTIAL DEVELOPMENT	SHEET 8a OF 10
	REV	DATE	IMAGE							
	PROJECT NAME TOTEMWOOD TOWNHOMES	CLASS / SHEET SS1a	PROJECT ADDRESS 18601 35TH AVE NE ARLINGTON, WA 98223	CITY ARLINGTON						
			SCALE 	REV. NO. 0						

ONE INCH
AT FULL SIZE

NO.	REVISION	DATE
1		
2		

russell + lambert
LANDSCAPE ARCHITECTURE
7734 2nd AVE NE
Seattle, WA 98115

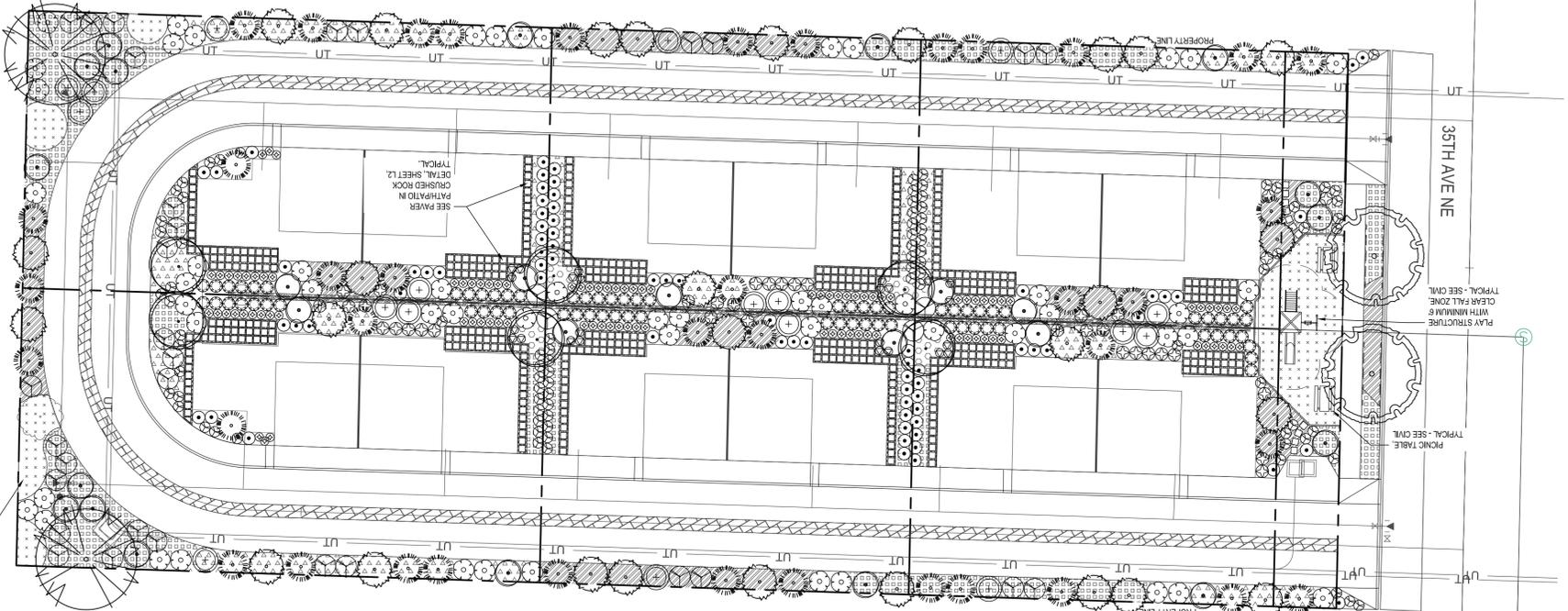


ENDORSEMENTS
SIGNATURE DATE
DRAWN: MER 4/19/2022
CHECK: RL 4/19/2022

LANDSCAPE PERMIT
DRAWING
PLANTING PLAN

18601 35TH AVE NE
ARLINGTON, WA 98223

PROJECT TYPE: RESIDENTIAL DEVELOPMENT
PROJECT NAME: TOTEMWOOD TOWNHOMES
PROJECT ADDRESS: 18601 35TH AVE NE
CITY: ARLINGTON
CLASS \ SHEET: L1
SCALE: AS SHOWN
REV. NO.: 0



- NOTES:**
1. PLANTING DETAILS SHALL BE PER CITY OF ARLINGTON REQUIREMENTS AND STANDARD DETAILS.
 2. PRIOR TO PLANTING INCORPORATE A MINIMUM OF 4" DEPTH COMPOST INTO THE TOP 8" OF EXISTING SOIL IN ALL LANDSCAPE AREAS. ALTERNATIVELY A MINIMUM 8" DEPTH OF COMMERCIALLY PREPARED TOPSOIL MAY BE USED IN PLANTING AREAS. SCARIFY SUBGRADE.
 3. PROVIDE MINIMUM 2" DEPTH ARBORIST WOOD CHIP MULCH IN ALL PLANTING BEDS.
 4. LANDSCAPE PLAN IS SCHEMATIC. ADJUST PLANTS IN THE FIELD AS NEEDED TO AVOID CONFLICTS.
 5. ALL PLANT MATERIALS SHALL CONFORM TO THE LATEST ANLA STANDARDS.

PLANTING SCHEDULE:

QTY	BOTANICAL NAME	COMMON NAME	SIZE/CONDITION/REMARKS
28	CHAMAECYPARIS SLENDER HINOKI	FALSE CYPRESS	WELL-BRANCHED, FULL, 8&B
40	CHAMAECYPARIS GREEN ARROW	ALASKAN CEDAR	WELL-BRANCHED, FULL, 8&B
6	CORNUS EDDIES	WHITE WONDER	WELL-BRANCHED, FULL, 8&B
2	FRAXINUS OXYCARPA	RAYWOOD ASH	WELL-BRANCHED, FULL, 8&B
2	THUJA PLICATA	WESTERN RED CEDAR	2" CALIPER, TREE FORM, WELL-BRANCHED, FULL, 8&B
TREES			
QTY <th>BOTANICAL NAME</th> <th>COMMON NAME</th> <th>SIZE/CONDITION/REMARKS</th>	BOTANICAL NAME	COMMON NAME	SIZE/CONDITION/REMARKS
35	CORNUS SANGUINERA	MIDWINTER FIRE	#5 CONT, FULL
71	GAULTHERIA SHALLO	SALAL	#2 CONT, FULL
36	MAHONIA AQUIFOLIUM	TALL OREGON GRAPE	#2 CONT, FULL
18	PHILADELPHUS LEWISII	MOCK ORANGE	#5 CONT, FULL
54	RHOODENDRON	KEN JANECK	#2 CONT, FULL
26	RIBES SANGUINUM	KING EDWARD VII	#5 CONT, FULL
72	TAXUS X MEDIA HICKSII	HICKS YEW	#2 CONT, FULL
SHRUBS			
QTY <th>BOTANICAL NAME</th> <th>COMMON NAME</th> <th>SIZE/CONDITION/REMARKS</th>	BOTANICAL NAME	COMMON NAME	SIZE/CONDITION/REMARKS
XX	ARCTOSPAPHYLOS	KINNIKINICK	SP4, FULL, 24" O.C.
97	DESCHAMPSIA	TUFTED HAIRGRASS	#1 CONT, FULL
XX	FRAGARIA CHILOENSIS	COASTAL STRAWBERRY	#1 CONT, FULL, 18" O.C.
XX	HAKONECHLOA MACRA	JAPANESE FOREST GRASS	#1 CONT, FULL, 18" O.C.
24	HOSTA FRANCEE	FRANCEE HOSTA	#1 CONT, FULL
XX	MAHONIA REPENS	CREeping OREGON GRAPE	#1 CONT, FULL, 24" O.C.
87	POLYSTICHUM MUNTNUM	WESTERN SWORD FERN	#2 CONT, MIN (10) FRONDS, 24" O.C.
PERENNIALS, FERNS, GRASSES, AND GROUNDCOVERS			
QTY <th>BOTANICAL NAME</th> <th>COMMON NAME</th> <th>SIZE/CONDITION/REMARKS</th>	BOTANICAL NAME	COMMON NAME	SIZE/CONDITION/REMARKS
XX	UVA-URSI		
XX	ARCTOSPAPHYLOS	KINNIKINICK	SP4, FULL, 24" O.C.
97	DESCHAMPSIA	TUFTED HAIRGRASS	#1 CONT, FULL
XX	FRAGARIA CHILOENSIS	COASTAL STRAWBERRY	#1 CONT, FULL, 18" O.C.
XX	HAKONECHLOA MACRA	JAPANESE FOREST GRASS	#1 CONT, FULL, 18" O.C.
24	HOSTA FRANCEE	FRANCEE HOSTA	#1 CONT, FULL
XX	MAHONIA REPENS	CREeping OREGON GRAPE	#1 CONT, FULL, 24" O.C.
87	POLYSTICHUM MUNTNUM	WESTERN SWORD FERN	#2 CONT, MIN (10) FRONDS, 24" O.C.
1,150 SF MULCH ONLY			

WWHM2012
PROJECT REPORT

General Model Information

Project Name: 2022RoadsidePlantStrip
Site Name: Totemwood StreetFrontage
Site Address: 18601 35th AveNE
City: Arlington
Report Date: 4/24/2022
Gage: Everett
Data Start: 1948/10/01
Data End: 2009/09/30
Timestep: 15 Minute
Precip Scale: 1.200
Version Date: 2019/09/13
Version: 4.2.17

POC Thresholds

Low Flow Threshold for POC1: 50 Percent of the 2 Year
High Flow Threshold for POC1: 50 Year

Landuse Basin Data

Predeveloped Land Use

35thAvePrer

Bypass: No

GroundWater: No

Pervious Land Use acre
A B, Forest, Flat 0.036

Pervious Total 0.036

Impervious Land Use acre
ROADS FLAT 0.061

Impervious Total 0.061

Basin Total 0.097

Element Flows To:
Surface Interflow Groundwater

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Mitigated Land Use

Basin 1

Bypass:	No
GroundWater:	No
Pervious Land Use A B, Lawn, Flat	acre 0.006
Pervious Total	0.006
Impervious Land Use ROADS FLAT SIDEWALKS FLAT	acre 0.061 0.03
Impervious Total	0.091
Basin Total	0.097

Element Flows To:
Surface Interflow Groundwater
Surface retention 1 Surface retention 1

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Routing Elements
Predeveloped Routing

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Mitigated Routing

Bioretention 1

Bottom Length:	70.00 ft.
Bottom Width:	4.00 ft.
Material thickness of first layer:	1
Material type for first layer:	ASTM 100
Material thickness of second layer:	0
Material type for second layer:	Sand
Material thickness of third layer:	0
Material type for third layer:	GRAVEL
Infiltration On	
Infiltration rate:	96
Infiltration safety factor:	0.25
Total Volume Infiltrated (ac-ft.):	17.562
Total Volume Through Riser (ac-ft.):	0
Total Volume Through Facility (ac-ft.):	17.562
Percent Infiltrated:	100
Total Precip Applied to Facility:	1.347
Total Evap From Facility:	0.526
Underdrain not used	
Discharge Structure	
Riser Height:	0.5 ft.
Riser Diameter:	12 in.
Element Flows To:	
Outlet 1	Outlet 2

Bioretention Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.0064	0.0000	0.0000	0.0000
0.0220	0.0064	0.0001	0.0000	0.0000
0.0440	0.0064	0.0001	0.0000	0.0000
0.0659	0.0064	0.0002	0.0000	0.0000
0.0879	0.0064	0.0003	0.0000	0.0000
0.1099	0.0064	0.0004	0.0000	0.0007
0.1319	0.0064	0.0004	0.0000	0.0044
0.1538	0.0064	0.0005	0.0000	0.0065
0.1758	0.0064	0.0006	0.0000	0.0089
0.1978	0.0064	0.0006	0.0000	0.0119
0.2198	0.0064	0.0007	0.0000	0.0154
0.2418	0.0064	0.0008	0.0000	0.0195
0.2637	0.0064	0.0009	0.0000	0.0241
0.2857	0.0064	0.0009	0.0000	0.0294
0.3077	0.0064	0.0010	0.0000	0.0352
0.3297	0.0064	0.0011	0.0000	0.0417
0.3516	0.0064	0.0011	0.0000	0.0489
0.3736	0.0064	0.0012	0.0000	0.0568
0.3956	0.0064	0.0013	0.0000	0.0654
0.4176	0.0064	0.0014	0.0000	0.0747
0.4396	0.0064	0.0014	0.0000	0.0847
0.4615	0.0064	0.0015	0.0000	0.0956
0.4835	0.0064	0.0016	0.0000	0.1072
0.5055	0.0064	0.0016	0.0000	0.1196
0.5275	0.0064	0.0017	0.0000	0.1329
0.5495	0.0064	0.0018	0.0000	0.1469

0.5714	0.0064	0.0019	0.0000	0.1556
0.5934	0.0064	0.0019	0.0000	0.1556
0.6154	0.0064	0.0020	0.0000	0.1556
0.6374	0.0064	0.0021	0.0000	0.1556
0.6593	0.0064	0.0021	0.0000	0.1556
0.6813	0.0064	0.0022	0.0000	0.1556
0.7033	0.0064	0.0023	0.0000	0.1556
0.7253	0.0064	0.0024	0.0000	0.1556
0.7473	0.0064	0.0024	0.0000	0.1556
0.7692	0.0064	0.0025	0.0000	0.1556
0.7912	0.0064	0.0026	0.0000	0.1556
0.8132	0.0064	0.0026	0.0000	0.1556
0.8352	0.0064	0.0027	0.0000	0.1556
0.8571	0.0064	0.0028	0.0000	0.1556
0.8791	0.0064	0.0029	0.0000	0.1556
0.9011	0.0064	0.0029	0.0000	0.1556
0.9231	0.0064	0.0030	0.0000	0.1556
0.9451	0.0064	0.0031	0.0000	0.1556
0.9670	0.0064	0.0031	0.0000	0.1556
0.9890	0.0064	0.0032	0.0000	0.1556
1.0000	0.0064	0.0032	0.0000	0.1556

Bioretention Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	To Amended(cfs)	Infiltr(cfs)
1.0000	0.0064	0.0032	0.0000	0.6481	0.0000
1.0220	0.0064	0.0034	0.0000	0.6481	0.0000
1.0440	0.0064	0.0035	0.0000	0.6766	0.0000
1.0659	0.0064	0.0037	0.0000	0.6909	0.0000
1.0879	0.0064	0.0038	0.0000	0.7051	0.0000
1.1099	0.0064	0.0040	0.0000	0.7194	0.0000
1.1319	0.0064	0.0041	0.0000	0.7336	0.0000
1.1538	0.0064	0.0042	0.0000	0.7479	0.0000
1.1758	0.0064	0.0044	0.0000	0.7621	0.0000
1.1978	0.0064	0.0045	0.0000	0.7764	0.0000
1.2198	0.0064	0.0047	0.0000	0.7906	0.0000
1.2418	0.0064	0.0048	0.0000	0.8048	0.0000
1.2637	0.0064	0.0049	0.0000	0.8191	0.0000
1.2857	0.0064	0.0051	0.0000	0.8333	0.0000
1.3077	0.0064	0.0052	0.0000	0.8476	0.0000
1.3297	0.0064	0.0054	0.0000	0.8618	0.0000
1.3516	0.0064	0.0055	0.0000	0.8761	0.0000
1.3736	0.0064	0.0056	0.0000	0.8903	0.0000
1.3956	0.0064	0.0058	0.0000	0.9046	0.0000
1.4176	0.0064	0.0059	0.0000	0.9188	0.0000
1.4396	0.0064	0.0061	0.0000	0.9330	0.0000
1.4615	0.0064	0.0062	0.0000	0.9473	0.0000
1.4835	0.0064	0.0064	0.0000	0.9615	0.0000
1.5055	0.0064	0.0065	0.0043	0.9722	0.0000
1.5275	0.0064	0.0066	0.0483	0.9722	0.0000
1.5495	0.0064	0.0068	0.1165	0.9722	0.0000
1.5714	0.0064	0.0069	0.2020	0.9722	0.0000
1.5934	0.0064	0.0071	0.3014	0.9722	0.0000
1.6154	0.0064	0.0072	0.4122	0.9722	0.0000
1.6374	0.0064	0.0073	0.5323	0.9722	0.0000
1.6593	0.0064	0.0075	0.6597	0.9722	0.0000
1.6813	0.0064	0.0076	0.7923	0.9722	0.0000
1.7033	0.0064	0.0078	0.9282	0.9722	0.0000
1.7253	0.0064	0.0079	1.0650	0.9722	0.0000

1.7473	0.0064	0.0080	1.2008	0.9722	0.0000
1.7692	0.0064	0.0082	1.3333	0.9722	0.0000
1.7912	0.0064	0.0083	1.4606	0.9722	0.0000
1.8132	0.0064	0.0085	1.5809	0.9722	0.0000
1.8352	0.0064	0.0086	1.6924	0.9722	0.0000
1.8571	0.0064	0.0088	1.7939	0.9722	0.0000
1.8791	0.0064	0.0089	1.8845	0.9722	0.0000
1.9011	0.0064	0.0090	1.9637	0.9722	0.0000
1.9231	0.0064	0.0092	2.0318	0.9722	0.0000
1.9451	0.0064	0.0093	2.0897	0.9722	0.0000
1.9670	0.0064	0.0095	2.1391	0.9722	0.0000
1.9890	0.0064	0.0096	2.1826	0.9722	0.0000
2.0000	0.0064	0.0097	2.2515	0.9722	0.0000

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Surface retention 1

Element Flows To:

Outlet 1

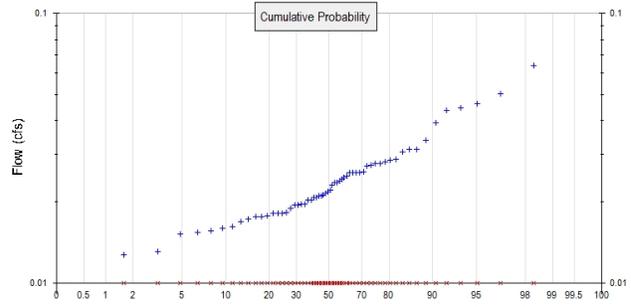
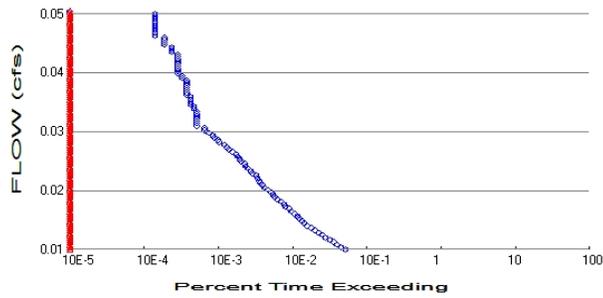
Outlet 2

Bioretention 1

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Analysis Results

POC 1



+ Predeveloped x Mitigated

Predeveloped Landuse Totals for POC #1

Total Pervious Area: 0.036
 Total Impervious Area: 0.061

Mitigated Landuse Totals for POC #1

Total Pervious Area: 0.006
 Total Impervious Area: 0.091

Flow Frequency Method: Log Pearson Type III 17B

Flow Frequency Return Periods for Predeveloped. POC #1

Return Period	Flow(cfs)
2 year	0.02238
5 year	0.030179
10 year	0.035867
25 year	0.043675
50 year	0.049957
100 year	0.056651

Flow Frequency Return Periods for Mitigated. POC #1

Return Period	Flow(cfs)
2 year	0
5 year	0
10 year	0
25 year	0
50 year	0
100 year	0

Annual Peaks

Annual Peaks for Predeveloped and Mitigated. POC #1

Year	Predeveloped	Mitigated
1949	0.024	0.000
1950	0.026	0.000
1951	0.028	0.000
1952	0.021	0.000
1953	0.027	0.000
1954	0.034	0.000
1955	0.027	0.000
1956	0.012	0.000
1957	0.019	0.000
1958	0.050	0.000

1959	0.020	0.000
1960	0.020	0.000
1961	0.064	0.000
1962	0.026	0.000
1963	0.028	0.000
1964	0.015	0.000
1965	0.020	0.000
1966	0.020	0.000
1967	0.044	0.000
1968	0.023	0.000
1969	0.045	0.000
1970	0.018	0.000
1971	0.024	0.000
1972	0.031	0.000
1973	0.026	0.000
1974	0.031	0.000
1975	0.025	0.000
1976	0.017	0.000
1977	0.018	0.000
1978	0.013	0.000
1979	0.028	0.000
1980	0.019	0.000
1981	0.018	0.000
1982	0.018	0.000
1983	0.024	0.000
1984	0.022	0.000
1985	0.031	0.000
1986	0.029	0.000
1987	0.026	0.000
1988	0.021	0.000
1989	0.021	0.000
1990	0.017	0.000
1991	0.021	0.000
1992	0.021	0.000
1993	0.016	0.000
1994	0.019	0.000
1995	0.016	0.000
1996	0.026	0.000
1997	0.025	0.000
1998	0.029	0.000
1999	0.013	0.000
2000	0.046	0.000
2001	0.016	0.000
2002	0.015	0.000
2003	0.021	0.000
2004	0.039	0.000
2005	0.018	0.000
2006	0.024	0.000
2007	0.022	0.000
2008	0.018	0.000
2009	0.018	0.000

