PRELIMINARY STORMWATER CONTROL PLAN

FOR

PLAT ALTERATION TO CITY OF SEQUIM MAJOR SUBDIVISION SUB 05/001 FOR: MALIANDRA APARTMENTS, LCC. CITY OF SEQUIM, CLALLAM COUNTY, WASHINGTON

Date: December 4, 2023

Project: Plat Alteration to City of Sequim Major Subdivision Sub 05/001 at the end of South 7th Ave., East Silberhorn Road and Rolling Hills Way, Sequim

Prepared by: Zenovic & Associates, Inc.
301 East 6th Street, #1
Port Angeles, WA 98362

INTRODUCTION

This Stormwater Control Plan has been prepared as part of the City of Sequim's (City) stormwater requirements for the Plat Alteration to Subdivision 05-001. The intent of this report is to describe the stormwater management system that will be required for the proposed improvements to the City of Sequim Major Subdivision SUB 05/001 and to demonstrate compliance with the *2019 Stormwater Management Manual for Western Washington* as adopted by the City of Sequim (SMC 13.104.100). This project includes installing asphalt roadway, driveway, sidewalk, storm, water, and sewer extensions to support development of the remaining 10 undeveloped lots within this subdivision. As part of this process the lot lines for the 10 lots will be adjusted. Final development conditions of the lots themselves is unknown at this time but is expected to be a mix of residential duplexes and fourplexes. This report will address each of the minimum requirements in the *Manual* and provide information on existing conditions of the site, proposed construction, method of stormwater runoff analysis, and stormwater infiltration and treatment design.

Runoff from the proposed development will be controlled through the use of 5 infiltration trenches installed underneath the proposed shared driveways to detain and infiltrate all stormwater runoff from the site.

Included in the Appendices are the Preliminary Plans, Basin/Land-Use Summary, Source Control BMPs, and Flow Control Calculations.

EXISTING CONDITIONS

The project will be located on Parcels 03-30-30-55-0120, 55-0150, 55-0130, 55-0140, 55-0110, 55-0100, 55-0090, 55-0080, 55-0070, 55-0060 and 55-0050 which encompass 3.4 acres. The lots have previously been cleared and are currently vacant. A sewer main was previously installed in the unimproved portion of Maliandra Drive. Access to the site is from Maliandra Drive or Comfort Way off of South 7th Ave. The topography of the site is relatively flat with a slope of 1-2% to the north.

A ditch is located along the west property line which directs offsite stormwater to drainage ditch along East Silberhorn Road. This ditch receives runoff from what appears to be an old irrigation ditch located southwest of the project. Most of the discharge from this ditch is infiltrated, but it is assumed that during high flow events, this runoff eventually discharges to the roadside ditch on Highway 101 and into Bell Creek.

The site improvements for five lots of this subdivision were previously constructed and three lots were fully developed for Multi-Family Housing. Note that although improvements for Lot 5 are already installed, it is included in this project as the access to that lot will be revised and stormwater facilities will be installed on that lot. The previous site improvements consisted of constructing a portion of Maliandra Drive, asphalt parking areas, and water, storm, sanitary, power and communication utilities. Stormwater runoff is controlled through three infiltration trenches constructed underneath the roadway and driveways.

Based on the NRCS soils survey, the site is located in an area with Sequim very gravelly sandy loam. A typical profile for Sequim very gravelly sandy loam consists of 0-10 inches of gravelly sandy loam, 10-23 inches of extremely cobbly loamy sand, and 23-60 inches of extremely cobbly sand. The soils are classified as a group A hydrologic soil (soils having a high infiltration rate (low runoff potential) when thoroughly wet. These soils consist mainly of deep, well drained to excessively drained sands or gravelly sands, and have a high rate of water transmission).

Onsite investigation on March 3, 2020, found soils similarly consistent with above soil types, but encountered ground water at depths of 3' – 6' below ground surface.

MINIMUM REQUIREMENTS

The following section will describe how the project will conform to the nine minimum requirements of the Manual.

MINIMUM REQUIREMENT #1 - Preparation of Stormwater Site Plans

Preliminary stormwater site plans have been prepared and will be submitted with this report to the City of Sequim. Final construction plans will be provided at time of site construction permit application.

MINIMUM REQUIREMENT #2 – Construction Stormwater Pollution Prevention

An erosion and sedimentation control plan and stormwater pollution prevention plan will be provided for review and approval at the time of site construction permit application. It is expected that at a minimum the following practices will be implemented to control erosion and sedimentation on the site.

1. Marking clearing limits to preserve the existing vegetation and limit land-disturbing activity.
2. Installation of stabilized construction entrances/exits to prevent sediment track-out.
3. Installation of silt fencing to protect adjacent properties from sediment.
4. Installation of inlet protection to protect new and existing drainage structures and systems from sediment.
5. Limitations on the time soil may remain exposed and unworked and requirements for soils stabilization.

As this project will disturb greater than one acre of land, this project is required to obtain coverage under the Construction Stormwater General Permit (CSGP) through the Department of Ecology which will require monthly reporting of discharge to the Department of Ecology and weekly inspections and oversight by a Certified Erosion and Sedimentation Control Lead. Changes will be made to the site and plan as needed to comply with the conditions of the CSGP. This permit will be obtained prior to land-disturbing activity.

MINIMUM REQUIREMENT #3 - Source Control of Pollution

All known, available and reasonable source control BMPs are required for this project. Specific source control BMPs to be employed on this project are:

- Landscaping and Lawn/Vegetation Management
- Maintenance and Repair of Vehicles and Equipment
- Maintenance of Stormwater Drainage and Treatment Systems
- Maintenance of Urban Streets

Descriptions of each BMP listed above can be found in Appendix C.

MINIMUM REQUIREMENT #4 - Preservation of Natural Drainage Systems and Outfalls

Consistent with the natural drainage patterns, the primary method of stormwater management will be infiltration onsite and any runoff that cannot be infiltrated will be discharged to an existing roadside ditch which is located on the north end of the project area along Silberhorn Road. The site itself currently contains no known significant or concentrated drainage paths or outfalls. A drainage ditch which receives significant offsite runoff parallels the west property line but is

located on the neighboring parcel. This project will not affect any natural drainage system or outfall.

MINIMUM REQUIREMENT #5 - Onsite Stormwater Management

Minimum requirement #5 is intended to promote the use of low impact development BMPs to infiltrate, disperse, and retain stormwater onsite. The applicant has the choice to either meet the LID Performance Standard and implement BMP T5.13 for onsite soil quality and depth or install LID BMPs per List #2 for all listed surfaces.

This project will be designed to achieve 100% infiltration of onsite stormwater through the use of infiltration trenches and thus meet the LID Performance Standard. Additionally onsite topsoil removed from Roadway areas will be utilized in disturbed areas to meet the requirements of BMP T5.13.

MINIMUM REQUIREMENT #6 - Runoff Treatment

The primary method for runoff treatment will be through infiltration into native soils. Permanent inlet filters will be installed in all catch basins to provide pretreatment of stormwater and protect the infiltration trenches from sediment deposition.

MINIMUM REQUIREMENT #7 - Flow Control

Minimum requirement #7 requires the project meet the flow control performance standard which is stated as follows:

> *Stormwater discharges shall match developed discharge durations to pre-developed 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 to be matched shall be a forested land cover.*

This project was designed to infiltrate stormwater onsite through the use of infiltration trenches to the maximum extent feasible. Due to the high groundwater concerns, allowances were made to provide overflow protections for high flow events from the site.

Modeling of the stormwater facilities was completed using WWHM 2012 with a long-term infiltration rate of 3 in/hr with a safety factor of 1.5. This infiltration rate was based on the original design of the project which utilized an infiltration rate of 3 in/hr and results of sieve analyses of onsite soils on an adjacent project which resulted in a long-term infiltration rate of 5 in/hr. The reduction is warranted due to the high groundwater encountered onsite.

As stated above, groundwater was observed at depths of 3 to 6 feet below ground surface. Based on this information, the infiltration trenches were designed to be as shallow as feasible and provided with an overflow system which will discharge to an existing roadside ditch on East Silberhorn Road to prevent flooding of the roadway or buildings.

A Basin/Land Use summary is included in Appendix A which summarizes the proposed land use in each of the basins which were utilized for stormwater modeling. 6,000 square feet of additional hard surface was included for each of the lots to account for future development of the structures, parking areas, pathways, etc.

With this design the site meets the LID performance standard and the Flow Control Performance Standard. Flow control calculations demonstrating compliance with the LID Performance Standard are included in Appendix C. Additional discussion of land-use parameters used are found under Minimum Requirement #7 below.

MINIMUM REQUIREMENT #8 – Wetlands Protection

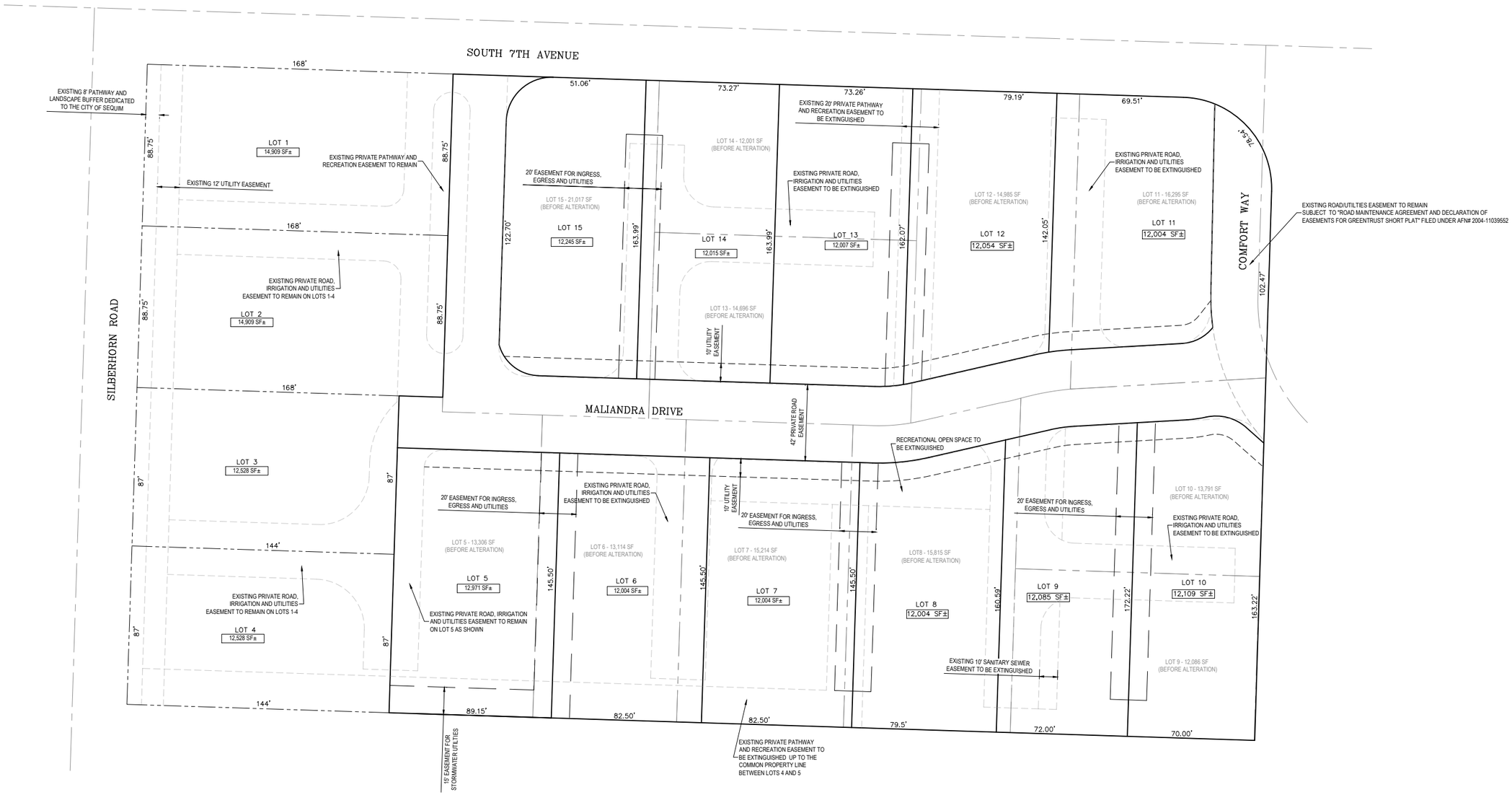
No known wetlands will be affected by this project.

MINIMUM REQUIREMENT #9 - Operation and Maintenance

An Operation and Maintenance Manual will be produced for each this project and will be submitted to the City for review during the Site Construction Permit application process.

APPENDIX A

STORMWATER SITE PLANS



SITE PLAN

Scale: 1" = 30'

0 30' 60' 90'

ZENOVIC & ASSOCIATES
INCORPORATED
301 E. 6TH STREET, SUITE 1
PORT ANGELES, WA 98362
PHONE: (360) 417-0501
FAX: (360) 417-0514
EMAIL: ZENOVIC@ZENOVIC.NET

REVISIONS:

DATE	MARK	NOTE

TITLE: SITE DEVELOPMENT ON MALIANDRA DR. FOR MULTI-FAMILY RESIDENTIAL SUBDIVISION

PRELIMINARY LOT LAYOUT

CLIENT:
BRODY BROKER
244 W. WASHINGTON STREET
SEQUIM, WASHINGTON 98382

SCALE: 1" = 30'

FILE: 20013 - E5

JOB NO: 20013

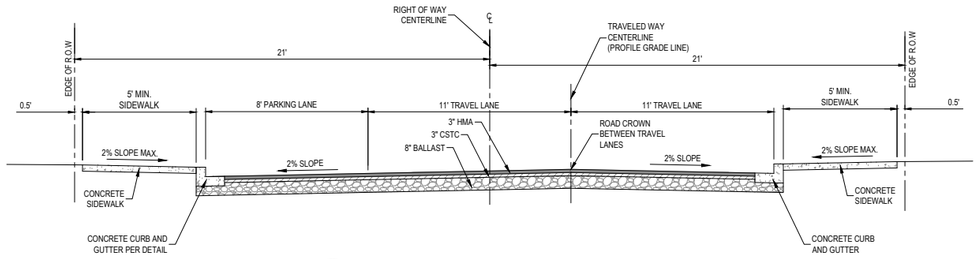
DATE: December 5, 2023

SET: PRE-PLAT

TRACY D. GUDDE
STATE OF WASHINGTON
12777
REGISTERED
PROFESSIONAL ENGINEER

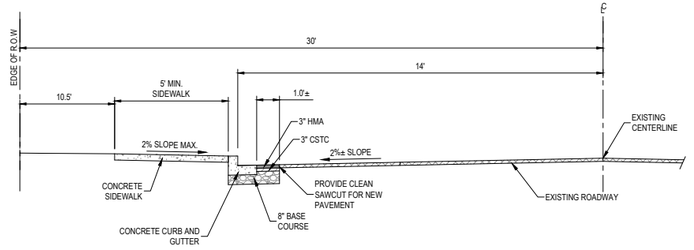
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P0



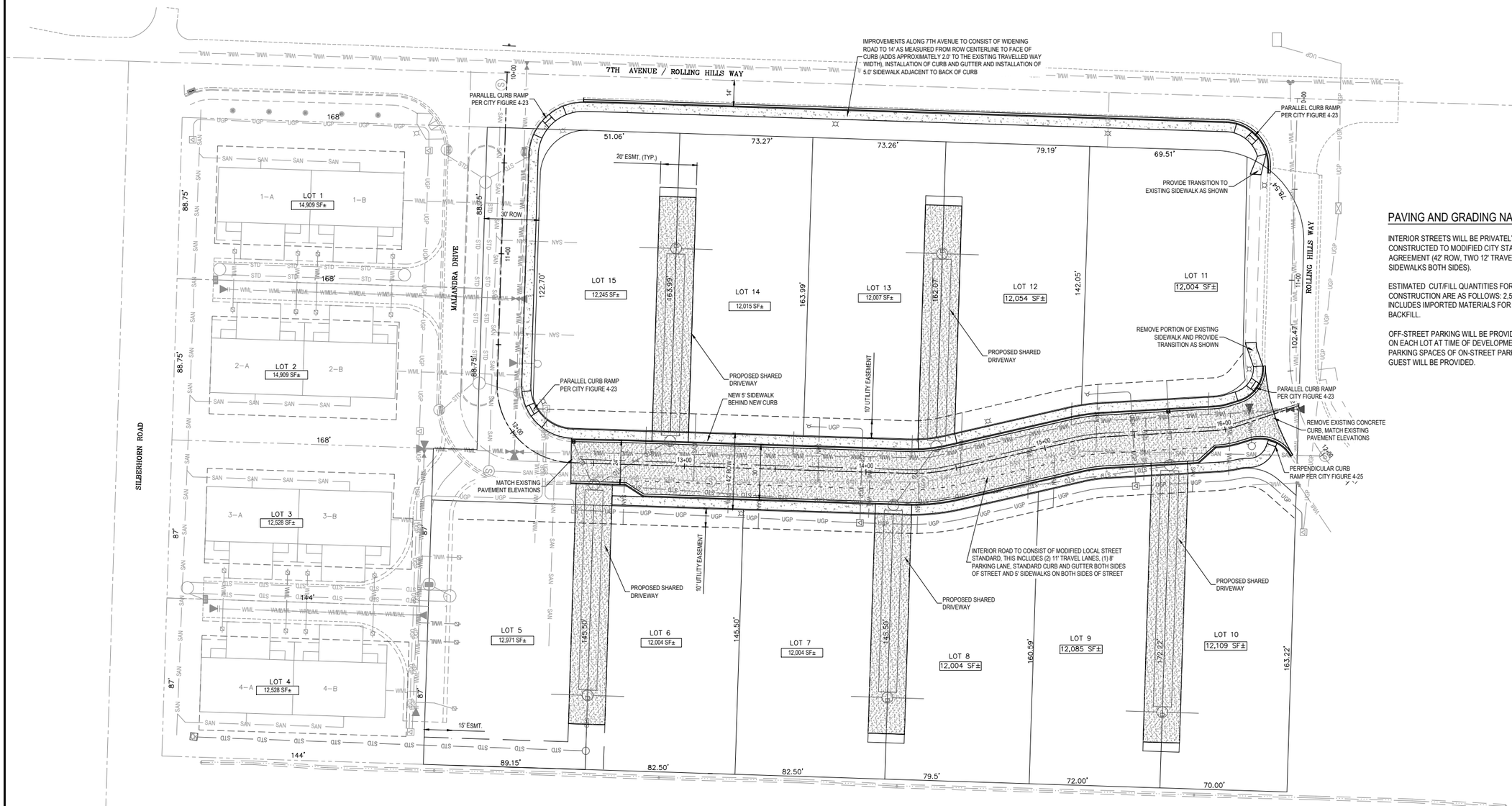
A P1 MALINADRA DRIVE STANDARD SECTION

Scale: NTS



B P1 7TH AVENUE SECTION

Scale: NTS



SITE PLAN

Scale: 1" = 30'

0 30' 60' 90'

PAVING AND GRADING NARRATIVE

INTERIOR STREETS WILL BE PRIVATELY OWNED AND MAINTAINED STREETS CONSTRUCTED TO MODIFIED CITY STANDARDS PER THE SETTLEMENT AGREEMENT (42' ROW, TWO 12' TRAVEL LANES AND 8' PARKING LANE ONE SIDE, 5' SIDEWALKS BOTH SIDES).

ESTIMATED CUT/FILL QUANTITIES FOR THE ROADWAY AND UTILITY CONSTRUCTION ARE AS FOLLOWS: 2,500 C.Y. CUT & 2,500 C.Y. FILL. THIS INCLUDES IMPORTED MATERIALS FOR ROAD CONSTRUCTION AND UTILITY BACKFILL.

OFF-STREET PARKING WILL BE PROVIDED A A MINIMUM OF 2 SPACES PER UNIT ON EACH LOT AT TIME OF DEVELOPMENT PER SMC 18.48.050. AN ADDITIONAL 14 PARKING SPACES OF ON-STREET PARKING FOR USE BY TENANTS AND THEIR GUEST WILL BE PROVIDED.

