PLANNING
ENGINEERING
&SURVEYING

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Letter of Justification/Project Description
Village Car Wash - Gray's Crossing

Project Description

Gray's Crossing Investments, LLC is requesting a Development Permit for a carwash located within Lot T (43,295 sq.ft.), as shown in Book 9 of Final Maps, Page 26, Official Records of Nevada County (A.P.N. 043-070-010) and is located at the southwesterly region of the Gray's Crossing Village Property being westerly of Edwin Way, Easterly of Highway 89 and south of the recently approved residential 4-plex units. The site is designed for ease of access from Edwin Way and the primary entrance aligns with Jack Way. Additionally, a right turn only one-way access is provided at the southerly end of the site. Vehicles entering the site at the northern entrance will circulate through the two (2) lanes of stacking in a counterclockwise fashion and then are directed through the one-way car wash. Thirteen (13) parking stalls are provided for both employees (3+-) and customers. Ten (10) of the parking spaces provided will be equipped as potential vacuum stations. A bicycle rack is provided for three (3) spaces at the southerly end of the proposed building and storage interior space can be provided for lockable bike storage for employees as necessary in conformance with Town of Truckee Development Code.

The site is very conducive to development and construction with slopes considered mild with most of the necessary infrastructure (roadway, water, sewer, electrical) already fronting the project site. Water usage within the car wash is continually filtered, recycled and pumped back to be used for minimal loss through the cleaning cycles. Minimal grading is necessary for the site and minor berming and planting along Highway 89 and Edwin Way is proposed to reduce visibility from the Highway, or directly to residential units.

The proposed building provides a functional design. A major portion of the floor area is dedicated to the wash tunnel itself and equipment support area. There is a small customer service area at the main entrance of the building along with a restroom (accessible from the outside) as well as an employee break room, manager's office and vending area. Predominantly the actual operation of the facility from a customer point of view is for the most part automated. The small customer service area shown is for customers to interact with staff if there is an issue with the car wash service, or to purchase, or renew their wash subscription.

The car (vehicle) wash building is just under 30 feet tall and is designed with similar materials to the previously approved Village at Gray's Crossing development to be not the same, but to draw from a similar palette of both durable and quality materials. Building materials consist

of wood plank, wood trim and stone veneer wainscot and sill with a variation of vertical and horizontal elements. Additional accents include metal corrugated roof and aluminum framed awnings with cedar trim.

The proposed development is an allowed use per the Gray's Crossing Specific Plan and is consistent with the development of the village area collectively. It is anticipated that approximately 3 employees at one time would be present onsite. Typically, one employee guides vehicles into the tunnel while another assists with payment. Proposed hours of operation will be 7 A.M. to 9 P.M. daily and could vary dependent upon daylight hours and upon the season and weather conditions.

Mixed-Use Commercial Development

- 3,825 S.F. carwash
- 12 parking stalls (10 setup for vacuum usage)
- 1 ADA parking stall
- 3 bicycle stalls
- Berming and additional planting/screening along Hwy 89 and Edwin Way

Findings – Development Permit

1. ***The proposed development is:***
   - ***A. Allowed by Article II (Zoning Districts and Allowable Land Uses) within the applicable zoning district with the approval of a Development Permit, and complies with all applicable provisions of the Truckee Development Code, Municipal Code, and Public Improvement and Engineering Standards; and***
   - ***B. Consistent with the Town of Truckee General Plan, any applicable Specific Plan and/or Master Plan, the Trails Master Plan, the Truckee Tahoe Airport Land Use Compatibility Plan, and the Particulate Matter Air Quality Management Plan.***

The adopted Gray's Crossing Specific Plan established zoning, land uses, standards and guidelines for development on this site. The proposed project is consistent with the Development Standards within the Gray's Crossing Specific Plan and the Town's Development Code.

2. ***The proposed development is consistent with the design guidelines, achieves the overall design objectives of the design guidelines, and would not impair the design and architectural integrity and character of the surrounding neighborhood.***

The adopted Gray's Crossing Specific Plan has design guidelines specific to the Village Area, CN zoning district. The project design and architecture is consistent with those design guidelines and similar in character with the development in the surrounding area and the recently approved Village at Grays Crossing Development Permit.

3. ***The Development Permit approval is in compliance with the requirements of the California Environmental Quality Act (CEQA) and there would be no potentially significant adverse effects upon environmental quality and natural resources that would not be properly mitigated and monitored unless a Statement of Overriding Considerations is adopted.***

The certified FEIR for the overall Specific Plan found that development on the site would not have a significant effect on the environment. Specific findings confirming such were adopted as part of the resolution approving the Specific Plan and certifying the FEIR and the recently approved Village at Gray's Crossing Development.

4. ***There are adequate provisions for public and emergency vehicle access, fire protection, sanitation, water, and public utilities and services to ensure that the proposed development would not be detrimental to public health and safety. Adequate provisions shall mean that distribution and collection facilities and other infrastructure are installed at the time of development and in operation prior to occupancy of buildings and the land, and all development fees have been paid prior to occupancy of buildings and the land.***

As part of the Gray's Crossing Specific Plan approval process, Truckee Sanitary District (sewer), Truckee Donner Public Utility District (water & electrical), Truckee Fire Protection District, and Town Engineering reviewed the documents and confirmed existing and required infrastructure to ensure adequate provisions would be in place prior to building occupancy. Facilities fees for all agencies, including water, sewer, and fire are required prior to building permit issuance or Final Map recordation.

5. ***The subject site is:***
   - ***A. Physically suitable for the type and density/intensity of development being proposed;***
   - ***B. Adequate in size and shape to accommodate the use and all fences and walls, landscaping, loading, parking, yards and other features required by the Truckee Development Code; and***
   - ***C. Served by streets adequate in width and pavement type to carry the quantity and type of traffic generated by the proposed development.***

The proposed development conforms to the adopted Gray's Crossing Specific Plan. That plan evaluated the site's physical capabilities and was validated by a certified Environmental Impact Report (EIR). The EIR concluded the site was physically suitable for the density and intensity being proposed.

The project is served by existing roadways that meet Town standards. Traffic studies have been conducted as part of the Gray's Crossing Specific Plan approval to determine specific road improvements needed to serve buildout of the Plan area and cumulative buildout of the Truckee General Plan. The off-site improvements recommended in the Traffic reports, Conditions of Project Approval and Mitigation Measure listed in the Projects FEIR have been constructed.

6. ***The proposed development is consistent with all applicable regulations of the Nevada County Department of Environmental Health and the Truckee Fire Protection District for the transport, use, and disposal of hazardous materials.***

Not applicable.

Clearance 7'2"

7 FLAGS Express CAR WASH

Our Best Wax Service!

LAVA SHIELD

Includes 'Ultimate' plus:
- Lava Bath
- Tire Shine
- Waterfall
- Lava Shield Wax

Includes 'Deluxe' plus:
- 'Rain-X' for Rims
- Triple Coat Polish
- Lustra Shield (Bug & Water Repellant)

Includes 'Exterior' plus:
- Rim Cleaner
- Underbody Flush
- Clear Coat Sealant

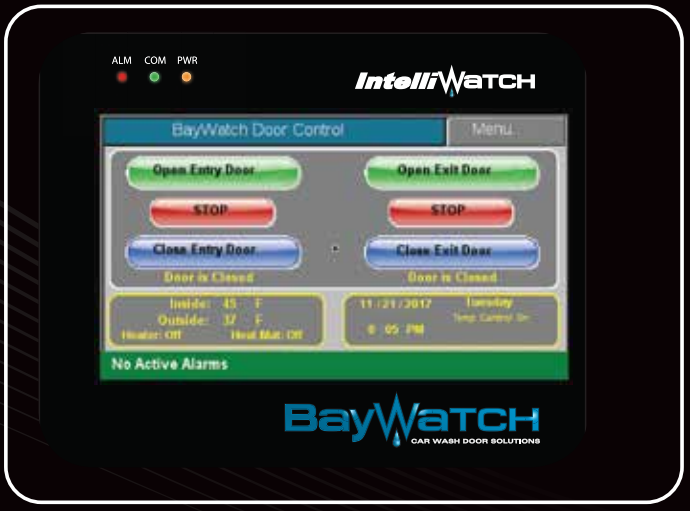
- Spot Free Rinse

BayWatch
CAR WASH DOOR SOLUTIONS

BAY DOOR SOLUTIONS THAT PUT YOU IN CONTROL

BAY DOOR SOLUTIONS

- Remote Access
- Vinyl Doors
- Polycarbonate Doors
- Bay Banner



FEATURES

INTELLIWATCH PREMIUM OPERATING SYSTEM

BayWatch is the only company that keeps you in touch with your car wash bay at all times and provides alerts if the doors or heater ever fail. A car wash door that stays up or a heater failure can freeze your car wash equipment and can cost you thousands of dollars in repairs. IntelliWatch puts those concerns to rest.