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Ranked Annual Peaks

Ranked Annual Peaks for Predeveloped and Mitigated. POC #1

Rank	Predeveloped	Mitigated
1	0.0642	0.0000
2	0.0503	0.0000
3	0.0464	0.0000

4	0.0447	0.0000
5	0.0435	0.0000
6	0.0392	0.0000
7	0.0339	0.0000
8	0.0313	0.0000
9	0.0312	0.0000
10	0.0307	0.0000
11	0.0288	0.0000
12	0.0286	0.0000
13	0.0282	0.0000
14	0.0277	0.0000
15	0.0277	0.0000
16	0.0274	0.0000
17	0.0271	0.0000
18	0.0258	0.0000
19	0.0257	0.0000
20	0.0257	0.0000
21	0.0256	0.0000
22	0.0256	0.0000
23	0.0249	0.0000
24	0.0246	0.0000
25	0.0243	0.0000
26	0.0239	0.0000
27	0.0236	0.0000
28	0.0236	0.0000
29	0.0230	0.0000
30	0.0221	0.0000
31	0.0218	0.0000
32	0.0215	0.0000
33	0.0212	0.0000
34	0.0211	0.0000
35	0.0211	0.0000
36	0.0208	0.0000
37	0.0207	0.0000
38	0.0203	0.0000
39	0.0203	0.0000
40	0.0195	0.0000
41	0.0195	0.0000
42	0.0195	0.0000
43	0.0194	0.0000
44	0.0189	0.0000
45	0.0182	0.0000
46	0.0182	0.0000
47	0.0182	0.0000
48	0.0181	0.0000
49	0.0177	0.0000
50	0.0176	0.0000
51	0.0176	0.0000
52	0.0173	0.0000
53	0.0169	0.0000
54	0.0162	0.0000
55	0.0159	0.0000
56	0.0156	0.0000
57	0.0154	0.0000
58	0.0152	0.0000
59	0.0130	0.0000
60	0.0127	0.0000
61	0.0118	0.0000

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Duration Flows

The Facility PASSED

Flow(cfs)	Predev	Mit	Percentage	Pass/Fail
0.0112	1095	0	0	Pass
0.0116	960	0	0	Pass
0.0120	853	0	0	Pass
0.0124	758	0	0	Pass
0.0128	678	0	0	Pass
0.0131	589	0	0	Pass
0.0135	537	0	0	Pass
0.0139	478	0	0	Pass
0.0143	426	0	0	Pass
0.0147	384	0	0	Pass
0.0151	337	0	0	Pass
0.0155	306	0	0	Pass
0.0159	286	0	0	Pass
0.0163	263	0	0	Pass
0.0167	247	0	0	Pass
0.0171	229	0	0	Pass
0.0175	206	0	0	Pass
0.0178	191	0	0	Pass
0.0182	170	0	0	Pass
0.0186	164	0	0	Pass
0.0190	149	0	0	Pass
0.0194	134	0	0	Pass
0.0198	123	0	0	Pass
0.0202	116	0	0	Pass
0.0206	110	0	0	Pass
0.0210	99	0	0	Pass
0.0214	89	0	0	Pass
0.0218	84	0	0	Pass
0.0222	79	0	0	Pass
0.0225	76	0	0	Pass
0.0229	72	0	0	Pass
0.0233	69	0	0	Pass
0.0237	61	0	0	Pass
0.0241	58	0	0	Pass
0.0245	54	0	0	Pass
0.0249	50	0	0	Pass
0.0253	48	0	0	Pass
0.0257	43	0	0	Pass
0.0261	41	0	0	Pass
0.0265	39	0	0	Pass
0.0269	37	0	0	Pass
0.0272	33	0	0	Pass
0.0276	30	0	0	Pass
0.0280	28	0	0	Pass
0.0284	26	0	0	Pass
0.0288	22	0	0	Pass
0.0292	21	0	0	Pass
0.0296	19	0	0	Pass
0.0300	18	0	0	Pass
0.0304	16	0	0	Pass
0.0308	14	0	0	Pass
0.0312	14	0	0	Pass
0.0316	11	0	0	Pass

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0.0319	11	0	0	Pass
0.0323	11	0	0	Pass
0.0327	11	0	0	Pass
0.0331	11	0	0	Pass
0.0335	11	0	0	Pass
0.0339	11	0	0	Pass
0.0343	10	0	0	Pass
0.0347	10	0	0	Pass
0.0351	9	0	0	Pass
0.0355	9	0	0	Pass
0.0359	9	0	0	Pass
0.0363	9	0	0	Pass
0.0366	8	0	0	Pass
0.0370	8	0	0	Pass
0.0374	8	0	0	Pass
0.0378	8	0	0	Pass
0.0382	8	0	0	Pass
0.0386	8	0	0	Pass
0.0390	8	0	0	Pass
0.0394	7	0	0	Pass
0.0398	7	0	0	Pass
0.0402	6	0	0	Pass
0.0406	6	0	0	Pass
0.0410	6	0	0	Pass
0.0413	6	0	0	Pass
0.0417	6	0	0	Pass
0.0421	6	0	0	Pass
0.0425	6	0	0	Pass
0.0429	6	0	0	Pass
0.0433	6	0	0	Pass
0.0437	5	0	0	Pass
0.0441	5	0	0	Pass
0.0445	5	0	0	Pass
0.0449	4	0	0	Pass
0.0453	4	0	0	Pass
0.0456	4	0	0	Pass
0.0460	4	0	0	Pass
0.0464	3	0	0	Pass
0.0468	3	0	0	Pass
0.0472	3	0	0	Pass
0.0476	3	0	0	Pass
0.0480	3	0	0	Pass
0.0484	3	0	0	Pass
0.0488	3	0	0	Pass
0.0492	3	0	0	Pass
0.0496	3	0	0	Pass
0.0500	3	0	0	Pass

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Water Quality

Water Quality BMP Flow and Volume for POC #1

On-line facility volume: 0 acre-feet

On-line facility target flow: 0 cfs.

Adjusted for 15 min: 0 cfs.

Off-line facility target flow: 0 cfs.

Adjusted for 15 min: 0 cfs.

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LID Report

LID Technique	Used for Treatment ?	Total Volume Needs Treatment (ac-ft)	Volume Through Facility (ac-ft)	Infiltration Volume (ac-ft)	Cumulative Volume Infiltration Credit	Percent Volume Infiltrated	Water Quality	Percent Water Quality Treated	Comment
retention 1 POC	<input type="checkbox"/>	15.98			<input type="checkbox"/>	100.00			
Total Volume Infiltrated		15.98	0.00	0.00		100.00	0.00	0%	No Treat. Credit
Compliance with LID Standard 8% of 2-yr to 50% of 2-yr									Duration Analysis Result = Passed

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Model Default Modifications

Total of 0 changes have been made.

PERLND Changes

No PERLND changes have been made.

IMPLND Changes

No IMPLND changes have been made.

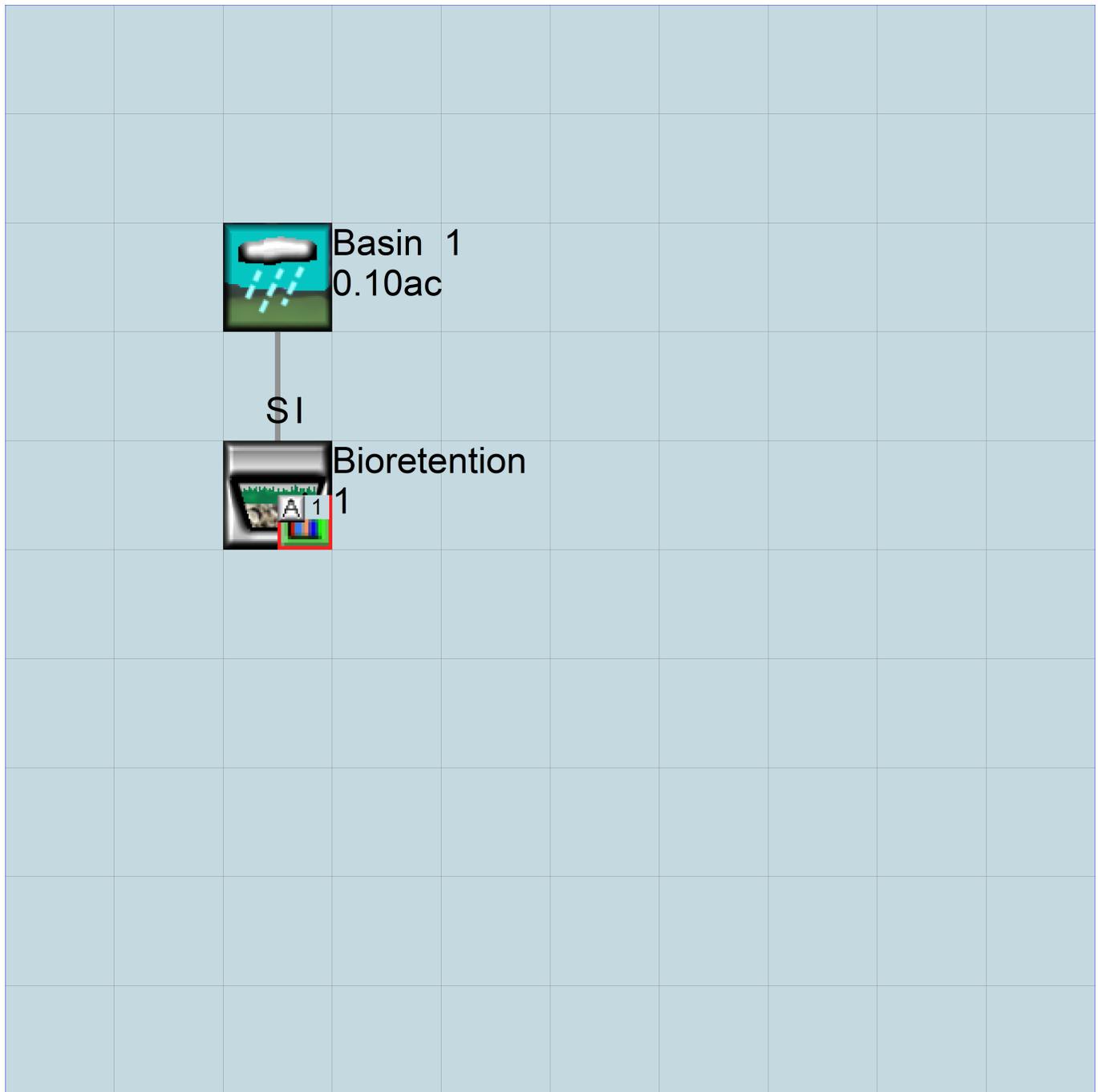
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Appendix
Predeveloped Schematic



35thAvePrer
0.10ac

Mitigated Schematic



Predeveloped UCI File

RUN

```
GLOBAL
WVHM4 model simulation
START      1948 10 01      END      2009 09 30
RUN INTERP OUTPUT LEVEL   3      0
RESUME     0 RUN         1
UNIT SYSTEM 1
END GLOBAL
```

```
FILES
<File> <Un#> <-----File Name----->***
<-ID->                                     ***
WDM      26      2022RoadsidePlantStrip.wdm
MESSU    25      Pre2022RoadsidePlantStrip.MES
          27      Pre2022RoadsidePlantStrip.L61
          28      Pre2022RoadsidePlantStrip.L62
          30      POC2022RoadsidePlantStrip1.dat
END FILES
```

```
OPN SEQUENCE
INGRP          INDELT 00:15
  PERLND        1
  IMPLND        1
  COPY          501
  DISPLY        1
END INGRP
```

END OPN SEQUENCE

```
DISPLY
DISPLY-INFO1
# - #<-----Title----->***TRAN PIVL DIG1 FIL1  PYR DIG2 FIL2 YRND
1      35thAvePrer          MAX          1      2      30      9
END DISPLY-INFO1
```

END DISPLY

```
COPY
TIMESERIES
# - # NPT NMN ***
1      1      1
501    1      1
END TIMESERIES
```

END COPY

```
GENER
OPCODE
#      # OPCD ***
END OPCODE
PARM
#      #      K ***
END PARM
```

END GENER

```
PERLND
GEN-INFO
<PLS ><-----Name----->NBLKS      Unit-systems      Printer ***
# - #      User      t-series      Engl Metr ***
          in out      ***
1      A/B, Forest, Flat      1      1      1      1      27      0
END GEN-INFO
*** Section PWATER***
```

```
ACTIVITY
<PLS > ***** Active Sections *****
# - # ATMP SNOW PWAT SED PST PWG PQAL MSTL PEST NITR PHOS TRAC ***
1      0      0      1      0      0      0      0      0      0      0      0      0
END ACTIVITY
```

```
PRINT-INFO
<PLS > ***** Print-flags ***** PIVL PYR
# - # ATMP SNOW PWAT SED PST PWG PQAL MSTL PEST NITR PHOS TRAC *****
1      0      0      4      0      0      0      0      0      0      0      0      0      1      9
END PRINT-INFO
```

PWAT-PARM1

<PLS > PWATER variable monthly parameter value flags ***
- # CSNO RTOP UZFG VCS VUZ VNN VIFW VIRC VLE INFC HWT ***
1 0 0 0 0 0 0 0 0 0 0 0

END PWAT-PARM1

PWAT-PARM2

<PLS > PWATER input info: Part 2 ***
- # ***FOREST LZSN INFILT LSUR SLSUR KVARY AGWRC
1 0 5 2 400 0.05 0.3 0.996

END PWAT-PARM2

PWAT-PARM3

<PLS > PWATER input info: Part 3 ***
- # ***PETMAX PETMIN INFEXP INFILD DEEPFR BASETP AGWETP
1 0 0 2 2 0 0 0

END PWAT-PARM3

PWAT-PARM4

<PLS > PWATER input info: Part 4 ***
- # CEPSC UZSN NSUR INTFW IRC LZETP ***
1 0.2 0.5 0.35 0 0.7 0.7

END PWAT-PARM4

PWAT-STATE1

<PLS > *** Initial conditions at start of simulation
ran from 1990 to end of 1992 (pat 1-11-95) RUN 21 ***
- # *** CEPS SURS UZS IFWS LZS AGWS GWVS
1 0 0 0 0 3 1 0

END PWAT-STATE1

END PERLND

IMPLND

GEN-INFO

<PLS ><-----Name-----> Unit-systems Printer ***
- # User t-series Engl Metr ***
in out ***
1 ROADS/FLAT 1 1 1 27 0

END GEN-INFO

*** Section IWATER***

ACTIVITY

<PLS > ***** Active Sections *****
- # ATMP SNOW IWAT SLD IWG IQAL ***
1 0 0 1 0 0 0

END ACTIVITY

PRINT-INFO

<ILS > ***** Print-flags ***** PIVL PYR
- # ATMP SNOW IWAT SLD IWG IQAL *****
1 0 0 4 0 0 0 1 9

END PRINT-INFO

IWAT-PARM1

<PLS > IWATER variable monthly parameter value flags ***
- # CSNO RTOP VRS VNN RTLI ***
1 0 0 0 0 0

END IWAT-PARM1

IWAT-PARM2

<PLS > IWATER input info: Part 2 ***
- # *** LSUR SLSUR NSUR RETSC
1 400 0.01 0.1 0.1

END IWAT-PARM2

IWAT-PARM3

<PLS > IWATER input info: Part 3 ***
- # ***PETMAX PETMIN
1 0 0

END SPEC-ACTIONS
FTABLES
END FTABLES

EXT SOURCES

<-Volume->	<Member>	SsysSgap	<--Mult-->	Tran	<-Target	vols>	<-Grp>	<-Member->	***	
<Name>	#	<Name>	#	tem strg	<-factor->	strg	<Name>	#	#	***
WDM	2	PREC	ENGL	1.2	PERLND	1 999	EXTNL	PREC		
WDM	2	PREC	ENGL	1.2	IMPLND	1 999	EXTNL	PREC		
WDM	1	EVAP	ENGL	0.76	PERLND	1 999	EXTNL	PETINP		
WDM	1	EVAP	ENGL	0.76	IMPLND	1 999	EXTNL	PETINP		

END EXT SOURCES

EXT TARGETS

<-Volume->	<-Grp>	<-Member->	<--Mult-->	Tran	<-Volume->	<Member>	Tsys	Tgap	Amd	***	
<Name>	#	<Name>	#	#	<-factor->	strg	<Name>	#	<Name>	tem strg strg	***
COPY	501	OUTPUT	MEAN	1 1	48.4	WDM	501	FLOW	ENGL	REPL	

END EXT TARGETS

MASS-LINK

<Volume>	<-Grp>	<-Member->	<--Mult-->	<Target>	<-Grp>	<-Member->	***	
<Name>	#	<Name>	#	<-factor->	<Name>	#	#	***
MASS-LINK		12						
PERLND	PWATER	SURO		0.083333	COPY	INPUT	MEAN	
END MASS-LINK		12						
MASS-LINK		13						
PERLND	PWATER	IFWO		0.083333	COPY	INPUT	MEAN	
END MASS-LINK		13						
MASS-LINK		15						
IMPLND	IWATER	SURO		0.083333	COPY	INPUT	MEAN	
END MASS-LINK		15						

END MASS-LINK

END RUN



Mitigated UCI File

RUN

GLOBAL

WVHM4 model simulation
START 1948 10 01 END 2009 09 30
RUN INTERP OUTPUT LEVEL 3 0
RESUME 0 RUN 1 UNIT SYSTEM 1
END GLOBAL

FILES

<File>	<Un#>	<-----File Name----->	***
<-ID->			***
WDM	26	2022RoadsidePlantStrip.wdm	
MESSU	25	Mit2022RoadsidePlantStrip.MES	
	27	Mit2022RoadsidePlantStrip.L61	
	28	Mit2022RoadsidePlantStrip.L62	
	30	POC2022RoadsidePlantStrip1.dat	

END FILES

OPN SEQUENCE

INGRP INDELT 00:15

PERLND 7
IMPLND 1
IMPLND 8
GENER 2
RCHRES 1
RCHRES 2
COPY 1
COPY 501
DISPLY 1

END INGRP

END OPN SEQUENCE

DISPLY

DISPLY-INFO1

#	-	#	<-----Title----->	***	TRAN	PIVL	DIG1	FIL1	PYR	DIG2	FIL2	YRND
1			Surface retention 1		MAX				1	2	30	9

END DISPLY-INFO1

END DISPLY

COPY

TIMESERIES

#	-	#	NPT	NMN	***
1			1	1	
501			1	1	

END TIMESERIES

END COPY

GENER

OPCODE

#	#	OPCD	***
2		24	

END OPCODE

PARM

#	#	K	***
2		0.	

END PARM

END GENER

PERLND

GEN-INFO

<PLS >	<-----Name----->	NBLKS	Unit-systems	Printer	***	
#	-	#	User	t-series	Engl Metr	***
			in	out		***
7	A/B, Lawn, Flat	1	1	1	1	27 0

END GEN-INFO

*** Section PWATER***

ACTIVITY

<PLS >	***** Active Sections *****														
#	-	#	ATMP	SNOW	PWAT	SED	PST	PWG	PQAL	MSTL	PEST	NITR	PHOS	TRAC	***
7			0	0	1	0	0	0	0	0	0	0	0	0	

END ACTIVITY

PRINT-INFO

```

<PLS > ***** Print-flags ***** PIVL  PYR
# - # ATMP SNOW PWAT  SED  PST  PWG  PQAL  MSTL  PEST  NITR  PHOS  TRAC  *****
7   0   0   4   0   0   0   0   0   0   0   0   0   1   9
END PRINT-INFO

```

PWAT-PARM1

```

<PLS > PWATER variable monthly parameter value flags ***
# - # CSNO RTOP  UZFG  VCS  VUZ  VNN  VIFW  VIRC  VLE  INFC  HWT  ***
7   0   0   0   0   0   0   0   0   0   0   0
END PWAT-PARM1

```

PWAT-PARM2

```

<PLS > PWATER input info: Part 2 *****
# - # ***FOREST  LZSN  INFILT  LSUR  SLSUR  KVARY  AGWRC
7   0   5   0.8  400  0.05  0.3  0.996
END PWAT-PARM2

```

PWAT-PARM3

```

<PLS > PWATER input info: Part 3 *****
# - # ***PETMAX  PETMIN  INFEXP  INFILD  DEEPFR  BASETP  AGWETP
7   0   0   2   2   0   0   0
END PWAT-PARM3

```

PWAT-PARM4

```

<PLS > PWATER input info: Part 4 *****
# - # CEPSC  UZSN  NSUR  INTFW  IRC  LZETP ***
7   0.1  0.5  0.25  0  0.7  0.25
END PWAT-PARM4

```

PWAT-STATE1

```

<PLS > *** Initial conditions at start of simulation
        ran from 1990 to end of 1992 (pat 1-11-95) RUN 21 ***
# - # *** CEPS  SURS  UZS  IFWS  LZS  AGWS  GWVS
7   0   0   0   0   3   1   0
END PWAT-STATE1

```

END PERLND

IMPLND

GEN-INFO

```

<PLS ><-----Name----->  Unit-systems  Printer ***
# - # User t-series Engr Metr ***
                        in out ***
1   ROADS/FLAT          1  1  1  27  0
8   SIDEWALKS/FLAT     1  1  1  27  0
END GEN-INFO
*** Section IWATER***

```

ACTIVITY

```

<PLS > ***** Active Sections *****
# - # ATMP SNOW IWAT  SLD  IWG  IQAL  ***
1   0   0   1   0   0   0
8   0   0   1   0   0   0
END ACTIVITY

```

PRINT-INFO

```

<ILS > ***** Print-flags ***** PIVL  PYR
# - # ATMP SNOW IWAT  SLD  IWG  IQAL  *****
1   0   0   4   0   0   0   1   9
8   0   0   4   0   0   0   1   9
END PRINT-INFO

```

IWAT-PARM1

```

<PLS > IWATER variable monthly parameter value flags ***
# - # CSNO RTOP  VRS  VNN  RTLI  ***
1   0   0   0   0   0
8   0   0   0   0   0
END IWAT-PARM1