ZENOVIC & ASSOCIATES
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EMAIL: ZENOVIC@ZENOVIC.NET

REVISIONS:

DATE	MARK	NOTE

TITLE: SITE DEVELOPMENT ON MALANDRA DR. FOR MULTI-FAMILY RESIDENTIAL SUBDIVISION

PRELIMINARY GRADING AND PAVING PLAN

CLIENT: BRODY BROKER
244 W. WASHINGTON STREET
SEQUIM, WASHINGTON 98382

SCALE: 1" = 30'

FILE: 20013 - E5

JOB NO: 20013

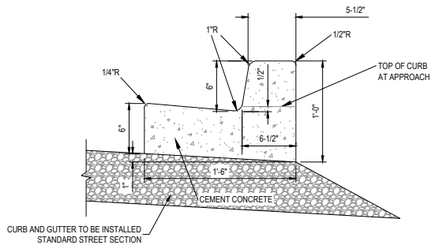
DATE: December 5, 2023

SET: PRE-PLAT

TRACY D. GUDMUNDSON
STATE OF WASHINGTON
22777
REGISTERED
PROFESSIONAL ENGINEER

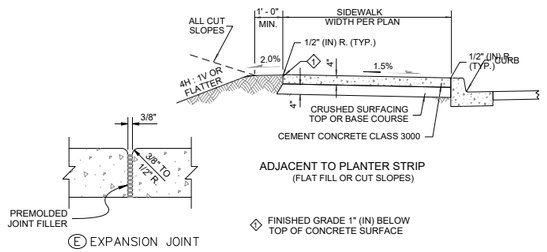
SHEET

P1

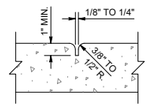


A P2 CONCRETE CURB AND GUTTER

Scale: NTS



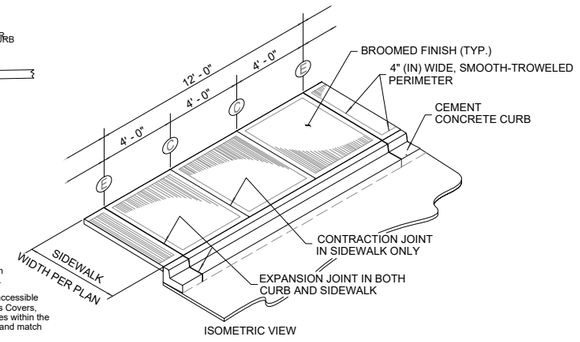
E EXPANSION JOINT



C CONTRACTION JOINT

NOTES

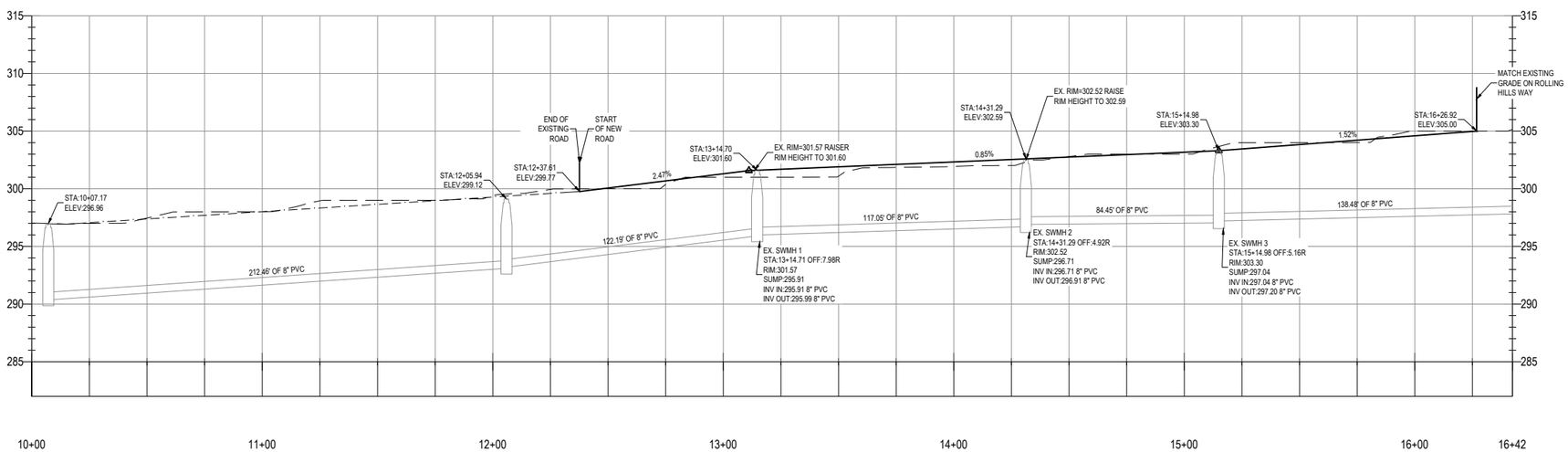
1. Cement concrete sidewalk shall be constructed in accordance with WSDOT Standard Specification 8-14 except as noted on this plan.
2. Four feet of the sidewalk width shall be the minimum pedestrian accessible route free of vertical and horizontal obstructions. Gratings, Access Covers, Junction Boxes, Cable Vaults, Pull Boxes and other appurtenances within the sidewalk must have slip resistant surfaces, be flush with surface, and match grade of the sidewalk.



JOINT AND FINISH
DETAIL

B P2 SIDEWALK DETAILS

Scale: NTS



STATION

MALIANDRA DR. PROFILE
SCALE: 30
VERT. EXAGERATION: 5.0

ZENOVIC & ASSOCIATES
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REVISIONS:

DATE	MARK	NOTE

TITLE: SITE DEVELOPMENT ON MALIANDRA DR. FOR MULTI-FAMILY RESIDENTIAL SUBDIVISION

PRELIMINARY ROADWAY PROFILE & DETAILS

CLIENT:
BRODY BROKER
244 W. WASHINGTON STREET
SEQUIM, WASHINGTON 98382

SCALE: NTS

FILE: 20013 - E5

JOB NO: 20013

DATE: December 5, 2023

SET: PRE-PLAT

TRACY D. GUDMUNDSON
STATE OF WASHINGTON
32777
REGISTERED
PROFESSIONAL ENGINEER

SHEET
P2

UTILITY NARRATIVE:

WATER

WATER MAIN TO BE EXTENDED IN NEW SECTION OF MALIANDRA DRIVE FROM EXISTING STUB AT THE EXISTING END OF MALIANDRA DRIVE TO THE EXISTING MAIN IN ROLLING HILLS WAY. MAIN EXTENSION TO BE 8"Ø C900 AND INCLUDE A FIRE HYDRANT AT THE SOUTH END OF THE MALIANDRA WAY EXTENSION.

WATER SERVICES TO BE EXTENDED TO EACH LOT FROM PROPOSED WATER MAIN. SERVICES TO INCLUDE A 2"Ø SERVICE LINE EXTENDED TO EACH LOT AND CAPPED. FUTURE CONNECTIONS WILL UTILIZE THE 2" SERVICE LINE AND PROVIDE SEPARATE METERS FOR EACH LIVING UNIT.

SANITARY SEWER

THE SANITARY SEWER MAIN THROUGH THE PROPOSED DEVELOPMENT IS ALREADY IN PLACE. SEWER MANHOLE LIDS WILL BE ADJUSTED AS NEEDED TO MATCH FINISH GRADE.

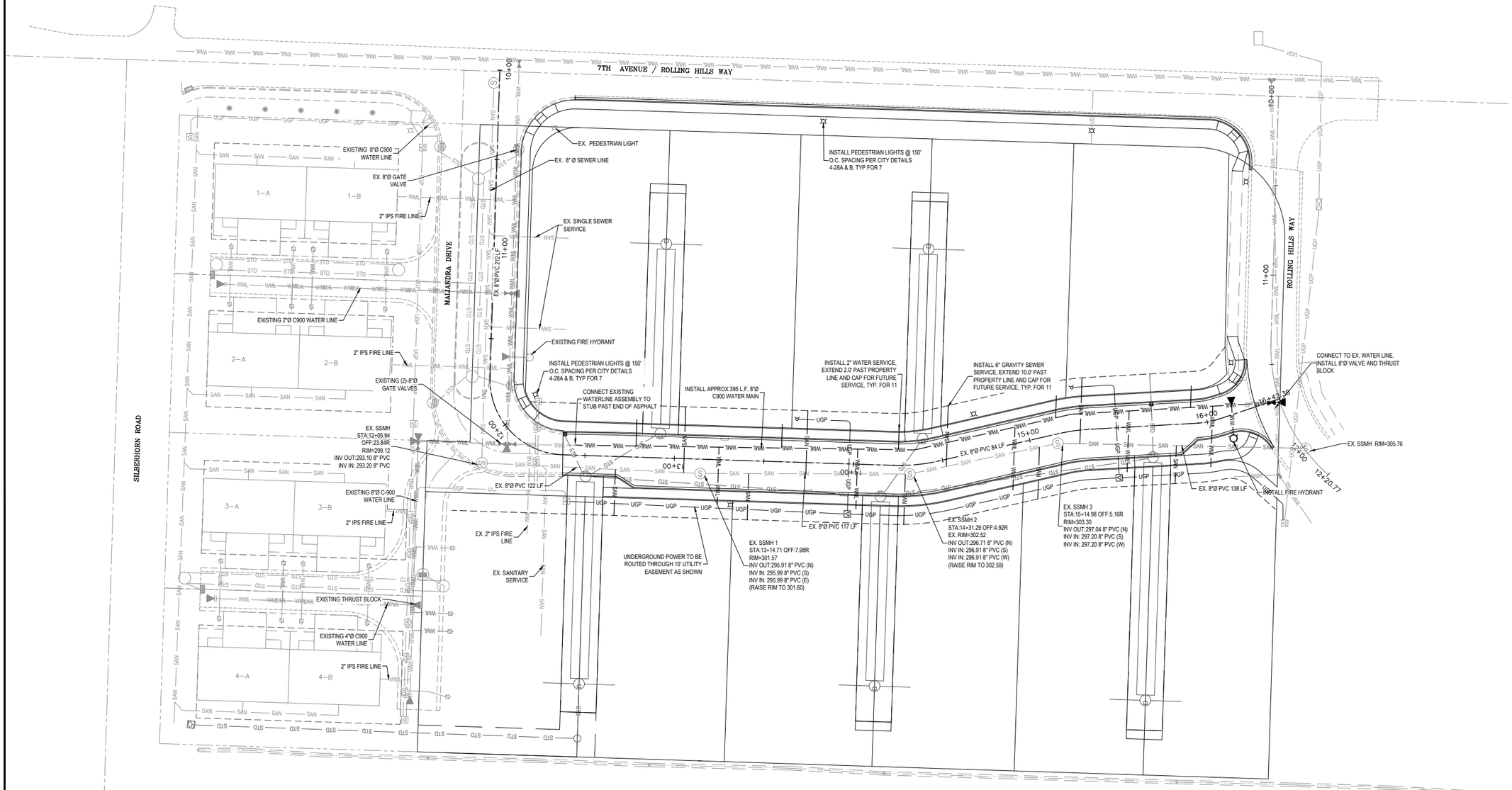
SERVICES WILL BE EXTENDED TO EACH LOT AND WILL CONSIST OF A 6"Ø SIDE SEWER LINE SLOPED @ 2% MIN.

UNDERGROUND POWER

UNDERGROUND POWER WILL BE ROUTED IN THE PROVIDED 10' UTILITY EASEMENTS AS SHOWN AND WILL PROVIDE TRANSFORMERS AND SECONDARY PEDESTALS AS REQUIRED. POWER WILL BE SUPPLIED BY THE CLALLAM COUNTY PUD #1. FINAL DESIGN/LAYOUT WILL ALSO BE PROVIDED BY THE PUD#1.

COMMUNICATIONS

IT IS ANTICIPATED THAT ASTOUND AND LUMEN WILL PROVIDE COMMUNICATIONS UTILITIES. THOSE FACILITIES WILL BE ROUTED IN THE PROVIDED 10' UTILITY EASEMENTS. FINAL LAYOUT WILL BE COORDINATED WITH THOSE PROVIDERS.



SITE PLAN

Scale: 1" = 30'

0 30' 60' 90'

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PORT ANGELES, WA 98362
PHONE: (360) 417-0501
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EMAIL: ZENOVIC@ZENOVIC.NET

REVISIONS:

DATE	MARK	NOTE

TITLE: SITE DEVELOPMENT ON MALIANDRA DR. FOR MULTI-FAMILY RESIDENTIAL SUBDIVISION

PRELIMINARY UTILITY PLAN

CLIENT:
BRODY BROKER
244 W. WASHINGTON STREET
SEQUIM, WASHINGTON 98382

SCALE: 1" = 30'

FILE: *20013 - E5*

JOB NO: 20013

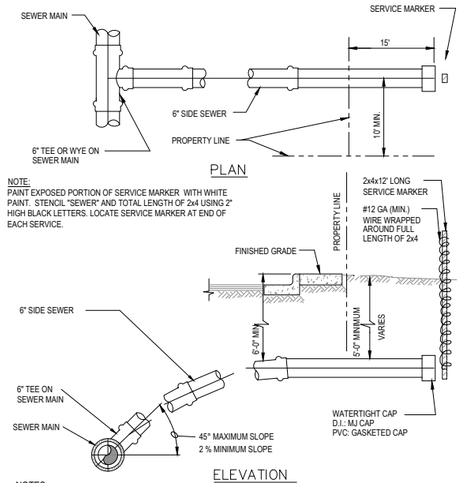
DATE: *December 5, 2023*

SET: PRE-PLAT

TRACY D. GUDGEL — STATE OF WASHINGTON — 26777 — REGISTERED PROFESSIONAL ENGINEER — PRELIMINARY

SHEET

P3

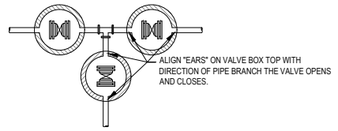


NOTES:

1. MAXIMUM DEFLECTION NOT TO EXCEED PIPE MANUFACTURER RECOMMENDATIONS.
2. SIDE SEWER LATERAL SHALL BE THE SAME MATERIAL AS THE MAIN LINE SEWER AND BEDDED USING 3/4"-MINUS CRUSHED GRAVEL, COMPACTED BELOW, ON SIDES AND ON TOP OF PIPE.
3. SEPARATE LATERAL REQUIRED FOR EACH LOT.

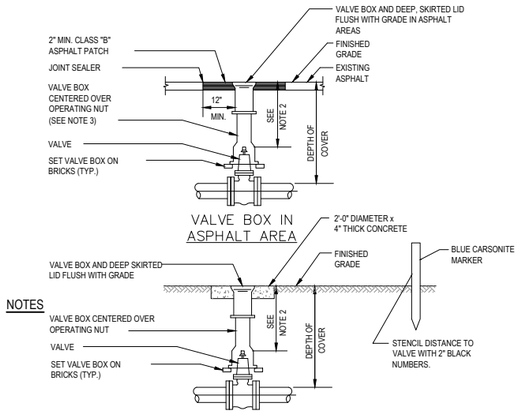
CITY OF SEQUIM
2013 DEVELOPER STANDARDS
FIGURE V--311
STANDARD SIDE SEWER CONNECTION
Gray & Osborne, Inc.

A/P4 SANITARY SEWER LATERAL SERVICE
Scale: NTS



CITY OF SEQUIM
2013 DEVELOPER STANDARDS
FIGURE V--W16
VALVE EXTENSION STEM
Gray & Osborne, Inc.

B/P4 GATE VALVE EXTENSION STEM
Scale: NTS

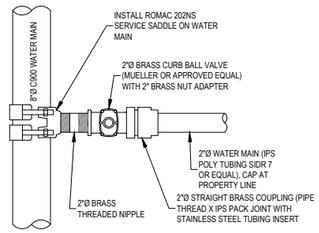


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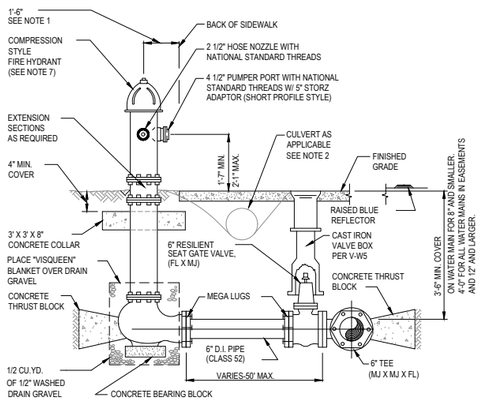
1. EACH VALVE SHALL BE PROVIDED WITH AN ADJUSTABLE CAST IRON VALVE BOX OF 5 INCHES (5") INSIDE DIAMETER. VALVE BOXES SHALL HAVE A TOP SECTION WITH AN EIGHTEEN INCH (18") MIN. LENGTH. THE VALVE BOX SHALL BE OLYMPIC FOUNDARY No. 940 OR APPROVED EQUAL.
2. 18" MINIMUM, 24" MAXIMUM FOR OPERATOR NUT IF EXTENSION IS REQUIRED.
3. VALVE BOX EARS SHALL BE PLACED IN LINE WITH THE PIPE IT SERVES.

CITY OF SEQUIM
2013 DEVELOPER STANDARDS
FIGURE V--W14
VALVE BOX
Gray & Osborne, Inc.

C/P4 GATE VALVE BOX DETAIL
Scale: NTS



D/P4 2" TAP AND GATE VALVE
Scale: NTS

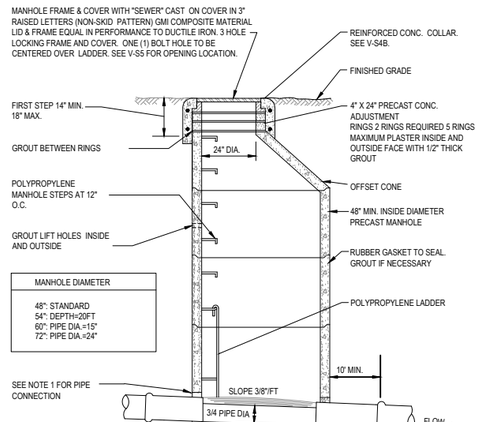


NOTES:

1. OR 3' FROM BACK OF CURB
2. PROVIDE 8' OF CULVERT AND COVER, 12" MIN. DIA. OR EQUAL IN SIZE TO ADJACENT DITCH CROSSINGS. PIPE TO COUNTY, STATE OR CITY STANDARDS AS APPLICABLE.
3. PROVIDE MIN. 3'-0" CLEARANCE AND LEVEL AREA AROUND HYDRANT
4. PAINT FIRE HYDRANT WITH TWO COATS KELLY MOORE 6100-516 YELLOW AND TOP OF HYDRANT COLOR DETERMINED BY SERVICE LEVEL GPM.
   # 213 SAFETY BLUE-SERVICE LEVEL 1500 GPM OR GREATER
   # 815 SAFETY GREEN-SERVICE LEVEL 1000 TO 1499 GPM
5. STENCIL FOOTAGE TO VALVE ON HYDRANT UNDER PORT FACING GV
6. REMOVE ALL CHAINS FOR FIRE HYDRANT CAPS
7. ACCEPTABLE HYDRANTS: CLOW MEDALLION OR MUELLER CENTURION.
8. INSTALL BLUE FIRE HYDRANT REFLECTOR. OFFSET 1 FOOT FROM ROAD CENTERLINE

CITY OF SEQUIM
2013 DEVELOPER STANDARDS
FIGURE V--W2
FIRE HYDRANT ASSEMBLY
Gray & Osborne, Inc.

E/P4 FIRE HYDRANT ASSEMBLY
Scale: NTS



NOTES:

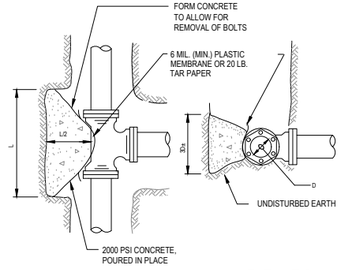
1. PIPE CONNECTIONS TO MANHOLES SHALL BE AS FOLLOWS: PVC PIPE: CAST OR GROUT A SAND COLLAR INTO WALL. D.I. OR PVC PIPE: CORE THE MANHOLE AND CONNECT SEWER PIPE WITH EPDM MODEL "C" OR "L" LINK SEAL.
2. DROP OF GRADE THRU MANHOLE SHALL BE 0.10', UNLESS OTHERWISE NOTED.
3. MINIMUM DEPTH OF MANHOLE SHALL BE 8' UNLESS APPROVED BY THE CITY.
4. INSTALL GREEN CARSONITE FIBERGLASS MANHOLE MARKERS IN EASEMENTS.

CITY OF SEQUIM
2013 DEVELOPER STANDARDS
FIGURE V--S4A
SANITARY SEWER MANHOLE SECTION
Gray & Osborne, Inc.

F/P4 SANITARY SEWER MANHOLE
Scale: NTS

MINIMUM BEARING AREA TABLE

FITTING	TEE	90°	45°	22 1/2°	11 1/4°
6"	4 SQ.FT.	6 SQ.FT.	3 SQ.FT.	2 SQ.FT.	2 SQ.FT.
8"	7 SQ.FT.	10 SQ.FT.	6 SQ.FT.	3 SQ.FT.	2 SQ.FT.
10"	10 SQ.FT.	15 SQ.FT.	9 SQ.FT.	5 SQ.FT.	3 SQ.FT.
12"	14 SQ.FT.	22 SQ.FT.	13 SQ.FT.	6 SQ.FT.	4 SQ.FT.
16"	25 SQ.FT.	38 SQ.FT.	21 SQ.FT.	11 SQ.FT.	7 SQ.FT.
18"	32 SQ.FT.	48 SQ.FT.	27 SQ.FT.	14 SQ.FT.	8 SQ.FT.