In addition to all of the advanced features found in the standard operating system, the IntelliWatch premium operating system provides:

- **Single Thermostat Control** – Links doors, heaters and heat mats together with a single thermostat. This eliminates freeze-ups and unnecessary heat output due to tampering with temperature settings
- **In-Store Monitoring** – Provides live status of the wash bay with an easy to read backlit display and the ability to operate doors without physically going out to the wash bay. An in-store alert sounds if the bay doors fail to close or the bay heat drops below its set temperature. This eliminates photo eye failures without your knowledge that leave the bay doors up and cause the wash to freeze
- **Time / Temp Control** – Operates under automatic time or temperature. Temperature will automatically override time mode if the temperature drops below its set level
- **Door Isolation Control** – Allows each door to operate individually, i.e. one door on time and one door on temperature control if desired
- **Car Wash Interface Included** – Eliminates the need for the manufacturer car wash door interface kit, photo eyes and /or floor loop (saving you as much as $4,000)

STANDARD OPERATING SYSTEM

The BayWatch standard operating system raises the bar in car wash door technology. In addition to the standard features found in our competitor's offering, the BayWatch standard operating system also provides:

- **Programmable Adjustable Door Height** – Unlike the competition, the door height can be programmed to any height and does not require ordering an additional lift kit
- **Variable Speed Drive** – Allows for high speed during normal door function. Also gives immediate reduced speed, when photo eye is broken, to prevent damage claims
- **Manually Raise Door** – Door can be raised by hand if power were lost on site. This prevents trapping a customer in the wash bay

REMOTE ACCESS

PUTS YOU IN CONTROL

BayWatch now offers the ability to add remote monitoring to our premium operating system. It allows live access when you are away from your car wash site. Benefits include:

Increased Uptime

- Instant e-mail alerts to owner and/or service provider of any door or heater failures
- Service provider can diagnose remotely to reduce downtime and possibly avoid unecessary service calls
- Virtually eliminates bay freeze-ups and costly repairs

Bay Control

- The mobility to instantly make changes to your door and heater configuration
- Works with any laptop, tablet or smartphone

BAYWATCH QUALITY

Regardless of the door or operating system chosen, BayWatch engineers unparalleled quality into every product sold. We deliver a completely enclosed direct shaft driven operating system, to specifically withstand cold and wet environments, in all our door packages. The NEMA 4 rated, 1/2 hp waterproof gearbox and motor assembly gives consistent reliability in the harshest car wash climates. Unlike air driven operators, BayWatch operators open and close in one smooth motion. Reversing the door at high speeds are done with ease, which can extend the life of your doors.

VINYL

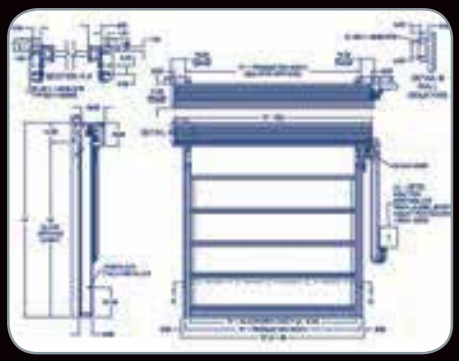
POLYCARBONATE

VINYL DOOR

The BayFlex door was developed specifically for harsh car wash environments. With corrosion-resistant materials and a Break-Away design, it is engineered for high-volume car wash applications that demand low-maintenance doors. The design eliminates pneumatics, cables, springs, hinges, belts, drums, pulleys and other parts for years of trouble-free operation.

Vinyl Roll-Up Car Wash Door

- **Break-Away™ Design**
- **Easy Individual Panel Replacement**
- **Heat Retention**
- **Corrosion Resistance**
- **Visibility and Light**

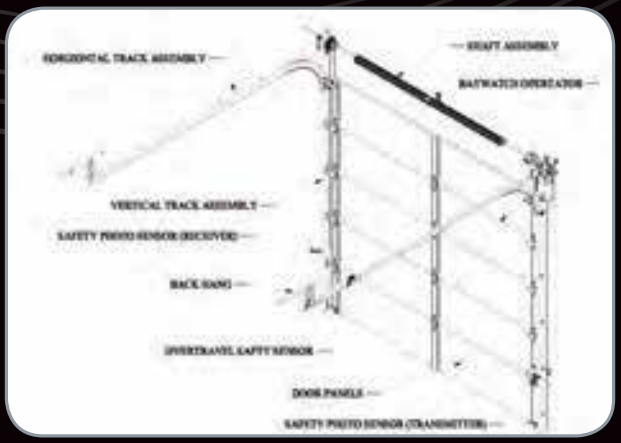


Panel Colors

- Clear Vision Panel
- Green (DC-24)
- Royal Blue (DC-46)
- Yellow (DC-42)
- Red (DC-2)
- White (DC-6)
- Black (DC-7)
- Grey (DC-4)
- Orange (DC-70)

POLYCARBONATE DOOR

The BayWatch polycarbonate door provides the top level of security and heat retention. It's triple wall polycarbonate panels and anodized aluminum door panel frames give you the highest quality finish in the industry. Only the most durable and highest grade door parts, such as a stainless steel shaft and brackets, plastic hinges and stainless steel zerk bearings are used. Full vision panels, for optimal visibility, and custom doors for any bay size, are also available.



Polycarbonate Car Wash Door

- **Greatest Security**
- **Highest Heat Retention**
- **Corrosion Resistance Hardware**
- **Visibility and Light**

About Baywatch Enterprises, LLC

Baywatch Enterprises has been building "best-in-class" doors and monitoring systems for the car wash industry since 1995. We are a full-service manufacturer providing design, construction, installation and direct territory service to industry leaders such as BP, Circle K, ConocoPhillips, ExxonMobil, Speedway, Shell and Valero as well as distribution through all the major car wash manufacturers. Baywatch doors, widely known for superior design, construction and quality especially in harsh weather environments, can be found worldwide, including the United States, Canada and Russia.