```

```

IWAT-PARM2
<PLS >          IWATER input info: Part 2          ***
# - # ***  LRSUR      SLSUR      NSUR      RETSC
1          400      0.01      0.1      0.1
8          400      0.01      0.1      0.1
END IWAT-PARM2

```

```

IWAT-PARM3
<PLS >          IWATER input info: Part 3          ***
# - # ***PETMAX      PETMIN
1          0          0
8          0          0
END IWAT-PARM3

```

```

IWAT-STATE1
<PLS > *** Initial conditions at start of simulation
# - # ***  RETS      SURS
1          0          0
8          0          0
END IWAT-STATE1

```

END IMPLND

```

SCHEMATIC
<-Source->          <--Area-->          <-Target->          MBLK          ***
<Name> #          <-factor->          <Name> #          Tbl#          ***
Basin 1***
PERLND 7          0.006          RCHRES 1          2
PERLND 7          0.006          RCHRES 1          3
IMPLND 1          0.061          RCHRES 1          5
IMPLND 8          0.03          RCHRES 1          5

```

```

*****Routing*****
PERLND 7          0.006          COPY 1          12
IMPLND 1          0.061          COPY 1          15
IMPLND 8          0.03          COPY 1          15
PERLND 7          0.006          COPY 1          13
RCHRES 1          1          RCHRES 2          8
RCHRES 2          1          COPY 501          17
RCHRES 1          1          COPY 501          17
END SCHEMATIC

```

```

NETWORK
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member-> ***
<Name> #          <Name> # #<-factor->strg <Name> # #          <Name> # #          ***
COPY 501 OUTPUT MEAN 1 1 48.4          DISPLY 1          INPUT TIMSER 1
GENER 2 OUTPUT TIMSER .0011111          RCHRES 1          EXTNL OUTDGT 1

```

```

<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member-> ***
<Name> #          <Name> # #<-factor->strg <Name> # #          <Name> # #          ***
END NETWORK

```

```

RCHRES
GEN-INFO
RCHRES          Name          Nexits          Unit Systems          Printer          ***
# - #<-----><----> User T-series          Engl Metr LKFG          ***
          in out          ***
1          Surface retentio-007          2          1          1          1          28          0          1
2          Bioretention 1          2          1          1          1          28          0          1
END GEN-INFO
*** Section RCHRES***

```

```

ACTIVITY
<PLS > ***** Active Sections *****
# - # HYFG ADFG CNFG HTFG SDFG GQFG OXFG NUGF PKFG PHFG ***
1          1          0          0          0          0          0          0          0          0
2          1          0          0          0          0          0          0          0          0

```

END ACTIVITY

PRINT-INFO

```

<PLS > ***** Print-flags ***** PIVL  PYR
# - # HYDR ADCA CONS HEAT SED  GQL  OXRX NUTR PLNK PHCB PIVL  PYR  *****
1     4    0    0    0    0    0    0    0    0    0    0    1    9
2     4    0    0    0    0    0    0    0    0    0    0    1    9

```

END PRINT-INFO

HYDR-PARM1

```

RCHRES  Flags for each HYDR Section          ***
# - # VC A1 A2 A3 ODFVFG for each *** ODGTFG for each  FUNCT for each
      FG FG FG FG possible exit *** possible exit    possible exit
      * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
1     0  1  0  0    4  5  0  0  0    0  1  0  0  0    2  1  2  2  2
2     0  1  0  0    4  5  0  0  0    0  0  0  0  0    2  2  2  2  2

```

END HYDR-PARM1

HYDR-PARM2

```

# - # FTABNO      LEN      DELTH      STCOR      KS      DB50      ***
<-----><-----><-----><-----><-----><-----><----->
1     1      0.01      0.0      0.0      0.0      0.0
2     2      0.01      0.0      0.0      0.0      0.0

```

END HYDR-PARM2

HYDR-INIT

```

RCHRES  Initial conditions for each HYDR section          ***
# - # *** VOL      Initial value of COLIND      Initial value of OUTDGT
      *** ac-ft      for each possible exit      for each possible exit
<-----><----->      <-----><-----><-----><----->      *** <-----><-----><-----><-----><----->
1     0      4.0  5.0  0.0  0.0  0.0      0.0  0.0  0.0  0.0  0.0
2     0      4.0  5.0  0.0  0.0  0.0      0.0  0.0  0.0  0.0  0.0

```

END HYDR-INIT

END RCHRES

SPEC-ACTIONS

```

*** User-Defined Variable Quantity Lines
***      addr
***      <----->
*** kwd  varnam optyp  opn  vari  s1 s2 s3 tp multiply  lc ls ac as agfn ***
<****> <-----> <-----> <-> <-----><-><-><-><-><-----> <-><-> <-><-> <-----> ***
UVQUAN vol2  RCHRES  2 VOL      4
UVQUAN v2m2  GLOBAL  WORKSP  1 3
UVQUAN vpo2  GLOBAL  WORKSP  2 3
UVQUAN v2d2  GENER  2 K 1 3
*** User-Defined Target Variable Names
***      addr or      addr or
***      <----->      <----->
*** kwd  varnam ct  vari  s1 s2 s3 frac oper      vari  s1 s2 s3 frac oper
<****> <-----><-> <-----><-><-><-> <-----> <-> <-----><-><-><-> <-----> <->
UVNAME v2m2  1 WORKSP  1 1.0 QUAN
UVNAME vpo2  1 WORKSP  2 1.0 QUAN
UVNAME v2d2  1 K 1 1.0 QUAN
*** opt foplop dcdts  yr mo dy hr mn d t  vn timer s1 s2 s3 ac quantity  tc ts rp
<****><-><-----><-><-><-> <-> <-> <-> <-><-> <-----><-><-><-><-><-----> <-> <-><->
GENER  2 v2m2 = 281.4
*** Compute remaining available pore space
GENER  2 vpo2 = v2m2
GENER  2 vpo2 -= vol2
*** Check to see if VPORA goes negative; if so set VPORA = 0.0
IF (vpo2 < 0.0) THEN
GENER  2 vpo2 = 0.0
END IF
*** Infiltration volume
GENER  2 v2d2 = vpo2

```

END SPEC-ACTIONS

FTABLES

```

FTABLE 2
47 5
Depth Area Volume Outflow1 Outflow2 Velocity Travel Time***
(ft) (acres) (acre-ft) (cfs) (cfs) (ft/sec) (Minutes)***

```

0.000000	0.006428	0.000000	0.000000	0.000000
0.021978	0.006428	0.000071	0.000000	0.000000
0.043956	0.006428	0.000143	0.000000	0.000000
0.065934	0.006428	0.000214	0.000000	0.000000
0.087912	0.006428	0.000285	0.000000	0.000000
0.109890	0.006428	0.000357	0.000000	0.000676
0.131868	0.006428	0.000428	0.000000	0.004436
0.153846	0.006428	0.000499	0.000000	0.006459
0.175824	0.006428	0.000571	0.000000	0.008948
0.197802	0.006428	0.000642	0.000000	0.011933
0.219780	0.006428	0.000713	0.000000	0.015442
0.241758	0.006428	0.000785	0.000000	0.019501
0.263736	0.006428	0.000856	0.000000	0.024138
0.285714	0.006428	0.000927	0.000000	0.029375
0.307692	0.006428	0.000999	0.000000	0.035237
0.329670	0.006428	0.001070	0.000000	0.041746
0.351648	0.006428	0.001141	0.000000	0.048924
0.373626	0.006428	0.001213	0.000000	0.056793
0.395604	0.006428	0.001284	0.000000	0.065372
0.417582	0.006428	0.001356	0.000000	0.074683
0.439560	0.006428	0.001427	0.000000	0.084743
0.461538	0.006428	0.001498	0.000000	0.095573
0.483516	0.006428	0.001570	0.000000	0.107190
0.505495	0.006428	0.001641	0.000000	0.119612
0.527473	0.006428	0.001712	0.000000	0.132857
0.549451	0.006428	0.001784	0.000000	0.146943
0.571429	0.006428	0.001855	0.000000	0.155556
0.593407	0.006428	0.001926	0.000000	0.155556
0.615385	0.006428	0.001998	0.000000	0.155556
0.637363	0.006428	0.002069	0.000000	0.155556
0.659341	0.006428	0.002140	0.000000	0.155556
0.681319	0.006428	0.002212	0.000000	0.155556
0.703297	0.006428	0.002283	0.000000	0.155556
0.725275	0.006428	0.002354	0.000000	0.155556
0.747253	0.006428	0.002426	0.000000	0.155556
0.769231	0.006428	0.002497	0.000000	0.155556
0.791209	0.006428	0.002568	0.000000	0.155556
0.813187	0.006428	0.002640	0.000000	0.155556
0.835165	0.006428	0.002711	0.000000	0.155556
0.857143	0.006428	0.002782	0.000000	0.155556
0.879121	0.006428	0.002854	0.000000	0.155556
0.901099	0.006428	0.002925	0.000000	0.155556
0.923077	0.006428	0.002996	0.000000	0.155556
0.945055	0.006428	0.003068	0.000000	0.155556
0.967033	0.006428	0.003139	0.000000	0.155556
0.989011	0.006428	0.003210	0.000000	0.155556
1.000000	0.006428	0.006460	0.000000	0.155556

END FTABLE 2

FTABLE 1

47 5

Depth (ft)	Area (acres)	Volume (acre-ft)	Outflow1 (cfs)	Outflow2 (cfs)	Velocity (ft/sec)	Travel Time*** (Minutes)***
0.000000	0.006428	0.000000	0.000000	0.000000		
0.021978	0.006428	0.000141	0.000000	0.648149		
0.043956	0.006428	0.000283	0.000000	0.676639		
0.065934	0.006428	0.000424	0.000000	0.690884		
0.087912	0.006428	0.000565	0.000000	0.705129		
0.109890	0.006428	0.000706	0.000000	0.719374		
0.131868	0.006428	0.000848	0.000000	0.733619		
0.153846	0.006428	0.000989	0.000000	0.747864		
0.175824	0.006428	0.001130	0.000000	0.762109		
0.197802	0.006428	0.001271	0.000000	0.776354		
0.219780	0.006428	0.001413	0.000000	0.790599		
0.241758	0.006428	0.001554	0.000000	0.804844		
0.263736	0.006428	0.001695	0.000000	0.819089		
0.285714	0.006428	0.001837	0.000000	0.833334		
0.307692	0.006428	0.001978	0.000000	0.847579		
0.329670	0.006428	0.002119	0.000000	0.861824		
0.351648	0.006428	0.002260	0.000000	0.876069		
0.373626	0.006428	0.002402	0.000000	0.890314		

0.395604	0.006428	0.002543	0.000000	0.904559
0.417582	0.006428	0.002684	0.000000	0.918804
0.439560	0.006428	0.002825	0.000000	0.933049
0.461538	0.006428	0.002967	0.000000	0.947294
0.483516	0.006428	0.003108	0.000000	0.961539
0.505495	0.006428	0.003249	0.004325	0.972223
0.527473	0.006428	0.003391	0.048301	0.972223
0.549451	0.006428	0.003532	0.116539	0.972223
0.571429	0.006428	0.003673	0.202028	0.972223
0.593407	0.006428	0.003814	0.301385	0.972223
0.615385	0.006428	0.003956	0.412175	0.972223
0.637363	0.006428	0.004097	0.532289	0.972223
0.659341	0.006428	0.004238	0.659695	0.972223
0.681319	0.006428	0.004379	0.792350	0.972223
0.703297	0.006428	0.004521	0.928167	0.972223
0.725275	0.006428	0.004662	1.065020	0.972223
0.747253	0.006428	0.004803	1.200769	0.972223
0.769231	0.006428	0.004945	1.333311	0.972223
0.791209	0.006428	0.005086	1.460630	0.972223
0.813187	0.006428	0.005227	1.580867	0.972223
0.835165	0.006428	0.005368	1.692395	0.972223
0.857143	0.006428	0.005510	1.793902	0.972223
0.879121	0.006428	0.005651	1.884482	0.972223
0.901099	0.006428	0.005792	1.963728	0.972223
0.923077	0.006428	0.005933	2.031838	0.972223
0.945055	0.006428	0.006075	2.089716	0.972223
0.967033	0.006428	0.006216	2.139092	0.972223
0.989011	0.006428	0.006357	2.182633	0.972223
1.000000	0.006428	0.006428	2.251466	0.972223

END FTABLE 1
END FTABLES

EXT SOURCES

<-Volume->	<Member>	SsysSgap	<--Mult-->	Tran	<-Target vols>	<-Grp>	<-Member->	***				
<Name>	#	<Name>	#	tem strg	<-factor->	strg	<Name>	#	#	***		
WDM	2	PREC		ENGL	1.2		PERLND	1	999	EXTNL	PREC	
WDM	2	PREC		ENGL	1.2		IMPLND	1	999	EXTNL	PREC	
WDM	1	EVAP		ENGL	0.76		PERLND	1	999	EXTNL	PETINP	
WDM	1	EVAP		ENGL	0.76		IMPLND	1	999	EXTNL	PETINP	
WDM	2	PREC		ENGL	1.2		RCHRES	1		EXTNL	PREC	
WDM	1	EVAP		ENGL	0.5		RCHRES	1		EXTNL	POTEV	
WDM	1	EVAP		ENGL	0.76		RCHRES	2		EXTNL	POTEV	

END EXT SOURCES

EXT TARGETS

<-Volume->	<-Grp>	<-Member->	<--Mult-->	Tran	<-Volume->	<Member>	Tsys	Tgap	Amd	***	
<Name>	#	<Name>	#	#<-factor-->	strg	<Name>	#	<Name>	tem	strg	strg***
RCHRES	2	HYDR	RO	1	1	1	WDM	1002	FLOW	ENGL	REPL
RCHRES	2	HYDR	O	1	1	1	WDM	1003	FLOW	ENGL	REPL
RCHRES	2	HYDR	O	2	1	1	WDM	1004	FLOW	ENGL	REPL
RCHRES	2	HYDR	STAGE	1	1	1	WDM	1005	STAG	ENGL	REPL
RCHRES	1	HYDR	STAGE	1	1	1	WDM	1006	STAG	ENGL	REPL
RCHRES	1	HYDR	O	1	1	1	WDM	1007	FLOW	ENGL	REPL
COPY	1	OUTPUT	MEAN	1	1	48.4	WDM	701	FLOW	ENGL	REPL
COPY	501	OUTPUT	MEAN	1	1	48.4	WDM	801	FLOW	ENGL	REPL

END EXT TARGETS

MASS-LINK

<Volume>	<-Grp>	<-Member->	<--Mult-->	<Target>	<-Grp>	<-Member->	***
<Name>	#	<Name>	#	<-factor-->	<Name>	#	***
MASS-LINK	2						
PERLND	PWATER	SURO		0.083333	RCHRES	INFLOW	IVOL
END MASS-LINK	2						
MASS-LINK	3						
PERLND	PWATER	IFWO		0.083333	RCHRES	INFLOW	IVOL
END MASS-LINK	3						
MASS-LINK	5						

```

IMPLND      IWATER  SURO      0.083333      RCHRES      INFLOW  IVOL
  END MASS-LINK      5

      MASS-LINK      8
RCHRES      OFLOW  OVOL      2      RCHRES      INFLOW  IVOL
  END MASS-LINK      8

      MASS-LINK      12
PERLND      PWATER  SURO      0.083333      COPY      INPUT  MEAN
  END MASS-LINK      12

      MASS-LINK      13
PERLND      PWATER  IFWO      0.083333      COPY      INPUT  MEAN
  END MASS-LINK      13

      MASS-LINK      15
IMPLND      IWATER  SURO      0.083333      COPY      INPUT  MEAN
  END MASS-LINK      15

      MASS-LINK      17
RCHRES      OFLOW  OVOL      1      COPY      INPUT  MEAN
  END MASS-LINK      17

```

END MASS-LINK

END RUN

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Local (360)943-0304

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WWHM2012
PROJECT REPORT

General Model Information

Project Name: 2022GravelTrench
Site Name: Totemwood AccessRoad
Site Address: 18601 35th Ave NE
City: Arlington
Report Date: 4/23/2022
Gage: Everett
Data Start: 1948/10/01
Data End: 2009/09/30
Timestep: 15 Minute
Precip Scale: 1.200
Version Date: 2019/09/13
Version: 4.2.17

POC Thresholds

Low Flow Threshold for POC1: 50 Percent of the 2 Year
High Flow Threshold for POC1: 50 Year

Landuse Basin Data
Predeveloped Land Use

Road&SW

Bypass: No

GroundWater: No

Pervious Land Use acre
A B, Forest, Flat 0.387

Pervious Total 0.387

Impervious Land Use acre

Impervious Total 0

Basin Total 0.387

Element Flows To:
Surface Interflow Groundwater

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Mitigated Land Use

Roadway&SW

Bypass:	No
GroundWater:	No
Pervious Land Use	acre
Pervious Total	0
Impervious Land Use	acre
ROADS FLAT	0.306
SIDEWALKS FLAT	0.081
Impervious Total	0.387
Basin Total	0.387

Element Flows To:

Surface	Interflow	Groundwater
CAVFS 1 Surface 1	CAVFS 1 Surface 1	

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Routing Elements
Predeveloped Routing

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Mitigated Routing

Grass-Crete

Bottom Length:	667.00 ft.
Bottom Width:	3.00 ft.
Trench bottom slope 1:	0.005 To 1
Trench Left side slope 0:	0.01 To 1
Trench right side slope 2:	0.01 To 1
Material thickness of first layer:	0.5
Pour Space of material for first layer:	0.4
Material thickness of second layer:	0
Pour Space of material for second layer:	0
Material thickness of third layer:	0
Pour Space of material for third layer:	0
Infiltration On	
Infiltration rate:	96
Infiltration safety factor:	4
Total Volume Infiltrated (ac-ft.):	0.835
Total Volume Through Riser (ac-ft.):	0
Total Volume Through Facility (ac-ft.):	0.835
Percent Infiltrated:	100
Total Precip Applied to Facility:	2.671
Total Evap From Facility:	0
Discharge Structure	
Riser Height:	0.5 ft.
Riser Diameter:	1 in.
Element Flows To:	
Outlet 1	Outlet 2

Gravel Trench Bed Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.045	0.000	0.000	0.000
0.0111	0.045	0.000	0.000	17.78
0.0222	0.045	0.000	0.000	17.78
0.0333	0.045	0.000	0.000	17.78
0.0444	0.046	0.000	0.000	17.78
0.0556	0.046	0.001	0.000	17.78
0.0667	0.046	0.001	0.000	17.78
0.0778	0.046	0.001	0.000	17.78
0.0889	0.046	0.001	0.000	17.78
0.1000	0.046	0.001	0.000	17.78
0.1111	0.046	0.002	0.000	17.78
0.1222	0.046	0.002	0.000	17.78
0.1333	0.046	0.002	0.000	17.78
0.1444	0.046	0.002	0.000	17.78
0.1556	0.046	0.002	0.000	17.78
0.1667	0.046	0.003	0.000	17.78
0.1778	0.046	0.003	0.000	17.78
0.1889	0.046	0.003	0.000	17.78
0.2000	0.046	0.003	0.000	17.78
0.2111	0.046	0.003	0.000	17.78
0.2222	0.046	0.004	0.000	17.78
0.2333	0.046	0.004	0.000	17.78
0.2444	0.046	0.004	0.000	17.78
0.2556	0.046	0.004	0.000	17.78

0.2667	0.046	0.004	0.000	17.78
0.2778	0.046	0.005	0.000	17.78
0.2889	0.046	0.005	0.000	17.78
0.3000	0.046	0.005	0.000	17.78
0.3111	0.046	0.005	0.000	17.78
0.3222	0.046	0.005	0.000	17.78
0.3333	0.046	0.006	0.000	17.78
0.3444	0.046	0.006	0.000	17.78
0.3556	0.046	0.006	0.000	17.78
0.3667	0.046	0.006	0.000	17.78
0.3778	0.046	0.007	0.000	17.78
0.3889	0.046	0.007	0.000	17.78
0.4000	0.046	0.007	0.000	17.78
0.4111	0.046	0.007	0.000	17.78
0.4222	0.046	0.007	0.000	17.78
0.4333	0.046	0.008	0.000	17.78
0.4444	0.046	0.008	0.000	17.78
0.4556	0.046	0.008	0.000	17.78
0.4667	0.046	0.008	0.000	17.78
0.4778	0.046	0.008	0.000	17.78
0.4889	0.046	0.009	0.000	17.78
0.5000	0.046	0.009	0.000	17.78
0.5111	0.046	0.010	0.001	17.78
0.5222	0.046	0.010	0.002	17.78
0.5333	0.046	0.011	0.003	17.78
0.5444	0.046	0.011	0.004	17.78
0.5556	0.046	0.012	0.005	17.78
0.5667	0.046	0.012	0.005	17.78
0.5778	0.046	0.013	0.006	17.78
0.5889	0.046	0.013	0.006	17.78
0.6000	0.046	0.014	0.006	17.78
0.6111	0.046	0.014	0.007	17.78
0.6222	0.046	0.015	0.007	17.78
0.6333	0.046	0.015	0.008	17.78
0.6444	0.046	0.016	0.008	17.78
0.6556	0.046	0.016	0.008	17.78
0.6667	0.046	0.017	0.008	17.78
0.6778	0.046	0.017	0.009	17.78
0.6889	0.046	0.018	0.009	17.78
0.7000	0.046	0.018	0.009	17.78
0.7111	0.046	0.019	0.010	17.78
0.7222	0.046	0.019	0.010	17.78
0.7333	0.046	0.020	0.010	17.78
0.7444	0.046	0.020	0.010	17.78
0.7556	0.046	0.021	0.011	17.78
0.7667	0.046	0.021	0.011	17.78
0.7778	0.046	0.022	0.011	17.78
0.7889	0.046	0.022	0.011	17.78
0.8000	0.046	0.023	0.012	17.78
0.8111	0.046	0.023	0.012	17.78
0.8222	0.046	0.024	0.012	17.78
0.8333	0.046	0.024	0.012	17.78
0.8444	0.046	0.025	0.012	17.78
0.8556	0.046	0.025	0.013	17.78
0.8667	0.046	0.026	0.013	17.78
0.8778	0.046	0.026	0.013	17.78
0.8889	0.046	0.027	0.013	17.78
0.9000	0.046	0.028	0.013	17.78