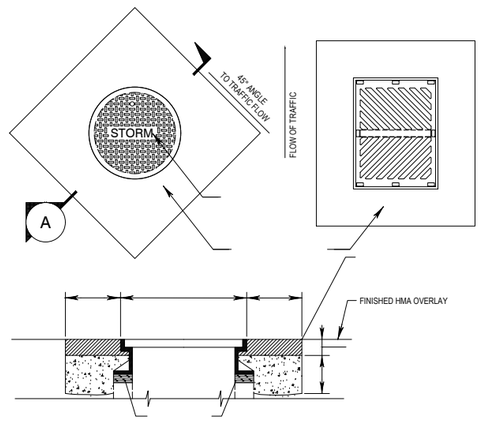


NOTES:

1. BEARING AREA TABLE BASED ON 250 PSI PRESSURE AND 2000 PSF SOIL BEARING. IF PRESSURE IS GREATER OR SOIL BEARING IS LESS, THE THRUST BLOCK SIZE SHALL BE INCREASED.
2. THIS TABLE REPRESENTS THE "MINIMUM" CONSTRUCTION STANDARDS. THE DEVELOPER'S ENGINEER SHALL BE RESPONSIBLE FOR DETERMINING THE APPROPRIATE SIZE OF ALL THRUST BLOCKS BASED ON EXISTING AND LOCAL CONDITIONS.

CITY OF SEQUIM
2013 DEVELOPER STANDARDS
FIGURE V--G2
THRUST BLOCKS
Gray & Osborne, Inc.

G/P4 THRUST BLOCK REQUIREMENTS
Scale: NTS



NOTES:

CITY OF SEQUIM
2013 DEVELOPER STANDARDS
FIGURE V--S4B
MANHOLE PAVING DETAIL
Gray & Osborne, Inc.

H/P4 MANHOLE PAVING DETAIL
Scale: NTS

ZENOVIC & ASSOCIATES
INCORPORATED
301 E. 6TH STREET, SUITE 1
PORT ANGELES, WA 98362
PHONE: (360) 417-0501
FAX: (360) 417-0514
EMAIL: ZENOVIC@ZENOVIC.NET

REVISIONS:

DATE	MARK	NOTE

TITLE: SITE DEVELOPMENT ON MALIANDRA DR. FOR MULTI-FAMILY RESIDENTIAL SUBDIVISION

PRELIMINARY UTILITY DETAILS

CLIENT:
BRODY BROKER
244 W. WASHINGTON STREET
SEQUIM, WASHINGTON 98382

SCALE: NTS

FILE: 20013 - E5

JOB NO: 20013

DATE: December 5, 2023

SET: PRE-PLAT

TRACY D. CUDDY — STATE OF WASHINGTON — 32777 — REGISTERED PROFESSIONAL ENGINEER

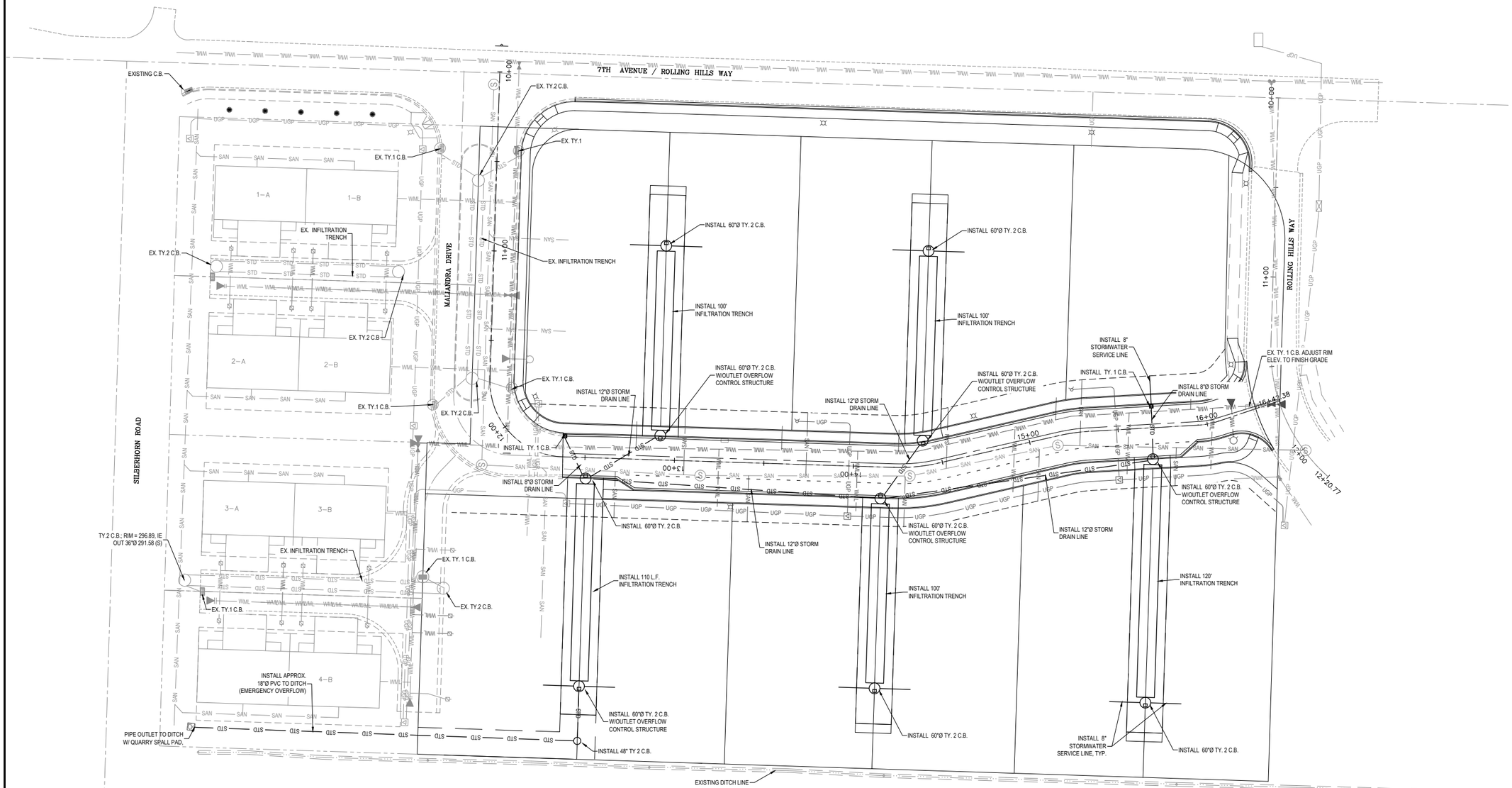
SHEET
P4

STORMWATER NARRATIVE:

RUNOFF FROM THE RIGHTS OF WAY AND THE LOTS WILL BE ROUTED TO THE PROPOSED INFILTRATION SYSTEMS LOCATED IN THE DRIVEWAYS AS SHOWN FOR INFILTRATION INTO THE GROUND.

AS THE EXACT SIZE AND LAYOUT OF THE FUTURE BUILDINGS ARE UNKNOWN AT THIS TIME, 6,000 SQUARE FEET OF ADDITIONAL IMPERVIOUS SURFACE (ROOF AREA, DRIVEWAY, WALKWAYS, ETC.) WERE INCLUDED IN THE STORMWATER CALCULATIONS FOR EACH LOT. NOTE THAT THIS IS ADDITION TO THE DRIVEWAY AREAS INCLUDED IN THE PROPOSED LAYOUT.

DUE TO FLUCTUATIONS IN THE GROUNDWATER TABLE IN THIS AREA, AN EMERGENCY OVERFLOW OUTFALL WILL BE PROVIDED TO THE EXISTING DITCHLINE ALONG SILBERHORN ROAD. EACH INFILTRATION SYSTEM WILL BE PROVIDED WITH AN OVERFLOW STRUCTURE AND PIPING TO ALLOW THE SYSTEMS TO SEQUENTIALLY OVERFLOW TO THE NEXT SYSTEM IN LINE UNTIL ULTIMATELY DISCHARGING TO THE DITCHLINE SHOULD ALL SYSTEMS REACH CAPACITY.



SITE PLAN

Scale: 1" = 30'

0 30' 60' 90'

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REVISIONS:

DATE	MARK	NOTE

TITLE: SITE DEVELOPMENT ON MALANDRA DR. FOR MULTI-FAMILY RESIDENTIAL SUBDIVISION

PRELIMINARY STORMWATER SITE PLAN

CLIENT: BRODY BROKER
244 W. WASHINGTON STREET
SEQUIM, WASHINGTON 98382

SCALE: 1" = 30'

FILE: *20013 - E5*

JOB NO: 20013

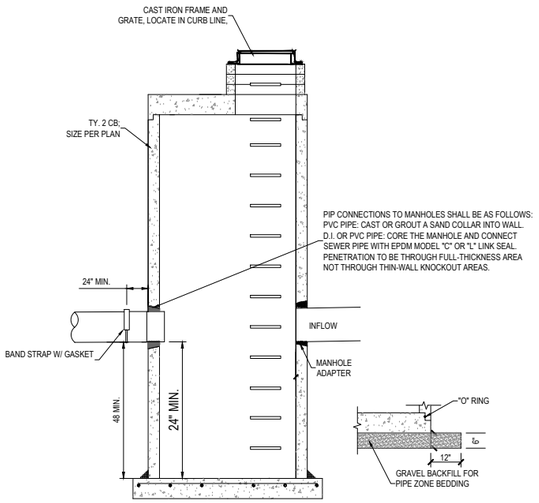
DATE: *December 5, 2023*

SET: PRE-PLAT

TRACY D. GIDDENS — STATE OF WASHINGTON — 22777 — REGISTERED PROFESSIONAL ENGINEER

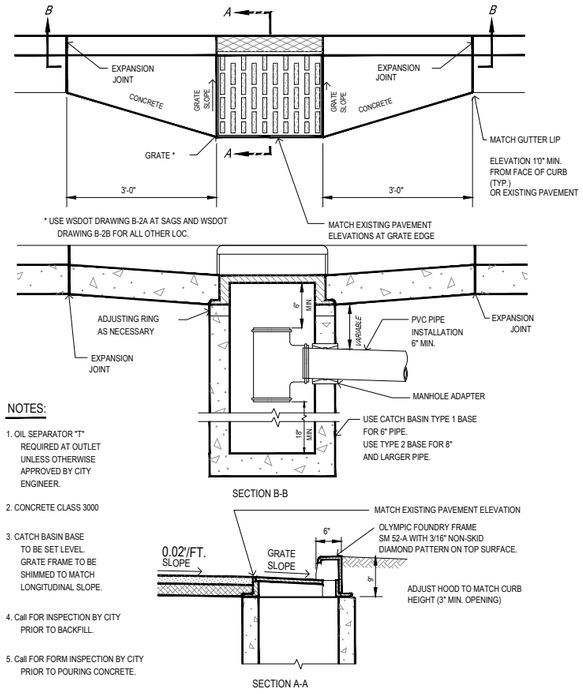
SHEET

P5

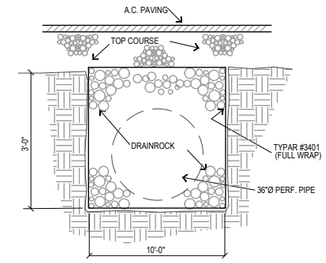


CATCH BASIN DIMENSIONS (IN.)				
C.B. Ø	WALL THICKNESS	BASE THICKNESS	MAX. KNOCKOUT SIZE	MIN. DIST. BETWEEN KNOCKOUTS
48	4	6	36	8
54	4.5	8	42	8
60	5	8	48	8

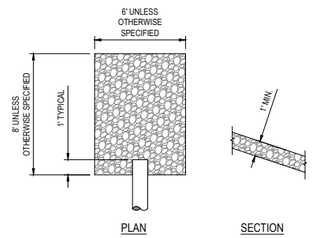
A P6 TYPE 2 CATCH BASIN
Scale: N.T.S.



B P6 TYPE 1 CATCH BASIN
SCALE: NTS



C P6 INFILTRATION TRENCH
Scale: NTS



D P6 OUTLET PROTECTION
Scale: NTS

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REVISIONS:

DATE	MARK	NOTE

TITLE: SITE DEVELOPMENT ON WAUANDA DR. FOR MULTI-FAMILY RESIDENTIAL SUBDIVISION

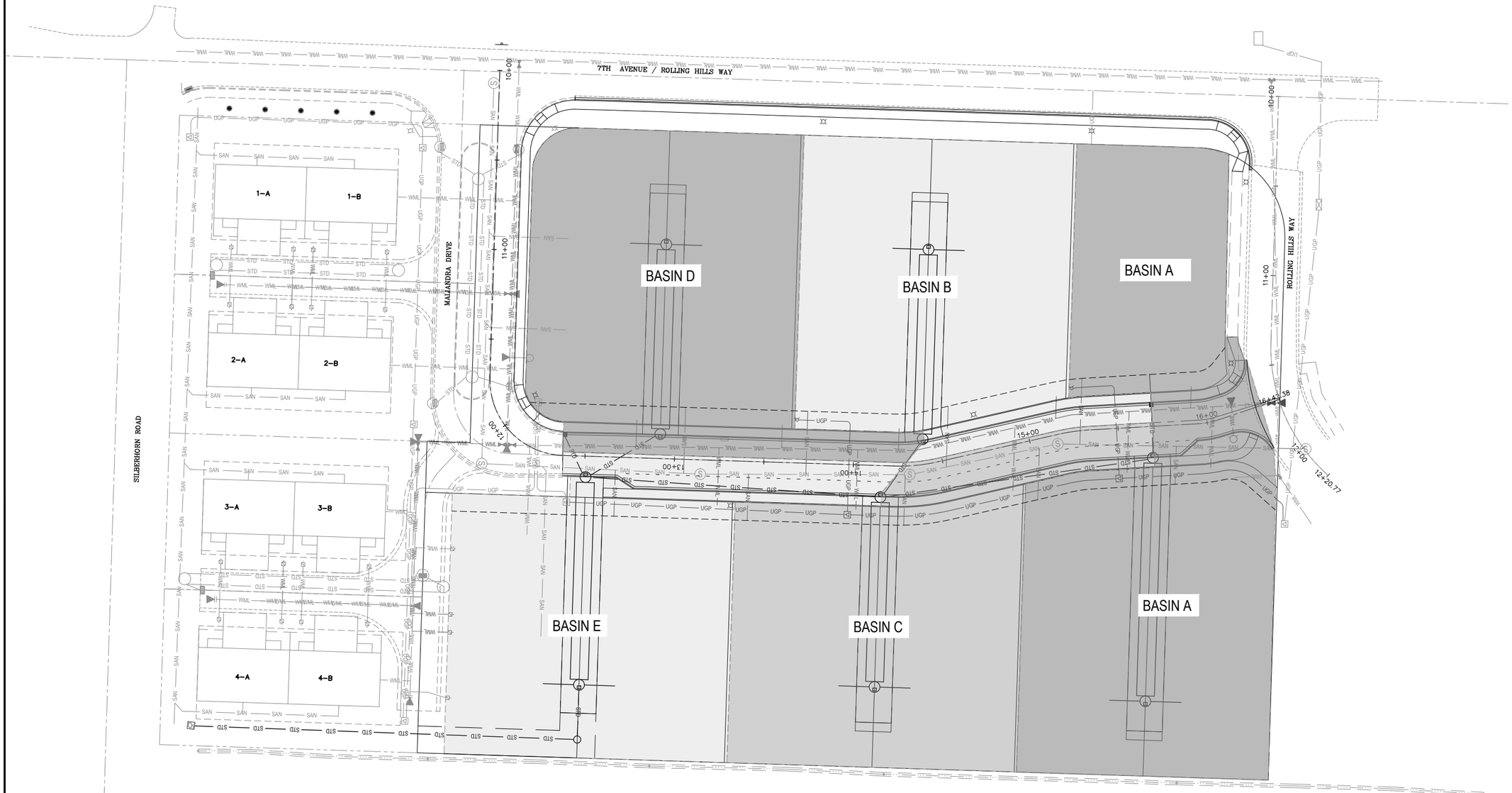
PRELIMINARY STORM DETAILS

CLIENT:
BRODY BROKER
244 W. WASHINGTON STREET
SEQUIM, WASHINGTON 98382

SCALE: NTS
FILE: 20013 - E5
JOB NO: 20013
DATE: December 5, 2023
SET: PRE-PLAT

TRACY D. GUDDELL
STATE OF WASHINGTON
52777
REGISTERED PROFESSIONAL ENGINEER
PRELIMINARY

SHEET
P6



SITE PLAN

Scale: 1" = 30'

0 30' 60' 90'

ZENOVIC & ASSOCIATES
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PORT ANGELES, WA 98362
PHONE: (360) 417-0501
FAX: (360) 417-0514
EMAIL: ZENOVIC@ZENOVIC.NET

REVISIONS:

DATE	MARK	NOTE

TITLE: *SITE DEVELOPMENT ON MAJANDRA DR. FOR MULTI-FAMILY RESIDENTIAL SUBDIVISION*

STORMWATER BASIN MAP

CLIENT:
BRODY BROKER
244 W. WASHINGTON STREET
SEQUIM, WASHINGTON 98382

SCALE: 1" = 30'

FILE: *20013 - E5*

JOB NO: 20013

DATE: *December 5, 2023*

SET: PRE-PLAT

TRACY D. GUDDE
STATE OF WASHINGTON
52777
REGISTERED
PROFESSIONAL ENGINEER
PRELIMINARY

SHEET

P7

APPENDIX B

BASIN/LAND USE SUMMARY

BASIN A - (Lots 9-11 and ROW)

Basin Areas		
	s.f.	ac
Total Area	38830	0.8914
Roadway	1688	0.0388
Driveway	2950	0.0677
Residence + walks	18000	0.4132
Sidewalks	750	0.0172
Landscaping	15442	0.3545

BASIN B - (Lots 12 & 13 and ROW)

Basin Areas		
	s.f.	ac
Total Area	26275	0.6032
Roadway	1476	0.0339
Driveway	2544	0.0584
Residence + walks	12000	0.2755
Sidewalks	710	0.0163
Landscaping	9545	0.2191

BASIN C - (Lots 7 & 8 and ROW)

Basin Areas		
	s.f.	ac
Total Area	27761	0.6373
Roadway	2806	0.0644
Driveway	2420	0.0556
Residence + walks	12000	0.2755
Sidewalks	852	0.0196
Landscaping	9683	0.2223

BASIN D - (Lots 14 & 15 and ROW)

Basin Areas		
	s.f.	ac
Total Area	27911	0.6407
Roadway	2159	0.0496
Driveway	2590	0.0595
Residence + walks	12000	0.2755
Sidewalks	1113	0.0256
Landscaping	10049	0.2307

BASIN E - (Lots 5 & 6 and ROW)

Basin Areas		
	s.f.	ac
Total Area	27509	0.6315
Roadway	3296	0.0757
Driveway	2648	0.0608
Residence + walks	12000	0.2755
Sidewalks	1113	0.0256
Landscaping	8452	0.1940

APPENDIX C

SOURCE CONTROL BMPs

S411 BMPs for Landscaping and Lawn / Vegetation Management

Description of Pollutant Sources: Landscaping can include grading, soil transfer, vegetation planting, and vegetation removal. Examples include weed control on golf course lawns, access roads, and utility corridors and during landscaping; and residential lawn/plant care. Proper management of vegetation can minimize excess nutrients and pesticides.

Pollutant Control Approach: Maintain appropriate vegetation to control erosion and the discharge of stormwater pollutants. Prevent debris contamination of stormwater. Where practicable, grow plant species appropriate for the site, or adjust the soil properties of the site to grow desired plant species.

Applicable BMPs:

- Install engineered soil/landscape systems to improve the infiltration and regulation of stormwater in landscaped areas.
- Select the right plants for the planting location based on proposed use, available maintenance,soil conditions, sun exposure, water availability, height, sight factors, and space available.
- Ensure that plants selected for planting are not on the noxious weed list. For example, butterfly bush often gets planted as an ornamental but is actually on the noxious weed list.

  The Washington State Noxious Weed List can be found at the following webpage:

  https://www.nwcb.wa.gov/printable-noxious-weed-list
- Do not dispose of collected vegetation into waterways or storm sewer systems.
- Do not blow vegetation or other debris into the drainage system.
- Dispose of collected vegetation such as grass clippings, leaves, sticks by composting or recycling.
- Remove, bag, and dispose of class A & B noxious weeds in the garbage immediately.
- Do not compost noxious weeds as it may lead to spreading through seed or fragment if the composting process is not hot enough.
- Use manual and/or mechanical methods of vegetation removal (pincer-type weeding tools, flame weeders, or hot water weeders as appropriate) rather than applying herbicides, where practical.
- Use at least an eight-inch "topsoil" layer with at least 8 percent organic matter to provide a sufficient vegetation-growing medium.
    - Organic matter is the least water-soluble form of nutrients that can be added to the soil. Composted organic matter generally releases only between 2 and 10 percent of its total nitrogen annually, and this release corresponds closely to the plant growth cycle. Return natural plant debris and mulch to the soil, to continue recycling nutrients indefinitely.
- Select the appropriate turfgrass mixture for the climate and soil type.
    - Certain tall fescues and rye grasses resist insect attack because the symbiotic endophytic fungi found naturally in their tissues repel or kill common leaf and stem-eating lawn insects.