CONTACT INFORMATION

For All Sales Information Please Contact Us At

p: 888.235.0800

p: 303.400.3466

e: sales@baywatchdoors.com

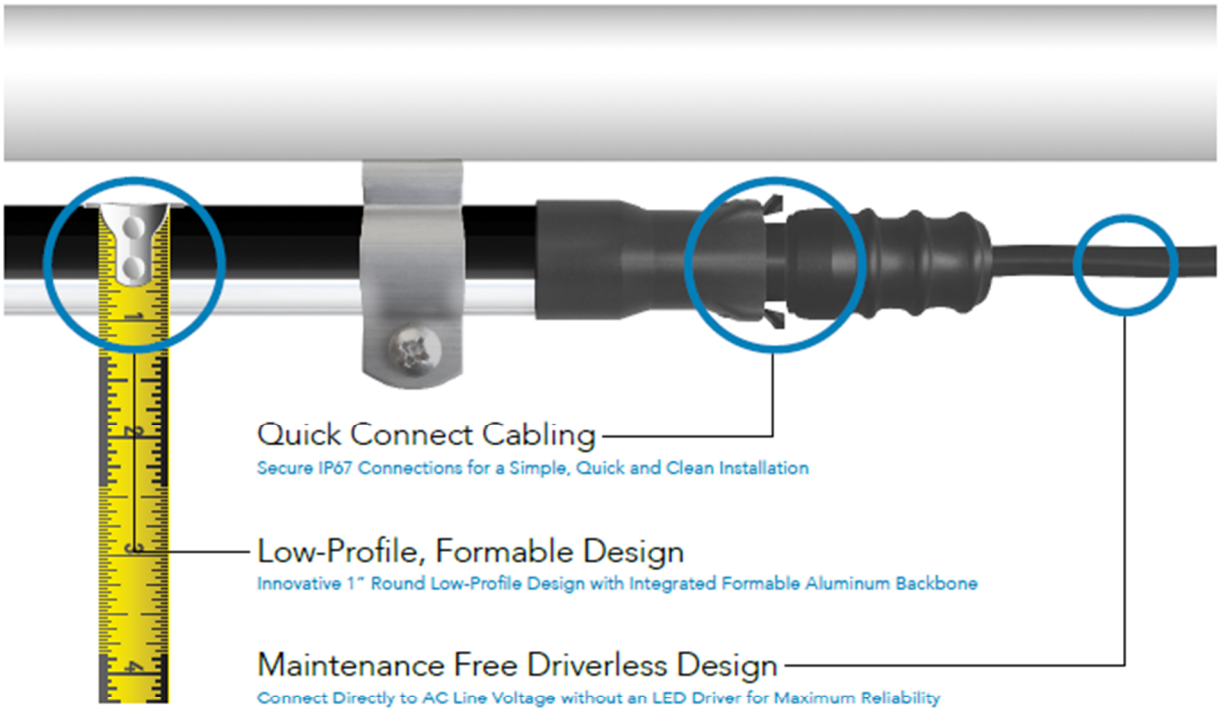
Denver, CO

www.baywatchdoors.com

BayWaTCH
CAR WASH DOOR SOLUTIONS

WWW.BAYWATCHDOORS.COM
888.235.0800

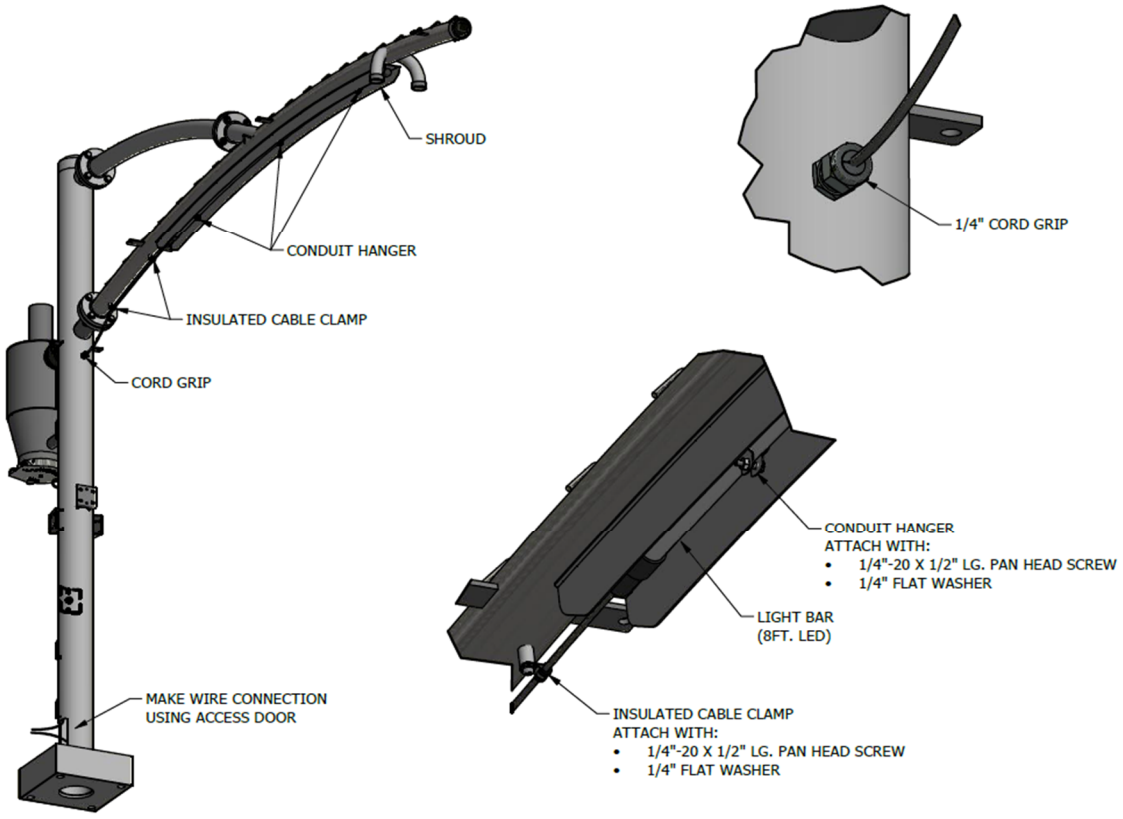
LED VACUUM AREA & CANOPY LIGHTING



Lumen & Power Data

Length	Lumens	Wattage	Amps @120V	Amps @277V
6-Foot Fixture	3600	27	0.225	0.097
8-Foot Fixture	4800	36	0.300	0.130

HALF PALM ARCH - LIGHT INSTALLATION W/ SHROUD



D-Series Size 1

Legacy LED Area Luminaire

Catalog Number

Notes

Type L9

Hit the Tab key or mouse over the page to see all interactive elements.

Specifications

EPA: 1.01 ft² (0.09 m²)

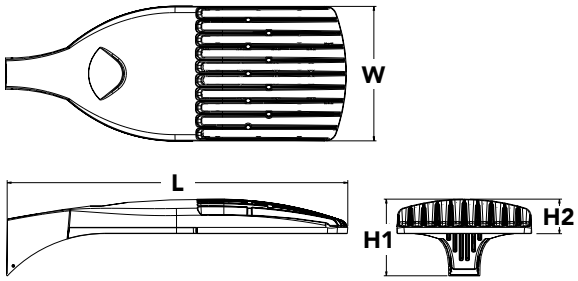
Length: 33" (83.8 cm)

Width: 13" (33.0 cm)

Height H1: 7-1/2" (19.0 cm)

Height H2: 3-1/2"

Weight (max): 27 lbs (12.2 kg)



Introduction

The modern styling of the D-Series is striking yet unobtrusive - making a bold, progressive statement even as it blends seamlessly with its environment. The D-Series distills the benefits of the latest in LED technology into a high performance, high efficacy, long-life luminaire.

The outstanding photometric performance results in sites with excellent uniformity, greater pole spacing and lower power density. It is ideal for replacing up to 750W metal halide in pedestrian and area lighting applications with typical energy savings of 65% and expected service life of over 100,000 hours.

Ordering Information

EXAMPLE: DSX1 LED P7 40K T3M MVOLT SPA NLTAIR2 PIRHN DDBXD G1

DSX1 LED

Series

DSX1 LED

LEDs

Forward optics

P1, P4[1], P7[1], P2, P5[1], P8, P3, P6[1], P9[1]

Rotated optics

P10[2], P12[2], P11[2], P13[1,2]

Color temperature

30K 3000 K
40K 4000 K
50K 5000 K

Distribution

T1S Type I short (Automotive)
T2S Type II short
T2M Type II medium
T3S Type III short
T3M Type III medium
T4M Type IV medium
TFTM Forward throw medium
T5VS Type V very short[3]
T5S Type V short[3]
T5M Type V medium[3]
T5W Type V wide[3]
BLC Backlight control[4]
LCCO Left corner cutoff[4]
RCCO Right corner cutoff[4]

Voltage

MVOLT[5]
XVOLT (277V-480V)[6,7,8]
120[9]
208[9]
240[9]
277[9]
347[9]
480[9]

Mounting

Shipped included

SPA Square pole mounting
RPA Round pole mounting[10]
WBA Wall bracket[3]
SPUMBA Square pole universal mounting adaptor[11]
RPUMBA Round pole universal mounting adaptor[9]

Shipped separately

KMA8 DDBXD U Mast arm mounting bracket adaptor (specify finish)[12]

Control options

Shipped installed

NLTAIR2 nLight AIR generation 2 enabled[13]
PIRHN Network, high/low motion/ambient sensor[14]
PER NEMA twist-lock receptacle only (controls ordered separate)[15]
PER5 Five-pin receptacle only (controls ordered separate)[15,16]
PER7 Seven-pin receptacle only (controls ordered separate)[15,16]
DMG 0-10v dimming wires pulled outside fixture (for use with an external control, ordered separately)[17]
DS Dual switching[18,19,20]
PIR High/low, motion/ambient sensor, 8-15' mounting height, ambient sensor enabled at 5fc[20,21]
PIRH High/low, motion/ambient sensor, 15-30' mounting height, ambient sensor enabled at 5fc[20,21]
PIR1FC3V High/low, motion/ambient sensor, 8-15' mounting height, ambient sensor enabled at 1fc[20,21]
PIRH1FC3V Bi-level, motion/ambient sensor, 15-30' mounting height, ambient sensor enabled at 1fc[20,21]
FAO Field adjustable output[20,22]

Other options

Shipped installed

HS House-side shield[23]
SF Single fuse (120, 277, 347V)[9]
DF Double fuse (208, 240, 480V)[9]
L90 Left rotated optics[2]
R90 Right rotated optics[2]
HA 50°C ambient operations[1]
BAA Buy America(n) Act Compliant

Shipped separately

BS Bird spikes[24]
EGS External glare shield

Finish *(required)*

DDBXD Dark bronze
DBLXD Black
DNAXD Natural aluminum
DWHXD White
DDBTXD Textured dark bronze
DBLBXD Textured black
DNATXD Textured natural aluminum
DWHGXD Textured white

Generation *(required)*

G1 Generation 1

One Lithonia Way • Conyers, Georgia 30012 • Phone: 1-800-705-SERV (7378) • www.lithonia.com

Ordering Information

Accessories

Ordered and shipped separately.