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0.9111	0.046	0.028	0.014	17.78
0.9222	0.046	0.029	0.014	17.78
0.9333	0.046	0.029	0.014	17.78
0.9444	0.046	0.030	0.014	17.78
0.9556	0.046	0.030	0.014	17.78
0.9667	0.046	0.031	0.014	17.78
0.9778	0.046	0.031	0.015	17.78
0.9889	0.046	0.032	0.015	17.78
1.0000	0.046	0.032	0.015	17.78

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CAVFS 1

CAVFS Length: 667.00 ft.
 CAVFS Width: 3.00 ft.
 Gravel thickness: 0.5 ft.
 Material thickness of CAVFS layer: 0.5 ft.
 Slope of CAVFS layer: 6.66666666666667E-02 ft.
 Infiltration On
 Infiltration rate: 96
 Infiltration safety factor: 4
 Total Volume Infiltrated (ac-ft.): 34.55
 Total Volume Through Riser (ac-ft.): 0
 Total Volume Through Facility (ac-ft.): 34.567
 Percent Infiltrated: 99.95
 Total Precip Applied to Facility: 1.582
 Total Evap From Facility: 1.037
 Outlet Control
 Overflow Height: 0.5 ft.
 Overflow width: 333.5 in.
 Element Flows To:
 Outlet 1 Outlet 2
 Grass-Crete

CAVFS Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.0077	0.0000	0.0000	0.0000
0.0462	0.0077	0.0001	0.0000	0.0000
0.0923	0.0077	0.0003	0.0000	0.0000
0.1385	0.0077	0.0004	0.0000	0.0000
0.1846	0.0077	0.0006	0.0000	0.0000
0.2308	0.0077	0.0007	0.0000	0.0000
0.2769	0.0077	0.0009	0.0000	0.0000
0.3231	0.0077	0.0010	0.0000	0.0000
0.3692	0.0077	0.0012	0.0000	0.0000
0.4154	0.0077	0.0013	0.0000	0.0000
0.4615	0.0077	0.0015	0.0000	0.0000
0.5077	0.0077	0.0016	0.0000	0.0000
0.5538	0.0077	0.0018	0.0000	0.0000
0.6000	0.0077	0.0020	0.0000	0.0000
0.6462	0.0077	0.0022	0.0000	0.0000
0.6923	0.0077	0.0024	0.0000	0.0000
0.7385	0.0077	0.0025	0.0000	0.0000
0.7846	0.0077	0.0027	0.0000	0.0000
0.8308	0.0077	0.0029	0.0000	0.0000
0.8769	0.0077	0.0031	0.0000	0.0000
0.9231	0.0077	0.0033	0.0000	0.0000
0.9692	0.0077	0.0034	0.0000	0.0000
1.0154	0.0077	0.0036	0.0000	0.0000
1.0615	0.0077	0.0038	0.0000	0.0000
1.1077	0.0077	0.0040	0.0000	0.0000
1.1538	0.0077	0.0041	0.0000	0.0000
1.2000	0.0077	0.0043	0.0000	0.0000
1.2462	0.0077	0.0045	0.0000	0.0000
1.2923	0.0077	0.0047	0.0104	20.751
1.3385	0.0077	0.0049	0.0125	20.751
1.3846	0.0077	0.0050	0.0147	20.751
1.4308	0.0077	0.0052	0.0172	20.751

1.4769	0.0077	0.0054	0.0199	20.751
1.5231	0.0077	0.0056	0.0229	20.751
1.5692	0.0077	0.0057	0.0261	20.751
1.6154	0.0077	0.0059	0.0295	20.751
1.6615	0.0077	0.0061	0.0333	20.751
1.7077	0.0077	0.0063	0.0372	20.751
1.7538	0.0077	0.0065	0.0415	20.751
1.8000	0.0077	0.0066	0.0460	20.751
1.8462	0.0077	0.0068	0.0508	20.751
1.8923	0.0077	0.0070	0.0559	20.751
1.9385	0.0077	0.0072	0.0613	20.751
1.9846	0.0077	0.0074	0.0670	20.751
2.0308	0.0077	0.0075	0.0730	20.751
2.0769	0.0077	0.0077	0.0793	20.751
2.1231	0.0077	0.0079	0.0859	20.751
2.1692	0.0077	0.0081	0.0929	20.751
2.2154	0.0077	0.0082	0.1001	20.751
2.2615	0.0077	0.0084	0.1077	20.751
2.3077	0.0077	0.0086	0.1157	20.751
2.3538	0.0077	0.0088	0.1239	20.751
2.4000	0.0077	0.0090	0.1326	20.751
2.4462	0.0077	0.0091	0.1416	20.751
2.4923	0.0077	0.0093	0.1509	20.751
2.5385	0.0077	0.0095	0.1606	20.751
2.5846	0.0077	0.0097	0.1707	20.751
2.6308	0.0077	0.0099	0.1811	20.751
2.6769	0.0077	0.0100	0.1920	20.751
2.7231	0.0077	0.0102	0.2032	20.751
2.7692	0.0077	0.0104	0.2149	20.751
2.8154	0.0077	0.0106	0.2269	20.751
2.8615	0.0077	0.0107	0.2394	20.751
2.9077	0.0077	0.0109	0.2523	20.751
2.9538	0.0077	0.0111	0.2656	20.751
3.0000	0.0077	0.0113	0.2794	20.751
3.0462	0.0077	0.0115	0.2936	20.751
3.0923	0.0077	0.0116	0.3083	20.751
3.1385	0.0077	0.0118	0.3236	20.751
3.1846	0.0077	0.0120	0.3393	20.751
3.2308	0.0077	0.0122	0.3557	20.751
3.2769	0.0077	0.0124	0.3727	20.751
3.3231	0.0077	0.0125	0.3905	20.751
3.3692	0.0077	0.0127	0.4092	20.751
3.4154	0.0077	0.0129	0.4297	20.751
3.4615	0.0077	0.0131	0.4632	20.751
3.5000	0.0077	0.0132	1.1837	20.751

CAVFS Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	To Amended(cfs)	Infil(cfs)
3.5000	0.0077	0.0132	0.0000	4.1831	0.0000
3.5462	0.0077	0.0136	0.0000	4.1831	0.0000
3.5923	0.0077	0.0139	0.0000	4.5366	0.0000
3.6385	0.0077	0.0143	0.0000	4.8901	0.0000
3.6846	0.0077	0.0146	0.0000	5.2436	0.0000
3.7308	0.0077	0.0150	0.0000	5.5971	0.0000
3.7769	0.0077	0.0153	0.0000	5.8315	0.0000
3.8231	0.0077	0.0157	0.0000	5.9028	0.0000
3.8692	0.0077	0.0160	0.0000	5.9740	0.0000
3.9154	0.0077	0.0164	0.0000	6.0453	0.0000

3.9615	0.0077	0.0167	0.0000	6.1165	0.0000
4.0077	0.0077	0.0171	0.0000	6.1878	0.0000
4.0538	0.0077	0.0175	0.0000	6.2591	0.0000
4.1000	0.0077	0.0178	0.0000	6.3303	0.0000
4.1462	0.0077	0.0182	0.0000	6.4016	0.0000
4.1923	0.0077	0.0185	0.0000	6.4729	0.0000
4.2000	0.0077	0.0186	0.0000	6.4847	0.0000

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CAVFS 1 Surface 1

Element Flows To:

Outlet 1

Grass-Crete

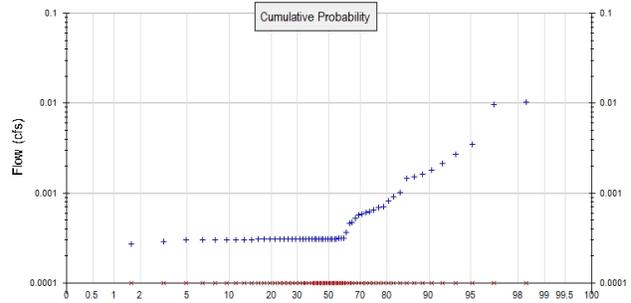
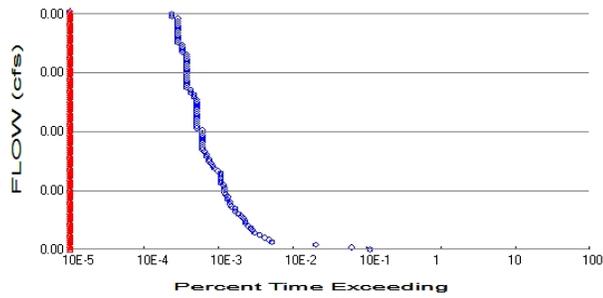
Outlet 2

CAVFS 1

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Analysis Results

POC 1



+ Predeveloped x Mitigated

Predeveloped Landuse Totals for POC #1

Total Pervious Area: 0.387
 Total Impervious Area: 0

Mitigated Landuse Totals for POC #1

Total Pervious Area: 0
 Total Impervious Area: 0.387

Flow Frequency Method: Log Pearson Type III 17B

Flow Frequency Return Periods for Predeveloped. POC #1

Return Period	Flow(cfs)
2 year	0.000444
5 year	0.000963
10 year	0.001545
25 year	0.002699
50 year	0.003988
100 year	0.005785

Flow Frequency Return Periods for Mitigated. POC #1

Return Period	Flow(cfs)
2 year	0
5 year	0
10 year	0
25 year	0
50 year	0
100 year	0

Annual Peaks

Annual Peaks for Predeveloped and Mitigated. POC #1

Year	Predeveloped	Mitigated
1949	0.000	0.000
1950	0.001	0.000
1951	0.001	0.000
1952	0.000	0.000
1953	0.000	0.000
1954	0.002	0.000
1955	0.002	0.000
1956	0.000	0.000
1957	0.000	0.000
1958	0.000	0.000

1959	0.001	0.000
1960	0.001	0.000
1961	0.001	0.000
1962	0.000	0.000
1963	0.000	0.000
1964	0.001	0.000
1965	0.000	0.000
1966	0.000	0.000
1967	0.001	0.000
1968	0.000	0.000
1969	0.000	0.000
1970	0.000	0.000
1971	0.002	0.000
1972	0.000	0.000
1973	0.000	0.000
1974	0.001	0.000
1975	0.000	0.000
1976	0.001	0.000
1977	0.000	0.000
1978	0.000	0.000
1979	0.001	0.000
1980	0.000	0.000
1981	0.000	0.000
1982	0.000	0.000
1983	0.000	0.000
1984	0.000	0.000
1985	0.001	0.000
1986	0.003	0.000
1987	0.002	0.000
1988	0.000	0.000
1989	0.000	0.000
1990	0.000	0.000
1991	0.000	0.000
1992	0.000	0.000
1993	0.000	0.000
1994	0.000	0.000
1995	0.000	0.000
1996	0.003	0.000
1997	0.010	0.000
1998	0.000	0.000
1999	0.000	0.000
2000	0.001	0.000
2001	0.000	0.000
2002	0.000	0.000
2003	0.000	0.000
2004	0.000	0.000
2005	0.000	0.000
2006	0.010	0.000
2007	0.000	0.000
2008	0.000	0.000
2009	0.000	0.000

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Ranked Annual Peaks

Ranked Annual Peaks for Predeveloped and Mitigated. POC #1

Rank	Predeveloped	Mitigated
1	0.0103	0.0000
2	0.0096	0.0000
3	0.0035	0.0000

4	0.0027	0.0000
5	0.0021	0.0000
6	0.0018	0.0000
7	0.0016	0.0000
8	0.0015	0.0000
9	0.0015	0.0000
10	0.0010	0.0000
11	0.0009	0.0000
12	0.0008	0.0000
13	0.0007	0.0000
14	0.0007	0.0000
15	0.0006	0.0000
16	0.0006	0.0000
17	0.0006	0.0000
18	0.0006	0.0000
19	0.0006	0.0000
20	0.0005	0.0000
21	0.0005	0.0000
22	0.0005	0.0000
23	0.0004	0.0000
24	0.0003	0.0000
25	0.0003	0.0000
26	0.0003	0.0000
27	0.0003	0.0000
28	0.0003	0.0000
29	0.0003	0.0000
30	0.0003	0.0000
31	0.0003	0.0000
32	0.0003	0.0000
33	0.0003	0.0000
34	0.0003	0.0000
35	0.0003	0.0000
36	0.0003	0.0000
37	0.0003	0.0000
38	0.0003	0.0000
39	0.0003	0.0000
40	0.0003	0.0000
41	0.0003	0.0000
42	0.0003	0.0000
43	0.0003	0.0000
44	0.0003	0.0000
45	0.0003	0.0000
46	0.0003	0.0000
47	0.0003	0.0000
48	0.0003	0.0000
49	0.0003	0.0000
50	0.0003	0.0000
51	0.0003	0.0000
52	0.0003	0.0000
53	0.0003	0.0000
54	0.0003	0.0000
55	0.0003	0.0000
56	0.0003	0.0000
57	0.0003	0.0000
58	0.0003	0.0000
59	0.0003	0.0000
60	0.0003	0.0000
61	0.0002	0.0000



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Duration Flows

The Facility PASSED

Flow(cfs)	Predev	Mit	Percentage	Pass/Fail
0.0002	2357	0	0	Pass
0.0003	1329	0	0	Pass
0.0003	436	0	0	Pass
0.0003	112	0	0	Pass
0.0004	103	0	0	Pass
0.0004	89	0	0	Pass
0.0005	77	0	0	Pass
0.0005	66	0	0	Pass
0.0005	61	0	0	Pass
0.0006	58	0	0	Pass
0.0006	54	0	0	Pass
0.0006	50	0	0	Pass
0.0007	49	0	0	Pass
0.0007	47	0	0	Pass
0.0008	43	0	0	Pass
0.0008	40	0	0	Pass
0.0008	36	0	0	Pass
0.0009	36	0	0	Pass
0.0009	32	0	0	Pass
0.0009	31	0	0	Pass
0.0010	31	0	0	Pass
0.0010	29	0	0	Pass
0.0011	29	0	0	Pass
0.0011	27	0	0	Pass
0.0011	26	0	0	Pass
0.0012	26	0	0	Pass
0.0012	26	0	0	Pass
0.0012	25	0	0	Pass
0.0013	23	0	0	Pass
0.0013	23	0	0	Pass
0.0014	23	0	0	Pass
0.0014	23	0	0	Pass
0.0014	23	0	0	Pass
0.0015	21	0	0	Pass
0.0015	19	0	0	Pass
0.0016	18	0	0	Pass
0.0016	17	0	0	Pass
0.0016	16	0	0	Pass
0.0017	16	0	0	Pass
0.0017	15	0	0	Pass
0.0017	15	0	0	Pass
0.0018	14	0	0	Pass
0.0018	13	0	0	Pass
0.0019	13	0	0	Pass
0.0019	13	0	0	Pass
0.0019	13	0	0	Pass
0.0020	13	0	0	Pass
0.0020	13	0	0	Pass
0.0020	13	0	0	Pass
0.0021	13	0	0	Pass
0.0021	13	0	0	Pass
0.0022	11	0	0	Pass
0.0022	11	0	0	Pass

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0.0022	11	0	0	Pass
0.0023	11	0	0	Pass
0.0023	11	0	0	Pass
0.0024	11	0	0	Pass
0.0024	11	0	0	Pass
0.0024	11	0	0	Pass
0.0025	11	0	0	Pass
0.0025	11	0	0	Pass
0.0025	11	0	0	Pass
0.0026	11	0	0	Pass
0.0026	11	0	0	Pass
0.0027	10	0	0	Pass
0.0027	10	0	0	Pass
0.0027	9	0	0	Pass
0.0028	9	0	0	Pass
0.0028	8	0	0	Pass
0.0028	8	0	0	Pass
0.0029	8	0	0	Pass
0.0029	8	0	0	Pass
0.0030	8	0	0	Pass
0.0030	8	0	0	Pass
0.0030	8	0	0	Pass
0.0031	8	0	0	Pass
0.0031	8	0	0	Pass
0.0032	8	0	0	Pass
0.0032	8	0	0	Pass
0.0032	8	0	0	Pass
0.0033	8	0	0	Pass
0.0033	8	0	0	Pass
0.0033	8	0	0	Pass
0.0034	7	0	0	Pass
0.0034	7	0	0	Pass
0.0035	7	0	0	Pass
0.0035	7	0	0	Pass
0.0035	6	0	0	Pass
0.0036	6	0	0	Pass
0.0036	6	0	0	Pass
0.0036	6	0	0	Pass
0.0037	6	0	0	Pass
0.0037	6	0	0	Pass
0.0038	6	0	0	Pass
0.0038	6	0	0	Pass
0.0038	6	0	0	Pass
0.0039	6	0	0	Pass
0.0039	6	0	0	Pass
0.0039	5	0	0	Pass
0.0040	5	0	0	Pass

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Water Quality

Water Quality BMP Flow and Volume for POC #1

On-line facility volume: 0 acre-feet

On-line facility target flow: 0 cfs.

Adjusted for 15 min: 0 cfs.

Off-line facility target flow: 0 cfs.

Adjusted for 15 min: 0 cfs.

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LID Report

LID Technique	Used for Treatment ?	Total Volume Needs Treatment (ac-ft)	Volume Through Facility (ac-ft)	Infiltration Volume (ac-ft)	Cumulative Volume Infiltration Credit	Percent Volume Infiltrated	Water Quality	Percent Water Quality Treated	Comment
Grass-Crete POC	<input type="checkbox"/>	0.76			<input type="checkbox"/>	100.00			
CAVFS 1 1	<input type="checkbox"/>	31.46			<input type="checkbox"/>	99.95			
Total Volume Infiltrated		32.22	0.00	0.00		99.95	0.00	0%	No Treat Credit
Compliance with LID Standard 8% of 2-yr to 50% of 2-yr									Duration Analysis Result = Passed

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POC 2

POC #2 was not reported because POC must exist in both scenarios and both scenarios must have been run.

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Model Default Modifications

Total of 0 changes have been made.

PERLND Changes

No PERLND changes have been made.

IMPLND Changes

No IMPLND changes have been made.