        - The fungus causes no known adverse effects to the host plant or to humans.
        - Tall fescues and rye grasses do not repel root-feeding lawn pests such as Crane Fly larvae.
        - Tall fescues and rye grasses are toxic to ruminants such as cattle and sheep
    - Endophytic grasses are commercially available; use them in areas such as parks or golf courses where grazing does not occur.
    - Local agricultural or gardening resources such as Washington State University Extension office can offer advice on which types of grass are best suited to the area and soil type.
- Use the following seeding and planting BMPs, or equivalent BMPs, to obtain information on grass mixtures, temporary and permanent seeding procedures, maintenance of a recently planted area, and fertilizer application rates: BMP C120: Temporary and Permanent Seeding, BMP C121: Mulching, BMP C123: Plastic Covering, and BMP C124: Sodding.
- Adjusting the soil properties of the subject site can assist in selection of desired plant species. Consult a soil restoration specialist for site-specific conditions.

Recommended Additional BMPs:

- Conduct mulch-mowing whenever practicable.
- Use native plants in landscaping. Native plants do not require extensive fertilizer or pesticide applications. Native plants may also require less watering.
- Use mulch or other erosion control measures on soils exposed for more than one week during the dry season (May 1 to September 30) or two days during the rainy season (October 1 to April 30).
- Till a topsoil mix or composted organic material into the soil to create a well-mixed transition layer that encourages deeper root systems and drought-resistant plants.
- Apply an annual topdressing application of 3/8” compost. Amending existing landscapes and turf systems by increasing the percent organic matter and depth of topsoil can:
    - Substantially improve the permeability of the soil.
    - Increase the disease and drought resistance of the vegetation.
    - Reduces the demand for fertilizers and pesticides.
- Disinfect gardening tools after pruning diseased plants to prevent the spread of disease.
- Prune trees and shrubs in a manner appropriate for each species.
- If specific plants have a high mortality rate, assess the cause and replace with another more appropriate species.
- When working around and below mature trees, follow the most current American National Standards Institute (ANSI) ANSI A300 standards (see http://www.tcia.org/TCIA/BUSINESS/ANSI_A300_Standards_/TCIA/BUSINESS/A300_Standards/A300_Standards.aspx?hkey=202ff566-4364-4686-b7c1-2a365af59669) and International Society of Arboriculture BMPs to the extent practicable (e.g., take care to minimize any damage to tree roots and avoid compaction of soil).
- Monitor tree support systems (stakes, guys, etc.).
    - Repair and adjust as needed to provide support and prevent tree damage.

    - Remove tree supports after one growing season or maximum of 1 year.
    - Backfill stake holes after removal.
- When continued, regular pruning (more than one time during the growing season) is required to maintain visual sight lines for safety or clearance along a walk or drive, consider relocating the plant to a more appropriate location.
- Make reasonable attempts to remove and dispose of class C noxious weeds.
- Re-seed bare turf areas until the vegetation fully covers the ground surface.
- Watch for and respond to new occurrences of especially aggressive weeds such as Himalayan blackberry, Japanese knotweed, morning glory, English ivy, and reed canary grass to avoid invasions.
- Plant and protect trees per BMP T5.16: Tree Retention and Tree Planting.
- Aerate lawns regularly in areas of heavy use where the soil tends to become compacted. Conduct aeration while the grasses in the lawn are growing most vigorously. Remove layers of thatch greater than ¾-inch deep.
- Set the mowing height at the highest acceptable level and mow at times and intervals designed to minimize stress on the turf. Generally mowing only 1/3 of the grass blade height will prevent stressing the turf.
    - Mowing is a stress-creating activity for turfgrass.
    - Grass decreases its productivity when mowed too short and there is less growth of roots and rhizomes. The turf becomes less tolerant of environmental stresses, more disease prone and more reliant on outside means such as pesticides, fertilizers, and irrigation to remain healthy.

Additional BMP Information:

- King County's *Best Management Practices for Golf Course Development and Operation* (King County, 1993) has additional BMPs for Turfgrass Maintenance and Operation.
- King County, Seattle Public Utilities, and the Saving Water Partnership have created the following natural lawn and garden care resources that include guidance on building healthy soil with compost and mulch, selecting appropriate plants, watering, using alternatives to pesticides, and implementing natural lawn care techniques.
    - *Natural Yard Care - Five steps to make your piece of the planet a healthier place to live* (King County and SPU, 2008)
    - *The Natural Lawn & Garden Series: Smart Watering* (Saving Water Partnership, 2006)
    - *Natural Lawn Care for Western Washington* (Saving Water Partnership, 2007)
    - *The Natural Lawn & Garden Series: Growing Healthy Soil; Choosing the Right Plants; and Natural Pest, Weed and Disease Control* (Saving Water Partnership, 2012)
- The International Society of Arboriculture (ISA) is a group that promotes the professional practice of arboriculture and fosters a greater worldwide awareness of the benefits of trees through research, technology, and education. ISA standards used for managing trees, shrubs, and other woody plants are the American National Standards Institute (ANSI) A300 standards. The ANSI A300 standards are voluntary industry consensus standards developed by the Tree Care Industry Association (TCIA) and written by the Accredited Standards Committee (ASC). The ANSI standards can be found on the ISA website: www.isa-arbor.com/education/publications/index.aspx

- Washington State University's *Gardening in Washington State* website at http://gardening.wsu.edu contains Washington State specific information about vegetation management based on the type of landscape.
- See the *Pacific Northwest Plant Disease Management Handbook* (Pscheidt and Ocamb, 2016) for information on disease recognition and for additional resources.

S417 BMPs for Maintenance of Stormwater Drainage and Treatment Systems

Description of Pollutant Sources: Facilities include roadside catch basins on arterials and within residential areas, conveyance systems, detention facilities such as ponds and vaults, oil/water separators, biofilters, settling basins, infiltration systems, and all other types of stormwater treatment systems presented in Volume V. Oil and grease, hydrocarbons, debris, heavy metals, sediments and contaminated water are found in catch basins, oil and water separators, settling basins, etc.

Pollutant Control Approach: Provide maintenance and cleaning of debris, sediments, and other pollutants from stormwater collection, conveyance, and treatment systems to maintain proper operation.

Applicable Operational BMPs:

Maintain stormwater treatment facilities per the operations and maintenance (O&M) procedures presented in Appendix V-A: BMP Maintenance Tables in addition to the following BMPs:

- Inspect and clean treatment BMPs, conveyance systems, and catch basins as needed, and determine necessary O&M improvements.
- Promptly repair any deterioration threatening the structural integrity of stormwater facilities. These include replacement of clean-out gates, catch basin lids, and rock in emergency spillways.
- Ensure adequacy of storm sewer capacities and prevent heavy sediment discharges to the sewer system.
- Regularly remove debris and sludge from BMPs used for peak-rate control, treatment, etc. and discharge to a sanitary sewer if approved by the sewer authority, or truck to an appropriate local or state government approved disposal site.
- Clean catch basins when the depth of deposits reaches 60 percent of the sump depth as measured from the bottom of basin to the invert of the lowest pipe into or out of the basin. However, in no case should there be less than six inches clearance from the debris surface to the invert of the lowest pipe. Some catch basins (for example, WSDOT's *Catch Basin Type 1L* (WSDOT, 2011)) may have as little as 12 inches sediment storage below the invert. These catch basins need frequent inspection and cleaning to prevent scouring. Where these catch basins are part of a stormwater collection and treatment system, the system owner/operator may choose to concentrate maintenance efforts on downstream control devices as part of a systems approach.
- Properly dispose of all solids, polluted material, and stagnant water collected through system cleaning. Do not decant water back into the drainage system from eductor trucks or vacuum equipment since there may be residual contaminants in the cleaning equipment. Do not jet material downstream into the public drainage system.
- Clean woody debris in a catch basin as frequently as needed to ensure proper operation of the catch basin.
- Post warning signs; “Dump No Waste - Drains to Ground Water,” “Streams,” “Lakes,” or emboss on or adjacent to all storm drain inlets where possible.
- Disposal of sediments and liquids from the catch basins must comply with Appendix IV-B: Management of Street Waste Solids and Liquids.

S421 BMPs for Parking and Storage of Vehicles and Equipment

Description of Pollutant Sources: Public and commercial parking lots such as retail store, fleet vehicle (including rent-a-car lots and car dealerships), equipment sale and rental parking lots, and parking lot driveways, can be sources of toxic hydrocarbons and other organic compounds, including oils and greases, metals, and suspended solids.

Pollutant Control Approach: If the parking lot meets the site use thresholds to determine if the site is expected to generate high concentrations of oil, as defined in Step 2: Determine if an Oil Control BMP is Required in III-1.2 Choosing Your Runoff Treatment BMPs, provide oil removal equipment for the contaminated stormwater runoff.

Applicable Operational BMPs:

- If a parking lot must be washed, discharge the washwater to a sanitary sewer, if allowed by the local sewer authority, or other approved wastewater treatment system, or collect washwater for off-site disposal.
- Do not hose down the area to a storm sewer or receiving water. Vacuum sweep parking lots, storage areas, and driveways regularly to collect dirt, waste, and debris. Mechanical or hand sweeping may be necessary for areas where a vacuum sweeper cannot reach.
- Clean up vehicle and equipment fluid drips and spills immediately.
- Place drip pans below leaking vehicles (including inoperative vehicles and equipment) in a manner that catches leaks or spills, including employee vehicles. Drip pans must be managed to prevent overfilling and the contents disposed of properly.

Recommended Operational BMPs:

- Encourage employees to repair leaking personal vehicles.
- Encourage employees to carpool or use public transit through incentives.
- Encourage customers to use public transit by rewarding valid transit pass holders with discounts.
- Install catch basin inserts to collect excess sediment and oil if necessary. Inspect and maintain catch basin inserts to ensure they are working correctly.

Applicable Treatment BMPs:

Establishments subject to high-use intensity are significant sources of oil contamination of stormwater. Examples of potential high use areas include customer parking lots at fast food stores, grocery stores, taverns, restaurants, large shopping malls, discount warehouse stores, quick-lube shops, and banks.

Refer to Step 2: Determine if an Oil Control BMP is Required in III-1.2 Choosing Your Runoff Treatment BMPs for the site use thresholds that determine if an oil control BMP is required, and for a list of oil control BMPs.

S430 BMPs for Urban Streets

Description of Pollutant Sources: Urban streets can be the source of vegetative debris, paper, fine dust, vehicle liquids, tire and brake wear residues, heavy metals (lead and zinc), soil particles, ice control salts, domestic wastes, lawn chemicals, and vehicle combustion products. Street surface contaminants contain significant concentrations of particle sizes less than 250 microns (Sartor and Boyd, 1972).

Pollutant Control Approach: Conduct efficient street sweeping where and when appropriate to minimize the contamination of stormwater. Do not wash street debris into storm drains.

Facilities not covered under the Industrial Stormwater General Permit may consider a minimum amount of water washing of streets. All facilities must comply with their local stormwater requirements for discharging to storm sewers. Municipal NPDES permittees are required to limit street wash water discharges and may have special conditions or treatment requirements.

Recommended BMPs:

- For maximum stormwater pollutant reductions on curbed streets and high volume parking lots, use efficient vacuum sweepers.

  Note: High-efficiency street sweepers utilize strong vacuums and the mechanical action of main and gutter brooms combined with an air filtration system that only returns clean air to the atmosphere (i.e., filters very fine particulates). They sweep dry and use no water since they do not emit any dust.

  High-efficiency vacuum sweepers have the capability of removing, 80 percent or more of the accumulated street dirt particles whose diameters are less than 250 microns (Sutherland, 1998). This assumes pavements under good condition and reasonably expected accumulation conditions.

- For moderate stormwater pollutant reductions on curbed streets use regenerative air sweepers or tandem sweeping operations.

  Note: *A tandem sweeping operation involves a single pass of a mechanical sweeper followed immediately by a single pass of a vacuum sweeper or regenerative air sweeper.*

  - *A regenerative air sweeper blows air down on the pavement to entrain particles and uses a return vacuum to transport the material to the hopper.*

  - *These operations usually use water to control dust. This reduces their ability to pick up fine particulates.*

These types of sweepers have the capability of removing approximately 25 to 50 percent of the accumulated street dirt particles whose diameters are less than 250 microns. (Sutherland, 1998). This assumes pavements under good conditions and typical accumulation conditions.

- For minimal stormwater pollutant reductions on curbed streets use mechanical sweepers.
    - Note: The industry refers to *mechanical sweepers as broom sweepers and uses the mechanical action of main and gutter brooms to throw material on a conveyor belt that transports it to the hopper.*
    - *These sweepers usually use water to control dust. This reduces their ability to pick up fine particulates.*

  Mechanical sweepers have the capability of removing only 10 to 20 percent of the accumulated street dirt particles whose diameters are less than 250 microns (Sutherland, 1998). This assumes pavements under good condition and the most favorable accumulation conditions.

- Conduct vacuum sweeping at optimal frequencies. Optimal frequencies are those scheduled sweeping intervals that produce the most cost-effective annual reduction of pollutants normally found in stormwater and can vary depending on land use, traffic volume and rainfall patterns.
- Train operators in those factors that result in optimal pollutant removal. These factors include sweeper speed, brush adjustment and rotation rate, sweeping pattern, maneuvering around parked vehicles, and interim storage and disposal methods.
- Consider the use of periodic parking restrictions in low to medium density single-family residential areas to ensure the sweeper's ability to sweep along the curb.
- Establish programs for prompt vacuum sweeping, removal, and disposal of debris from special events that will generate higher than normal loadings.
- Disposal of street sweeping solids must comply with Appendix IV-G: Recommendations for Management of Street Wastes.
- Inform citizens about eliminating yard debris, oil and other wastes in street gutters to reduce street pollutant sources.

APPENDIX D

WWHM2012
FLOW CONTROL CALCULATIONS

WWHM2012

PROJECT REPORT

General Model Information

Project Name:	Infiltration Trenches
Site Name:	
Site Address:	
City:	
Report Date:	9/13/2023
Gage:	Port Angelis
Data Start:	1948/10/01
Data End:	2009/09/30
Timestep:	15 Minute
Precip Scale:	0.800
Version Date:	2021/08/18
Version:	4.2.18

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

Basin 1

Bypass:	No
GroundWater:	No
Pervious Land Use	acre
A B, Pasture, Flat	3.4
Pervious Total	3.4
Impervious Land Use	acre
Impervious Total	0
Basin Total	3.4

Element Flows To:

Surface	Interflow	Groundwater

Mitigated Land Use

Basin A

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
A B, Pasture, Flat	0.3545
Pervious Total	0.3545

Impervious Land Use	acre
ROADS FLAT	0.0388
ROOF TOPS FLAT	0.4132
DRIVEWAYS FLAT	0.0677
SIDEWALKS FLAT	0.0172
Impervious Total	0.5369
Basin Total	0.8914

Element Flows To:

Surface	Interflow	Groundwater
Gravel Trench Bed 1	Gravel Trench Bed 1	

Basin B

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
A B, Pasture, Flat	0.2191
Pervious Total	0.2191

Impervious Land Use	acre
ROADS FLAT	0.0339
ROOF TOPS FLAT	0.2755
DRIVEWAYS FLAT	0.0584
SIDEWALKS FLAT	0.0163
Impervious Total	0.3841
Basin Total	0.6032

Element Flows To:

Surface	Interflow	Groundwater
Gravel Trench Bed 2	Gravel Trench Bed 2	

Basin C

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
A B, Pasture, Flat	0.2223
Pervious Total	0.2223

Impervious Land Use	acre
ROADS FLAT	0.0644
ROOF TOPS FLAT	0.2755
DRIVEWAYS FLAT	0.0556
SIDEWALKS FLAT	0.0196
Impervious Total	0.4151
Basin Total	0.6374

Element Flows To:

Surface	Interflow	Groundwater
Gravel Trench Bed 3	Gravel Trench Bed 3	

Basin D

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
A B, Pasture, Flat	0.2305
Pervious Total	0.2305

Impervious Land Use	acre
ROADS FLAT	0.0496
ROOF TOPS FLAT	0.2755
DRIVEWAYS FLAT	0.0595
SIDEWALKS FLAT	0.0256
Impervious Total	0.4102
Basin Total	0.6407

Element Flows To:

Surface	Interflow	Groundwater
Gravel Trench Bed 4	Gravel Trench Bed 4	

Basin E

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
A B, Pasture, Flat	0.1939
Pervious Total	0.1939

Impervious Land Use	acre
ROADS FLAT	0.0757
ROOF TOPS FLAT	0.2755
DRIVEWAYS FLAT	0.0608
SIDEWALKS FLAT	0.0256
Impervious Total	0.4376
Basin Total	0.6315

Element Flows To:

Surface	Interflow	Groundwater
Gravel Trench Bed 4	Gravel Trench Bed 4	

Routing Elements
Predeveloped Routing

Mitigated Routing

Gravel Trench Bed 1

Bottom Length:	130.00 ft.
Bottom Width:	10.00 ft.
Trench bottom slope 1:	0 To 1
Trench Left side slope 0:	0 To 1
Trench right side slope 2:	0 To 1
Material thickness of first layer:	3
Pour Space of material for first layer:	0.48
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:	3
Infiltration safety factor:	0.66
Wetted surface area On	
Total Volume Infiltrated (ac-ft.):	38.379
Total Volume Through Riser (ac-ft.):	0
Total Volume Through Facility (ac-ft.):	38.379
Percent Infiltrated:	100
Total Precip Applied to Facility:	0
Total Evap From Facility:	0
Discharge Structure	
Riser Height:	3 ft.
Riser Diameter:	18 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	0.029	0.000	0.000	0.000
0.0333	0.029	0.000	0.000	0.059
0.0667	0.029	0.001	0.000	0.059
0.1000	0.029	0.001	0.000	0.059
0.1333	0.029	0.001	0.000	0.059
0.1667	0.029	0.002	0.000	0.059
0.2000	0.029	0.002	0.000	0.059
0.2333	0.029	0.003	0.000	0.059
0.2667	0.029	0.003	0.000	0.059
0.3000	0.029	0.004	0.000	0.059
0.3333	0.029	0.004	0.000	0.059
0.3667	0.029	0.005	0.000	0.059
0.4000	0.029	0.005	0.000	0.059
0.4333	0.029	0.006	0.000	0.059
0.4667	0.029	0.006	0.000	0.059
0.5000	0.029	0.007	0.000	0.059
0.5333	0.029	0.007	0.000	0.059
0.5667	0.029	0.008	0.000	0.059
0.6000	0.029	0.008	0.000	0.059
0.6333	0.029	0.009	0.000	0.059
0.6667	0.029	0.009	0.000	0.059
0.7000	0.029	0.010	0.000	0.059
0.7333	0.029	0.010	0.000	0.059

0.7667	0.029	0.011	0.000	0.059
0.8000	0.029	0.011	0.000	0.059
0.8333	0.029	0.011	0.000	0.059
0.8667	0.029	0.012	0.000	0.059
0.9000	0.029	0.012	0.000	0.059
0.9333	0.029	0.013	0.000	0.059
0.9667	0.029	0.013	0.000	0.059
1.0000	0.029	0.014	0.000	0.059
1.0333	0.029	0.014	0.000	0.059
1.0667	0.029	0.015	0.000	0.059
1.1000	0.029	0.015	0.000	0.059
1.1333	0.029	0.016	0.000	0.059
1.1667	0.029	0.016	0.000	0.059
1.2000	0.029	0.017	0.000	0.059
1.2333	0.029	0.017	0.000	0.059
1.2667	0.029	0.018	0.000	0.059
1.3000	0.029	0.018	0.000	0.059
1.3333	0.029	0.019	0.000	0.059
1.3667	0.029	0.019	0.000	0.059
1.4000	0.029	0.020	0.000	0.059
1.4333	0.029	0.020	0.000	0.059
1.4667	0.029	0.021	0.000	0.059
1.5000	0.029	0.021	0.000	0.059
1.5333	0.029	0.022	0.000	0.059
1.5667	0.029	0.022	0.000	0.059
1.6000	0.029	0.022	0.000	0.059
1.6333	0.029	0.023	0.000	0.059
1.6667	0.029	0.023	0.000	0.059
1.7000	0.029	0.024	0.000	0.059
1.7333	0.029	0.024	0.000	0.059
1.7667	0.029	0.025	0.000	0.059
1.8000	0.029	0.025	0.000	0.059
1.8333	0.029	0.026	0.000	0.059
1.8667	0.029	0.026	0.000	0.059
1.9000	0.029	0.027	0.000	0.059
1.9333	0.029	0.027	0.000	0.059
1.9667	0.029	0.028	0.000	0.059
2.0000	0.029	0.028	0.000	0.059
2.0333	0.029	0.029	0.000	0.059
2.0667	0.029	0.029	0.000	0.059
2.1000	0.029	0.030	0.000	0.059
2.1333	0.029	0.030	0.000	0.059
2.1667	0.029	0.031	0.000	0.059
2.2000	0.029	0.031	0.000	0.059
2.2333	0.029	0.032	0.000	0.059
2.2667	0.029	0.032	0.000	0.059
2.3000	0.029	0.032	0.000	0.059
2.3333	0.029	0.033	0.000	0.059
2.3667	0.029	0.033	0.000	0.059
2.4000	0.029	0.034	0.000	0.059
2.4333	0.029	0.034	0.000	0.059
2.4667	0.029	0.035	0.000	0.059
2.5000	0.029	0.035	0.000	0.059
2.5333	0.029	0.036	0.000	0.059
2.5667	0.029	0.036	0.000	0.059
2.6000	0.029	0.037	0.000	0.059
2.6333	0.029	0.037	0.000	0.059
2.6667	0.029	0.038	0.000	0.059