DLL127F 1.5 JU	Photocell - SSL twist-lock (120-277V) [25]
DLL347F 1.5 CUL JU	Photocell - SSL twist-lock (347V) [25]
DLL480F 1.5 CUL JU	Photocell - SSL twist-lock (480V) [25]
DSHORT SBK U	Shorting cap [25]
DSX1HS 30C G1 U	House-side shield for P1, P2, P3, P4 and P5 [23]
DSX1HS 40C G1 U	House-side shield for P6 and P7 [23]
DSX1HS 60C G1 U	House-side shield for P8, P9, P10, P11 and P12 [23]
PUMBA DDBXD G1 U*	Square and round pole universal mounting bracket (specify finish) [26]
KMA8 DDBXD U	Mast arm mounting bracket adaptor (specify finish) [12]
DSX1EGS (FINISH) G1 U	External glare shield

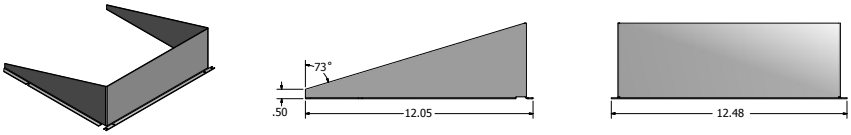
For more control options, visit DTL and ROAM online.

NOTES

1 HA not available with P4, P5, P6, P7, P9 and P13.
2 P10, P11, P12 or P13 and rotated optics (L90, R90) only available together.
3 Any Type 5 distribution with photocell, is not available with WBA.
4 Not available with HS.
5 MVOLT driver operates on any line voltage from 120-277V (50/60 Hz).
6 XVOLT only suitable for use with P3, P5, P6, P7, P9 and P13.
7 XVOLT works with any voltage between 277V and 480V.
8 XVOLT not available with fusing (SF or DF) and not available with PIR, PIRH, PIR1FC3V, PIRH1FC3V.
9 Single fuse (SF) requires 120V, 277V or 347V. Double fuse (DF) requires 208V, 240V or 480V. XVOLT not available with fusing (SF or DF.
10 Suitable for mounting to round poles between 3.5" and 12" diameter.
11 Universal mounting brackets intended for retrofit on existing, pre-drilled poles only. 1.5 G vibration load rating per ANCI C136.31. Only usable when pole's drill pattern is NOT Lithonia template #8
12 Must order fixture with SPA option. KMA8 must be ordered as a separate accessory; see Accessories information. For use with 2-3/8" diameter mast arm (not included).
13 Must be ordered with PIRHN. Sensor cover available only in dark bronze, black, white and natural aluminum colors.
14 Must be ordered with NLTAIR2. For more information on nLight Air 2 visit this link.
15 Photocell ordered and shipped as a separate line item from Acuity Brands Controls. See accessories. Shorting cap included.
16 If ROAM® node required, it must be ordered and shipped as a separate line item from Acuity Brands Controls. Node with integral dimming.
17 DMG not available with PIRHN, PER5, PER7, PIR, PIRH, PIR1FC3V or PIRH1FC3V, FAO.
18 Provides 50/50fixture operation via (2) independent drivers. Not available with PER, PER5, PER7, PIR or PIRH. Not available P1, P2, P3, P4 or P5.
19 Requires (2) separately switched circuits.
20 Reference Controls Options table on page 4.
21 Reference Motion Sensor default settings table on page 4 to see functionality.
22 Not available with other dimming controls options.
23 Not available with BLC, LCCO and RCCO distribution. Also available as a separate accessory; see Accessories information.
24 Must be ordered with fixture for factory pre-drilling.
25 Requires luminaire to be specified with PER, PER5 or PER7 option. See Control Option Table on page 4.
26 For retrofit use only. Only usable when pole's drill pattern is NOT Lithonia template #8.

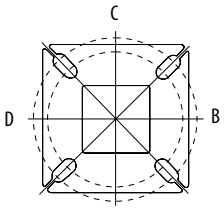
Options

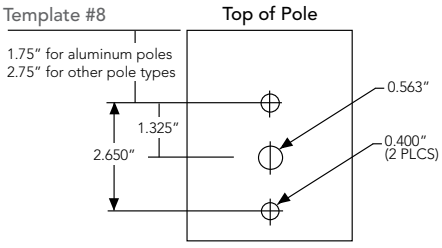
EGS - External Glare Shield



Drilling

HANDHOLE ORIENTATION





Tenon Mounting Slipfitter

Tenon O.D.	Mounting	Single Unit	2 @ 180	2 @ 90	3 @ 90	3 @120	4 @ 90
2-3/8"	RPA	AS3-5 190	AS3-5 280	AS3-5 290	AS3-5 390	AS3-5 320	AS3-5 490
2-7/8"	RPA	AST25-190	AST25-280	AST25-290	AST25-390	AST25-320	AST25-490
4"	RPA	AST35-190	AST35-280	AST35-290	AST35-390	AST35-320	AST35-490

Mounting Option	Drilling Template	Single	2 @ 180	2 @ 90	3 @ 90	3 @ 120	4 @ 90
Head Location		Side B	Side B & D	Side B & C	Side B, C & D	Round Pole Only	Side A, B, C & D
Drill Nomenclature	#8	DM19AS	DM28AS	DM29AS	DM39AS	DM32AS	DM49AS

DSX1 Area Luminaire - EPA

*Includes luminaire and integral mounting arm. Other tenons, arms, brackets or other accessories are not included in this EPA data.

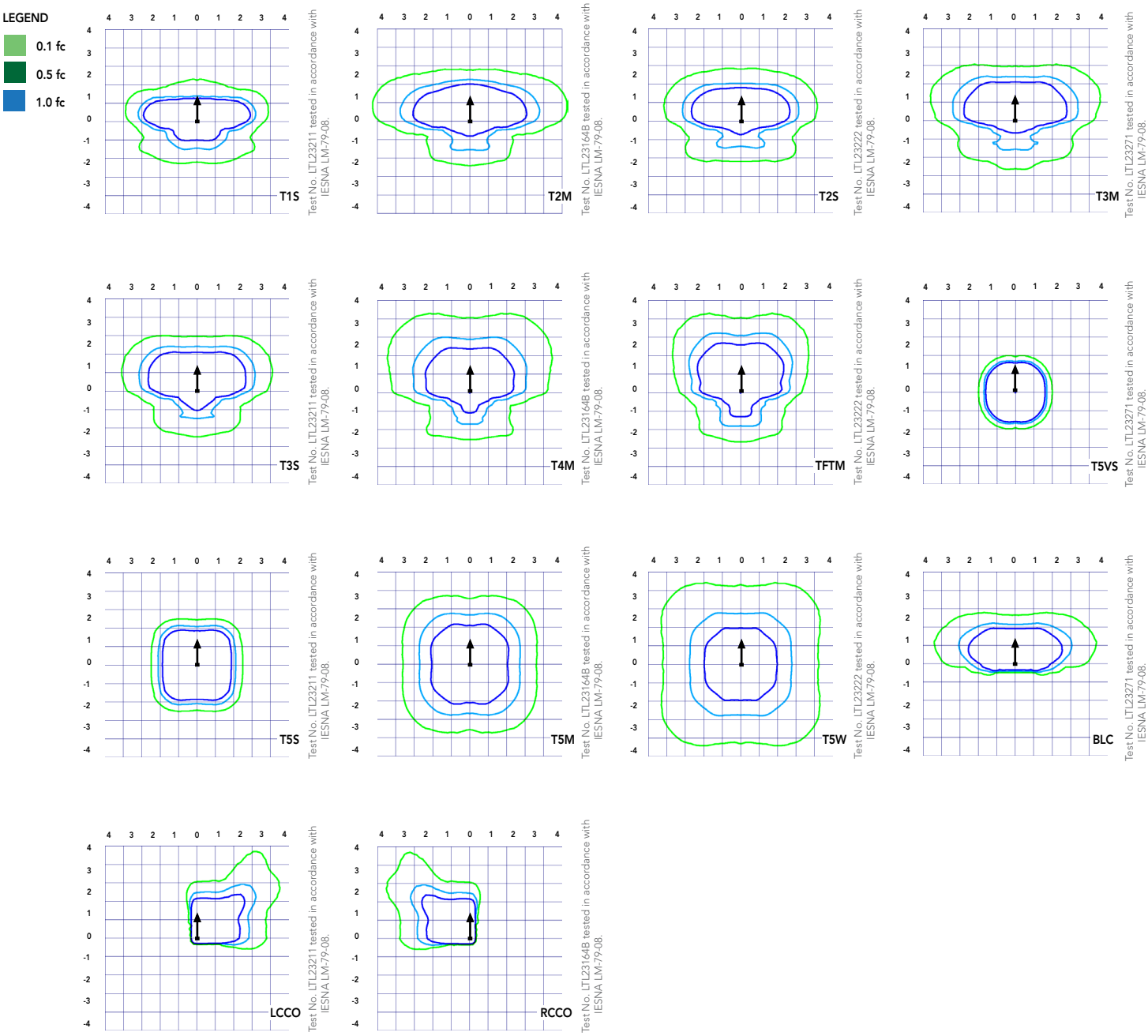
Fixture Quantity & Mounting Configuration	Single DM19	2 @ 180 DM28	2 @ 90 DM29	3 @ 90 DM39	3 @ 120 DM32	4 @ 90 DM49
Mounting Type						
DSX1 LED	1.013	2.025	1.945	3.038	2.850	3.749