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Appendix
Predeveloped Schematic



RoadSW
0.39ac

Mitigated Schematic



Predeveloped UCI File

RUN

GLOBAL

```
WVHM4 model simulation
START      1948 10 01      END      2009 09 30
RUN INTERP OUTPUT LEVEL   3      0
RESUME     0 RUN         1
UNIT SYSTEM 1
```

END GLOBAL

FILES

```
<File> <Un#> <-----File Name----->***
<-ID->                                     ***
WDM      26      2022GravelTrench.wdm
MESSU    25      Pre2022GravelTrench.MES
          27      Pre2022GravelTrench.L61
          28      Pre2022GravelTrench.L62
          30      POC2022GravelTrench1.dat
```

END FILES

OPN SEQUENCE

```
INGRP          INDELT 00:15
  PERLND        1
  COPY          501
  DISPLY        1
```

END INGRP

END OPN SEQUENCE

DISPLY

DISPLY-INFO1

```
# - #<-----Title----->***TRAN PIVL DIG1 FIL1  PYR DIG2 FIL2 YRND
1      Road&SW          MAX          1      2      30      9
```

END DISPLY-INFO1

END DISPLY

COPY

TIMESERIES

```
# - # NPT NMN ***
1      1      1
501    1      1
```

END TIMESERIES

END COPY

GENER

OPCODE

```
#      # OPCD ***
```

END OPCODE

PARM

```
#      #          K ***
```

END PARM

END GENER

PERLND

GEN-INFO

```
<PLS ><-----Name----->NBLKS  Unit-systems  Printer ***
# - #          User  t-series  Engl  Metr  ***
          in  out          ***
1      A/B, Forest, Flat      1      1      1      1      27      0
```

END GEN-INFO

*** Section PWATER***

ACTIVITY

```
<PLS > ***** Active Sections *****
# - # ATMP SNOW PWAT  SED  PST  PWG  PQAL MSTL PEST NITR PHOS TRAC ***
1      0      0      1      0      0      0      0      0      0      0      0      0
```

END ACTIVITY

PRINT-INFO

```
<PLS > ***** Print-flags ***** PIVL  PYR
# - # ATMP SNOW PWAT  SED  PST  PWG  PQAL MSTL PEST NITR PHOS TRAC  *****
1      0      0      4      0      0      0      0      0      0      0      0      0      1      9
```

END PRINT-INFO

```

PWAT-PARM1
<PLS > PWATER variable monthly parameter value flags ***
# - # CSNO RTOP UZFG VCS VUZ VNN VIFW VIRC VLE INFC HWT ***
1 0 0 0 0 0 0 0 0 0 0 0
END PWAT-PARM1

PWAT-PARM2
<PLS > PWATER input info: Part 2 ***
# - # ***FOREST LZSN INFILT LSUR SLSUR KVARY AGWRC
1 0 5 2 400 0.05 0.3 0.996
END PWAT-PARM2

PWAT-PARM3
<PLS > PWATER input info: Part 3 ***
# - # ***PETMAX PETMIN INFEXP INFILD DEEPFR BASETP AGWETP
1 0 0 2 2 0 0 0
END PWAT-PARM3

PWAT-PARM4
<PLS > PWATER input info: Part 4 ***
# - # CEPSC UZSN NSUR INTFW IRC LZETP ***
1 0.2 0.5 0.35 0 0.7 0.7
END PWAT-PARM4

PWAT-STATE1
<PLS > *** Initial conditions at start of simulation
ran from 1990 to end of 1992 (pat 1-11-95) RUN 21 ***
# - # *** CEPS SURS UZS IFWS LZS AGWS GWVS
1 0 0 0 0 3 1 0
END PWAT-STATE1

END PERLND

IMPLND
GEN-INFO
<PLS ><-----Name-----> Unit-systems Printer ***
# - # User t-series Engl Metr ***
in out ***

END GEN-INFO
*** Section IWATER***

ACTIVITY
<PLS > ***** Active Sections *****
# - # ATMP SNOW IWAT SLD IWG IQAL ***
END ACTIVITY

PRINT-INFO
<ILS > ***** Print-flags ***** PIVL PYR
# - # ATMP SNOW IWAT SLD IWG IQAL *****
END PRINT-INFO

IWAT-PARM1
<PLS > IWATER variable monthly parameter value flags ***
# - # CSNO RTOP VRS VNN RTLI ***
END IWAT-PARM1

IWAT-PARM2
<PLS > IWATER input info: Part 2 ***
# - # *** LSUR SLSUR NSUR RETSC
END IWAT-PARM2

IWAT-PARM3
<PLS > IWATER input info: Part 3 ***
# - # ***PETMAX PETMIN
END IWAT-PARM3

IWAT-STATE1
<PLS > *** Initial conditions at start of simulation
# - # *** RETS SURS
END IWAT-STATE1

```

END IMPLND

SCHEMATIC

<-Source->		<--Area-->		<-Target->	MBLK	***
<Name> #		<-factor->		<Name> #	Tbl#	***
Road&SW***						
PERLND 1		0.387		COPY 501	12	
PERLND 1		0.387		COPY 501	13	

*****Routing*****
END SCHEMATIC

NETWORK

<-Volume->	<-Grp>	<-Member->	<--Mult-->	Tran	<-Target vols>	<-Grp>	<-Member->	***
<Name> #		<Name> #	#	<-factor->strg	<Name> #	#	<Name> #	***
COPY 501	OUTPUT	MEAN	1 1	48.4	DISPLY 1		INPUT TIMSER 1	

<-Volume->	<-Grp>	<-Member->	<--Mult-->	Tran	<-Target vols>	<-Grp>	<-Member->	***
<Name> #		<Name> #	#	<-factor->strg	<Name> #	#	<Name> #	***

END NETWORK

RCHRES

GEN-INFO

RCHRES	Name	Nexits	Unit Systems	Printer	***
# - #	<----->	<---->	User T-series	Engl Metr LKFG	***
			in out		***

END GEN-INFO
*** Section RCHRES***

ACTIVITY

<PLS > ***** Active Sections *****

#	-	#	HYFG	ADFG	CNFG	HTFG	SDFG	GQFG	OXFG	NUFG	PKFG	PHFG	***

END ACTIVITY

PRINT-INFO

<PLS > ***** Print-flags ***** PIVL PYR

#	-	#	HYDR	ADCA	CONS	HEAT	SED	GQL	OXRX	NUTR	PLNK	PHCB	PIVL	PYR	*****

END PRINT-INFO

HYDR-PARM1

RCHRES	Flags for each HYDR Section	***	ODGTFG for each	FUNCT for each	***
# - #	VC A1 A2 A3	ODFVFG for each	***	ODGTFG for each	FUNCT for each
	FG FG FG FG	possible exit	***	possible exit	possible exit
	* * * *	* * * * *		* * * * *	***

END HYDR-PARM1

HYDR-PARM2

#	-	#	FTABNO	LEN	DELTH	STCOR	KS	DB50	***

END HYDR-PARM2

HYDR-INIT

RCHRES	Initial conditions for each HYDR section	***
# - #	*** VOL Initial value of COLIND Initial value of OUTDGT	***
	*** ac-ft for each possible exit for each possible exit	***
	<-----><-----> <---><---><---><---><---> *** <---><---><---><---><--->	

END HYDR-INIT

END RCHRES

SPEC-ACTIONS

END SPEC-ACTIONS

FTABLES

END FTABLES

EXT SOURCES

<-Volume->	<Member>	SsysSgap	<--Mult-->	Tran	<-Target vols>	<-Grp>	<-Member->	***
<Name> #	<Name> #	tem	strg	<-factor->strg	<Name> #	#	<Name> #	***
WDM 2	PREC	ENGL	1.2		PERLND 1	999	EXTNL PREC	
WDM 2	PREC	ENGL	1.2		IMPLND 1	999	EXTNL PREC	

```
WDM      1 EVAP      ENGL      0.76          PERLND    1 999 EXTNL  PETINP
WDM      1 EVAP      ENGL      0.76          IMPLND    1 999 EXTNL  PETINP
```

END EXT SOURCES

EXT TARGETS

```
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Volume-> <Member> Tsys Tgap Amd ***
<Name>      #      <Name> # #<-factor->strg <Name>      # <Name>      tem strg strg***
COPY      501 OUTPUT MEAN    1 1      48.4      WDM      501 FLOW      ENGL      REPL
END EXT TARGETS
```

MASS-LINK

```
<Volume>   <-Grp> <-Member-><--Mult-->      <Target>      <-Grp> <-Member->***
<Name>     #      <Name> # #<-factor->      <Name>      <Name> # #***
  MASS-LINK      12
PERLND      PWATER SURO          0.083333      COPY      INPUT  MEAN
  END MASS-LINK      12
```

```
  MASS-LINK      13
PERLND      PWATER IFWO          0.083333      COPY      INPUT  MEAN
  END MASS-LINK      13
```

END MASS-LINK

END RUN

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Mitigated UCI File

RUN

```
GLOBAL
  WWHM4 model simulation
  START      1948 10 01      END      2009 09 30
  RUN INTERP OUTPUT LEVEL   3      0
  RESUME     0 RUN      1
  UNIT SYSTEM      1
END GLOBAL
```

```
FILES
<File> <Un#> <-----File Name----->***
<-ID->                                     ***
WDM      26      2022GravelTrench.wdm
MESSU    25      Mit2022GravelTrench.MES
          27      Mit2022GravelTrench.L61
          28      Mit2022GravelTrench.L62
          30      POC2022GravelTrench1.dat
END FILES
```

```
OPN SEQUENCE
  INGRP          INDELT 00:15
  IMPLND         1
  IMPLND         8
  RCHRES         1
  RCHRES         2
  RCHRES         3
  COPY           1
  COPY          501
  DISPLY         1
  END INGRP
END OPN SEQUENCE
```

```
DISPLY
  DISPLY-INF01
  # - #<-----Title----->***TRAN PIVL DIG1 FIL1  PYR DIG2 FIL2 YRND
  1      Grass-Crete          MAX          1      2      30      9
  END DISPLY-INF01
END DISPLY
```

```
COPY
  TIMESERIES
  # - # NPT NMN ***
  1      1      1
  501    1      1
  END TIMESERIES
END COPY
```

```
GENER
  OPCODE
  #      # OPCD ***
  END OPCODE
  PARM
  #      #          K ***
  END PARM
END GENER
```

```
PERLND
  GEN-INFO
  <PLS ><-----Name----->NBLKS  Unit-systems  Printer ***
  # - #          User t-series Engl Metr ***
          in out          ***
  END GEN-INFO
  *** Section PWATER***
```

```
ACTIVITY
  <PLS > ***** Active Sections *****
  # - # ATMP SNOW PWAT SED PST PWG PQAL MSTL PEST NITR PHOS TRAC ***
  END ACTIVITY
```

```
PRINT-INFO
  <PLS > ***** Print-flags ***** PIVL PYR
  # - # ATMP SNOW PWAT SED PST PWG PQAL MSTL PEST NITR PHOS TRAC *****
```

END PRINT-INFO

PWAT-PARM1

<PLS > PWATER variable monthly parameter value flags ***
- # CSNO RTOP UZFG VCS VUZ VNN VIFW VIRG VLE INFC HWT ***

END PWAT-PARM1

PWAT-PARM2

<PLS > PWATER input info: Part 2 ***
- # ***FOREST LZSN INFILT LSUR SLSUR KVARV AGWRC

END PWAT-PARM2

PWAT-PARM3

<PLS > PWATER input info: Part 3 ***
- # ***PETMAX PETMIN INFEXP INFILD DEEPFR BASETP AGWETP

END PWAT-PARM3

PWAT-PARM4

<PLS > PWATER input info: Part 4 ***
- # CEPSC UZSN NSUR INTFW IRC LZETP ***

END PWAT-PARM4

PWAT-STATE1

<PLS > *** Initial conditions at start of simulation
ran from 1990 to end of 1992 (pat 1-11-95) RUN 21 ***
- # *** CEPS SURS UZS IFWS LZS AGWS GWVS

END PWAT-STATE1

END PERLND

IMPLND

GEN-INFO

<PLS ><-----Name-----> Unit-systems Printer ***
- # User t-series Engr Metr ***
in out ***
1 ROADS/FLAT 1 1 1 27 0
8 SIDEWALKS/FLAT 1 1 1 27 0

END GEN-INFO

*** Section IWATER***

ACTIVITY

<PLS > ***** Active Sections *****
- # ATMP SNOW IWAT SLD IWG IQAL ***
1 0 0 1 0 0 0
8 0 0 1 0 0 0

END ACTIVITY

PRINT-INFO

<ILS > ***** Print-flags ***** PIVL PYR
- # ATMP SNOW IWAT SLD IWG IQAL *****
1 0 0 4 0 0 0 1 9
8 0 0 4 0 0 0 1 9

END PRINT-INFO

IWAT-PARM1

<PLS > IWATER variable monthly parameter value flags ***
- # CSNO RTOP VRS VNN RTLI ***

1 0 0 0 0 0
8 0 0 0 0 0

END IWAT-PARM1

IWAT-PARM2

<PLS > IWATER input info: Part 2 ***
- # *** LSUR SLSUR NSUR RETSC
1 400 0.01 0.1 0.1
8 400 0.01 0.1 0.1

END IWAT-PARM2

IWAT-PARM3

<PLS > IWATER input info: Part 3 ***
- # ***PETMAX PETMIN

```

1           0           0
8           0           0
END IWAT-PARM3

```

```

IWAT-STATE1
<PLS > *** Initial conditions at start of simulation
# - # *** RETS      SURS
1           0           0
8           0           0
END IWAT-STATE1

```

END IMPLND

```

SCHEMATIC
<-Source->          <--Area-->      <-Target->      MBLK      ***
<Name> #           <-factor->      <Name> #      Tbl#      ***
Roadway&SW***
IMPLND  1           0.306          RCHRES  1      5
IMPLND  8           0.081          RCHRES  1      5

```

```

*****Routing*****
RCHRES  2           1           RCHRES  3      7
RCHRES  2           1           COPY    1      17
RCHRES  1           1           RCHRES  3      7
RCHRES  1           1           COPY    1      17
RCHRES  1           1           RCHRES  2      8
RCHRES  3           1           COPY    501    17
END SCHEMATIC

```

```

NETWORK
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member-> ***
<Name> #     <Name> # #<-factor->strg <Name> # #     <Name> # #     ***
COPY  501 OUTPUT MEAN  1 1  48.4      DISPLY  1      INPUT  TIMSER 1

```

```

<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member-> ***
<Name> #     <Name> # #<-factor->strg <Name> # #     <Name> # #     ***
END NETWORK

```

```

RCHRES
GEN-INFO
RCHRES      Name      Nexits  Unit Systems  Printer      ***
# - #<-----><----> User T-series  Engr Metr LKFG      ***
              in  out
1      CAVFS  1 Surface-011  3    1    1    1    28    0    1
2      CAVFS  1              2    1    1    1    28    0    1
3      Grass-Crete  2    1    1    1    28    0    1
END GEN-INFO
*** Section RCHRES***

```

```

ACTIVITY
<PLS > ***** Active Sections *****
# - # HYFG ADFG CNFG HTFG SDFG GQFG OXFG NUFG PKFG PHFG ***
1     1  0  0  0  0  0  0  0  0  0  0
2     1  0  0  0  0  0  0  0  0  0  0
3     1  0  0  0  0  0  0  0  0  0  0
END ACTIVITY

```

```

PRINT-INFO
<PLS > ***** Print-flags ***** PIVL  PYR
# - # HYDR ADCA CONS HEAT  SED  GQL  OXRX NUTR PLNK PHCB PIVL  PYR  *****
1     4  0  0  0  0  0  0  0  0  0  1  9
2     4  0  0  0  0  0  0  0  0  0  1  9
3     4  0  0  0  0  0  0  0  0  0  1  9
END PRINT-INFO

```

```

HYDR-PARM1
RCHRES  Flags for each HYDR Section      ***
# - # VC A1 A2 A3  ODFVFG for each *** ODGTFG for each  FUNCT  for each

```

	FG	FG	FG	FG	possible	exit	***	possible	exit	possible	exit					
	*	*	*	*	*	*	*	*	*	*	*					
1	0	1	0	0	4	5	6	0	0	0	0	2	2	2	2	2
2	0	1	0	0	4	5	0	0	0	0	0	2	2	2	2	2
3	0	1	0	0	4	5	0	0	0	0	0	2	2	2	2	2

END HYDR-PARM1

HYDR-PARM2

#	#	FTABNO	LEN	DELTH	STCOR	KS	DB50	***
1		1	0.01	0.0	0.0	0.0	0.0	***
2		2	0.13	0.0	0.0	0.0	0.0	***
3		3	0.13	0.0	0.0	0.5	0.0	***

END HYDR-PARM2

HYDR-INIT

RCHRES Initial conditions for each HYDR section ***

#	#	***	VOL	Initial value of COLIND	Initial value of OUTDGT	***					
		***	ac-ft	for each possible exit	for each possible exit						
1		0	4.0	5.0	6.0	0.0	0.0	0.0	0.0	0.0	0.0
2		0	4.0	5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3		0	4.0	5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

END HYDR-INIT

END RCHRES

SPEC-ACTIONS

END SPEC-ACTIONS

FTABLES

FTABLE 3

92 5

Depth (ft)	Area (acres)	Volume (acre-ft)	Outflow1 (cfs)	Outflow2 (cfs)	Velocity (ft/sec)	Travel Time*** (Minutes)***
0.000000	0.045937	0.000000	0.000000	0.000000		
0.011111	0.045940	0.000204	0.000000	17.78667		
0.022222	0.045943	0.000408	0.000000	17.78667		
0.033333	0.045947	0.000613	0.000000	17.78667		
0.044444	0.045950	0.000817	0.000000	17.78667		
0.055556	0.045954	0.001021	0.000000	17.78667		
0.066667	0.045957	0.001225	0.000000	17.78667		
0.077778	0.045961	0.001430	0.000000	17.78667		
0.088889	0.045964	0.001634	0.000000	17.78667		
0.100000	0.045967	0.001838	0.000000	17.78667		
0.111111	0.045971	0.002042	0.000000	17.78667		
0.122222	0.045974	0.002247	0.000000	17.78667		
0.133333	0.045978	0.002451	0.000000	17.78667		
0.144444	0.045981	0.002655	0.000000	17.78667		
0.155556	0.045984	0.002860	0.000000	17.78667		
0.166667	0.045988	0.003064	0.000000	17.78667		
0.177778	0.045991	0.003269	0.000000	17.78667		
0.188889	0.045995	0.003473	0.000000	17.78667		
0.200000	0.045998	0.003677	0.000000	17.78667		
0.211111	0.046001	0.003882	0.000000	17.78667		
0.222222	0.046005	0.004086	0.000000	17.78667		
0.233333	0.046008	0.004291	0.000000	17.78667		
0.244444	0.046012	0.004495	0.000000	17.78667		
0.255556	0.046015	0.004700	0.000000	17.78667		
0.266667	0.046018	0.004904	0.000000	17.78667		
0.277778	0.046022	0.005109	0.000000	17.78667		
0.288889	0.046025	0.005313	0.000000	17.78667		
0.300000	0.046029	0.005518	0.000000	17.78667		
0.311111	0.046032	0.005723	0.000000	17.78667		
0.322222	0.046036	0.005927	0.000000	17.78667		
0.333333	0.046039	0.006132	0.000000	17.78667		
0.344444	0.046042	0.006336	0.000000	17.78667		
0.355556	0.046046	0.006541	0.000000	17.78667		
0.366667	0.046049	0.006746	0.000000	17.78667		
0.377778	0.046053	0.006950	0.000000	17.78667		
0.388889	0.046056	0.007155	0.000000	17.78667		
0.400000	0.046059	0.007360	0.000000	17.78667		
0.411111	0.046063	0.007564	0.000000	17.78667		

0.422222	0.046066	0.007769	0.000000	17.78667
0.433333	0.046070	0.007974	0.000000	17.78667
0.444444	0.046073	0.008179	0.000000	17.78667
0.455556	0.046076	0.008383	0.000000	17.78667
0.466667	0.046080	0.008588	0.000000	17.78667
0.477778	0.046083	0.008793	0.000000	17.78667
0.488889	0.046087	0.008998	0.000000	17.78667
0.500000	0.046090	0.009510	0.000000	17.78667
0.511111	0.046094	0.010022	0.001022	17.78667
0.522222	0.046097	0.010534	0.002642	17.78667
0.533333	0.046100	0.011046	0.003929	17.78667
0.544444	0.046104	0.011559	0.004611	17.78667
0.555556	0.046107	0.012071	0.005155	17.78667
0.566667	0.046111	0.012583	0.005647	17.78667
0.577778	0.046114	0.013096	0.006100	17.78667
0.588889	0.046117	0.013608	0.006521	17.78667
0.600000	0.046121	0.014120	0.006917	17.78667
0.611111	0.046124	0.014633	0.007291	17.78667
0.622222	0.046128	0.015145	0.007647	17.78667
0.633333	0.046131	0.015658	0.007987	17.78667
0.644444	0.046134	0.016171	0.008313	17.78667
0.655556	0.046138	0.016683	0.008627	17.78667
0.666667	0.046141	0.017196	0.008929	17.78667
0.677778	0.046145	0.017709	0.009222	17.78667
0.688889	0.046148	0.018221	0.009506	17.78667
0.700000	0.046151	0.018734	0.009782	17.78667
0.711111	0.046155	0.019247	0.010050	17.78667
0.722222	0.046158	0.019760	0.010311	17.78667
0.733333	0.046162	0.020273	0.010565	17.78667
0.744444	0.046165	0.020786	0.010814	17.78667
0.755556	0.046169	0.021299	0.011057	17.78667
0.766667	0.046172	0.021812	0.011295	17.78667
0.777778	0.046175	0.022325	0.011528	17.78667
0.788889	0.046179	0.022838	0.011756	17.78667
0.800000	0.046182	0.023351	0.011980	17.78667
0.811111	0.046186	0.023864	0.012200	17.78667
0.822222	0.046189	0.024377	0.012416	17.78667
0.833333	0.046192	0.024890	0.012628	17.78667
0.844444	0.046196	0.025404	0.012837	17.78667
0.855556	0.046199	0.025917	0.013042	17.78667
0.866667	0.046203	0.026430	0.013244	17.78667
0.877778	0.046206	0.026944	0.013444	17.78667
0.888889	0.046209	0.027457	0.013640	17.78667
0.900000	0.046213	0.027971	0.013833	17.78667
0.911111	0.046216	0.028484	0.014024	17.78667
0.922222	0.046220	0.028998	0.014212	17.78667
0.933333	0.046223	0.029511	0.014398	17.78667
0.944444	0.046227	0.030025	0.014582	17.78667
0.955556	0.046230	0.030538	0.014763	17.78667
0.966667	0.046233	0.031052	0.014942	17.78667
0.977778	0.046237	0.031566	0.015119	17.78667
0.988889	0.046240	0.032080	0.015293	17.78667
1.000000	0.046244	0.032593	0.015466	17.78667
1.011111	0.046247	0.033107	0.015637	17.78667

END FTABLE 3

FTABLE 2

77 5

Depth (ft)	Area (acres)	Volume (acre-ft)	Outflow1 (cfs)	Outflow2 (cfs)	Velocity (ft/sec)	Travel Time*** (Minutes)***
0.000000	0.007656	0.000000	0.000000	0.000000		
0.046154	0.007656	0.000147	0.000000	0.000000		
0.092308	0.007656	0.000293	0.000000	0.000000		
0.138462	0.007656	0.000440	0.000000	0.000000		
0.184615	0.007656	0.000587	0.000000	0.000000		
0.230769	0.007656	0.000733	0.000000	0.000000		
0.276923	0.007656	0.000880	0.000000	0.000000		
0.323077	0.007656	0.001027	0.000000	0.000000		
0.369231	0.007656	0.001173	0.000000	0.000000		
0.415385	0.007656	0.001320	0.000000	0.000000		
0.461538	0.007656	0.001466	0.000000	0.000000		