2.7000	0.029	0.038	0.000	0.059
2.7333	0.029	0.039	0.000	0.059
2.7667	0.029	0.039	0.000	0.059
2.8000	0.029	0.040	0.000	0.059
2.8333	0.029	0.040	0.000	0.059
2.8667	0.029	0.041	0.000	0.059
2.9000	0.029	0.041	0.000	0.059
2.9333	0.029	0.042	0.000	0.059
2.9667	0.029	0.042	0.000	0.059
3.0000	0.029	0.043	0.000	0.059

Gravel Trench Bed 2

Bottom Length:	100.00 ft.
Bottom Width:	10.00 ft.
Trench bottom slope 1:	0 To 1
Trench Left side slope 0:	0 To 1
Trench right side slope 2:	0 To 1
Material thickness of first layer:	3
Pour Space of material for first layer:	0.48
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:	3
Infiltration safety factor:	0.66
Wetted surface area On	
Total Volume Infiltrated (ac-ft.):	27.443
Total Volume Through Riser (ac-ft.):	0
Total Volume Through Facility (ac-ft.):	27.443
Percent Infiltrated:	100
Total Precip Applied to Facility:	0
Total Evap From Facility:	0
Discharge Structure	
Riser Height:	3 ft.
Riser Diameter:	18 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	0.023	0.000	0.000	0.000
0.0333	0.023	0.000	0.000	0.045
0.0667	0.023	0.000	0.000	0.045
0.1000	0.023	0.001	0.000	0.045
0.1333	0.023	0.001	0.000	0.045
0.1667	0.023	0.001	0.000	0.045
0.2000	0.023	0.002	0.000	0.045
0.2333	0.023	0.002	0.000	0.045
0.2667	0.023	0.002	0.000	0.045
0.3000	0.023	0.003	0.000	0.045
0.3333	0.023	0.003	0.000	0.045
0.3667	0.023	0.004	0.000	0.045
0.4000	0.023	0.004	0.000	0.045
0.4333	0.023	0.004	0.000	0.045
0.4667	0.023	0.005	0.000	0.045
0.5000	0.023	0.005	0.000	0.045
0.5333	0.023	0.005	0.000	0.045
0.5667	0.023	0.006	0.000	0.045
0.6000	0.023	0.006	0.000	0.045
0.6333	0.023	0.007	0.000	0.045
0.6667	0.023	0.007	0.000	0.045
0.7000	0.023	0.007	0.000	0.045
0.7333	0.023	0.008	0.000	0.045
0.7667	0.023	0.008	0.000	0.045
0.8000	0.023	0.008	0.000	0.045

0.8333	0.023	0.009	0.000	0.045
0.8667	0.023	0.009	0.000	0.045
0.9000	0.023	0.009	0.000	0.045
0.9333	0.023	0.010	0.000	0.045
0.9667	0.023	0.010	0.000	0.045
1.0000	0.023	0.011	0.000	0.045
1.0333	0.023	0.011	0.000	0.045
1.0667	0.023	0.011	0.000	0.045
1.1000	0.023	0.012	0.000	0.045
1.1333	0.023	0.012	0.000	0.045
1.1667	0.023	0.012	0.000	0.045
1.2000	0.023	0.013	0.000	0.045
1.2333	0.023	0.013	0.000	0.045
1.2667	0.023	0.014	0.000	0.045
1.3000	0.023	0.014	0.000	0.045
1.3333	0.023	0.014	0.000	0.045
1.3667	0.023	0.015	0.000	0.045
1.4000	0.023	0.015	0.000	0.045
1.4333	0.023	0.015	0.000	0.045
1.4667	0.023	0.016	0.000	0.045
1.5000	0.023	0.016	0.000	0.045
1.5333	0.023	0.016	0.000	0.045
1.5667	0.023	0.017	0.000	0.045
1.6000	0.023	0.017	0.000	0.045
1.6333	0.023	0.018	0.000	0.045
1.6667	0.023	0.018	0.000	0.045
1.7000	0.023	0.018	0.000	0.045
1.7333	0.023	0.019	0.000	0.045
1.7667	0.023	0.019	0.000	0.045
1.8000	0.023	0.019	0.000	0.045
1.8333	0.023	0.020	0.000	0.045
1.8667	0.023	0.020	0.000	0.045
1.9000	0.023	0.020	0.000	0.045
1.9333	0.023	0.021	0.000	0.045
1.9667	0.023	0.021	0.000	0.045
2.0000	0.023	0.022	0.000	0.045
2.0333	0.023	0.022	0.000	0.045
2.0667	0.023	0.022	0.000	0.045
2.1000	0.023	0.023	0.000	0.045
2.1333	0.023	0.023	0.000	0.045
2.1667	0.023	0.023	0.000	0.045
2.2000	0.023	0.024	0.000	0.045
2.2333	0.023	0.024	0.000	0.045
2.2667	0.023	0.025	0.000	0.045
2.3000	0.023	0.025	0.000	0.045
2.3333	0.023	0.025	0.000	0.045
2.3667	0.023	0.026	0.000	0.045
2.4000	0.023	0.026	0.000	0.045
2.4333	0.023	0.026	0.000	0.045
2.4667	0.023	0.027	0.000	0.045
2.5000	0.023	0.027	0.000	0.045
2.5333	0.023	0.027	0.000	0.045
2.5667	0.023	0.028	0.000	0.045
2.6000	0.023	0.028	0.000	0.045
2.6333	0.023	0.029	0.000	0.045
2.6667	0.023	0.029	0.000	0.045
2.7000	0.023	0.029	0.000	0.045
2.7333	0.023	0.030	0.000	0.045

2.7667	0.023	0.030	0.000	0.045
2.8000	0.023	0.030	0.000	0.045
2.8333	0.023	0.031	0.000	0.045
2.8667	0.023	0.031	0.000	0.045
2.9000	0.023	0.032	0.000	0.045
2.9333	0.023	0.032	0.000	0.045
2.9667	0.023	0.032	0.000	0.045
3.0000	0.023	0.033	0.000	0.045

Gravel Trench Bed 3

Bottom Length:	100.00 ft.
Bottom Width:	10.00 ft.
Trench bottom slope 1:	0 To 1
Trench Left side slope 0:	0 To 1
Trench right side slope 2:	0 To 1
Material thickness of first layer:	3
Pour Space of material for first layer:	0.48
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:	3
Infiltration safety factor:	0.66
Wetted surface area On	
Total Volume Infiltrated (ac-ft.):	29.658
Total Volume Through Riser (ac-ft.):	0
Total Volume Through Facility (ac-ft.):	29.658
Percent Infiltrated:	100
Total Precip Applied to Facility:	0
Total Evap From Facility:	0
Discharge Structure	
Riser Height:	3 ft.
Riser Diameter:	18 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	0.023	0.000	0.000	0.000
0.0333	0.023	0.000	0.000	0.045
0.0667	0.023	0.000	0.000	0.045
0.1000	0.023	0.001	0.000	0.045
0.1333	0.023	0.001	0.000	0.045
0.1667	0.023	0.001	0.000	0.045
0.2000	0.023	0.002	0.000	0.045
0.2333	0.023	0.002	0.000	0.045
0.2667	0.023	0.002	0.000	0.045
0.3000	0.023	0.003	0.000	0.045
0.3333	0.023	0.003	0.000	0.045
0.3667	0.023	0.004	0.000	0.045
0.4000	0.023	0.004	0.000	0.045
0.4333	0.023	0.004	0.000	0.045
0.4667	0.023	0.005	0.000	0.045
0.5000	0.023	0.005	0.000	0.045
0.5333	0.023	0.005	0.000	0.045
0.5667	0.023	0.006	0.000	0.045
0.6000	0.023	0.006	0.000	0.045
0.6333	0.023	0.007	0.000	0.045
0.6667	0.023	0.007	0.000	0.045
0.7000	0.023	0.007	0.000	0.045
0.7333	0.023	0.008	0.000	0.045
0.7667	0.023	0.008	0.000	0.045
0.8000	0.023	0.008	0.000	0.045

0.8333	0.023	0.009	0.000	0.045
0.8667	0.023	0.009	0.000	0.045
0.9000	0.023	0.009	0.000	0.045
0.9333	0.023	0.010	0.000	0.045
0.9667	0.023	0.010	0.000	0.045
1.0000	0.023	0.011	0.000	0.045
1.0333	0.023	0.011	0.000	0.045
1.0667	0.023	0.011	0.000	0.045
1.1000	0.023	0.012	0.000	0.045
1.1333	0.023	0.012	0.000	0.045
1.1667	0.023	0.012	0.000	0.045
1.2000	0.023	0.013	0.000	0.045
1.2333	0.023	0.013	0.000	0.045
1.2667	0.023	0.014	0.000	0.045
1.3000	0.023	0.014	0.000	0.045
1.3333	0.023	0.014	0.000	0.045
1.3667	0.023	0.015	0.000	0.045
1.4000	0.023	0.015	0.000	0.045
1.4333	0.023	0.015	0.000	0.045
1.4667	0.023	0.016	0.000	0.045
1.5000	0.023	0.016	0.000	0.045
1.5333	0.023	0.016	0.000	0.045
1.5667	0.023	0.017	0.000	0.045
1.6000	0.023	0.017	0.000	0.045
1.6333	0.023	0.018	0.000	0.045
1.6667	0.023	0.018	0.000	0.045
1.7000	0.023	0.018	0.000	0.045
1.7333	0.023	0.019	0.000	0.045
1.7667	0.023	0.019	0.000	0.045
1.8000	0.023	0.019	0.000	0.045
1.8333	0.023	0.020	0.000	0.045
1.8667	0.023	0.020	0.000	0.045
1.9000	0.023	0.020	0.000	0.045
1.9333	0.023	0.021	0.000	0.045
1.9667	0.023	0.021	0.000	0.045
2.0000	0.023	0.022	0.000	0.045
2.0333	0.023	0.022	0.000	0.045
2.0667	0.023	0.022	0.000	0.045
2.1000	0.023	0.023	0.000	0.045
2.1333	0.023	0.023	0.000	0.045
2.1667	0.023	0.023	0.000	0.045
2.2000	0.023	0.024	0.000	0.045
2.2333	0.023	0.024	0.000	0.045
2.2667	0.023	0.025	0.000	0.045
2.3000	0.023	0.025	0.000	0.045
2.3333	0.023	0.025	0.000	0.045
2.3667	0.023	0.026	0.000	0.045
2.4000	0.023	0.026	0.000	0.045
2.4333	0.023	0.026	0.000	0.045
2.4667	0.023	0.027	0.000	0.045
2.5000	0.023	0.027	0.000	0.045
2.5333	0.023	0.027	0.000	0.045
2.5667	0.023	0.028	0.000	0.045
2.6000	0.023	0.028	0.000	0.045
2.6333	0.023	0.029	0.000	0.045
2.6667	0.023	0.029	0.000	0.045
2.7000	0.023	0.029	0.000	0.045
2.7333	0.023	0.030	0.000	0.045

2.7667	0.023	0.030	0.000	0.045
2.8000	0.023	0.030	0.000	0.045
2.8333	0.023	0.031	0.000	0.045
2.8667	0.023	0.031	0.000	0.045
2.9000	0.023	0.032	0.000	0.045
2.9333	0.023	0.032	0.000	0.045
2.9667	0.023	0.032	0.000	0.045
3.0000	0.023	0.033	0.000	0.045

Gravel Trench Bed 4

Bottom Length:	100.00 ft.
Bottom Width:	10.00 ft.
Trench bottom slope 1:	0 To 1
Trench Left side slope 0:	0 To 1
Trench right side slope 2:	0 To 1
Material thickness of first layer:	3
Pour Space of material for first layer:	0.48
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:	3
Infiltration safety factor:	0.66
Wetted surface area On	
Total Volume Infiltrated (ac-ft.):	29.311
Total Volume Through Riser (ac-ft.):	0
Total Volume Through Facility (ac-ft.):	29.311
Percent Infiltrated:	100
Total Precip Applied to Facility:	0
Total Evap From Facility:	0
Discharge Structure	
Riser Height:	3 ft.
Riser Diameter:	18 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	0.023	0.000	0.000	0.000
0.0333	0.023	0.000	0.000	0.045
0.0667	0.023	0.000	0.000	0.045
0.1000	0.023	0.001	0.000	0.045
0.1333	0.023	0.001	0.000	0.045
0.1667	0.023	0.001	0.000	0.045
0.2000	0.023	0.002	0.000	0.045
0.2333	0.023	0.002	0.000	0.045
0.2667	0.023	0.002	0.000	0.045
0.3000	0.023	0.003	0.000	0.045
0.3333	0.023	0.003	0.000	0.045
0.3667	0.023	0.004	0.000	0.045
0.4000	0.023	0.004	0.000	0.045
0.4333	0.023	0.004	0.000	0.045
0.4667	0.023	0.005	0.000	0.045
0.5000	0.023	0.005	0.000	0.045
0.5333	0.023	0.005	0.000	0.045
0.5667	0.023	0.006	0.000	0.045
0.6000	0.023	0.006	0.000	0.045
0.6333	0.023	0.007	0.000	0.045
0.6667	0.023	0.007	0.000	0.045
0.7000	0.023	0.007	0.000	0.045
0.7333	0.023	0.008	0.000	0.045
0.7667	0.023	0.008	0.000	0.045
0.8000	0.023	0.008	0.000	0.045

0.8333	0.023	0.009	0.000	0.045
0.8667	0.023	0.009	0.000	0.045
0.9000	0.023	0.009	0.000	0.045
0.9333	0.023	0.010	0.000	0.045
0.9667	0.023	0.010	0.000	0.045
1.0000	0.023	0.011	0.000	0.045
1.0333	0.023	0.011	0.000	0.045
1.0667	0.023	0.011	0.000	0.045
1.1000	0.023	0.012	0.000	0.045
1.1333	0.023	0.012	0.000	0.045
1.1667	0.023	0.012	0.000	0.045
1.2000	0.023	0.013	0.000	0.045
1.2333	0.023	0.013	0.000	0.045
1.2667	0.023	0.014	0.000	0.045
1.3000	0.023	0.014	0.000	0.045
1.3333	0.023	0.014	0.000	0.045
1.3667	0.023	0.015	0.000	0.045
1.4000	0.023	0.015	0.000	0.045
1.4333	0.023	0.015	0.000	0.045
1.4667	0.023	0.016	0.000	0.045
1.5000	0.023	0.016	0.000	0.045
1.5333	0.023	0.016	0.000	0.045
1.5667	0.023	0.017	0.000	0.045
1.6000	0.023	0.017	0.000	0.045
1.6333	0.023	0.018	0.000	0.045
1.6667	0.023	0.018	0.000	0.045
1.7000	0.023	0.018	0.000	0.045
1.7333	0.023	0.019	0.000	0.045
1.7667	0.023	0.019	0.000	0.045
1.8000	0.023	0.019	0.000	0.045
1.8333	0.023	0.020	0.000	0.045
1.8667	0.023	0.020	0.000	0.045
1.9000	0.023	0.020	0.000	0.045
1.9333	0.023	0.021	0.000	0.045
1.9667	0.023	0.021	0.000	0.045
2.0000	0.023	0.022	0.000	0.045
2.0333	0.023	0.022	0.000	0.045
2.0667	0.023	0.022	0.000	0.045
2.1000	0.023	0.023	0.000	0.045
2.1333	0.023	0.023	0.000	0.045
2.1667	0.023	0.023	0.000	0.045
2.2000	0.023	0.024	0.000	0.045
2.2333	0.023	0.024	0.000	0.045
2.2667	0.023	0.025	0.000	0.045
2.3000	0.023	0.025	0.000	0.045
2.3333	0.023	0.025	0.000	0.045
2.3667	0.023	0.026	0.000	0.045
2.4000	0.023	0.026	0.000	0.045
2.4333	0.023	0.026	0.000	0.045
2.4667	0.023	0.027	0.000	0.045
2.5000	0.023	0.027	0.000	0.045
2.5333	0.023	0.027	0.000	0.045
2.5667	0.023	0.028	0.000	0.045
2.6000	0.023	0.028	0.000	0.045
2.6333	0.023	0.029	0.000	0.045
2.6667	0.023	0.029	0.000	0.045
2.7000	0.023	0.029	0.000	0.045
2.7333	0.023	0.030	0.000	0.045

2.7667	0.023	0.030	0.000	0.045
2.8000	0.023	0.030	0.000	0.045
2.8333	0.023	0.031	0.000	0.045
2.8667	0.023	0.031	0.000	0.045
2.9000	0.023	0.032	0.000	0.045
2.9333	0.023	0.032	0.000	0.045
2.9667	0.023	0.032	0.000	0.045
3.0000	0.023	0.033	0.000	0.045

Gravel Trench Bed 4

Bottom Length:	110.00 ft.
Bottom Width:	10.00 ft.
Trench bottom slope 1:	0 To 1
Trench Left side slope 0:	0 To 1
Trench right side slope 2:	0 To 1
Material thickness of first layer:	3
Pour Space of material for first layer:	0.48
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:	3
Infiltration safety factor:	0.66
Wetted surface area On	
Total Volume Infiltrated (ac-ft.):	31.273
Total Volume Through Riser (ac-ft.):	0
Total Volume Through Facility (ac-ft.):	31.273
Percent Infiltrated:	100
Total Precip Applied to Facility:	0
Total Evap From Facility:	0
Discharge Structure	
Riser Height:	3 ft.
Riser Diameter:	18 in.
Element Flows To:	
Outlet 1	Outlet 2

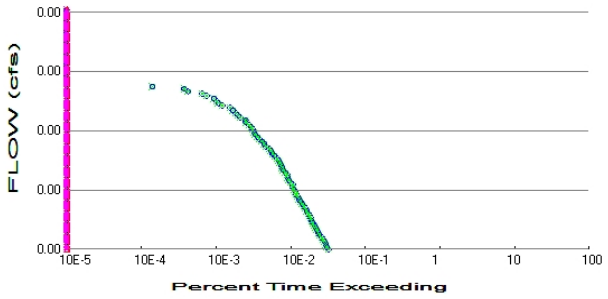
Gravel Trench Bed Hydraulic Table

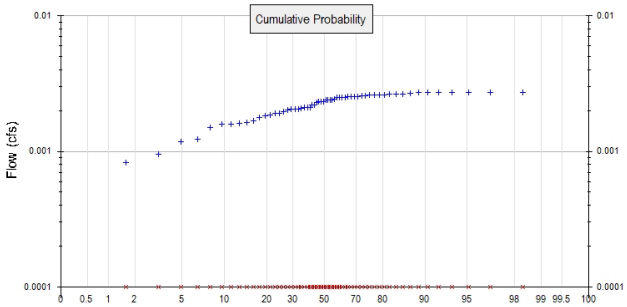
Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.025	0.000	0.000	0.000
0.0333	0.025	0.000	0.000	0.050
0.0667	0.025	0.000	0.000	0.050
0.1000	0.025	0.001	0.000	0.050
0.1333	0.025	0.001	0.000	0.050
0.1667	0.025	0.002	0.000	0.050
0.2000	0.025	0.002	0.000	0.050
0.2333	0.025	0.002	0.000	0.050
0.2667	0.025	0.003	0.000	0.050
0.3000	0.025	0.003	0.000	0.050
0.3333	0.025	0.004	0.000	0.050
0.3667	0.025	0.004	0.000	0.050
0.4000	0.025	0.004	0.000	0.050
0.4333	0.025	0.005	0.000	0.050
0.4667	0.025	0.005	0.000	0.050
0.5000	0.025	0.006	0.000	0.050
0.5333	0.025	0.006	0.000	0.050
0.5667	0.025	0.006	0.000	0.050
0.6000	0.025	0.007	0.000	0.050
0.6333	0.025	0.007	0.000	0.050
0.6667	0.025	0.008	0.000	0.050
0.7000	0.025	0.008	0.000	0.050
0.7333	0.025	0.008	0.000	0.050
0.7667	0.025	0.009	0.000	0.050
0.8000	0.025	0.009	0.000	0.050