	Drilling Template	Minimum Acceptable Outside Pole Dimension					
SPA	#8	2-7/8"	2-7/8"	3.5"	3.5"	3"	3.5"
RPA	#8	2-7/8"	2-7/8"	3.5"	3.5"	3"	3.5"
SPUMBA	#5	2-7/8"	3"	4"	4"	3.5"	4"
RPUMBA	#5	2-7/8"	3.5"	5"	5"	3.5"	5"

Photometric Diagrams

To see complete photometric reports or download .ies files for this product, visit Lithonia Lighting's D-Series Area Size 1 homepage.

Isofootcandle plots for the DSX1 LED P7 40K G1. Distances are in units of mounting height (25').



Performance Data

Lumen Ambient Temperature (LAT) Multipliers

Use these factors to determine relative lumen output for average ambient temperatures from 0-40°C (32-104°F).

Ambient		Lumen Multiplier
0°C	32°F	1.04
5°C	41°F	1.04
10°C	50°F	1.03
15°C	50°F	1.02
20°C	68°F	1.01
25°C	**77°F**	**1.00**
30°C	86°F	0.99
35°C	95°F	0.98
40°C	104°F	0.97

Projected LED Lumen Maintenance

Data references the extrapolated performance projections for the platforms noted in a **25°C ambient**, based on 10,000 hours of LED testing (tested per IESNA LM-80-08 and projected per IESNA TM-21-11).

To calculate LLF, use the lumen maintenance factor that corresponds to the desired number of operating hours below. For other lumen maintenance values, contact factory.

Operating Hours	Lumen Maintenance Factor
0	1.00
25,000	0.96
50,000	0.92
100,000	0.85

Motion Sensor Default Settings						
Option	Dimmed State	High Level (when triggered)	Photocell Operation	Dwell Time	Ramp-up Time	Ramp-down Time
PIR or PIRH	3V (37%) Output	10V (100%) Output	Enabled @ 5FC	5 min	3 sec	5 min
*PIR1FC3V or PIRH1FC3V	3V (37%) Output	10V (100%) Output	Enabled @ 1FC	5 min	3 sec	5 min
*for use when motion sensor is used as dusk to dawn control.						

Electrical Load

	Performance Package	LED Count	Drive Current	Wattage	Current (A) 120	208	240	277	347	480
Forward Optics (Non-Rotated)	P1	30	530	54	0.45	0.26	0.23	0.19	0.10	0.12
	P2	30	700	70	0.59	0.34	0.30	0.25	0.20	0.16
	P3	30	1050	102	0.86	0.50	0.44	0.38	0.30	0.22
	P4	30	1250	125	1.06	0.60	0.52	0.46	0.37	0.27
	P5	30	1400	138	1.16	0.67	0.58	0.51	0.40	0.29
	P6	40	1250	163	1.36	0.78	0.68	0.59	0.47	0.34
	P7	40	1400	183	1.53	0.88	0.76	0.66	0.53	0.38
	P8	60	1050	207	1.74	0.98	0.87	0.76	0.64	0.49
	P9	60	1250	241	2.01	1.16	1.01	0.89	0.70	0.51
Rotated Optics (Requires L90 or R90)	P10	60	530	106	0.90	0.52	0.47	0.43	0.33	0.27
	P11	60	700	137	1.15	0.67	0.60	0.53	0.42	0.32
	P12	60	1050	207	1.74	0.99	0.87	0.76	0.60	0.46
	P13	60	1250	231	1.93	1.12	0.97	0.86	0.67	0.49

Controls Options				
Nomenclature	**Description**	**Functionality**	**Primary control device**	**Notes**
FAO	Field adjustable output device installed inside the luminaire; wired to the driver dimming leads.	Allows the luminaire to be manually dimmed, effectively trimming the light output.	FAO device	Cannot be used with other controls options that need the 0-10V leads
DS	Drivers wired independently for 50/50 luminaire operation	The luminaire is wired to two separate circuits, allowing for 50/50 operation.	Independently wired drivers	Requires two separately switched circuits. Consider nLight AIR as a more cost effective alternative.
PER5 or PER7	Twist-lock photocell recepticle	Compatible with standard twist-lock photocells for dusk to dawn operation, or advanced control nodes that provide 0-10V dimming signals.	Twist-lock photocells such as DLL Elite or advanced control nodes such as ROAM.	Pins 4 & 5 to dimming leads on driver, Pins 6 & 7 are capped inside luminaire
PIR or PIRH	Motion sensors with integral photocell. PIR for 8-15' mounting; PIRH for 15-30' mounting	Luminaires dim when no occupancy is detected.	Acuity Controls SBGR	Also available with PIRH1FC3V when the sensor photocell is used for dusk-to-dawn operation.
NLTAIR2 PIRHN	nLight AIR enabled luminaire for motion sensing, photocell and wireless communication.	Motion and ambient light sensing with group response. Scheduled dimming with motion sensor over-ride when wirelessly connected to the nLight Eclypse.	nLight Air rSDGR	nLight AIR sensors can be programmed and commissioned from the ground using the CIAIRity Pro app.

Performance Data

Lumen Output

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08.