0.507692	0.007656	0.001645	0.000000	0.000000				
0.553846	0.007656	0.001823	0.000000	0.000000				
0.600000	0.007656	0.002002	0.000000	0.000000				
0.646154	0.007656	0.002180	0.000000	0.000000				
0.692308	0.007656	0.002359	0.000000	0.000000				
0.738462	0.007656	0.002537	0.000000	0.000000				
0.784615	0.007656	0.002716	0.000000	0.000000				
0.830769	0.007656	0.002894	0.000000	0.000000				
0.876923	0.007656	0.003072	0.000000	0.000000				
0.923077	0.007656	0.003251	0.000000	0.000000				
0.969231	0.007656	0.003429	0.000000	0.000000				
1.015385	0.007656	0.003608	0.000000	0.000000				
1.061538	0.007656	0.003786	0.000000	0.000000				
1.107692	0.007656	0.003965	0.000000	0.000000				
1.153846	0.007656	0.004143	0.000000	0.000000				
1.200000	0.007656	0.004322	0.000000	0.000000				
1.246154	0.007656	0.004500	0.000000	0.000000				
1.292308	0.007656	0.004678	0.010431	20.75111				
1.338462	0.007656	0.004857	0.012470	20.75111				
1.384615	0.007656	0.005035	0.014729	20.75111				
1.430769	0.007656	0.005214	0.017213	20.75111				
1.476923	0.007656	0.005392	0.019931	20.75111				
1.523077	0.007656	0.005571	0.022888	20.75111				
1.569231	0.007656	0.005749	0.026091	20.75111				
1.615385	0.007656	0.005928	0.029547	20.75111				
1.661538	0.007656	0.006106	0.033262	20.75111				
1.707692	0.007656	0.006284	0.037241	20.75111				
1.753846	0.007656	0.006463	0.041491	20.75111				
1.800000	0.007656	0.006641	0.046018	20.75111				
1.846154	0.007656	0.006820	0.050826	20.75111				
1.892308	0.007656	0.006998	0.055923	20.75111				
1.938462	0.007656	0.007177	0.061313	20.75111				
1.984615	0.007656	0.007355	0.067003	20.75111				
2.030769	0.007656	0.007534	0.072997	20.75111				
2.076923	0.007656	0.007712	0.079301	20.75111				
2.123077	0.007656	0.007891	0.085921	20.75111				
2.169231	0.007656	0.008069	0.092862	20.75111				
2.215385	0.007656	0.008247	0.100129	20.75111				
2.261538	0.007656	0.008426	0.107728	20.75111				
2.307692	0.007656	0.008604	0.115664	20.75111				
2.353846	0.007656	0.008783	0.123944	20.75111				
2.400000	0.007656	0.008961	0.132572	20.75111				
2.446154	0.007656	0.009140	0.141554	20.75111				
2.492308	0.007656	0.009318	0.150896	20.75111				
2.538462	0.007656	0.009497	0.160604	20.75111				
2.584615	0.007656	0.009675	0.170685	20.75111				
2.630769	0.007656	0.009853	0.181144	20.75111				
2.676923	0.007656	0.010032	0.191988	20.75111				
2.723077	0.007656	0.010210	0.203224	20.75111				
2.769231	0.007656	0.010389	0.214860	20.75111				
2.815385	0.007656	0.010567	0.226904	20.75111				
2.861538	0.007656	0.010746	0.239365	20.75111				
2.907692	0.007656	0.010924	0.252252	20.75111				
2.953846	0.007656	0.011103	0.265576	20.75111				
3.000000	0.007656	0.011281	0.279351	20.75111				
3.046154	0.007656	0.011459	0.293592	20.75111				
3.092308	0.007656	0.011638	0.308317	20.75111				
3.138462	0.007656	0.011816	0.323550	20.75111				
3.184615	0.007656	0.011995	0.339323	20.75111				
3.230769	0.007656	0.012173	0.355680	20.75111				
3.276923	0.007656	0.012352	0.372690	20.75111				
3.323077	0.007656	0.012530	0.390467	20.75111				
3.369231	0.007656	0.012709	0.409243	20.75111				
3.415385	0.007656	0.012887	0.429651	20.75111				
3.461538	0.007656	0.013065	0.463192	20.75111				
3.500000	0.007656	0.466413	1.183719	20.75111				

END FTABLE 2
 FTABLE 1
 18 6
 Depth Area Volume Outflow1 Outflow2 Outflow3 Velocity Travel

Time***

(Minutes)***	(ft)	(acres)	(acre-ft)	(cfs)	(cfs)	(cfs)	(ft/sec)
0.000000	0.007656	0.000000	0.000000	0.000000	0.000000	0.000000	
0.023077	0.007656	0.000177	0.000000	4.183062	0.000000		
0.046154	0.007656	0.000353	0.000000	4.183062	0.000000		
0.092308	0.007656	0.000707	0.000000	4.536560	0.000000		
0.138462	0.007656	0.001060	8.376837	4.890058	0.000000		
0.184615	0.007656	0.001413	27.33468	5.243556	0.000000		
0.230769	0.007656	0.001767	52.51682	5.597054	0.000000		
0.276923	0.007656	0.002120	82.64504	5.831504	0.000000		
0.323077	0.007656	0.002474	117.0097	5.902765	0.000000		
0.369231	0.007656	0.002827	155.1412	5.974025	0.000000		
0.415385	0.007656	0.003180	196.6984	6.045286	0.000000		
0.461538	0.007656	0.003534	241.4192	6.116547	0.000000		
0.507692	0.007656	0.003887	281.1498	6.187808	0.000000		
0.553846	0.007656	0.004240	284.6387	6.259068	0.000000		
0.600000	0.007656	0.004594	290.2836	6.330329	0.000000		
0.646154	0.007656	0.004947	297.4396	6.401590	0.000000		
0.692308	0.007656	0.005300	305.8352	6.472851	0.000000		
0.700000	0.007656	0.005359	315.3082	6.484727	0.000000		

END FTABLE 1

END FTABLES

EXT SOURCES

<-Volume->	<Member>	SsysSgap<--Mult-->	Tran	<-Target	vols>	<-Grp>	<-Member->	***				
<Name>	#	<Name>	#	tem strg<-factor-->	strg	<Name>	#	#	<Name>	#	#	***
WDM	2	PREC	ENGL	1.2	PERLND	1	999	EXTNL	PREC			
WDM	2	PREC	ENGL	1.2	IMPLND	1	999	EXTNL	PREC			
WDM	1	EVAP	ENGL	0.76	PERLND	1	999	EXTNL	PETINP			
WDM	1	EVAP	ENGL	0.76	IMPLND	1	999	EXTNL	PETINP			
WDM	2	PREC	ENGL	1.2	RCHRES	1		EXTNL	PREC			
WDM	2	PREC	ENGL	1.2	RCHRES	3		EXTNL	PREC			
WDM	1	EVAP	ENGL	0.5	RCHRES	1		EXTNL	POTEV			
WDM	1	EVAP	ENGL	0.76	RCHRES	2		EXTNL	POTEV			

END EXT SOURCES

EXT TARGETS

<-Volume->	<-Grp>	<-Member->	<--Mult-->	Tran	<-Volume->	<Member>	Tsys	Tgap	Amd	***	
<Name>	#	<Name>	#	#<-factor-->	strg	<Name>	#	<Name>	tem strg	strg***	
RCHRES	3	HYDR	RO	1	1	1	WDM	1002	FLOW	ENGL	REPL
RCHRES	3	HYDR	O	1	1	1	WDM	1004	FLOW	ENGL	REPL
RCHRES	3	HYDR	O	2	1	1	WDM	1005	FLOW	ENGL	REPL
RCHRES	3	HYDR	STAGE	1	1	1	WDM	1003	STAG	ENGL	REPL
COPY	1	OUTPUT	MEAN	1	1	48.4	WDM	701	FLOW	ENGL	REPL
COPY	501	OUTPUT	MEAN	1	1	48.4	WDM	801	FLOW	ENGL	REPL

END EXT TARGETS

MASS-LINK

<Volume>	<-Grp>	<-Member->	<--Mult-->	<Target>	<-Grp>	<-Member->	***
<Name>	#	<Name>	#	<Name>	#	<Name>	#
MASS-LINK		5					
IMPLND	IWATER	SURO	0.083333	RCHRES		INFLOW	IVOL
END MASS-LINK		5					
MASS-LINK		7					
RCHRES	OFLOW	OVOL	1	RCHRES		INFLOW	IVOL
END MASS-LINK		7					
MASS-LINK		8					
RCHRES	OFLOW	OVOL	2	RCHRES		INFLOW	IVOL
END MASS-LINK		8					
MASS-LINK		17					
RCHRES	OFLOW	OVOL	1	COPY		INPUT	MEAN
END MASS-LINK		17					

END MASS-LINK

END RUN

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WWHM2012
PROJECT REPORT

General Model Information

Project Name: 2022GravelTrench
Site Name: Totemwood AccessRoad
Site Address: 18601 35th Ave NE
City: Arlington
Report Date: 4/23/2022
Gage: Everett
Data Start: 1948/10/01
Data End: 2009/09/30
Timestep: 15 Minute
Precip Scale: 1.200
Version Date: 2019/09/13
Version: 4.2.17

POC Thresholds

Low Flow Threshold for POC1: 50 Percent of the 2 Year
High Flow Threshold for POC1: 50 Year

Landuse Basin Data
Predeveloped Land Use

Road&SW

Bypass: No

GroundWater: No

Pervious Land Use acre
A B, Forest, Flat 0.387

Pervious Total 0.387

Impervious Land Use acre

Impervious Total 0

Basin Total 0.387

Element Flows To:
Surface Interflow Groundwater

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Mitigated Land Use

Roadway&SW

Bypass:	No
GroundWater:	No
Pervious Land Use	acre
Pervious Total	0
Impervious Land Use	acre
ROADS FLAT	0.306
SIDEWALKS FLAT	0.081
Impervious Total	0.387
Basin Total	0.387

Element Flows To:

Surface	Interflow	Groundwater
CAVFS 1 Surface 1	CAVFS 1 Surface 1	

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Routing Elements
Predeveloped Routing

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Mitigated Routing

Grass-Crete

Bottom Length:	667.00 ft.
Bottom Width:	3.00 ft.
Trench bottom slope 1:	0.005 To 1
Trench Left side slope 0:	0.01 To 1
Trench right side slope 2:	0.01 To 1
Material thickness of first layer:	0.5
Pour Space of material for first layer:	0.4
Material thickness of second layer:	0
Pour Space of material for second layer:	0
Material thickness of third layer:	0
Pour Space of material for third layer:	0
Infiltration On	
Infiltration rate:	96
Infiltration safety factor:	4
Total Volume Infiltrated (ac-ft.):	0.835
Total Volume Through Riser (ac-ft.):	0
Total Volume Through Facility (ac-ft.):	0.835
Percent Infiltrated:	100
Total Precip Applied to Facility:	2.671
Total Evap From Facility:	0
Discharge Structure	
Riser Height:	0.5 ft.
Riser Diameter:	1 in.
Element Flows To:	
Outlet 1	Outlet 2

Gravel Trench Bed Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.045	0.000	0.000	0.000
0.0111	0.045	0.000	0.000	17.78
0.0222	0.045	0.000	0.000	17.78
0.0333	0.045	0.000	0.000	17.78
0.0444	0.046	0.000	0.000	17.78
0.0556	0.046	0.001	0.000	17.78
0.0667	0.046	0.001	0.000	17.78
0.0778	0.046	0.001	0.000	17.78
0.0889	0.046	0.001	0.000	17.78
0.1000	0.046	0.001	0.000	17.78
0.1111	0.046	0.002	0.000	17.78
0.1222	0.046	0.002	0.000	17.78
0.1333	0.046	0.002	0.000	17.78
0.1444	0.046	0.002	0.000	17.78
0.1556	0.046	0.002	0.000	17.78
0.1667	0.046	0.003	0.000	17.78
0.1778	0.046	0.003	0.000	17.78
0.1889	0.046	0.003	0.000	17.78
0.2000	0.046	0.003	0.000	17.78
0.2111	0.046	0.003	0.000	17.78
0.2222	0.046	0.004	0.000	17.78
0.2333	0.046	0.004	0.000	17.78
0.2444	0.046	0.004	0.000	17.78
0.2556	0.046	0.004	0.000	17.78

0.2667	0.046	0.004	0.000	17.78
0.2778	0.046	0.005	0.000	17.78
0.2889	0.046	0.005	0.000	17.78
0.3000	0.046	0.005	0.000	17.78
0.3111	0.046	0.005	0.000	17.78
0.3222	0.046	0.005	0.000	17.78
0.3333	0.046	0.006	0.000	17.78
0.3444	0.046	0.006	0.000	17.78
0.3556	0.046	0.006	0.000	17.78
0.3667	0.046	0.006	0.000	17.78
0.3778	0.046	0.007	0.000	17.78
0.3889	0.046	0.007	0.000	17.78
0.4000	0.046	0.007	0.000	17.78
0.4111	0.046	0.007	0.000	17.78
0.4222	0.046	0.007	0.000	17.78
0.4333	0.046	0.008	0.000	17.78
0.4444	0.046	0.008	0.000	17.78
0.4556	0.046	0.008	0.000	17.78
0.4667	0.046	0.008	0.000	17.78
0.4778	0.046	0.008	0.000	17.78
0.4889	0.046	0.009	0.000	17.78
0.5000	0.046	0.009	0.000	17.78
0.5111	0.046	0.010	0.001	17.78
0.5222	0.046	0.010	0.002	17.78
0.5333	0.046	0.011	0.003	17.78
0.5444	0.046	0.011	0.004	17.78
0.5556	0.046	0.012	0.005	17.78
0.5667	0.046	0.012	0.005	17.78
0.5778	0.046	0.013	0.006	17.78
0.5889	0.046	0.013	0.006	17.78
0.6000	0.046	0.014	0.006	17.78
0.6111	0.046	0.014	0.007	17.78
0.6222	0.046	0.015	0.007	17.78
0.6333	0.046	0.015	0.008	17.78
0.6444	0.046	0.016	0.008	17.78
0.6556	0.046	0.016	0.008	17.78
0.6667	0.046	0.017	0.008	17.78
0.6778	0.046	0.017	0.009	17.78
0.6889	0.046	0.018	0.009	17.78
0.7000	0.046	0.018	0.009	17.78
0.7111	0.046	0.019	0.010	17.78
0.7222	0.046	0.019	0.010	17.78
0.7333	0.046	0.020	0.010	17.78
0.7444	0.046	0.020	0.010	17.78
0.7556	0.046	0.021	0.011	17.78
0.7667	0.046	0.021	0.011	17.78
0.7778	0.046	0.022	0.011	17.78
0.7889	0.046	0.022	0.011	17.78
0.8000	0.046	0.023	0.012	17.78
0.8111	0.046	0.023	0.012	17.78
0.8222	0.046	0.024	0.012	17.78
0.8333	0.046	0.024	0.012	17.78
0.8444	0.046	0.025	0.012	17.78
0.8556	0.046	0.025	0.013	17.78
0.8667	0.046	0.026	0.013	17.78
0.8778	0.046	0.026	0.013	17.78
0.8889	0.046	0.027	0.013	17.78
0.9000	0.046	0.028	0.013	17.78

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0.9111	0.046	0.028	0.014	17.78
0.9222	0.046	0.029	0.014	17.78
0.9333	0.046	0.029	0.014	17.78
0.9444	0.046	0.030	0.014	17.78
0.9556	0.046	0.030	0.014	17.78
0.9667	0.046	0.031	0.014	17.78
0.9778	0.046	0.031	0.015	17.78
0.9889	0.046	0.032	0.015	17.78
1.0000	0.046	0.032	0.015	17.78

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CAVFS 1

CAVFS Length: 667.00 ft.
 CAVFS Width: 3.00 ft.
 Gravel thickness: 0.5 ft.
 Material thickness of CAVFS layer: 0.5 ft.
 Slope of CAVFS layer: 6.66666666666667E-02 ft.
 Infiltration On
 Infiltration rate: 96
 Infiltration safety factor: 4
 Total Volume Infiltrated (ac-ft.): 34.55
 Total Volume Through Riser (ac-ft.): 0
 Total Volume Through Facility (ac-ft.): 34.567
 Percent Infiltrated: 99.95
 Total Precip Applied to Facility: 1.582
 Total Evap From Facility: 1.037
 Outlet Control
 Overflow Height: 0.5 ft.
 Overflow width: 333.5 in.
 Element Flows To:
 Outlet 1 Outlet 2
 Grass-Crete

CAVFS Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.0077	0.0000	0.0000	0.0000
0.0462	0.0077	0.0001	0.0000	0.0000
0.0923	0.0077	0.0003	0.0000	0.0000
0.1385	0.0077	0.0004	0.0000	0.0000
0.1846	0.0077	0.0006	0.0000	0.0000
0.2308	0.0077	0.0007	0.0000	0.0000
0.2769	0.0077	0.0009	0.0000	0.0000
0.3231	0.0077	0.0010	0.0000	0.0000
0.3692	0.0077	0.0012	0.0000	0.0000
0.4154	0.0077	0.0013	0.0000	0.0000
0.4615	0.0077	0.0015	0.0000	0.0000
0.5077	0.0077	0.0016	0.0000	0.0000
0.5538	0.0077	0.0018	0.0000	0.0000
0.6000	0.0077	0.0020	0.0000	0.0000
0.6462	0.0077	0.0022	0.0000	0.0000
0.6923	0.0077	0.0024	0.0000	0.0000
0.7385	0.0077	0.0025	0.0000	0.0000
0.7846	0.0077	0.0027	0.0000	0.0000
0.8308	0.0077	0.0029	0.0000	0.0000
0.8769	0.0077	0.0031	0.0000	0.0000
0.9231	0.0077	0.0033	0.0000	0.0000
0.9692	0.0077	0.0034	0.0000	0.0000
1.0154	0.0077	0.0036	0.0000	0.0000
1.0615	0.0077	0.0038	0.0000	0.0000
1.1077	0.0077	0.0040	0.0000	0.0000
1.1538	0.0077	0.0041	0.0000	0.0000
1.2000	0.0077	0.0043	0.0000	0.0000
1.2462	0.0077	0.0045	0.0000	0.0000
1.2923	0.0077	0.0047	0.0104	20.751
1.3385	0.0077	0.0049	0.0125	20.751
1.3846	0.0077	0.0050	0.0147	20.751
1.4308	0.0077	0.0052	0.0172	20.751

1.4769	0.0077	0.0054	0.0199	20.751
1.5231	0.0077	0.0056	0.0229	20.751
1.5692	0.0077	0.0057	0.0261	20.751
1.6154	0.0077	0.0059	0.0295	20.751
1.6615	0.0077	0.0061	0.0333	20.751
1.7077	0.0077	0.0063	0.0372	20.751
1.7538	0.0077	0.0065	0.0415	20.751
1.8000	0.0077	0.0066	0.0460	20.751
1.8462	0.0077	0.0068	0.0508	20.751
1.8923	0.0077	0.0070	0.0559	20.751
1.9385	0.0077	0.0072	0.0613	20.751
1.9846	0.0077	0.0074	0.0670	20.751
2.0308	0.0077	0.0075	0.0730	20.751
2.0769	0.0077	0.0077	0.0793	20.751
2.1231	0.0077	0.0079	0.0859	20.751
2.1692	0.0077	0.0081	0.0929	20.751
2.2154	0.0077	0.0082	0.1001	20.751
2.2615	0.0077	0.0084	0.1077	20.751
2.3077	0.0077	0.0086	0.1157	20.751
2.3538	0.0077	0.0088	0.1239	20.751
2.4000	0.0077	0.0090	0.1326	20.751
2.4462	0.0077	0.0091	0.1416	20.751
2.4923	0.0077	0.0093	0.1509	20.751
2.5385	0.0077	0.0095	0.1606	20.751
2.5846	0.0077	0.0097	0.1707	20.751
2.6308	0.0077	0.0099	0.1811	20.751
2.6769	0.0077	0.0100	0.1920	20.751
2.7231	0.0077	0.0102	0.2032	20.751
2.7692	0.0077	0.0104	0.2149	20.751
2.8154	0.0077	0.0106	0.2269	20.751
2.8615	0.0077	0.0107	0.2394	20.751
2.9077	0.0077	0.0109	0.2523	20.751
2.9538	0.0077	0.0111	0.2656	20.751
3.0000	0.0077	0.0113	0.2794	20.751
3.0462	0.0077	0.0115	0.2936	20.751
3.0923	0.0077	0.0116	0.3083	20.751
3.1385	0.0077	0.0118	0.3236	20.751
3.1846	0.0077	0.0120	0.3393	20.751
3.2308	0.0077	0.0122	0.3557	20.751
3.2769	0.0077	0.0124	0.3727	20.751
3.3231	0.0077	0.0125	0.3905	20.751
3.3692	0.0077	0.0127	0.4092	20.751
3.4154	0.0077	0.0129	0.4297	20.751
3.4615	0.0077	0.0131	0.4632	20.751
3.5000	0.0077	0.0132	1.1837	20.751

CAVFS Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	To Amended(cfs)	Infil(cfs)
3.5000	0.0077	0.0132	0.0000	4.1831	0.0000
3.5462	0.0077	0.0136	0.0000	4.1831	0.0000
3.5923	0.0077	0.0139	0.0000	4.5366	0.0000
3.6385	0.0077	0.0143	0.0000	4.8901	0.0000
3.6846	0.0077	0.0146	0.0000	5.2436	0.0000
3.7308	0.0077	0.0150	0.0000	5.5971	0.0000
3.7769	0.0077	0.0153	0.0000	5.8315	0.0000
3.8231	0.0077	0.0157	0.0000	5.9028	0.0000
3.8692	0.0077	0.0160	0.0000	5.9740	0.0000
3.9154	0.0077	0.0164	0.0000	6.0453	0.0000

3.9615	0.0077	0.0167	0.0000	6.1165	0.0000
4.0077	0.0077	0.0171	0.0000	6.1878	0.0000
4.0538	0.0077	0.0175	0.0000	6.2591	0.0000
4.1000	0.0077	0.0178	0.0000	6.3303	0.0000
4.1462	0.0077	0.0182	0.0000	6.4016	0.0000
4.1923	0.0077	0.0185	0.0000	6.4729	0.0000
4.2000	0.0077	0.0186	0.0000	6.4847	0.0000

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CAVFS 1 Surface 1

Element Flows To:

Outlet 1

Grass-Crete

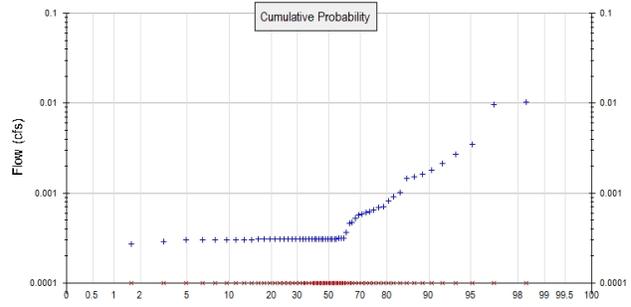
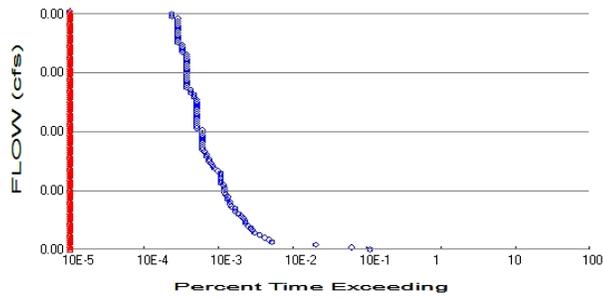
Outlet 2

CAVFS 1

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Analysis Results

POC 1



+ Predeveloped x Mitigated

Predeveloped Landuse Totals for POC #1

Total Pervious Area: 0.387
Total Impervious Area: 0

Mitigated Landuse Totals for POC #1

Total Pervious Area: 0
Total Impervious Area: 0.387

Flow Frequency Method: Log Pearson Type III 17B

Flow Frequency Return Periods for Predeveloped. POC #1

Return Period	Flow(cfs)
2 year	0.000444
5 year	0.000963
10 year	0.001545
25 year	0.002699
50 year	0.003988
100 year	0.005785

Flow Frequency Return Periods for Mitigated. POC #1

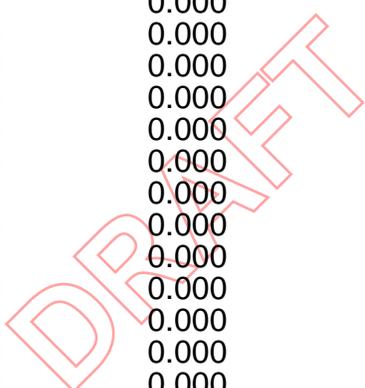
Return Period	Flow(cfs)
2 year	0
5 year	0
10 year	0
25 year	0
50 year	0
100 year	0

Annual Peaks

Annual Peaks for Predeveloped and Mitigated. POC #1

Year	Predeveloped	Mitigated
1949	0.000	0.000
1950	0.001	0.000
1951	0.001	0.000
1952	0.000	0.000
1953	0.000	0.000
1954	0.002	0.000
1955	0.002	0.000
1956	0.000	0.000
1957	0.000	0.000
1958	0.000	0.000

1959	0.001	0.000
1960	0.001	0.000
1961	0.001	0.000
1962	0.000	0.000
1963	0.000	0.000
1964	0.001	0.000
1965	0.000	0.000
1966	0.000	0.000
1967	0.001	0.000
1968	0.000	0.000
1969	0.000	0.000
1970	0.000	0.000
1971	0.002	0.000
1972	0.000	0.000
1973	0.000	0.000
1974	0.001	0.000
1975	0.000	0.000
1976	0.001	0.000
1977	0.000	0.000
1978	0.000	0.000
1979	0.001	0.000
1980	0.000	0.000
1981	0.000	0.000
1982	0.000	0.000
1983	0.000	0.000
1984	0.000	0.000
1985	0.001	0.000
1986	0.003	0.000
1987	0.002	0.000
1988	0.000	0.000
1989	0.000	0.000
1990	0.000	0.000
1991	0.000	0.000
1992	0.000	0.000
1993	0.000	0.000
1994	0.000	0.000
1995	0.000	0.000
1996	0.003	0.000
1997	0.010	0.000
1998	0.000	0.000
1999	0.000	0.000
2000	0.001	0.000
2001	0.000	0.000
2002	0.000	0.000
2003	0.000	0.000
2004	0.000	0.000
2005	0.000	0.000
2006	0.010	0.000
2007	0.000	0.000
2008	0.000	0.000
2009	0.000	0.000



Ranked Annual Peaks

Ranked Annual Peaks for Predeveloped and Mitigated. POC #1

Rank	Predeveloped	Mitigated
1	0.0103	0.0000
2	0.0096	0.0000
3	0.0035	0.0000

4	0.0027	0.0000
5	0.0021	0.0000
6	0.0018	0.0000
7	0.0016	0.0000
8	0.0015	0.0000
9	0.0015	0.0000
10	0.0010	0.0000
11	0.0009	0.0000
12	0.0008	0.0000
13	0.0007	0.0000
14	0.0007	0.0000
15	0.0006	0.0000
16	0.0006	0.0000
17	0.0006	0.0000
18	0.0006	0.0000
19	0.0006	0.0000
20	0.0005	0.0000
21	0.0005	0.0000
22	0.0005	0.0000
23	0.0004	0.0000
24	0.0003	0.0000
25	0.0003	0.0000
26	0.0003	0.0000
27	0.0003	0.0000
28	0.0003	0.0000
29	0.0003	0.0000
30	0.0003	0.0000
31	0.0003	0.0000
32	0.0003	0.0000
33	0.0003	0.0000
34	0.0003	0.0000
35	0.0003	0.0000
36	0.0003	0.0000
37	0.0003	0.0000
38	0.0003	0.0000
39	0.0003	0.0000
40	0.0003	0.0000
41	0.0003	0.0000
42	0.0003	0.0000
43	0.0003	0.0000
44	0.0003	0.0000
45	0.0003	0.0000
46	0.0003	0.0000
47	0.0003	0.0000
48	0.0003	0.0000
49	0.0003	0.0000
50	0.0003	0.0000
51	0.0003	0.0000
52	0.0003	0.0000
53	0.0003	0.0000
54	0.0003	0.0000
55	0.0003	0.0000
56	0.0003	0.0000
57	0.0003	0.0000
58	0.0003	0.0000
59	0.0003	0.0000
60	0.0003	0.0000
61	0.0002	0.0000

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Duration Flows

The Facility PASSED

Flow(cfs)	Predev	Mit	Percentage	Pass/Fail
0.0002	2357	0	0	Pass
0.0003	1329	0	0	Pass
0.0003	436	0	0	Pass
0.0003	112	0	0	Pass
0.0004	103	0	0	Pass
0.0004	89	0	0	Pass
0.0005	77	0	0	Pass
0.0005	66	0	0	Pass
0.0005	61	0	0	Pass
0.0006	58	0	0	Pass
0.0006	54	0	0	Pass
0.0006	50	0	0	Pass
0.0007	49	0	0	Pass
0.0007	47	0	0	Pass
0.0008	43	0	0	Pass
0.0008	40	0	0	Pass
0.0008	36	0	0	Pass
0.0009	36	0	0	Pass
0.0009	32	0	0	Pass
0.0009	31	0	0	Pass
0.0010	31	0	0	Pass
0.0010	29	0	0	Pass
0.0011	29	0	0	Pass
0.0011	27	0	0	Pass
0.0011	26	0	0	Pass
0.0012	26	0	0	Pass
0.0012	26	0	0	Pass
0.0012	25	0	0	Pass
0.0013	23	0	0	Pass
0.0013	23	0	0	Pass
0.0014	23	0	0	Pass
0.0014	23	0	0	Pass
0.0014	23	0	0	Pass
0.0015	21	0	0	Pass
0.0015	19	0	0	Pass
0.0016	18	0	0	Pass
0.0016	17	0	0	Pass
0.0016	16	0	0	Pass
0.0017	16	0	0	Pass
0.0017	15	0	0	Pass
0.0017	15	0	0	Pass
0.0018	14	0	0	Pass
0.0018	13	0	0	Pass
0.0019	13	0	0	Pass
0.0019	13	0	0	Pass
0.0019	13	0	0	Pass
0.0020	13	0	0	Pass
0.0020	13	0	0	Pass
0.0020	13	0	0	Pass
0.0021	13	0	0	Pass
0.0021	13	0	0	Pass
0.0022	11	0	0	Pass
0.0022	11	0	0	Pass

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0.0022	11	0	0	Pass
0.0023	11	0	0	Pass
0.0023	11	0	0	Pass
0.0024	11	0	0	Pass
0.0024	11	0	0	Pass
0.0024	11	0	0	Pass
0.0025	11	0	0	Pass
0.0025	11	0	0	Pass
0.0025	11	0	0	Pass
0.0026	11	0	0	Pass
0.0026	11	0	0	Pass
0.0027	10	0	0	Pass
0.0027	10	0	0	Pass
0.0027	9	0	0	Pass
0.0028	9	0	0	Pass
0.0028	8	0	0	Pass
0.0028	8	0	0	Pass
0.0029	8	0	0	Pass
0.0029	8	0	0	Pass
0.0030	8	0	0	Pass
0.0030	8	0	0	Pass
0.0030	8	0	0	Pass
0.0031	8	0	0	Pass
0.0031	8	0	0	Pass
0.0032	8	0	0	Pass
0.0032	8	0	0	Pass
0.0032	8	0	0	Pass
0.0033	8	0	0	Pass
0.0033	8	0	0	Pass
0.0033	8	0	0	Pass
0.0034	7	0	0	Pass
0.0034	7	0	0	Pass
0.0035	7	0	0	Pass
0.0035	7	0	0	Pass
0.0035	6	0	0	Pass
0.0036	6	0	0	Pass
0.0036	6	0	0	Pass
0.0036	6	0	0	Pass
0.0037	6	0	0	Pass
0.0037	6	0	0	Pass
0.0038	6	0	0	Pass
0.0038	6	0	0	Pass
0.0038	6	0	0	Pass
0.0039	6	0	0	Pass
0.0039	6	0	0	Pass
0.0039	5	0	0	Pass
0.0040	5	0	0	Pass

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Water Quality

Water Quality BMP Flow and Volume for POC #1

On-line facility volume: 0 acre-feet

On-line facility target flow: 0 cfs.

Adjusted for 15 min: 0 cfs.

Off-line facility target flow: 0 cfs.

Adjusted for 15 min: 0 cfs.

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LID Report

LID Technique	Used for Treatment ?	Total Volume Needs Treatment (ac-ft)	Volume Through Facility (ac-ft)	Infiltration Volume (ac-ft)	Cumulative Volume Infiltration Credit	Percent Volume Infiltrated	Water Quality	Percent Water Quality Treated	Comment
Grass-Crete POC	<input type="checkbox"/>	0.76			<input type="checkbox"/>	100.00			
CAVFS 1 1	<input type="checkbox"/>	31.46			<input type="checkbox"/>	99.95			
Total Volume Infiltrated		32.22	0.00	0.00		99.95	0.00	0%	No Treat Credit
Compliance with LID Standard 8% of 2-yr to 50% of 2-yr									Duration Analysis Result = Passed

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POC 2

POC #2 was not reported because POC must exist in both scenarios and both scenarios must have been run.

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Model Default Modifications

Total of 0 changes have been made.

PERLND Changes

No PERLND changes have been made.

IMPLND Changes

No IMPLND changes have been made.

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Appendix
Predeveloped Schematic



RoadSW
0.39ac

Mitigated Schematic



Predeveloped UCI File

RUN

GLOBAL

```
WVHM4 model simulation
START      1948 10 01      END      2009 09 30
RUN INTERP OUTPUT LEVEL   3      0
RESUME     0 RUN         1
UNIT SYSTEM 1
```

END GLOBAL

FILES

```
<File> <Un#> <-----File Name----->***
<-ID->                                     ***
WDM      26      2022GravelTrench.wdm
MESSU    25      Pre2022GravelTrench.MES
          27      Pre2022GravelTrench.L61
          28      Pre2022GravelTrench.L62
          30      POC2022GravelTrench1.dat
```

END FILES

OPN SEQUENCE

```
INGRP          INDELT 00:15
  PERLND        1
  COPY          501
  DISPLY        1
```

END INGRP

END OPN SEQUENCE

DISPLY

DISPLY-INFO1

```
# - #<-----Title----->***TRAN PIVL DIG1 FIL1  PYR DIG2 FIL2 YRND
1      Road&SW          MAX          1      2      30      9
```

END DISPLY-INFO1

END DISPLY

COPY

TIMESERIES

```
# - # NPT NMN ***
1      1      1
501    1      1
```

END TIMESERIES

END COPY

GENER

OPCODE

```
#      # OPCD ***
```

END OPCODE

PARM

```
#      #          K ***
```

END PARM

END GENER

PERLND

GEN-INFO

```
<PLS ><-----Name----->NBLKS  Unit-systems  Printer ***
# - #          User  t-series  Engl  Metr  ***
          in  out          ***
```

```
1      A/B, Forest, Flat      1      1      1      1      27      0
```

END GEN-INFO

*** Section PWATER***

ACTIVITY

```
<PLS > ***** Active Sections *****
# - # ATMP SNOW PWAT  SED  PST  PWG  PQAL MSTL PEST NITR PHOS TRAC ***
1      0      0      1      0      0      0      0      0      0      0      0      0
```

END ACTIVITY

PRINT-INFO

```
<PLS > ***** Print-flags ***** PIVL  PYR
# - # ATMP SNOW PWAT  SED  PST  PWG  PQAL MSTL PEST NITR PHOS TRAC  *****
1      0      0      4      0      0      0      0      0      0      0      0      0      1      9
```

END PRINT-INFO

```

PWAT-PARM1
<PLS > PWATER variable monthly parameter value flags ***
# - # CSNO RTOP UZFG VCS VUZ VNN VIFW VIRC VLE INFC HWT ***
1 0 0 0 0 0 0 0 0 0 0 0
END PWAT-PARM1

PWAT-PARM2
<PLS > PWATER input info: Part 2 ***
# - # ***FOREST LZSN INFILT LSUR SLSUR KVARY AGWRC
1 0 5 2 400 0.05 0.3 0.996
END PWAT-PARM2

PWAT-PARM3
<PLS > PWATER input info: Part 3 ***
# - # ***PETMAX PETMIN INFEXP INFILD DEEPFR BASETP AGWETP
1 0 0 2 2 0 0 0
END PWAT-PARM3

PWAT-PARM4
<PLS > PWATER input info: Part 4 ***
# - # CEPSC UZSN NSUR INTFW IRC LZETP ***
1 0.2 0.5 0.35 0 0.7 0.7
END PWAT-PARM4

PWAT-STATE1
<PLS > *** Initial conditions at start of simulation
ran from 1990 to end of 1992 (pat 1-11-95) RUN 21 ***
# - # *** CEPS SURS UZS IFWS LZS AGWS GWVS
1 0 0 0 0 3 1 0
END PWAT-STATE1

END PERLND

IMPLND
GEN-INFO
<PLS ><-----Name-----> Unit-systems Printer ***
# - # User t-series Engl Metr ***
in out ***

END GEN-INFO
*** Section IWATER***

ACTIVITY
<PLS > ***** Active Sections *****
# - # ATMP SNOW IWAT SLD IWG IQAL ***
END ACTIVITY

PRINT-INFO
<ILS > ***** Print-flags ***** PIVL PYR
# - # ATMP SNOW IWAT SLD IWG IQAL *****
END PRINT-INFO

IWAT-PARM1
<PLS > IWATER variable monthly parameter value flags ***
# - # CSNO RTOP VRS VNN RTLI ***
END IWAT-PARM1

IWAT-PARM2
<PLS > IWATER input info: Part 2 ***
# - # *** LSUR SLSUR NSUR RETSC
END IWAT-PARM2

IWAT-PARM3
<PLS > IWATER input info: Part 3 ***
# - # ***PETMAX PETMIN
END IWAT-PARM3

IWAT-STATE1
<PLS > *** Initial conditions at start of simulation
# - # *** RETS SURS
END IWAT-STATE1

```

END IMPLND

SCHEMATIC

<-Source->		<--Area-->		<-Target->	MBLK	***
<Name> #		<-factor->		<Name> #	Tbl#	***
Road&SW***						
PERLND 1		0.387		COPY 501	12	
PERLND 1		0.387		COPY 501	13	

*****Routing*****
END SCHEMATIC

NETWORK

<-Volume->	<-Grp>	<-Member->	<--Mult-->	Tran	<-Target vols>	<-Grp>	<-Member->	***
<Name> #		<Name> #	#	<-factor->strg	<Name> #	#	<Name> #	***
COPY 501	OUTPUT	MEAN	1 1	48.4	DISPLY 1		INPUT TIMSER 1	

<-Volume->	<-Grp>	<-Member->	<--Mult-->	Tran	<-Target vols>	<-Grp>	<-Member->	***
<Name> #		<Name> #	#	<-factor->strg	<Name> #	#	<Name> #	***

END NETWORK

RCHRES

GEN-INFO

RCHRES	Name	Nexits	Unit	Systems	Printer	***
# - #	<----->	<---->	User	T-series	Engl Metr LKFG	***
			in	out		***

END GEN-INFO

*** Section RCHRES***

ACTIVITY

<PLS > ***** Active Sections *****

#	-	#	HYFG	ADFG	CNFG	HTFG	SDFG	GQFG	OXFG	NUFG	PKFG	PHFG	***

END ACTIVITY

PRINT-INFO

<PLS > ***** Print-flags ***** PIVL PYR

#	-	#	HYDR	ADCA	CONS	HEAT	SED	GQL	OXRX	NUTR	PLNK	PHCB	PIVL	PYR	*****

END PRINT-INFO

HYDR-PARM1

RCHRES	Flags	for each HYDR Section	***	ODGTFG	for each	FUNCT	for each	***
# - #	VC A1 A2 A3	ODFVFG for each	***	ODGTFG for each		FUNCT for each		***
	FG FG FG FG	possible exit	***	possible exit		possible exit		***
	* * * *	* * * *		* * * *		* * * *		

END HYDR-PARM1

HYDR-PARM2

#	-	#	FTABNO	LEN	DELTH	STCOR	KS	DB50	***

END HYDR-PARM2

HYDR-INIT

RCHRES	Initial conditions	for each HYDR section	***
# - #	*** VOL	Initial value of COLIND	Initial value of OUTDGT
	*** ac-ft	for each possible exit	for each possible exit
	<----->	<----->	*** <----->

END HYDR-INIT

END RCHRES

SPEC-ACTIONS

END SPEC-ACTIONS

FTABLES

END FTABLES

EXT SOURCES

<-Volume->	<Member>	SsysSgap	<--Mult-->	Tran	<-Target vols>	<-Grp>	<-Member->	***
<Name> #	<Name> #	tem	strg	<-factor->strg	<Name> #	#	<Name> #	***
WDM 2	PREC	ENGL	1.2		PERLND 1	999	EXTNL PREC	
WDM 2	PREC	ENGL	1.2		IMPLND 1	999	EXTNL PREC	

```
WDM      1 EVAP      ENGL      0.76          PERLND    1 999 EXTNL  PETINP
WDM      1 EVAP      ENGL      0.76          IMPLND    1 999 EXTNL  PETINP
```

END EXT SOURCES

EXT TARGETS

```
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Volume-> <Member> Tsys Tgap Amd ***
<Name>      #      <Name> # #<-factor->strg <Name>      # <Name>      tem strg strg***
COPY      501 OUTPUT MEAN    1 1      48.4      WDM      501 FLOW      ENGL      REPL
END EXT TARGETS
```

MASS-LINK

```
<Volume>   <-Grp> <-Member-><--Mult-->      <Target>      <-Grp> <-Member->***
<Name>      #      <Name> # #<-factor->      <Name>      <Name> # #***
  MASS-LINK      12
PERLND      PWATER SURO          0.083333      COPY      INPUT  MEAN
  END MASS-LINK      12
```

```
  MASS-LINK      13
PERLND      PWATER IFWO          0.083333      COPY      INPUT  MEAN
  END MASS-LINK      13
```

END MASS-LINK

END RUN

DRAFT

Mitigated UCI File

RUN

```
GLOBAL
  WWHM4 model simulation
  START      1948 10 01      END      2009 09 30
  RUN INTERP OUTPUT LEVEL   3      0
  RESUME     0 RUN      1
  UNIT SYSTEM      1
END GLOBAL
```

```
FILES
<File> <Un#> <-----File Name----->***
<-ID->                                     ***
WDM      26      2022GravelTrench.wdm
MESSU    25      Mit2022GravelTrench.MES
          27      Mit2022GravelTrench.L61
          28      Mit2022GravelTrench.L62
          30      POC2022GravelTrench1.dat
END FILES
```

```
OPN SEQUENCE
  INGRP          INDELT 00:15
  IMPLND         1
  IMPLND         8
  RCHRES         1
  RCHRES         2
  RCHRES         3
  COPY           1
  COPY          501
  DISPLY         1
  END INGRP
END OPN SEQUENCE
```

```
DISPLY
  DISPLY-INF01
  # - #<-----Title----->***TRAN PIVL DIG1 FIL1  PYR DIG2 FIL2 YRND
  1      Grass-Crete          MAX          1      2      30      9
  END DISPLY-INF01
END DISPLY
```

```
COPY
  TIMESERIES
  # - # NPT NMN ***
  1      1      1
  501    1      1
  END TIMESERIES
END COPY
```

```
GENER
  OPCODE
  #      # OPCD ***
  END OPCODE
  PARM
  #      #          K ***
  END PARM
END GENER
```

```
PERLND
  GEN-INFO
  <PLS ><-----Name----->NBLKS Unit-systems Printer ***
  # - # User t-series Engl Metr ***
  in out ***
  END GEN-INFO
  *** Section PWATER***
```

```
ACTIVITY
  <PLS > ***** Active Sections *****
  # - # ATMP SNOW PWAT SED PST PWG PQAL MSTL PEST NITR PHOS TRAC ***
  END ACTIVITY
```

```
PRINT-INFO
  <PLS > ***** Print-flags ***** PIVL PYR
  # - # ATMP SNOW PWAT SED PST PWG PQAL MSTL PEST NITR PHOS TRAC *****
```