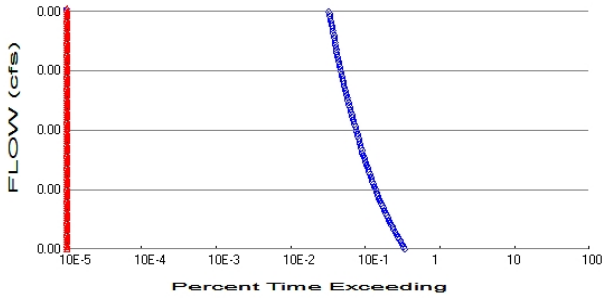
0.8333	0.025	0.010	0.000	0.050
0.8667	0.025	0.010	0.000	0.050
0.9000	0.025	0.010	0.000	0.050
0.9333	0.025	0.011	0.000	0.050
0.9667	0.025	0.011	0.000	0.050
1.0000	0.025	0.012	0.000	0.050
1.0333	0.025	0.012	0.000	0.050
1.0667	0.025	0.012	0.000	0.050
1.1000	0.025	0.013	0.000	0.050
1.1333	0.025	0.013	0.000	0.050
1.1667	0.025	0.014	0.000	0.050
1.2000	0.025	0.014	0.000	0.050
1.2333	0.025	0.014	0.000	0.050
1.2667	0.025	0.015	0.000	0.050
1.3000	0.025	0.015	0.000	0.050
1.3333	0.025	0.016	0.000	0.050
1.3667	0.025	0.016	0.000	0.050
1.4000	0.025	0.017	0.000	0.050
1.4333	0.025	0.017	0.000	0.050
1.4667	0.025	0.017	0.000	0.050
1.5000	0.025	0.018	0.000	0.050
1.5333	0.025	0.018	0.000	0.050
1.5667	0.025	0.019	0.000	0.050
1.6000	0.025	0.019	0.000	0.050
1.6333	0.025	0.019	0.000	0.050
1.6667	0.025	0.020	0.000	0.050
1.7000	0.025	0.020	0.000	0.050
1.7333	0.025	0.021	0.000	0.050
1.7667	0.025	0.021	0.000	0.050
1.8000	0.025	0.021	0.000	0.050
1.8333	0.025	0.022	0.000	0.050
1.8667	0.025	0.022	0.000	0.050
1.9000	0.025	0.023	0.000	0.050
1.9333	0.025	0.023	0.000	0.050
1.9667	0.025	0.023	0.000	0.050
2.0000	0.025	0.024	0.000	0.050
2.0333	0.025	0.024	0.000	0.050
2.0667	0.025	0.025	0.000	0.050
2.1000	0.025	0.025	0.000	0.050
2.1333	0.025	0.025	0.000	0.050
2.1667	0.025	0.026	0.000	0.050
2.2000	0.025	0.026	0.000	0.050
2.2333	0.025	0.027	0.000	0.050
2.2667	0.025	0.027	0.000	0.050
2.3000	0.025	0.027	0.000	0.050
2.3333	0.025	0.028	0.000	0.050
2.3667	0.025	0.028	0.000	0.050
2.4000	0.025	0.029	0.000	0.050
2.4333	0.025	0.029	0.000	0.050
2.4667	0.025	0.029	0.000	0.050
2.5000	0.025	0.030	0.000	0.050
2.5333	0.025	0.030	0.000	0.050
2.5667	0.025	0.031	0.000	0.050
2.6000	0.025	0.031	0.000	0.050
2.6333	0.025	0.031	0.000	0.050
2.6667	0.025	0.032	0.000	0.050
2.7000	0.025	0.032	0.000	0.050
2.7333	0.025	0.033	0.000	0.050

2.7667	0.025	0.033	0.000	0.050
2.8000	0.025	0.033	0.000	0.050
2.8333	0.025	0.034	0.000	0.050
2.8667	0.025	0.034	0.000	0.050
2.9000	0.025	0.035	0.000	0.050
2.9333	0.025	0.035	0.000	0.050
2.9667	0.025	0.036	0.000	0.050
3.0000	0.025	0.036	0.000	0.050

Analysis Results
POC 1







\+ Predeveloped x Mitigated

Predeveloped Landuse Totals for POC #1
Total Pervious Area: 3.4
Total Impervious Area: 0

Mitigated Landuse Totals for POC #1
Total Pervious Area: 1.2203
Total Impervious Area: 2.1839

Flow Frequency Method: Log Pearson Type III 17B

Flow Frequency Return Periods for Predeveloped. POC #1

Return Period	**Flow(cfs)**
2 year	0.002207
5 year	0.002779
10 year	0.003048
25 year	0.003302
50 year	0.003444
100 year	0.003557

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	0.002	0.000
1950	0.003	0.000
1951	0.003	0.000
1952	0.002	0.000
1953	0.002	0.000
1954	0.003	0.000
1955	0.003	0.000
1956	0.002	0.000
1957	0.003	0.000
1958	0.002	0.000
1959	0.003	0.000
1960	0.003	0.000
1961	0.003	0.000
1962	0.002	0.000
1963	0.002	0.000
1964	0.003	0.000
1965	0.002	0.000
1966	0.002	0.000
1967	0.002	0.000
1968	0.003	0.000
1969	0.002	0.000
1970	0.003	0.000
1971	0.003	0.000
1972	0.003	0.000
1973	0.002	0.000
1974	0.001	0.000
1975	0.002	0.000
1976	0.002	0.000
1977	0.002	0.000
1978	0.001	0.000
1979	0.002	0.000
1980	0.002	0.000
1981	0.002	0.000
1982	0.003	0.000
1983	0.002	0.000
1984	0.002	0.000
1985	0.002	0.000
1986	0.003	0.000
1987	0.003	0.000
1988	0.003	0.000
1989	0.003	0.000
1990	0.002	0.000
1991	0.002	0.000
1992	0.003	0.000
1993	0.002	0.000
1994	0.000	0.000
1995	0.002	0.000
1996	0.002	0.000
1997	0.002	0.000
1998	0.001	0.000
1999	0.003	0.000
2000	0.002	0.000
2001	0.001	0.000
2002	0.002	0.000
2003	0.003	0.000
2004	0.003	0.000

2005	0.002	0.000
2006	0.002	0.000
2007	0.003	0.000
2008	0.002	0.000
2009	0.002	0.000

Ranked Annual Peaks

Ranked Annual Peaks for Predeveloped and Mitigated. POC #1

Rank	Predeveloped	Mitigated
1	0.0027	0.0000
2	0.0027	0.0000
3	0.0027	0.0000
4	0.0027	0.0000
5	0.0027	0.0000
6	0.0027	0.0000
7	0.0027	0.0000
8	0.0027	0.0000
9	0.0027	0.0000
10	0.0026	0.0000
11	0.0026	0.0000
12	0.0026	0.0000
13	0.0026	0.0000
14	0.0026	0.0000
15	0.0026	0.0000
16	0.0026	0.0000
17	0.0026	0.0000
18	0.0025	0.0000
19	0.0025	0.0000
20	0.0025	0.0000
21	0.0025	0.0000
22	0.0025	0.0000
23	0.0025	0.0000
24	0.0025	0.0000
25	0.0025	0.0000
26	0.0024	0.0000
27	0.0024	0.0000
28	0.0024	0.0000
29	0.0024	0.0000
30	0.0024	0.0000
31	0.0023	0.0000
32	0.0023	0.0000
33	0.0023	0.0000
34	0.0023	0.0000
35	0.0022	0.0000
36	0.0022	0.0000
37	0.0021	0.0000
38	0.0021	0.0000
39	0.0021	0.0000
40	0.0021	0.0000
41	0.0021	0.0000
42	0.0021	0.0000
43	0.0020	0.0000
44	0.0020	0.0000
45	0.0020	0.0000
46	0.0019	0.0000
47	0.0019	0.0000
48	0.0018	0.0000
49	0.0018	0.0000

50	0.0018	0.0000
51	0.0017	0.0000
52	0.0016	0.0000
53	0.0016	0.0000
54	0.0016	0.0000
55	0.0016	0.0000
56	0.0015	0.0000
57	0.0012	0.0000
58	0.0012	0.0000
59	0.0010	0.0000
60	0.0008	0.0000
61	0.0004	0.0000

LID Duration Flows

The Facility PASSED

Flow(cfs)	Predev	Mit	Percentage	Pass/Fail
0.0002	7266	0	0	Pass
0.0002	6975	0	0	Pass
0.0002	6650	0	0	Pass
0.0002	6361	0	0	Pass
0.0002	6079	0	0	Pass
0.0002	5833	0	0	Pass
0.0002	5597	0	0	Pass
0.0002	5360	0	0	Pass
0.0003	5159	0	0	Pass
0.0003	4992	0	0	Pass
0.0003	4810	0	0	Pass
0.0003	4620	0	0	Pass
0.0003	4468	0	0	Pass
0.0003	4303	0	0	Pass
0.0003	4177	0	0	Pass
0.0003	4021	0	0	Pass
0.0003	3888	0	0	Pass
0.0003	3754	0	0	Pass
0.0003	3634	0	0	Pass
0.0004	3506	0	0	Pass
0.0004	3397	0	0	Pass
0.0004	3266	0	0	Pass
0.0004	3155	0	0	Pass
0.0004	3076	0	0	Pass
0.0004	2973	0	0	Pass
0.0004	2909	0	0	Pass
0.0004	2828	0	0	Pass
0.0004	2733	0	0	Pass
0.0004	2663	0	0	Pass
0.0004	2592	0	0	Pass
0.0005	2535	0	0	Pass
0.0005	2466	0	0	Pass
0.0005	2400	0	0	Pass
0.0005	2340	0	0	Pass
0.0005	2280	0	0	Pass
0.0005	2222	0	0	Pass
0.0005	2162	0	0	Pass
0.0005	2116	0	0	Pass
0.0005	2068	0	0	Pass
0.0005	2009	0	0	Pass
0.0006	1961	0	0	Pass
0.0006	1919	0	0	Pass
0.0006	1881	0	0	Pass
0.0006	1850	0	0	Pass
0.0006	1816	0	0	Pass
0.0006	1785	0	0	Pass
0.0006	1735	0	0	Pass
0.0006	1697	0	0	Pass
0.0006	1672	0	0	Pass
0.0006	1637	0	0	Pass
0.0006	1604	0	0	Pass
0.0007	1573	0	0	Pass
0.0007	1538	0	0	Pass

0.0007	1498	0	0	Pass
0.0007	1462	0	0	Pass
0.0007	1435	0	0	Pass
0.0007	1408	0	0	Pass
0.0007	1379	0	0	Pass
0.0007	1352	0	0	Pass
0.0007	1326	0	0	Pass
0.0007	1294	0	0	Pass
0.0007	1276	0	0	Pass
0.0008	1252	0	0	Pass
0.0008	1232	0	0	Pass
0.0008	1204	0	0	Pass
0.0008	1176	0	0	Pass
0.0008	1147	0	0	Pass
0.0008	1129	0	0	Pass
0.0008	1103	0	0	Pass
0.0008	1091	0	0	Pass
0.0008	1079	0	0	Pass
0.0008	1064	0	0	Pass
0.0009	1046	0	0	Pass
0.0009	1029	0	0	Pass
0.0009	1003	0	0	Pass
0.0009	991	0	0	Pass
0.0009	975	0	0	Pass
0.0009	958	0	0	Pass
0.0009	943	0	0	Pass
0.0009	919	0	0	Pass
0.0009	906	0	0	Pass
0.0009	890	0	0	Pass
0.0009	880	0	0	Pass
0.0010	869	0	0	Pass
0.0010	858	0	0	Pass
0.0010	849	0	0	Pass
0.0010	841	0	0	Pass
0.0010	831	0	0	Pass
0.0010	819	0	0	Pass
0.0010	811	0	0	Pass
0.0010	797	0	0	Pass
0.0010	784	0	0	Pass
0.0010	774	0	0	Pass
0.0010	763	0	0	Pass
0.0011	746	0	0	Pass
0.0011	735	0	0	Pass
0.0011	721	0	0	Pass
0.0011	716	0	0	Pass
0.0011	705	0	0	Pass
0.0011	691	0	0	Pass

Duration Flows

The Facility PASSED

Flow(cfs)	Predev	Mit	Percentage	Pass/Fail
0.0011	691	0	0	Pass
0.0011	651	0	0	Pass
0.0012	630	0	0	Pass
0.0012	607	0	0	Pass
0.0012	579	0	0	Pass
0.0012	556	0	0	Pass
0.0012	525	0	0	Pass
0.0013	504	0	0	Pass
0.0013	479	0	0	Pass
0.0013	460	0	0	Pass
0.0013	447	0	0	Pass
0.0014	427	0	0	Pass
0.0014	406	0	0	Pass
0.0014	398	0	0	Pass
0.0014	383	0	0	Pass
0.0015	367	0	0	Pass
0.0015	350	0	0	Pass
0.0015	332	0	0	Pass
0.0015	320	0	0	Pass
0.0016	305	0	0	Pass
0.0016	289	0	0	Pass
0.0016	274	0	0	Pass
0.0016	262	0	0	Pass
0.0016	255	0	0	Pass
0.0017	249	0	0	Pass
0.0017	237	0	0	Pass
0.0017	230	0	0	Pass
0.0017	227	0	0	Pass
0.0018	214	0	0	Pass
0.0018	202	0	0	Pass
0.0018	195	0	0	Pass
0.0018	190	0	0	Pass
0.0019	183	0	0	Pass
0.0019	170	0	0	Pass
0.0019	165	0	0	Pass
0.0019	160	0	0	Pass
0.0020	153	0	0	Pass
0.0020	148	0	0	Pass
0.0020	139	0	0	Pass
0.0020	131	0	0	Pass
0.0020	122	0	0	Pass
0.0021	116	0	0	Pass
0.0021	110	0	0	Pass
0.0021	100	0	0	Pass
0.0021	94	0	0	Pass
0.0022	88	0	0	Pass
0.0022	80	0	0	Pass
0.0022	77	0	0	Pass
0.0022	72	0	0	Pass
0.0023	69	0	0	Pass
0.0023	66	0	0	Pass
0.0023	63	0	0	Pass
0.0023	59	0	0	Pass

0.0024	54	0	0	Pass
0.0024	53	0	0	Pass
0.0024	45	0	0	Pass
0.0024	42	0	0	Pass
0.0025	39	0	0	Pass
0.0025	36	0	0	Pass
0.0025	33	0	0	Pass
0.0025	26	0	0	Pass
0.0025	23	0	0	Pass
0.0026	22	0	0	Pass
0.0026	20	0	0	Pass
0.0026	16	0	0	Pass
0.0026	14	0	0	Pass
0.0027	9	0	0	Pass
0.0027	8	0	0	Pass
0.0027	3	0	0	Pass
0.0027	0	0	0	Pass
0.0028	0	0	0	Pass
0.0028	0	0	0	Pass
0.0028	0	0	0	Pass
0.0028	0	0	0	Pass
0.0029	0	0	0	Pass
0.0029	0	0	0	Pass
0.0029	0	0	0	Pass
0.0029	0	0	0	Pass
0.0029	0	0	0	Pass
0.0030	0	0	0	Pass
0.0030	0	0	0	Pass
0.0030	0	0	0	Pass
0.0030	0	0	0	Pass
0.0031	0	0	0	Pass
0.0031	0	0	0	Pass
0.0031	0	0	0	Pass
0.0031	0	0	0	Pass
0.0032	0	0	0	Pass
0.0032	0	0	0	Pass
0.0032	0	0	0	Pass
0.0032	0	0	0	Pass
0.0033	0	0	0	Pass
0.0033	0	0	0	Pass
0.0033	0	0	0	Pass
0.0033	0	0	0	Pass
0.0033	0	0	0	Pass
0.0034	0	0	0	Pass
0.0034	0	0	0	Pass
0.0034	0	0	0	Pass
0.0034	0	0	0	Pass

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.

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
Gravel Trench Bed 1 POC	☐	34.93			☐	100.00			
Gravel Trench Bed 2 POC	☐	24.97			☐	100.00			
Gravel Trench Bed 3 POC	☐	26.99			☐	100.00			
Gravel Trench Bed 4 POC	☐	26.67			☐	100.00			
Gravel Trench Bed 4 POC	☐	28.46			☐	100.00			
Total Volume Infiltrated		142.02	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

Model Default Modifications

Total of 0 changes have been made.

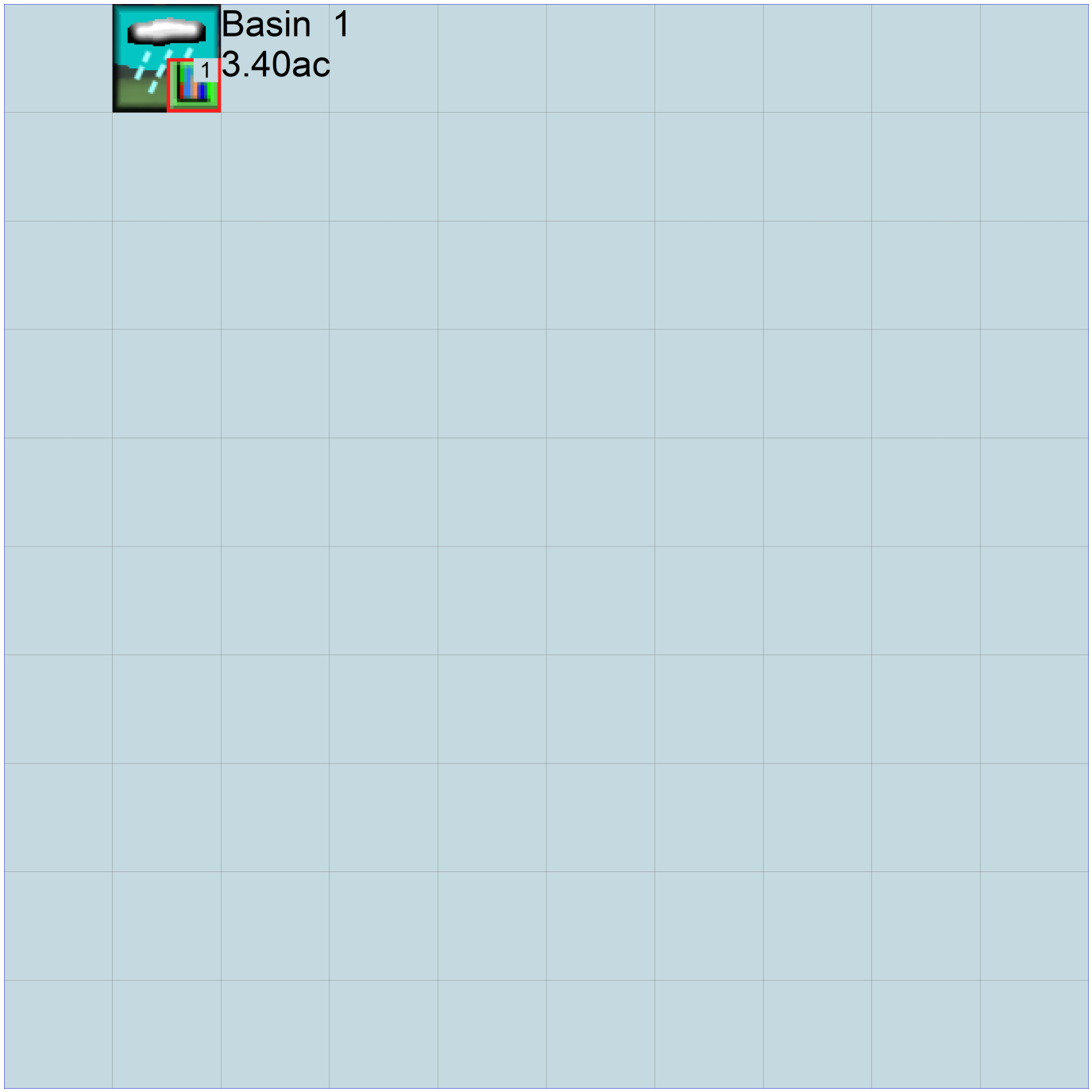
PERLND Changes

No PERLND changes have been made.

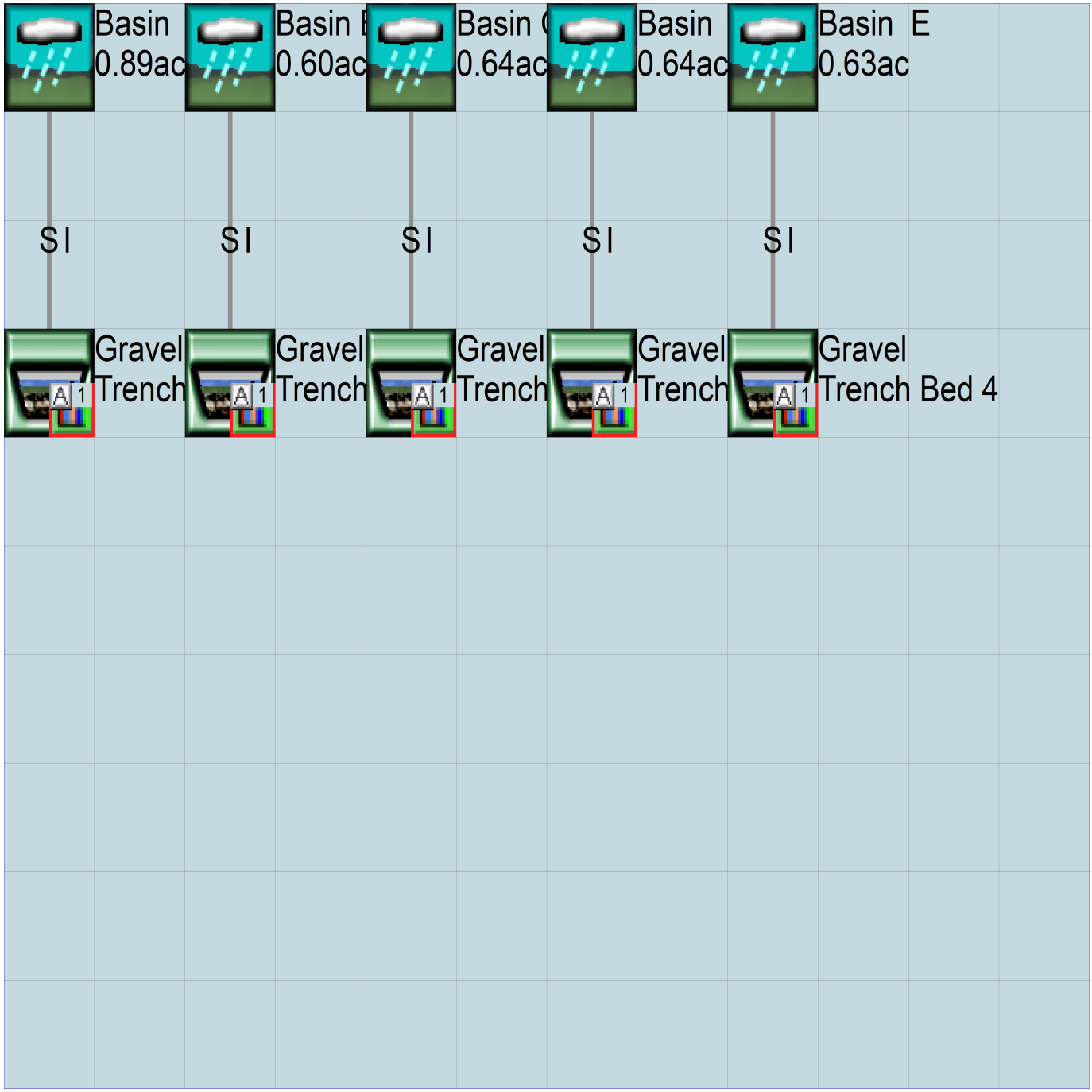
IMPLND Changes

No IMPLND changes have been made.