Forward Optics

LED Count	Drive Current	Power Package	System Watts	Dist. Type	30K (3000 K, 70 CRI)					40K (4000 K, 70 CRI)					50K (5000 K, 70 CRI)				
					Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	Lumens	B	U	G	LPW
30	530	**P1**	54W	T1S	6,457	2	0	2	120	6,956	2	0	2	129	7,044	2	0	2	130
				T2S	6,483	1	0	1	120	6,984	2	0	2	129	7,072	2	0	2	131
				T2M	6,450	2	0	2	119	6,948	2	0	2	129	7,036	2	0	2	130
				T3S	6,468	1	0	2	120	6,967	1	0	2	129	7,055	1	0	2	131
				T3M	6,279	2	0	2	116	6,764	2	0	2	125	6,849	2	0	2	127
				T4M	6,327	1	0	2	117	6,816	1	0	2	126	6,902	1	0	2	128
				TFTM	6,464	1	0	2	120	6,963	1	0	2	129	7,051	1	0	2	131
				T5VS	6,722	2	0	0	124	7,242	3	0	0	134	7,334	3	0	0	136
				T5S	6,728	2	0	1	125	7,248	2	0	1	134	7,340	2	0	1	136
				T5M	6,711	3	0	1	124	7,229	3	0	1	134	7,321	3	0	2	136
				T5W	6,667	3	0	2	123	7,182	3	0	2	133	7,273	3	0	2	135
				BLC	5,299	1	0	1	98	5,709	1	0	2	106	5,781	1	0	2	107
				LCCO	3,943	1	0	2	73	4,248	1	0	2	79	4,302	1	0	2	80
				RCCO	3,943	1	0	2	73	4,248	1	0	2	79	4,302	1	0	2	80
30	700	**P2**	70W	T1S	8,249	2	0	2	118	8,886	2	0	2	127	8,999	2	0	2	129
				T2S	8,282	2	0	2	118	8,923	2	0	2	127	9,035	2	0	2	129
				T2M	8,240	2	0	2	118	8,877	2	0	2	127	8,989	2	0	2	128
				T3S	8,262	2	0	2	118	8,901	2	0	2	127	9,013	2	0	2	129
				T3M	8,021	2	0	2	115	8,641	2	0	2	123	8,750	2	0	2	125
				T4M	8,083	2	0	2	115	8,708	2	0	2	124	8,818	2	0	2	126
				TFTM	8,257	2	0	2	118	8,896	2	0	2	127	9,008	2	0	2	129
				T5VS	8,588	3	0	0	123	9,252	3	0	0	132	9,369	3	0	0	134
				T5S	8,595	3	0	1	123	9,259	3	0	1	132	9,376	3	0	1	134
				T5M	8,573	3	0	2	122	9,236	3	0	2	132	9,353	3	0	2	134
				T5W	8,517	3	0	2	122	9,175	4	0	2	131	9,291	4	0	2	133
				BLC	6,770	1	0	2	97	7,293	1	0	2	104	7,386	1	0	2	106
				LCCO	5,038	1	0	2	72	5,427	1	0	2	78	5,496	1	0	2	79
				RCCO	5,038	1	0	2	72	5,427	1	0	2	78	5,496	1	0	2	79
30	1050	**P3**	102W	T1S	11,661	2	0	2	114	12,562	3	0	3	123	12,721	3	0	3	125
				T2S	11,708	2	0	2	115	12,612	2	0	2	124	12.772	2	0	2	125
				T2M	11,648	2	0	2	114	12,548	3	0	3	123	12.707	3	0	3	125
				T3S	11,679	2	0	2	115	12.582	2	0	2	123	12,741	2	0	2	125
				T3M	11,338	2	0	2	111	12.214	3	0	3	120	12,369	3	0	3	121
				T4M	11,426	2	0	3	112	12,309	2	0	3	121	12,465	2	0	3	122
				TFTM	11,673	2	0	2	114	12,575	2	0	3	123	12,734	2	0	3	125
				T5VS	12,140	3	0	1	119	13,078	3	0	1	128	13,244	3	0	1	130
				T5S	12,150	3	0	1	119	13,089	3	0	1	128	13,254	3	0	1	130
				T5M	12,119	4	0	2	119	13,056	4	0	2	128	13,221	4	0	2	130
				T5W	12,040	4	0	3	118	12,970	4	0	3	127	13,134	4	0	3	129
				BLC	9,570	1	0	2	94	10,310	1	0	2	101	10,440	1	0	2	102
				LCCO	7,121	1	0	3	70	7,671	1	0	3	75	7,768	1	0	3	76
				RCCO	7,121	1	0	3	70	7,671	1	0	3	75	7,768	1	0	3	76
30	1250	**P4**	125W	T1S	13,435	3	0	3	107	14,473	3	0	3	116	14,657	3	0	3	117
				T2S	13,489	2	0	2	108	14,532	3	0	3	116	14,716	3	0	3	118
				T2M	13,420	3	0	3	107	14,457	3	0	3	116	14,640	3	0	3	117
				T3S	13,457	2	0	2	108	14,496	2	0	2	116	14,680	2	0	2	117
				T3M	13,064	3	0	3	105	14,073	3	0	3	113	14,251	3	0	3	114
				T4M	13,165	2	0	3	105	14,182	2	0	3	113	14,362	2	0	3	115
				TFTM	13,449	2	0	3	108	14,488	2	0	3	116	14,672	2	0	3	117
				T5VS	13,987	4	0	1	112	15,068	4	0	1	121	15,259	4	0	1	122
				T5S	13,999	3	0	1	112	15,080	3	0	1	121	15,271	3	0	1	122
				T5M	13,963	4	0	2	112	15,042	4	0	2	120	15,233	4	0	2	122
				T5W	13,872	4	0	3	111	14,944	4	0	3	120	15,133	4	0	3	121
				BLC	11,027	1	0	2	88	11,879	1	0	2	95	12,029	1	0	2	96
				LCCO	8,205	1	0	3	66	8,839	1	0	3	71	8,951	1	0	3	72
				RCCO	8,205	1	0	3	66	8,839	1	0	3	71	8,951	1	0	3	72
30	1400	**P5**	138W	T1S	14,679	3	0	3	106	15,814	3	0	3	115	16,014	3	0	3	116
				T2S	14,739	3	0	3	107	15,878	3	0	3	115	16,079	3	0	3	117
				T2M	14,663	3	0	3	106	15,796	3	0	3	114	15,996	3	0	3	116
				T3S	14,703	2	0	3	107	15,839	3	0	3	115	16,039	3	0	3	116
				T3M	14,274	3	0	3	103	15,377	3	0	3	111	15,571	3	0	3	113
				T4M	14,384	2	0	3	104	15,496	3	0	3	112	15,692	3	0	3	114
				TFTM	14,695	2	0	3	106	15,830	3	0	3	115	16,030	3	0	3	116
				T5VS	15,283	4	0	1	111	16,464	4	0	1	119	16,672	4	0	1	121
				T5S	15,295	3	0	1	111	16,477	4	0	1	119	16,686	4	0	1	121
				T5M	15,257	4	0	2	111	16,435	4	0	2	119	16,644	4	0	2	121
				T5W	15,157	4	0	3	110	16,328	4	0	3	118	16,534	4	0	3	120
				BLC	12,048	1	0	2	87	12,979	1	0	2	94	13,143	1	0	2	95
				LCCO	8,965	1	0	3	65	9,657	1	0	3	70	9,780	1	0	3	71
				RCCO	8,965	1	0	3	65	9,657	1	0	3	70	9,780	1	0	3	71

Performance Data

Lumen Output

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown, within the tolerances allowed by Lighting Facts. Contact factory for performance data on any configurations not shown here.