END PRINT-INFO

PWAT-PARM1

<PLS > PWATER variable monthly parameter value flags ***
- # CSNO RTOP UZFG VCS VUZ VNN VIFW VIRG VLE INFC HWT ***

END PWAT-PARM1

PWAT-PARM2

<PLS > PWATER input info: Part 2 ***
- # ***FOREST LZSN INFILT LSUR SLSUR KVARV AGWRC

END PWAT-PARM2

PWAT-PARM3

<PLS > PWATER input info: Part 3 ***
- # ***PETMAX PETMIN INFEXP INFILD DEEPFR BASETP AGWETP

END PWAT-PARM3

PWAT-PARM4

<PLS > PWATER input info: Part 4 ***
- # CEPSC UZSN NSUR INTFW IRC LZETP ***

END PWAT-PARM4

PWAT-STATE1

<PLS > *** Initial conditions at start of simulation
ran from 1990 to end of 1992 (pat 1-11-95) RUN 21 ***
- # *** CEPS SURS UZS IFWS LZS AGWS GWVS

END PWAT-STATE1

END PERLND

IMPLND

GEN-INFO

<PLS ><-----Name-----> Unit-systems Printer ***
- # User t-series Engr Metr ***
in out ***
1 ROADS/FLAT 1 1 1 27 0
8 SIDEWALKS/FLAT 1 1 1 27 0

END GEN-INFO

*** Section IWATER***

ACTIVITY

<PLS > ***** Active Sections *****
- # ATMP SNOW IWAT SLD IWG IQAL ***
1 0 0 1 0 0 0
8 0 0 1 0 0 0

END ACTIVITY

PRINT-INFO

<ILS > ***** Print-flags ***** PIVL PYR
- # ATMP SNOW IWAT SLD IWG IQAL *****
1 0 0 4 0 0 0 1 9
8 0 0 4 0 0 0 1 9

END PRINT-INFO

IWAT-PARM1

<PLS > IWATER variable monthly parameter value flags ***
- # CSNO RTOP VRS VNN RTLI ***

1 0 0 0 0 0
8 0 0 0 0 0

END IWAT-PARM1

IWAT-PARM2

<PLS > IWATER input info: Part 2 ***
- # *** LSUR SLSUR NSUR RETSC
1 400 0.01 0.1 0.1
8 400 0.01 0.1 0.1

END IWAT-PARM2

IWAT-PARM3

<PLS > IWATER input info: Part 3 ***
- # ***PETMAX PETMIN

1 0 0
8 0 0
END IWAT-PARM3

IWAT-STATE1
<PLS > *** Initial conditions at start of simulation
- # *** RETS SURS
1 0 0
8 0 0
END IWAT-STATE1

END IMPLND

SCHEMATIC
<-Source-> <--Area--> <-Target-> MBLK ***
<Name> # <-factor-> <Name> # Tbl# ***
Roadway&SW***
IMPLND 1 0.306 RCHRES 1 5
IMPLND 8 0.081 RCHRES 1 5

*****Routing*****
RCHRES 2 1 RCHRES 3 7
RCHRES 2 COPY 1 17
RCHRES 1 1 RCHRES 3 7
RCHRES 1 COPY 1 17
RCHRES 1 1 RCHRES 2 8
RCHRES 3 1 COPY 501 17
END SCHEMATIC

NETWORK
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member-> ***
<Name> # <Name> # #<-factor->strg <Name> # # <Name> # # ***
COPY 501 OUTPUT MEAN 1 1 48.4 DISPLY 1 INPUT TIMSER 1

<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member-> ***
<Name> # <Name> # #<-factor->strg <Name> # # <Name> # # ***
END NETWORK

RCHRES
GEN-INFO
RCHRES Name Nexits Unit Systems Printer ***
- #<-----><----> User T-series Engl Metr LKFG ***
in out ***
1 CAVFS 1 Surface-011 3 1 1 1 28 0 1
2 CAVFS 1 2 1 1 1 28 0 1
3 Grass-Crete 2 1 1 1 28 0 1
END GEN-INFO
*** Section RCHRES***

ACTIVITY
<PLS > ***** Active Sections *****
- # HYFG ADFG CNFG HTFG SDFG GQFG OXFG NUFG PKFG PHFG ***
1 1 0 0 0 0 0 0 0 0 0
2 1 0 0 0 0 0 0 0 0 0
3 1 0 0 0 0 0 0 0 0 0
END ACTIVITY

PRINT-INFO
<PLS > ***** Print-flags ***** PIVL PYR
- # HYDR ADCA CONS HEAT SED GQL OXRX NUTR PLNK PHCB PIVL PYR *****
1 4 0 0 0 0 0 0 0 0 0 1 9
2 4 0 0 0 0 0 0 0 0 0 1 9
3 4 0 0 0 0 0 0 0 0 0 1 9
END PRINT-INFO

HYDR-PARM1
RCHRES Flags for each HYDR Section ***
- # VC A1 A2 A3 ODFVFG for each *** ODGTFG for each FUNCT for each

	FG	FG	FG	FG	possible	exit	***	possible	exit	possible	exit
	*	*	*	*	*	*	*	*	*	*	*
1	0	1	0	0	4	5	6	0	0	0	0
2	0	1	0	0	4	5	0	0	0	0	0
3	0	1	0	0	4	5	0	0	0	0	0

END HYDR-PARM1

HYDR-PARM2

#	#	FTABNO	LEN	DELTH	STCOR	KS	DB50	***
1		1	0.01	0.0	0.0	0.0	0.0	***
2		2	0.13	0.0	0.0	0.0	0.0	***
3		3	0.13	0.0	0.0	0.5	0.0	***

END HYDR-PARM2

HYDR-INIT

RCHRES Initial conditions for each HYDR section ***

#	#	***	VOL	Initial value of COLIND	Initial value of OUTDGT
		***	ac-ft	for each possible exit	for each possible exit
1		0	4.0	5.0	6.0
2		0	4.0	5.0	0.0
3		0	4.0	5.0	0.0

END HYDR-INIT

END RCHRES

SPEC-ACTIONS

END SPEC-ACTIONS

FTABLES

FTABLE 3

92 5

Depth (ft)	Area (acres)	Volume (acre-ft)	Outflow1 (cfs)	Outflow2 (cfs)	Velocity (ft/sec)	Travel Time*** (Minutes)***
0.000000	0.045937	0.000000	0.000000	0.000000		
0.011111	0.045940	0.000204	0.000000	17.78667		
0.022222	0.045943	0.000408	0.000000	17.78667		
0.033333	0.045947	0.000613	0.000000	17.78667		
0.044444	0.045950	0.000817	0.000000	17.78667		
0.055556	0.045954	0.001021	0.000000	17.78667		
0.066667	0.045957	0.001225	0.000000	17.78667		
0.077778	0.045961	0.001430	0.000000	17.78667		
0.088889	0.045964	0.001634	0.000000	17.78667		
0.100000	0.045967	0.001838	0.000000	17.78667		
0.111111	0.045971	0.002042	0.000000	17.78667		
0.122222	0.045974	0.002247	0.000000	17.78667		
0.133333	0.045978	0.002451	0.000000	17.78667		
0.144444	0.045981	0.002655	0.000000	17.78667		
0.155556	0.045984	0.002860	0.000000	17.78667		
0.166667	0.045988	0.003064	0.000000	17.78667		
0.177778	0.045991	0.003269	0.000000	17.78667		
0.188889	0.045995	0.003473	0.000000	17.78667		
0.200000	0.045998	0.003677	0.000000	17.78667		
0.211111	0.046001	0.003882	0.000000	17.78667		
0.222222	0.046005	0.004086	0.000000	17.78667		
0.233333	0.046008	0.004291	0.000000	17.78667		
0.244444	0.046012	0.004495	0.000000	17.78667		
0.255556	0.046015	0.004700	0.000000	17.78667		
0.266667	0.046018	0.004904	0.000000	17.78667		
0.277778	0.046022	0.005109	0.000000	17.78667		
0.288889	0.046025	0.005313	0.000000	17.78667		
0.300000	0.046029	0.005518	0.000000	17.78667		
0.311111	0.046032	0.005723	0.000000	17.78667		
0.322222	0.046036	0.005927	0.000000	17.78667		
0.333333	0.046039	0.006132	0.000000	17.78667		
0.344444	0.046042	0.006336	0.000000	17.78667		
0.355556	0.046046	0.006541	0.000000	17.78667		
0.366667	0.046049	0.006746	0.000000	17.78667		
0.377778	0.046053	0.006950	0.000000	17.78667		
0.388889	0.046056	0.007155	0.000000	17.78667		
0.400000	0.046059	0.007360	0.000000	17.78667		
0.411111	0.046063	0.007564	0.000000	17.78667		

0.422222	0.046066	0.007769	0.000000	17.78667
0.433333	0.046070	0.007974	0.000000	17.78667
0.444444	0.046073	0.008179	0.000000	17.78667
0.455556	0.046076	0.008383	0.000000	17.78667
0.466667	0.046080	0.008588	0.000000	17.78667
0.477778	0.046083	0.008793	0.000000	17.78667
0.488889	0.046087	0.008998	0.000000	17.78667
0.500000	0.046090	0.009510	0.000000	17.78667
0.511111	0.046094	0.010022	0.001022	17.78667
0.522222	0.046097	0.010534	0.002642	17.78667
0.533333	0.046100	0.011046	0.003929	17.78667
0.544444	0.046104	0.011559	0.004611	17.78667
0.555556	0.046107	0.012071	0.005155	17.78667
0.566667	0.046111	0.012583	0.005647	17.78667
0.577778	0.046114	0.013096	0.006100	17.78667
0.588889	0.046117	0.013608	0.006521	17.78667
0.600000	0.046121	0.014120	0.006917	17.78667
0.611111	0.046124	0.014633	0.007291	17.78667
0.622222	0.046128	0.015145	0.007647	17.78667
0.633333	0.046131	0.015658	0.007987	17.78667
0.644444	0.046134	0.016171	0.008313	17.78667
0.655556	0.046138	0.016683	0.008627	17.78667
0.666667	0.046141	0.017196	0.008929	17.78667
0.677778	0.046145	0.017709	0.009222	17.78667
0.688889	0.046148	0.018221	0.009506	17.78667
0.700000	0.046151	0.018734	0.009782	17.78667
0.711111	0.046155	0.019247	0.010050	17.78667
0.722222	0.046158	0.019760	0.010311	17.78667
0.733333	0.046162	0.020273	0.010565	17.78667
0.744444	0.046165	0.020786	0.010814	17.78667
0.755556	0.046169	0.021299	0.011057	17.78667
0.766667	0.046172	0.021812	0.011295	17.78667
0.777778	0.046175	0.022325	0.011528	17.78667
0.788889	0.046179	0.022838	0.011756	17.78667
0.800000	0.046182	0.023351	0.011980	17.78667
0.811111	0.046186	0.023864	0.012200	17.78667
0.822222	0.046189	0.024377	0.012416	17.78667
0.833333	0.046192	0.024890	0.012628	17.78667
0.844444	0.046196	0.025404	0.012837	17.78667
0.855556	0.046199	0.025917	0.013042	17.78667
0.866667	0.046203	0.026430	0.013244	17.78667
0.877778	0.046206	0.026944	0.013444	17.78667
0.888889	0.046209	0.027457	0.013640	17.78667
0.900000	0.046213	0.027971	0.013833	17.78667
0.911111	0.046216	0.028484	0.014024	17.78667
0.922222	0.046220	0.028998	0.014212	17.78667
0.933333	0.046223	0.029511	0.014398	17.78667
0.944444	0.046227	0.030025	0.014582	17.78667
0.955556	0.046230	0.030538	0.014763	17.78667
0.966667	0.046233	0.031052	0.014942	17.78667
0.977778	0.046237	0.031566	0.015119	17.78667
0.988889	0.046240	0.032080	0.015293	17.78667
1.000000	0.046244	0.032593	0.015466	17.78667
1.011111	0.046247	0.033107	0.015637	17.78667

END FTABLE 3

FTABLE 2

77 5

Depth (ft)	Area (acres)	Volume (acre-ft)	Outflow1 (cfs)	Outflow2 (cfs)	Velocity (ft/sec)	Travel Time*** (Minutes)***
0.000000	0.007656	0.000000	0.000000	0.000000		
0.046154	0.007656	0.000147	0.000000	0.000000		
0.092308	0.007656	0.000293	0.000000	0.000000		
0.138462	0.007656	0.000440	0.000000	0.000000		
0.184615	0.007656	0.000587	0.000000	0.000000		
0.230769	0.007656	0.000733	0.000000	0.000000		
0.276923	0.007656	0.000880	0.000000	0.000000		
0.323077	0.007656	0.001027	0.000000	0.000000		
0.369231	0.007656	0.001173	0.000000	0.000000		
0.415385	0.007656	0.001320	0.000000	0.000000		
0.461538	0.007656	0.001466	0.000000	0.000000		

0.507692	0.007656	0.001645	0.000000	0.000000				
0.553846	0.007656	0.001823	0.000000	0.000000				
0.600000	0.007656	0.002002	0.000000	0.000000				
0.646154	0.007656	0.002180	0.000000	0.000000				
0.692308	0.007656	0.002359	0.000000	0.000000				
0.738462	0.007656	0.002537	0.000000	0.000000				
0.784615	0.007656	0.002716	0.000000	0.000000				
0.830769	0.007656	0.002894	0.000000	0.000000				
0.876923	0.007656	0.003072	0.000000	0.000000				
0.923077	0.007656	0.003251	0.000000	0.000000				
0.969231	0.007656	0.003429	0.000000	0.000000				
1.015385	0.007656	0.003608	0.000000	0.000000				
1.061538	0.007656	0.003786	0.000000	0.000000				
1.107692	0.007656	0.003965	0.000000	0.000000				
1.153846	0.007656	0.004143	0.000000	0.000000				
1.200000	0.007656	0.004322	0.000000	0.000000				
1.246154	0.007656	0.004500	0.000000	0.000000				
1.292308	0.007656	0.004678	0.010431	20.75111				
1.338462	0.007656	0.004857	0.012470	20.75111				
1.384615	0.007656	0.005035	0.014729	20.75111				
1.430769	0.007656	0.005214	0.017213	20.75111				
1.476923	0.007656	0.005392	0.019931	20.75111				
1.523077	0.007656	0.005571	0.022888	20.75111				
1.569231	0.007656	0.005749	0.026091	20.75111				
1.615385	0.007656	0.005928	0.029547	20.75111				
1.661538	0.007656	0.006106	0.033262	20.75111				
1.707692	0.007656	0.006284	0.037241	20.75111				
1.753846	0.007656	0.006463	0.041491	20.75111				
1.800000	0.007656	0.006641	0.046018	20.75111				
1.846154	0.007656	0.006820	0.050826	20.75111				
1.892308	0.007656	0.006998	0.055923	20.75111				
1.938462	0.007656	0.007177	0.061313	20.75111				
1.984615	0.007656	0.007355	0.067003	20.75111				
2.030769	0.007656	0.007534	0.072997	20.75111				
2.076923	0.007656	0.007712	0.079301	20.75111				
2.123077	0.007656	0.007891	0.085921	20.75111				
2.169231	0.007656	0.008069	0.092862	20.75111				
2.215385	0.007656	0.008247	0.100129	20.75111				
2.261538	0.007656	0.008426	0.107728	20.75111				
2.307692	0.007656	0.008604	0.115664	20.75111				
2.353846	0.007656	0.008783	0.123944	20.75111				
2.400000	0.007656	0.008961	0.132572	20.75111				
2.446154	0.007656	0.009140	0.141554	20.75111				
2.492308	0.007656	0.009318	0.150896	20.75111				
2.538462	0.007656	0.009497	0.160604	20.75111				
2.584615	0.007656	0.009675	0.170685	20.75111				
2.630769	0.007656	0.009853	0.181144	20.75111				
2.676923	0.007656	0.010032	0.191988	20.75111				
2.723077	0.007656	0.010210	0.203224	20.75111				
2.769231	0.007656	0.010389	0.214860	20.75111				
2.815385	0.007656	0.010567	0.226904	20.75111				
2.861538	0.007656	0.010746	0.239365	20.75111				
2.907692	0.007656	0.010924	0.252252	20.75111				
2.953846	0.007656	0.011103	0.265576	20.75111				
3.000000	0.007656	0.011281	0.279351	20.75111				
3.046154	0.007656	0.011459	0.293592	20.75111				
3.092308	0.007656	0.011638	0.308317	20.75111				
3.138462	0.007656	0.011816	0.323550	20.75111				
3.184615	0.007656	0.011995	0.339323	20.75111				
3.230769	0.007656	0.012173	0.355680	20.75111				
3.276923	0.007656	0.012352	0.372690	20.75111				
3.323077	0.007656	0.012530	0.390467	20.75111				
3.369231	0.007656	0.012709	0.409243	20.75111				
3.415385	0.007656	0.012887	0.429651	20.75111				
3.461538	0.007656	0.013065	0.463192	20.75111				
3.500000	0.007656	0.466413	1.183719	20.75111				

END FTABLE 2
 FTABLE 1
 18 6
 Depth Area Volume Outflow1 Outflow2 Outflow3 Velocity Travel

Time***

(Minutes)***	(ft)	(acres)	(acre-ft)	(cfs)	(cfs)	(cfs)	(ft/sec)
0.000000	0.007656	0.000000	0.000000	0.000000	0.000000	0.000000	
0.023077	0.007656	0.000177	0.000000	4.183062	0.000000		
0.046154	0.007656	0.000353	0.000000	4.183062	0.000000		
0.092308	0.007656	0.000707	0.000000	4.536560	0.000000		
0.138462	0.007656	0.001060	8.376837	4.890058	0.000000		
0.184615	0.007656	0.001413	27.33468	5.243556	0.000000		
0.230769	0.007656	0.001767	52.51682	5.597054	0.000000		
0.276923	0.007656	0.002120	82.64504	5.831504	0.000000		
0.323077	0.007656	0.002474	117.0097	5.902765	0.000000		
0.369231	0.007656	0.002827	155.1412	5.974025	0.000000		
0.415385	0.007656	0.003180	196.6984	6.045286	0.000000		
0.461538	0.007656	0.003534	241.4192	6.116547	0.000000		
0.507692	0.007656	0.003887	281.1498	6.187808	0.000000		
0.553846	0.007656	0.004240	284.6387	6.259068	0.000000		
0.600000	0.007656	0.004594	290.2836	6.330329	0.000000		
0.646154	0.007656	0.004947	297.4396	6.401590	0.000000		
0.692308	0.007656	0.005300	305.8352	6.472851	0.000000		
0.700000	0.007656	0.005359	315.3082	6.484727	0.000000		

END FTABLE 1

END FTABLES

EXT SOURCES

<-Volume->	<Member>	SsysSgap<--Mult-->	Tran	<-Target	vols>	<-Grp>	<-Member->	***				
<Name>	#	<Name>	#	tem strg<-factor-->	strg	<Name>	#	#	<Name>	#	#	***
WDM	2	PREC	ENGL	1.2	PERLND	1	999	EXTNL	PREC			
WDM	2	PREC	ENGL	1.2	IMPLND	1	999	EXTNL	PREC			
WDM	1	EVAP	ENGL	0.76	PERLND	1	999	EXTNL	PETINP			
WDM	1	EVAP	ENGL	0.76	IMPLND	1	999	EXTNL	PETINP			
WDM	2	PREC	ENGL	1.2	RCHRES	1		EXTNL	PREC			
WDM	2	PREC	ENGL	1.2	RCHRES	3		EXTNL	PREC			
WDM	1	EVAP	ENGL	0.5	RCHRES	1		EXTNL	POTEV			
WDM	1	EVAP	ENGL	0.76	RCHRES	2		EXTNL	POTEV			

END EXT SOURCES

EXT TARGETS

<-Volume->	<-Grp>	<-Member->	<--Mult-->	Tran	<-Volume->	<Member>	Tsys	Tgap	Amd	***	
<Name>	#	<Name>	#	#<-factor-->	strg	<Name>	#	<Name>	tem strg	strg***	
RCHRES	3	HYDR	RO	1	1	1	WDM	1002	FLOW	ENGL	REPL
RCHRES	3	HYDR	O	1	1	1	WDM	1004	FLOW	ENGL	REPL
RCHRES	3	HYDR	O	2	1	1	WDM	1005	FLOW	ENGL	REPL
RCHRES	3	HYDR	STAGE	1	1	1	WDM	1003	STAG	ENGL	REPL
COPY	1	OUTPUT	MEAN	1	1	48.4	WDM	701	FLOW	ENGL	REPL
COPY	501	OUTPUT	MEAN	1	1	48.4	WDM	801	FLOW	ENGL	REPL

END EXT TARGETS

MASS-LINK

<Volume>	<-Grp>	<-Member->	<--Mult-->	<Target>	<-Grp>	<-Member->	***
<Name>		<Name>	#	#<-factor-->	<Name>	#	#
MASS-LINK			5				
IMPLND	IWATER	SURO		0.083333	RCHRES		INFLOW IVOL
END MASS-LINK			5				
MASS-LINK			7				
RCHRES	OFLOW	OVOL	1		RCHRES		INFLOW IVOL
END MASS-LINK			7				
MASS-LINK			8				
RCHRES	OFLOW	OVOL	2		RCHRES		INFLOW IVOL
END MASS-LINK			8				
MASS-LINK			17				
RCHRES	OFLOW	OVOL	1		COPY		INPUT MEAN
END MASS-LINK			17				

END MASS-LINK

END RUN

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