Appendix
Predeveloped Schematic



Mitigated Schematic



Predeveloped 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   Infiltration Trenches.wdm
MESSU       25   PreInfiltration Trenches.MES
            27   PreInfiltration Trenches.L61
            28   PreInfiltration Trenches.L62
            30   POCInfiltration Trenches1.dat
END FILES

OPN SEQUENCE
    INGRP              INDELT 00:15
      PERLND       4
      COPY       501
      DISPLY       1
    END INGRP
END OPN SEQUENCE
DISPLY
  DISPLY-INFO1
    # -  #<----------Title----------->***TRAN PIVL DIG1 FIL1  PYR DIG2 FIL2 YRND
    1        Basin  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 ***
  END OPCODE
  PARM
    #    #         K ***
  END PARM
END GENER
PERLND
  GEN-INFO
    <PLS ><-------Name------->NBLKS   Unit-systems   Printer ***
    # -  #                          User  t-series Engl Metr ***
                                       in  out           ***
    4     A/B, Pasture, 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 ***
    4         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  *********
    4         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 ***
    4         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
    4              0         5       1.5       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
    4              0         0         2         2         0         0         0
  END PWAT-PARM3
  PWAT-PARM4
    <PLS >     PWATER input info: Part 4                              ***
    # -  #     CEPSC      UZSN      NSUR     INTFW       IRC     LZETP ***
    4          0.15       0.5       0.3         0       0.7       0.4
  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
    4              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#   ***
Basin  1***
PERLND   4                        3.4     COPY   501     12
PERLND   4                        3.4     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                                  ***
    # -  #  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    0.8            PERLND   1 999 EXTNL  PREC
WDM      2 PREC     ENGL    0.8            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
```

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   Infiltration Trenches.wdm
MESSU       25   MitInfiltration Trenches.MES
            27   MitInfiltration Trenches.L61
            28   MitInfiltration Trenches.L62
            30   POCInfiltration Trenches1.dat
END FILES

OPN SEQUENCE
    INGRP              INDELT 00:15
      PERLND       4
      IMPLND       1
      IMPLND       4
      IMPLND       5
      IMPLND       8
      RCHRES       1
      RCHRES       2
      RCHRES       3
      RCHRES       4
      RCHRES       5
      COPY         1
      COPY       501
      DISPLY       1
    END INGRP
END OPN SEQUENCE
DISPLY
  DISPLY-INFO1
    # -  #<----------Title---------->***TRAN PIVL DIG1 FIL1  PYR DIG2 FIL2 YRND
    1        Gravel Trench Bed 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 ***
  END OPCODE
  PARM
    #    #         K ***
  END PARM
END GENER
PERLND
  GEN-INFO
    <PLS ><-------Name------->NBLKS   Unit-systems   Printer ***
    # -  #                          User  t-series Engl Metr ***
                                          in  out           ***
    4     A/B, Pasture, 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 ***
    4         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  *********
    4         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 ***
    4         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
    4               0         5       1.5       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
    4               0         0         2         2         0         0         0
  END PWAT-PARM3
  PWAT-PARM4
    <PLS >     PWATER input info: Part 4                              ***
    # -  #     CEPSC      UZSN      NSUR     INTFW       IRC     LZETP ***
    4          0.15       0.5       0.3         0       0.7       0.4
  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
    4               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
    4      ROOF TOPS/FLAT         1    1    1   27    0
    5      DRIVEWAYS/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
    4         0    0    1    0    0    0
    5         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
    4         0    0    4    0    0    0    1    9
    5         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
    4         0    0    0    0    0
    5         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
    4            400      0.01       0.1       0.1
    5            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
    4              0         0
    5              0         0
    8              0         0
  END IWAT-PARM3

  IWAT-STATE1
    <PLS > *** Initial conditions at start of simulation
    # -  # ***  RETS      SURS
    1              0         0
    4              0         0
    5              0         0
    8              0         0
  END IWAT-STATE1

END IMPLND

SCHEMATIC
<-Source->                 <--Area-->     <-Target->   MBLK   ***
<Name>   #                 <-factor->     <Name>   #   Tbl#   ***
Basin  A***
PERLND   4                     0.3545     RCHRES   1      2
PERLND   4                     0.3545     RCHRES   1      3
IMPLND   1                     0.0388     RCHRES   1      5
IMPLND   4                     0.4132     RCHRES   1      5
IMPLND   5                     0.0677     RCHRES   1      5
IMPLND   8                     0.0172     RCHRES   1      5
Basin B***
PERLND   4                     0.2191     RCHRES   2      2
PERLND   4                     0.2191     RCHRES   2      3
IMPLND   1                     0.0339     RCHRES   2      5
IMPLND   4                     0.2755     RCHRES   2      5
IMPLND   5                     0.0584     RCHRES   2      5
IMPLND   8                     0.0163     RCHRES   2      5
Basin C***
PERLND   4                     0.2223     RCHRES   3      2
PERLND   4                     0.2223     RCHRES   3      3
IMPLND   1                     0.0644     RCHRES   3      5
IMPLND   4                     0.2755     RCHRES   3      5
IMPLND   5                     0.0556     RCHRES   3      5
IMPLND   8                     0.0196     RCHRES   3      5
Basin  D***
PERLND   4                     0.2305     RCHRES   4      2
PERLND   4                     0.2305     RCHRES   4      3
IMPLND   1                     0.0496     RCHRES   4      5
IMPLND   4                     0.2755     RCHRES   4      5
IMPLND   5                     0.0595     RCHRES   4      5
```

```
IMPLND   8                      0.0256     RCHRES   4      5
Basin  E***
PERLND   4                      0.1939     RCHRES   5      2
PERLND   4                      0.1939     RCHRES   5      3
IMPLND   1                      0.0757     RCHRES   5      5
IMPLND   4                      0.2755     RCHRES   5      5
IMPLND   5                      0.0608     RCHRES   5      5
IMPLND   8                      0.0256     RCHRES   5      5

******Routing******
PERLND   4                      0.3545     COPY     1     12
IMPLND   1                      0.0388     COPY     1     15
IMPLND   4                      0.4132     COPY     1     15
IMPLND   5                      0.0677     COPY     1     15
IMPLND   8                      0.0172     COPY     1     15
PERLND   4                      0.3545     COPY     1     13
PERLND   4                      0.2191     COPY     1     12
IMPLND   1                      0.0339     COPY     1     15
IMPLND   4                      0.2755     COPY     1     15
IMPLND   5                      0.0584     COPY     1     15
IMPLND   8                      0.0163     COPY     1     15
PERLND   4                      0.2191     COPY     1     13
PERLND   4                      0.2223     COPY     1     12
IMPLND   1                      0.0644     COPY     1     15
IMPLND   4                      0.2755     COPY     1     15
IMPLND   5                      0.0556     COPY     1     15
IMPLND   8                      0.0196     COPY     1     15
PERLND   4                      0.2223     COPY     1     13
PERLND   4                      0.2305     COPY     1     12
IMPLND   1                      0.0496     COPY     1     15
IMPLND   4                      0.2755     COPY     1     15
IMPLND   5                      0.0595     COPY     1     15
IMPLND   8                      0.0256     COPY     1     15
PERLND   4                      0.2305     COPY     1     13
PERLND   4                      0.1939     COPY     1     12
IMPLND   1                      0.0757     COPY     1     15
IMPLND   4                      0.2755     COPY     1     15
IMPLND   5                      0.0608     COPY     1     15
IMPLND   8                      0.0256     COPY     1     15
PERLND   4                      0.1939     COPY     1     13
RCHRES   1                           1     COPY   501     17
RCHRES   2                           1     COPY   501     17
RCHRES   3                           1     COPY   501     17
RCHRES   4                           1     COPY   501     17
RCHRES   5                           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     Gravel Trench Be-005    2    1    1    1   28    0    1
    2     Gravel Trench Be-007    2    1    1    1   28    0    1
    3     Gravel Trench Be-009    2    1    1    1   28    0    1
    4     Gravel Trench Be-012    2    1    1    1   28    0    1
    5     Gravel Trench Be-014    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
    4         1    0    0    0    0    0    0    0    0    0
    5         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
    4         4    0    0    0    0    0    0    0    0    0    1    9
    5         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  0  0  0       0  0  0  0  0       2  2  2  2  2
    2       0  1  0  0    4  5  0  0  0       0  0  0  0  0       2  2  2  2  2
    3       0  1  0  0    4  5  0  0  0       0  0  0  0  0       2  2  2  2  2
    4       0  1  0  0    4  5  0  0  0       0  0  0  0  0       2  2  2  2  2
    5       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      0.02       0.0       0.0       0.5       0.0
    2             2      0.02       0.0       0.0       0.5       0.0
    3             3      0.02       0.0       0.0       0.5       0.0
    4             4      0.02       0.0       0.0       0.5       0.0
    5             5      0.02       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  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
    3            0         4.0  5.0  0.0  0.0  0.0       0.0  0.0  0.0  0.0  0.0
    4            0         4.0  5.0  0.0  0.0  0.0       0.0  0.0  0.0  0.0  0.0
    5            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
END SPEC-ACTIONS
FTABLES
  FTABLE      1
   92    5
     Depth      Area    Volume  Outflow1  Outflow2  Velocity  Travel Time***
      (ft)   (acres) (acre-ft)   (cfs)     (cfs)   (ft/sec)    (Minutes)***
  0.000000  0.029844  0.000000  0.000000  0.000000
  0.033333  0.029844  0.000478  0.000000  0.059583
  0.066667  0.029844  0.000955  0.000000  0.059583
  0.100000  0.029844  0.001433  0.000000  0.059583
  0.133333  0.029844  0.001910  0.000000  0.059583
  0.166667  0.029844  0.002388  0.000000  0.059583
  0.200000  0.029844  0.002865  0.000000  0.059583
  0.233333  0.029844  0.003343  0.000000  0.059583
```

0.266667	0.029844	0.003820	0.000000	0.059583
0.300000	0.029844	0.004298	0.000000	0.059583
0.333333	0.029844	0.004775	0.000000	0.059583
0.366667	0.029844	0.005253	0.000000	0.059583
0.400000	0.029844	0.005730	0.000000	0.059583
0.433333	0.029844	0.006208	0.000000	0.059583
0.466667	0.029844	0.006685	0.000000	0.059583
0.500000	0.029844	0.007163	0.000000	0.059583
0.533333	0.029844	0.007640	0.000000	0.059583
0.566667	0.029844	0.008118	0.000000	0.059583
0.600000	0.029844	0.008595	0.000000	0.059583
0.633333	0.029844	0.009073	0.000000	0.059583
0.666667	0.029844	0.009550	0.000000	0.059583
0.700000	0.029844	0.010028	0.000000	0.059583
0.733333	0.029844	0.010505	0.000000	0.059583
0.766667	0.029844	0.010983	0.000000	0.059583
0.800000	0.029844	0.011460	0.000000	0.059583
0.833333	0.029844	0.011938	0.000000	0.059583
0.866667	0.029844	0.012415	0.000000	0.059583
0.900000	0.029844	0.012893	0.000000	0.059583
0.933333	0.029844	0.013370	0.000000	0.059583
0.966667	0.029844	0.013848	0.000000	0.059583
1.000000	0.029844	0.014325	0.000000	0.059583
1.033333	0.029844	0.014803	0.000000	0.059583
1.066667	0.029844	0.015280	0.000000	0.059583
1.100000	0.029844	0.015758	0.000000	0.059583
1.133333	0.029844	0.016235	0.000000	0.059583
1.166667	0.029844	0.016713	0.000000	0.059583
1.200000	0.029844	0.017190	0.000000	0.059583
1.233333	0.029844	0.017668	0.000000	0.059583
1.266667	0.029844	0.018145	0.000000	0.059583
1.300000	0.029844	0.018623	0.000000	0.059583
1.333333	0.029844	0.019100	0.000000	0.059583
1.366667	0.029844	0.019578	0.000000	0.059583
1.400000	0.029844	0.020055	0.000000	0.059583
1.433333	0.029844	0.020533	0.000000	0.059583
1.466667	0.029844	0.021010	0.000000	0.059583
1.500000	0.029844	0.021488	0.000000	0.059583
1.533333	0.029844	0.021965	0.000000	0.059583
1.566667	0.029844	0.022443	0.000000	0.059583
1.600000	0.029844	0.022920	0.000000	0.059583
1.633333	0.029844	0.023398	0.000000	0.059583
1.666667	0.029844	0.023875	0.000000	0.059583
1.700000	0.029844	0.024353	0.000000	0.059583
1.733333	0.029844	0.024830	0.000000	0.059583
1.766667	0.029844	0.025308	0.000000	0.059583
1.800000	0.029844	0.025785	0.000000	0.059583
1.833333	0.029844	0.026263	0.000000	0.059583
1.866667	0.029844	0.026740	0.000000	0.059583
1.900000	0.029844	0.027218	0.000000	0.059583
1.933333	0.029844	0.027695	0.000000	0.059583
1.966667	0.029844	0.028173	0.000000	0.059583
2.000000	0.029844	0.028650	0.000000	0.059583
2.033333	0.029844	0.029128	0.000000	0.059583
2.066667	0.029844	0.029605	0.000000	0.059583
2.100000	0.029844	0.030083	0.000000	0.059583
2.133333	0.029844	0.030560	0.000000	0.059583
2.166667	0.029844	0.031038	0.000000	0.059583
2.200000	0.029844	0.031515	0.000000	0.059583
2.233333	0.029844	0.031993	0.000000	0.059583
2.266667	0.029844	0.032470	0.000000	0.059583
2.300000	0.029844	0.032948	0.000000	0.059583
2.333333	0.029844	0.033425	0.000000	0.059583
2.366667	0.029844	0.033903	0.000000	0.059583
2.400000	0.029844	0.034380	0.000000	0.059583
2.433333	0.029844	0.034858	0.000000	0.059583
2.466667	0.029844	0.035335	0.000000	0.059583
2.500000	0.029844	0.035813	0.000000	0.059583
2.533333	0.029844	0.036290	0.000000	0.059583
2.566667	0.029844	0.036768	0.000000	0.059583

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2.600000  0.029844  0.037245  0.000000  0.059583
2.633333  0.029844  0.037723  0.000000  0.059583
2.666667  0.029844  0.038200  0.000000  0.059583
2.700000  0.029844  0.038678  0.000000  0.059583
2.733333  0.029844  0.039155  0.000000  0.059583
2.766667  0.029844  0.039633  0.000000  0.059583
2.800000  0.029844  0.040110  0.000000  0.059583
2.833333  0.029844  0.040588  0.000000  0.059583
2.866667  0.029844  0.041065  0.000000  0.059583
2.900000  0.029844  0.041543  0.000000  0.059583
2.933333  0.029844  0.042020  0.000000  0.059583
2.966667  0.029844  0.042498  0.000000  0.059583
3.000000  0.029844  0.042975  0.000000  0.059583
3.033333  0.029844  0.043970  0.096853  0.059583
END FTABLE  1
FTABLE      2
 92    5
   Depth      Area    Volume  Outflow1  Outflow2  Velocity  Travel Time***
    (ft)   (acres) (acre-ft)   (cfs)      (cfs)   (ft/sec)    (Minutes)***
0.000000  0.022957  0.000000  0.000000  0.000000
0.033333  0.022957  0.000367  0.000000  0.045833
0.066667  0.022957  0.000735  0.000000  0.045833
0.100000  0.022957  0.001102  0.000000  0.045833
0.133333  0.022957  0.001469  0.000000  0.045833
0.166667  0.022957  0.001837  0.000000  0.045833
0.200000  0.022957  0.002204  0.000000  0.045833
0.233333  0.022957  0.002571  0.000000  0.045833
0.266667  0.022957  0.002938  0.000000  0.045833
0.300000  0.022957  0.003306  0.000000  0.045833
0.333333  0.022957  0.003673  0.000000  0.045833
0.366667  0.022957  0.004040  0.000000  0.045833
0.400000  0.022957  0.004408  0.000000  0.045833
0.433333  0.022957  0.004775  0.000000  0.045833
0.466667  0.022957  0.005142  0.000000  0.045833
0.500000  0.022957  0.005510  0.000000  0.045833
0.533333  0.022957  0.005877  0.000000  0.045833
0.566667  0.022957  0.006244  0.000000  0.045833
0.600000  0.022957  0.006612  0.000000  0.045833
0.633333  0.022957  0.006979  0.000000  0.045833
0.666667  0.022957  0.007346  0.000000  0.045833
0.700000  0.022957  0.007713  0.000000  0.045833
0.733333  0.022957  0.008081  0.000000  0.045833
0.766667  0.022957  0.008448  0.000000  0.045833
0.800000  0.022957  0.008815  0.000000  0.045833
0.833333  0.022957  0.009183  0.000000  0.045833
0.866667  0.022957  0.009550  0.000000  0.045833
0.900000  0.022957  0.009917  0.000000  0.045833
0.933333  0.022957  0.010285  0.000000  0.045833
0.966667  0.022957  0.010652  0.000000  0.045833
1.000000  0.022957  0.011019  0.000000  0.045833
1.033333  0.022957  0.011387  0.000000  0.045833
1.066667  0.022957  0.011754  0.000000  0.045833
1.100000  0.022957  0.012121  0.000000  0.045833
1.133333  0.022957  0.012489  0.000000  0.045833
1.166667  0.022957  0.012856  0.000000  0.045833
1.200000  0.022957  0.013223  0.000000  0.045833
1.233333  0.022957  0.013590  0.000000  0.045833
1.266667  0.022957  0.013958  0.000000  0.045833
1.300000  0.022957  0.014325  0.000000  0.045833
1.333333  0.022957  0.014692  0.000000  0.045833
1.366667  0.022957  0.015060  0.000000  0.045833
1.400000  0.022957  0.015427  0.000000  0.045833
1.433333  0.022957  0.015794  0.000000  0.045833
1.466667  0.022957  0.016162  0.000000  0.045833
1.500000  0.022957  0.016529  0.000000  0.045833
1.533333  0.022957  0.016896  0.000000  0.045833
1.566667  0.022957  0.017264  0.000000  0.045833
1.600000  0.022957  0.017631  0.000000  0.045833
1.633333  0.022957  0.017998  0.000000  0.045833
1.666667  0.022957  0.018365  0.000000  0.045833
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1.700000  0.022957  0.018733  0.000000  0.045833
1.733333  0.022957  0.019100  0.000000  0.045833
1.766667  0.022957  0.019467  0.000000  0.045833
1.800000  0.022957  0.019835  0.000000  0.045833
1.833333  0.022957  0.020202  0.000000  0.045833
1.866667  0.022957  0.020569  0.000000  0.045833
1.900000  0.022957  0.020937  0.000000  0.045833
1.933333  0.022957  0.021304  0.000000  0.045833
1.966667  0.022957  0.021671  0.000000  0.045833
2.000000  0.022957  0.022039  0.000000  0.045833
2.033333  0.022957  0.022406  0.000000  0.045833
2.066667  0.022957  0.022773  0.000000  0.045833
2.100000  0.022957  0.023140  0.000000  0.045833
2.133333  0.022957  0.023508  0.000000  0.045833
2.166667  0.022957  0.023875  0.000000  0.045833
2.200000  0.022957  0.024242  0.000000  0.045833
2.233333  0.022957  0.024610  0.000000  0.045833
2.266667  0.022957  0.024977  0.000000  0.045833
2.300000  0.022957  0.025344  0.000000  0.045833
2.333333  0.022957  0.025712  0.000000  0.045833
2.366667  0.022957  0.026079  0.000000  0.045833
2.400000  0.022957  0.026446  0.000000  0.045833
2.433333  0.022957  0.026814  0.000000  0.045833
2.466667  0.022957  0.027181  0.000000  0.045833
2.500000  0.022957  0.027548  0.000000  0.045833
2.533333  0.022957  0.027916  0.000000  0.045833
2.566667  0.022957  0.028283  0.000000  0.045833
2.600000  0.022957  0.028650  0.000000  0.045833
2.633333  0.022957  0.029017  0.000000  0.045833
2.666667  0.022957  0.029385  0.000000  0.045833
2.700000  0.022957  0.029752  0.000000  0.045833
2.733333  0.022957  0.030119  0.000000  0.045833
2.766667  0.022957  0.030487  0.000000  0.045833
2.800000  0.022957  0.030854  0.000000  0.045833
2.833333  0.022957  0.031221  0.000000  0.045833
2.866667  0.022957  0.031589  0.000000  0.045833
2.900000  0.022957  0.031956  0.000000  0.045833
2.933333  0.022957  0.032323  0.000000  0.045833
2.966667  0.022957  0.032691  0.000000  0.045833
3.000000  0.022957  0.033058  0.000000  0.045833
3.033333  0.022957  0.033823  0.096853  0.045833
END FTABLE  2
FTABLE      3
 92    5
   Depth      Area    Volume  Outflow1  Outflow2  Velocity  Travel Time***
    (ft)   (acres) (acre-ft)   (cfs)      (cfs)   (ft/sec)    (Minutes)***
0.000000  0.022957  0.000000  0.000000  0.000000
0.033333  0.022957  0.000367  0.000000  0.045833
0.066667  0.022957  0.000735  0.000000  0.045833
0.100000  0.022957  0.001102  0.000000  0.045833
0.133333  0.022957  0.001469  0.000000  0.045833
0.166667  0.022957  0.001837  0.000000  0.045833
0.200000  0.022957  0.002204  0.000000  0.045833
0.233333  0.022957  0.002571  0.000000  0.045833
0.266667  0.022957  0.002938  0.000000  0.045833
0.300000  0.022957  0.003306  0.000000  0.045833
0.333333  0.022957  0.003673  0.000000  0.045833
0.366667  0.022957  0.004040  0.000000  0.045833
0.400000  0.022957  0.004408  0.000000  0.045833
0.433333  0.022957  0.004775  0.000000  0.045833
0.466667  0.022957  0.005142  0.000000  0.045833
0.500000  0.022957  0.005510  0.000000  0.045833
0.533333  0.022957  0.005877  0.000000  0.045833
0.566667  0.022957  0.006244  0.000000  0.045833
0.600000  0.022957  0.006612  0.000000  0.045833
0.633333  0.022957  0.006979  0.000000  0.045833
0.666667  0.022957  0.007346  0.000000  0.045833
0.700000  0.022957  0.007713  0.000000  0.045833
0.733333  0.022957  0.008081  0.000000  0.045833
0.766667  0.022957  0.008448  0.000000  0.045833
```