Forward Optics

LED Count	Drive Current	Power Package	System Watts	Dist. Type	30K (3000 K, 70 CRI)					40K (4000 K, 70 CRI)					50K (5000 K, 70 CRI)				
					Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	Lumens	B	U	G	LPW
40	1250	**P6**	163W	T1S	17,654	3	0	3	108	19,018	3	0	3	117	19,259	3	0	3	118
				T2S	17,725	3	0	3	109	19,095	3	0	3	117	19,336	3	0	3	119
				T2M	17,634	3	0	3	108	18,997	3	0	3	117	19,237	3	0	3	118
				T3S	17,682	3	0	3	108	19,048	3	0	3	117	19,289	3	0	3	118
				T3M	17,166	3	0	3	105	18,492	3	0	3	113	18,726	3	0	3	115
				T4M	17,299	3	0	3	106	18,635	3	0	4	114	18,871	3	0	4	116
				TFTM	17,672	3	0	3	108	19,038	3	0	4	117	19,279	3	0	4	118
				T5VS	18,379	4	0	1	113	19,800	4	0	1	121	20,050	4	0	1	123
				T5S	18,394	4	0	2	113	19,816	4	0	2	122	20,066	4	0	2	123
				T5M	18,348	4	0	2	113	19,766	4	0	2	121	20,016	4	0	2	123
				T5W	18,228	5	0	3	112	19,636	5	0	3	120	19,885	5	0	3	122
				BLC	14,489	2	0	2	89	15,609	2	0	3	96	15,806	2	0	3	97
				LCCO	10,781	1	0	3	66	11,614	1	0	3	71	11,761	2	0	3	72
				RCCO	10,781	1	0	3	66	11,614	1	0	3	71	11,761	2	0	3	72
40	1400	**P7**	183W	T1S	19,227	3	0	3	105	20,712	3	0	3	113	20,975	3	0	3	115
				T2S	19,304	3	0	3	105	20,796	3	0	3	114	21,059	3	0	3	115
				T2M	19,205	3	0	3	105	20,689	3	0	3	113	20,951	3	0	3	114
				T3S	19,257	3	0	3	105	20,745	3	0	3	113	21,008	3	0	3	115
				T3M	18,695	3	0	3	102	20,140	3	0	3	110	20,395	3	0	4	111
				T4M	18,840	3	0	4	103	20,296	3	0	4	111	20,553	3	0	4	112
				TFTM	19,246	3	0	4	105	20,734	3	0	4	113	20,996	3	0	4	115
				T5VS	20,017	4	0	1	109	21,564	4	0	1	118	21,837	4	0	1	119
				T5S	20,033	4	0	2	109	21,581	4	0	2	118	21,854	4	0	2	119
				T5M	19,983	4	0	2	109	21,527	5	0	3	118	21,799	5	0	3	119
				T5W	19,852	5	0	3	108	21,386	5	0	3	117	21,656	5	0	3	118
				BLC	15,780	2	0	3	86	16,999	2	0	3	93	17,214	2	0	3	94
				LCCO	11,742	2	0	3	64	12,649	2	0	3	69	12,809	2	0	3	70
				RCCO	11,742	2	0	3	64	12,649	2	0	3	69	12,809	2	0	3	70
60	1050	**P8**	207W	T1S	22,490	3	0	3	109	24,228	3	0	3	117	24,535	3	0	3	119
				T2S	22,581	3	0	3	109	24,326	3	0	3	118	24,634	3	0	3	119
				T2M	22,465	3	0	4	109	24,201	3	0	4	117	24,507	3	0	4	119
				T3S	22,526	3	0	4	109	24,267	3	0	4	117	24,574	3	0	4	119
				T3M	21,869	3	0	4	106	23,558	3	0	4	114	23,857	3	0	4	115
				T4M	22,038	3	0	4	106	23,741	3	0	4	115	24,041	3	0	4	116
				TFTM	22,513	3	0	4	109	24,253	3	0	4	117	24,560	3	0	4	119
				T5VS	23,415	5	0	1	113	25,224	5	0	1	122	25,543	5	0	1	123
				T5S	23,434	4	0	2	113	25,244	4	0	2	122	25,564	4	0	2	123
				T5M	23,374	5	0	3	113	25,181	5	0	3	122	25,499	5	0	3	123
				T5W	23,221	5	0	4	112	25,016	5	0	4	121	25,332	5	0	4	122
				BLC	18,458	2	0	3	89	19,885	2	0	3	96	20,136	2	0	3	97
				LCCO	13,735	2	0	3	66	14,796	2	0	4	71	14,983	2	0	4	72
				RCCO	13,735	2	0	3	66	14,796	2	0	4	71	14,983	2	0	4	72
60	1250	**P9**	241W	T1S	25,575	3	0	3	106	27,551	3	0	3	114	27,900	3	0	3	116
				T2S	25,678	3	0	3	107	27,663	3	0	3	115	28,013	3	0	3	116
				T2M	25,547	3	0	4	106	27,521	3	0	4	114	27,869	3	0	4	116
				T3S	25,616	3	0	4	106	26,791	3	0	4	111	27,945	3	0	4	116
				T3M	24,868	3	0	4	103	27,597	3	0	4	115	27,129	3	0	4	113
				T4M	25,061	3	0	4	104	26,997	3	0	4	112	27,339	3	0	4	113
				TFTM	25,602	3	0	4	106	27,580	3	0	4	114	27,929	3	0	4	116
				T5VS	26,626	5	0	1	110	28,684	5	0	1	119	29,047	5	0	1	121
				T5S	26,648	4	0	2	111	28,707	5	0	2	119	29,070	5	0	2	121
				T5M	26,581	5	0	3	110	28,635	5	0	3	119	28,997	5	0	3	120
				T5W	26,406	5	0	4	110	28,447	5	0	4	118	28,807	5	0	4	120
				BLC	20,990	2	0	3	87	22,612	2	0	3	94	22,898	2	0	3	95
				LCCO	15,619	2	0	4	65	16,825	2	0	4	70	17,038	2	0	4	71
				RCCO	15,619	2	0	4	65	16,825	2	0	4	70	17,038	2	0	4	71

Performance Data

Lumen Output

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown, within the tolerances allowed by Lighting Facts. Contact factory for performance data on any configurations not shown here.

Rotated Optics

LED Count	Drive Current	Power Package	System Watts	Dist. Type	30K (3000 K, 70 CRI)					40K (4000 K, 70 CRI)					50K (5000 K, 70 CRI)				
					Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	Lumens	B	U	G	LPW
60	530	**P10**	106W	T1S	13,042	3	0	3	123	14,050	3	0	3	133	14,228	3	0	3	134
				T2S	13,200	3	0	3	125	14,220	3	0	3	134	14,400	3	0	3	136
				T2M	12,966	4	0	4	122	13,968	4	0	4	132	14,145	4	0	4	133
				T3S	13,193	4	0	4	124	14,212	4	0	4	134	14,392	4	0	4	136
				T3M	12,766	4	0	4	120	13,751	4	0	4	130	13,925	4	0	4	131
				T4M	12,944	4	0	4	122	13,945	4	0	4	132	14,121	4	0	4	133
				TFTM	13,279	4	0	4	125	14,305	4	0	4	135	14,486	4	0	4	137
				T5VS	13,372	3	0	1	126	14,405	4	0	1	136	14,588	4	0	1	138
				T5S	13,260	3	0	1	125	14,284	3	0	1	135	14,465	3	0	1	136
				T5M	13,256	4	0	2	125	14,281	4	0	2	135	14,462	4	0	2	136
				T5W	13,137	4	0	3	124	14,153	4	0	3	134	14,332	4	0	3	135
				BLC	10,906	3	0	3	103	11,749	3	0	3	111	11,898	3	0	3	112
				LCCO	7,789	1	0	3	73	8,391	1	0	3	79	8,497	1	0	3	80
				RCCO	7,779	4	0	4	73	8,380	4	0	4	79	8,486	4	0	4	80
60	700	**P11**	137W	T1S	16,556	3	0	3	121	17,835	3	0	3	130	18,061	4	0	4	132
				T2S	16,757	4	0	4	122	18,052	4	0	4	132	18,280	4	0	4	133
				T2M	16,460	4	0	4	120	17,732	4	0	4	129	17,956	4	0	4	131
				T3S	16,747	4	0	4	122	18,041	4	0	4	132	18,270	4	0	4	133
				T3M	16,204	4	0	4	118	17,456	4	0	4	127	17,677	4	0	4	129
				T4M	16,432	4	0	4	120	17,702	4	0	4	129	17,926	4	0	4	131
				TFTM	16,857	4	0	4	123	18,159	4	0	4	133	18,389	4	0	4	134
				T5VS	16,975	4	0	1	124	18,287	4	0	1	133	18,518	4	0	1	135
				T5S	16,832	4	0	1	123	18,133	4	0	2	132	18,362	4	0	2	134
				T5M	16,828	4	0	2	123	18,128	4	0	2	132	18,358	4	0	2	134
				T5W	16,677	4	0	3	122	17,966	5	0	3	131	18,193	5	0	3	133
				BLC	13,845	3	0	3	101	14,915	3	0	3	109	15,103	3	0	3	110
				LCCO	9,888	1	0	3	72	10,652	2	0	3	78	10,787	2	0	3	79
				RCCO	9,875	4	0	4	72	10,638	4	0	4	78	10,773	4	0	4	79
60	1050	**P12**	207W	T1S	22,996	4	0	4	111	24,773	4	0	4	120	25,087	4	0	4	121
				T2S	23,276	4	0	4	112	25,074	4	0	4	121	25,392	4	0	4	123
				T2M	22,863	4	0	4	110	24,630	5	0	5	119	24,941	5	0	5	120
				T3S	23,262	4	0	4	112	25,060	4	0	4	121	25,377	4	0	4	123
				T3M	22,508	4	0	4	109	24,247	5	0	5	121	24,554	5	0	5	119
				T4M	22,824	5	0	5	110	24,588	5	0	5	119	24,899	5	0	5	120
				TFTM	23,414	5	0	5	113	25,223	5	0	5	122	25,543	5	0	5	123
				T5VS	23,579	5	0	1	114	25,401	5	0	1	123	25,722	5	0	1	124
				T5S	23,380	4	0	2	113	25,187	4	0	2	122	25,506	4	0	2	123
				T5M	23,374	5	0	3	113	25,181	5	0	3	122	25,499	5	0	3	123
				T5W	23,165	5	0	4	112	24,955	5	0	4	121	25,271	5	0	4	122
				BLC	19,231	4	0	4	93	20,717	4	0	4	100	20,979	4	0	4	101
				LCCO	13,734	2	0	3	66	14,796	2	0	4	71	14,983	2	0	4	72
				RCCO	13,716	4	0	4	66	14,776	4	0	4	71	14,963	4	0	4	72
60	1250	**P13**	231W	T1S	25,400	4	0	4	110	27,363	4	0	4	118	27,709	4	0	4	120
				T2S	25,709	4	0	4	111	27,695	4	0	4	120	28,046	4	0	4	121
				T2M	25,253	5	0	5	109	27,204	5	0	5	118	27,548	5	0	5	119
				T3S	25,694	5	0	5	111	27,679	5	0	5	120	28,029	5	0	5	121
				T3M	24,861	5	0	5	108	26,782	5	0	5	116	27,121	5	0	5	117
				T4M	25,210	5	0	5	109	27,158	5	0	5	118	27,502	5	0	5	119
				TFTM	25,861	5	0	5	112	27,860	5	0	5	121	28,212	5	0	5	122
				T5VS	26,043	5	0	1	113	28,056	5	0	1	121	28,411	5	0	1	123
				T5S	25,824	4	0	2	112	27,819	5	0	2	120	28,172	5	0	2	122
				T5M	25,818	5	0	3	112	27,813	5	0	3	120	28,165	5	0	3	122
				T5W	25,586	5	0	4	111	27,563	5	0	4	119	27,912	5	0	4	121
				BLC	21,241	4	0	4	92	22,882	4	0	4	99	23,172	4	0	4	100
				LCCO	15,170	2	0	4	66	16,342	2	0	4	71	16,549	2	0	4	72
				RCCO	15,150	5	0	5	66	16,321	5	0	5	71	16,527	5	0	5	72