```
0.800000  0.022957  0.008815  0.000000  0.045833
0.833333  0.022957  0.009183  0.000000  0.045833
0.866667  0.022957  0.009550  0.000000  0.045833
0.900000  0.022957  0.009917  0.000000  0.045833
0.933333  0.022957  0.010285  0.000000  0.045833
0.966667  0.022957  0.010652  0.000000  0.045833
1.000000  0.022957  0.011019  0.000000  0.045833
1.033333  0.022957  0.011387  0.000000  0.045833
1.066667  0.022957  0.011754  0.000000  0.045833
1.100000  0.022957  0.012121  0.000000  0.045833
1.133333  0.022957  0.012489  0.000000  0.045833
1.166667  0.022957  0.012856  0.000000  0.045833
1.200000  0.022957  0.013223  0.000000  0.045833
1.233333  0.022957  0.013590  0.000000  0.045833
1.266667  0.022957  0.013958  0.000000  0.045833
1.300000  0.022957  0.014325  0.000000  0.045833
1.333333  0.022957  0.014692  0.000000  0.045833
1.366667  0.022957  0.015060  0.000000  0.045833
1.400000  0.022957  0.015427  0.000000  0.045833
1.433333  0.022957  0.015794  0.000000  0.045833
1.466667  0.022957  0.016162  0.000000  0.045833
1.500000  0.022957  0.016529  0.000000  0.045833
1.533333  0.022957  0.016896  0.000000  0.045833
1.566667  0.022957  0.017264  0.000000  0.045833
1.600000  0.022957  0.017631  0.000000  0.045833
1.633333  0.022957  0.017998  0.000000  0.045833
1.666667  0.022957  0.018365  0.000000  0.045833
1.700000  0.022957  0.018733  0.000000  0.045833
1.733333  0.022957  0.019100  0.000000  0.045833
1.766667  0.022957  0.019467  0.000000  0.045833
1.800000  0.022957  0.019835  0.000000  0.045833
1.833333  0.022957  0.020202  0.000000  0.045833
1.866667  0.022957  0.020569  0.000000  0.045833
1.900000  0.022957  0.020937  0.000000  0.045833
1.933333  0.022957  0.021304  0.000000  0.045833
1.966667  0.022957  0.021671  0.000000  0.045833
2.000000  0.022957  0.022039  0.000000  0.045833
2.033333  0.022957  0.022406  0.000000  0.045833
2.066667  0.022957  0.022773  0.000000  0.045833
2.100000  0.022957  0.023140  0.000000  0.045833
2.133333  0.022957  0.023508  0.000000  0.045833
2.166667  0.022957  0.023875  0.000000  0.045833
2.200000  0.022957  0.024242  0.000000  0.045833
2.233333  0.022957  0.024610  0.000000  0.045833
2.266667  0.022957  0.024977  0.000000  0.045833
2.300000  0.022957  0.025344  0.000000  0.045833
2.333333  0.022957  0.025712  0.000000  0.045833
2.366667  0.022957  0.026079  0.000000  0.045833
2.400000  0.022957  0.026446  0.000000  0.045833
2.433333  0.022957  0.026814  0.000000  0.045833
2.466667  0.022957  0.027181  0.000000  0.045833
2.500000  0.022957  0.027548  0.000000  0.045833
2.533333  0.022957  0.027916  0.000000  0.045833
2.566667  0.022957  0.028283  0.000000  0.045833
2.600000  0.022957  0.028650  0.000000  0.045833
2.633333  0.022957  0.029017  0.000000  0.045833
2.666667  0.022957  0.029385  0.000000  0.045833
2.700000  0.022957  0.029752  0.000000  0.045833
2.733333  0.022957  0.030119  0.000000  0.045833
2.766667  0.022957  0.030487  0.000000  0.045833
2.800000  0.022957  0.030854  0.000000  0.045833
2.833333  0.022957  0.031221  0.000000  0.045833
2.866667  0.022957  0.031589  0.000000  0.045833
2.900000  0.022957  0.031956  0.000000  0.045833
2.933333  0.022957  0.032323  0.000000  0.045833
2.966667  0.022957  0.032691  0.000000  0.045833
3.000000  0.022957  0.033058  0.000000  0.045833
3.033333  0.022957  0.033823  0.096853  0.045833
END FTABLE  3
FTABLE      4
```

92 5

Depth (ft)	Area (acres)	Volume (acre-ft)	Outflow1 (cfs)	Outflow2 (cfs)	Velocity (ft/sec)	Travel Time*** (Minutes)***
0.000000	0.022957	0.000000	0.000000	0.000000		
0.033333	0.022957	0.000367	0.000000	0.045833		
0.066667	0.022957	0.000735	0.000000	0.045833		
0.100000	0.022957	0.001102	0.000000	0.045833		
0.133333	0.022957	0.001469	0.000000	0.045833		
0.166667	0.022957	0.001837	0.000000	0.045833		
0.200000	0.022957	0.002204	0.000000	0.045833		
0.233333	0.022957	0.002571	0.000000	0.045833		
0.266667	0.022957	0.002938	0.000000	0.045833		
0.300000	0.022957	0.003306	0.000000	0.045833		
0.333333	0.022957	0.003673	0.000000	0.045833		
0.366667	0.022957	0.004040	0.000000	0.045833		
0.400000	0.022957	0.004408	0.000000	0.045833		
0.433333	0.022957	0.004775	0.000000	0.045833		
0.466667	0.022957	0.005142	0.000000	0.045833		
0.500000	0.022957	0.005510	0.000000	0.045833		
0.533333	0.022957	0.005877	0.000000	0.045833		
0.566667	0.022957	0.006244	0.000000	0.045833		
0.600000	0.022957	0.006612	0.000000	0.045833		
0.633333	0.022957	0.006979	0.000000	0.045833		
0.666667	0.022957	0.007346	0.000000	0.045833		
0.700000	0.022957	0.007713	0.000000	0.045833		
0.733333	0.022957	0.008081	0.000000	0.045833		
0.766667	0.022957	0.008448	0.000000	0.045833		
0.800000	0.022957	0.008815	0.000000	0.045833		
0.833333	0.022957	0.009183	0.000000	0.045833		
0.866667	0.022957	0.009550	0.000000	0.045833		
0.900000	0.022957	0.009917	0.000000	0.045833		
0.933333	0.022957	0.010285	0.000000	0.045833		
0.966667	0.022957	0.010652	0.000000	0.045833		
1.000000	0.022957	0.011019	0.000000	0.045833		
1.033333	0.022957	0.011387	0.000000	0.045833		
1.066667	0.022957	0.011754	0.000000	0.045833		
1.100000	0.022957	0.012121	0.000000	0.045833		
1.133333	0.022957	0.012489	0.000000	0.045833		
1.166667	0.022957	0.012856	0.000000	0.045833		
1.200000	0.022957	0.013223	0.000000	0.045833		
1.233333	0.022957	0.013590	0.000000	0.045833		
1.266667	0.022957	0.013958	0.000000	0.045833		
1.300000	0.022957	0.014325	0.000000	0.045833		
1.333333	0.022957	0.014692	0.000000	0.045833		
1.366667	0.022957	0.015060	0.000000	0.045833		
1.400000	0.022957	0.015427	0.000000	0.045833		
1.433333	0.022957	0.015794	0.000000	0.045833		
1.466667	0.022957	0.016162	0.000000	0.045833		
1.500000	0.022957	0.016529	0.000000	0.045833		
1.533333	0.022957	0.016896	0.000000	0.045833		
1.566667	0.022957	0.017264	0.000000	0.045833		
1.600000	0.022957	0.017631	0.000000	0.045833		
1.633333	0.022957	0.017998	0.000000	0.045833		
1.666667	0.022957	0.018365	0.000000	0.045833		
1.700000	0.022957	0.018733	0.000000	0.045833		
1.733333	0.022957	0.019100	0.000000	0.045833		
1.766667	0.022957	0.019467	0.000000	0.045833		
1.800000	0.022957	0.019835	0.000000	0.045833		
1.833333	0.022957	0.020202	0.000000	0.045833		
1.866667	0.022957	0.020569	0.000000	0.045833		
1.900000	0.022957	0.020937	0.000000	0.045833		
1.933333	0.022957	0.021304	0.000000	0.045833		
1.966667	0.022957	0.021671	0.000000	0.045833		
2.000000	0.022957	0.022039	0.000000	0.045833		
2.033333	0.022957	0.022406	0.000000	0.045833		
2.066667	0.022957	0.022773	0.000000	0.045833		
2.100000	0.022957	0.023140	0.000000	0.045833		
2.133333	0.022957	0.023508	0.000000	0.045833		
2.166667	0.022957	0.023875	0.000000	0.045833		
2.200000	0.022957	0.024242	0.000000	0.045833		

```
2.233333  0.022957  0.024610  0.000000  0.045833
2.266667  0.022957  0.024977  0.000000  0.045833
2.300000  0.022957  0.025344  0.000000  0.045833
2.333333  0.022957  0.025712  0.000000  0.045833
2.366667  0.022957  0.026079  0.000000  0.045833
2.400000  0.022957  0.026446  0.000000  0.045833
2.433333  0.022957  0.026814  0.000000  0.045833
2.466667  0.022957  0.027181  0.000000  0.045833
2.500000  0.022957  0.027548  0.000000  0.045833
2.533333  0.022957  0.027916  0.000000  0.045833
2.566667  0.022957  0.028283  0.000000  0.045833
2.600000  0.022957  0.028650  0.000000  0.045833
2.633333  0.022957  0.029017  0.000000  0.045833
2.666667  0.022957  0.029385  0.000000  0.045833
2.700000  0.022957  0.029752  0.000000  0.045833
2.733333  0.022957  0.030119  0.000000  0.045833
2.766667  0.022957  0.030487  0.000000  0.045833
2.800000  0.022957  0.030854  0.000000  0.045833
2.833333  0.022957  0.031221  0.000000  0.045833
2.866667  0.022957  0.031589  0.000000  0.045833
2.900000  0.022957  0.031956  0.000000  0.045833
2.933333  0.022957  0.032323  0.000000  0.045833
2.966667  0.022957  0.032691  0.000000  0.045833
3.000000  0.022957  0.033058  0.000000  0.045833
3.033333  0.022957  0.033823  0.096853  0.045833
END FTABLE  4
FTABLE      5
 92    5
   Depth      Area    Volume  Outflow1  Outflow2  Velocity  Travel Time***
    (ft)   (acres) (acre-ft)   (cfs)     (cfs)   (ft/sec)    (Minutes)***
0.000000  0.025253  0.000000  0.000000  0.000000
0.033333  0.025253  0.000404  0.000000  0.050417
0.066667  0.025253  0.000808  0.000000  0.050417
0.100000  0.025253  0.001212  0.000000  0.050417
0.133333  0.025253  0.001616  0.000000  0.050417
0.166667  0.025253  0.002020  0.000000  0.050417
0.200000  0.025253  0.002424  0.000000  0.050417
0.233333  0.025253  0.002828  0.000000  0.050417
0.266667  0.025253  0.003232  0.000000  0.050417
0.300000  0.025253  0.003636  0.000000  0.050417
0.333333  0.025253  0.004040  0.000000  0.050417
0.366667  0.025253  0.004444  0.000000  0.050417
0.400000  0.025253  0.004848  0.000000  0.050417
0.433333  0.025253  0.005253  0.000000  0.050417
0.466667  0.025253  0.005657  0.000000  0.050417
0.500000  0.025253  0.006061  0.000000  0.050417
0.533333  0.025253  0.006465  0.000000  0.050417
0.566667  0.025253  0.006869  0.000000  0.050417
0.600000  0.025253  0.007273  0.000000  0.050417
0.633333  0.025253  0.007677  0.000000  0.050417
0.666667  0.025253  0.008081  0.000000  0.050417
0.700000  0.025253  0.008485  0.000000  0.050417
0.733333  0.025253  0.008889  0.000000  0.050417
0.766667  0.025253  0.009293  0.000000  0.050417
0.800000  0.025253  0.009697  0.000000  0.050417
0.833333  0.025253  0.010101  0.000000  0.050417
0.866667  0.025253  0.010505  0.000000  0.050417
0.900000  0.025253  0.010909  0.000000  0.050417
0.933333  0.025253  0.011313  0.000000  0.050417
0.966667  0.025253  0.011717  0.000000  0.050417
1.000000  0.025253  0.012121  0.000000  0.050417
1.033333  0.025253  0.012525  0.000000  0.050417
1.066667  0.025253  0.012929  0.000000  0.050417
1.100000  0.025253  0.013333  0.000000  0.050417
1.133333  0.025253  0.013737  0.000000  0.050417
1.166667  0.025253  0.014141  0.000000  0.050417
1.200000  0.025253  0.014545  0.000000  0.050417
1.233333  0.025253  0.014949  0.000000  0.050417
1.266667  0.025253  0.015354  0.000000  0.050417
1.300000  0.025253  0.015758  0.000000  0.050417
```

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  1.333333  0.025253  0.016162  0.000000  0.050417
  1.366667  0.025253  0.016566  0.000000  0.050417
  1.400000  0.025253  0.016970  0.000000  0.050417
  1.433333  0.025253  0.017374  0.000000  0.050417
  1.466667  0.025253  0.017778  0.000000  0.050417
  1.500000  0.025253  0.018182  0.000000  0.050417
  1.533333  0.025253  0.018586  0.000000  0.050417
  1.566667  0.025253  0.018990  0.000000  0.050417
  1.600000  0.025253  0.019394  0.000000  0.050417
  1.633333  0.025253  0.019798  0.000000  0.050417
  1.666667  0.025253  0.020202  0.000000  0.050417
  1.700000  0.025253  0.020606  0.000000  0.050417
  1.733333  0.025253  0.021010  0.000000  0.050417
  1.766667  0.025253  0.021414  0.000000  0.050417
  1.800000  0.025253  0.021818  0.000000  0.050417
  1.833333  0.025253  0.022222  0.000000  0.050417
  1.866667  0.025253  0.022626  0.000000  0.050417
  1.900000  0.025253  0.023030  0.000000  0.050417
  1.933333  0.025253  0.023434  0.000000  0.050417
  1.966667  0.025253  0.023838  0.000000  0.050417
  2.000000  0.025253  0.024242  0.000000  0.050417
  2.033333  0.025253  0.024646  0.000000  0.050417
  2.066667  0.025253  0.025051  0.000000  0.050417
  2.100000  0.025253  0.025455  0.000000  0.050417
  2.133333  0.025253  0.025859  0.000000  0.050417
  2.166667  0.025253  0.026263  0.000000  0.050417
  2.200000  0.025253  0.026667  0.000000  0.050417
  2.233333  0.025253  0.027071  0.000000  0.050417
  2.266667  0.025253  0.027475  0.000000  0.050417
  2.300000  0.025253  0.027879  0.000000  0.050417
  2.333333  0.025253  0.028283  0.000000  0.050417
  2.366667  0.025253  0.028687  0.000000  0.050417
  2.400000  0.025253  0.029091  0.000000  0.050417
  2.433333  0.025253  0.029495  0.000000  0.050417
  2.466667  0.025253  0.029899  0.000000  0.050417
  2.500000  0.025253  0.030303  0.000000  0.050417
  2.533333  0.025253  0.030707  0.000000  0.050417
  2.566667  0.025253  0.031111  0.000000  0.050417
  2.600000  0.025253  0.031515  0.000000  0.050417
  2.633333  0.025253  0.031919  0.000000  0.050417
  2.666667  0.025253  0.032323  0.000000  0.050417
  2.700000  0.025253  0.032727  0.000000  0.050417
  2.733333  0.025253  0.033131  0.000000  0.050417
  2.766667  0.025253  0.033535  0.000000  0.050417
  2.800000  0.025253  0.033939  0.000000  0.050417
  2.833333  0.025253  0.034343  0.000000  0.050417
  2.866667  0.025253  0.034747  0.000000  0.050417
  2.900000  0.025253  0.035152  0.000000  0.050417
  2.933333  0.025253  0.035556  0.000000  0.050417
  2.966667  0.025253  0.035960  0.000000  0.050417
  3.000000  0.025253  0.036364  0.000000  0.050417
  3.033333  0.025253  0.037205  0.096853  0.050417
  END FTABLE  5
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    0.8            PERLND   1 999 EXTNL  PREC
WDM      2 PREC     ENGL    0.8            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***
RCHRES   1 HYDR   RO     1 1        1      WDM   1000 FLOW     ENGL      REPL
RCHRES   1 HYDR   O      1 1        1      WDM   1001 FLOW     ENGL      REPL
```

```
RCHRES    1 HYDR    O       2 1          1       WDM    1002 FLOW      ENGL       REPL
RCHRES    1 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
RCHRES    2 HYDR    RO      1 1          1       WDM    1004 FLOW      ENGL       REPL
RCHRES    2 HYDR    O       1 1          1       WDM    1005 FLOW      ENGL       REPL
RCHRES    2 HYDR    O       2 1          1       WDM    1006 FLOW      ENGL       REPL
RCHRES    2 HYDR    STAGE   1 1          1       WDM    1007 STAG      ENGL       REPL
RCHRES    3 HYDR    RO      1 1          1       WDM    1008 FLOW      ENGL       REPL
RCHRES    3 HYDR    O       1 1          1       WDM    1009 FLOW      ENGL       REPL
RCHRES    3 HYDR    O       2 1          1       WDM    1010 FLOW      ENGL       REPL
RCHRES    3 HYDR    STAGE   1 1          1       WDM    1011 STAG      ENGL       REPL
RCHRES    4 HYDR    RO      1 1          1       WDM    1012 FLOW      ENGL       REPL
RCHRES    4 HYDR    O       1 1          1       WDM    1013 FLOW      ENGL       REPL
RCHRES    4 HYDR    O       2 1          1       WDM    1014 FLOW      ENGL       REPL
RCHRES    4 HYDR    STAGE   1 1          1       WDM    1015 STAG      ENGL       REPL
RCHRES    5 HYDR    RO      1 1          1       WDM    1016 FLOW      ENGL       REPL
RCHRES    5 HYDR    O       1 1          1       WDM    1017 FLOW      ENGL       REPL
RCHRES    5 HYDR    O       2 1          1       WDM    1018 FLOW      ENGL       REPL
RCHRES    5 HYDR    STAGE   1 1          1       WDM    1019 STAG      ENGL       REPL
END EXT TARGETS

MASS-LINK
<Volume>   <-Grp> <-Member-><--Mult-->     <Target>       <-Grp> <-Member->***
<Name>             <Name> # #<-factor->     <Name>                <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       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
```

Predeveloped HSPF Message File

Mitigated HSPF Message File

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