FEATURES & SPECIFICATIONS

INTENDED USE
The sleek design of the D-Series Size 1 reflects the embedded high performance LED technology. It is ideal for many commercial and municipal applications, such as parking lots, plazas, campuses, and streetscapes.

CONSTRUCTION
Single-piece die-cast aluminum housing has integral heat sink fins to optimize thermal management through conductive and convective cooling. Modular design allows for ease of maintenance and future light engine upgrades. The LED drivers are mounted in direct contact with the casting to promote low operating temperature and long life. Housing is completely sealed against moisture and environmental contaminants (IP65). Low EPA (1.01 ft^2) for optimized pole wind loading.

FINISH
Exterior parts are protected by a zinc-infused Super Durable TGIC thermoset powder coat finish that provides superior resistance to corrosion and weathering. A tightly controlled multi-stage process ensures a minimum 3 mils thickness for a finish that can withstand extreme climate changes without cracking or peeling. Available in both textured and non-textured finishes.

OPTICS
Precision-molded proprietary acrylic lenses are engineered for superior area lighting distribution, uniformity, and pole spacing. Light engines are available in standard 3000 K, 4000 K and 5000 K (70 CRI) configurations. The D-Series Size 1 has zero uplight and qualifies as a Nighttime Friendly™ product, meaning it is consistent with the LEED® and Green Globes™ criteria for eliminating wasteful uplight.

ELECTRICAL
Light engine configurations consist of high-efficacy LEDs mounted to metal-core circuit boards to maximize heat dissipation and promote long life (up to L85/100,000 hours at 25°C). Class 1 electronic drivers are designed to have a power factor >90%, THD <20%, and an expected life of 100,000 hours with <1% failure rate. Easily serviceable 10kV surge protection device meets a minimum Category C Low operation (per ANSI/IEEE C62.41.2).

STANDARD CONTROLS
The DSX1 LED area luminaire has a number of control options. DSX Size 1, comes standard with 0-10V dimming drivers. Dusk to dawn controls can be utilized via optional NEMA twist-lock photocell receptacles. Integrated motion sensors with on-board photocells feature field-adjustable programing and are suitable for mounting heights up to 30 feet.

nLIGHT AIR CONTROLS
The DSX1 LED area luminaire is also available with nLight® AIR for the ultimate in wireless control. This powerful controls platform provides out-of-the-box basic motion sensing and photocontrol functionality and is suitable for mounting heights up to 40 feet. Once commissioned using a smartphone and the easy-to-use CLAIRITY app, nLight AIR equipped luminaries can be grouped, resulting in motion sensor and photocell group response without the need for additional equipment. Scheduled dimming with motion sensor over-ride can be achieved when used with the nLight Eclypse. Additional information about nLight Air can be found here.

INSTALLATION
Included mounting block and integral arm facilitate quick and easy installation. Stainless steel bolts fasten the mounting block securely to poles and walls, enabling the D-Series Size 1 to withstand up to a 3.0 G vibration load rating per ANSI C136.31. The D-Series Size 1 utilizes the AERIS™ series pole drilling pattern (template #8). NEMA photocontrol receptacle are also available.

LISTINGS
UL listed to meet U.S. and Canadian standards. UL Listed for wet locations. Light engines are IP66 rated; luminaire is IP65 rated. Rated for -40°C minimum ambient. U.S. Patent No. D672,492 S. International patent pending.

DesignLights Consortium® (DLC) Premium qualified product and DLC qualified product. Not all versions of this product may be DLC Premium qualified or DLC qualified. Please check the DLC Qualified Products List at www.designlights.org/QPL to confirm which versions are qualified.

International Dark-Sky Association (IDA) Fixture Seal of Approval (FSA) is available for all products on this page utilizing 3000K color temperature only.

BUY AMERICAN ACT
Product with the BAA option is assembled in the USA and meets the Buy America(n) government procurement requirements under FAR, DFARS and DOT regulations. Please refer to www.acuitybrands.com/buy-american for additional information.

WARRANTY
5-year limited warranty. This is the only warranty provided and no other statements in this specification sheet create any warranty of any kind. All other express and implied warranties are disclaimed. Complete warranty terms located at: www.acuitybrands.com/support/warranty/terms-and-conditions

Note: Actual performance may differ as a result of end-user environment and application.
All values are design or typical values, measured under laboratory conditions at 25 °C.
Specifications subject to change without notice.

D-Series Size 1

Legacy LED Area Luminaire

Catalog Number

Notes

Type L10

Hit the Tab key or mouse over the page to see all interactive elements.

Specifications

EPA: 1.01 ft² (0.09 m²)

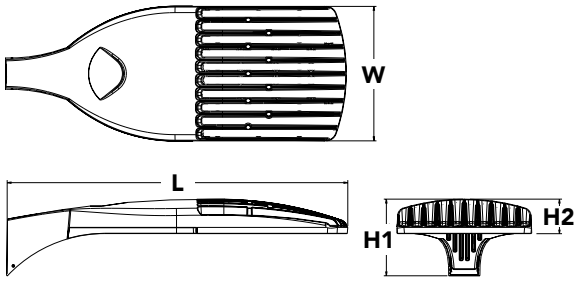
Length: 33" (83.8 cm)

Width: 13" (33.0 cm)

Height H1: 7-1/2" (19.0 cm)

Height H2: 3-1/2"

Weight (max): 27 lbs (12.2 kg)



Introduction

The modern styling of the D-Series is striking yet unobtrusive - making a bold, progressive statement even as it blends seamlessly with its environment. The D-Series distills the benefits of the latest in LED technology into a high performance, high efficacy, long-life luminaire.

The outstanding photometric performance results in sites with excellent uniformity, greater pole spacing and lower power density. It is ideal for replacing up to 750W metal halide in pedestrian and area lighting applications with typical energy savings of 65% and expected service life of over 100,000 hours.

Ordering Information

EXAMPLE: DSX1 LED P7 40K T3M MVOLT SPA NLTAIR2 PIRHN DDBXD G1

DSX1 LED

Series

DSX1 LED

LEDs

Forward optics

P1, P2, P3, P4[1], P5[1], P6[1], P7[1], P8, P9[1]

Rotated optics

P10[2], P11[2], P12[2], P13[1,2]

Color temperature

30K 3000 K

40K 4000 K

50K 5000 K

Distribution

T1S Type I short (Automotive)

T2S Type II short

T2M Type II medium

T3S Type III short

T3M Type III medium

T4M Type IV medium

TFTM Forward throw medium

T5VS Type V very short[3]

T5S Type V short[3]

T5M Type V medium[3]

T5W Type V wide[3]

BLC Backlight control[4]

LCCO Left corner cutoff[4]

RCCO Right corner cutoff[4]

Voltage

MVOLT[5]

XVOLT (277V-480V)[6,7,8]

120[9]

208[9]

240[9]

277[9]

347[9]

480[9]

Mounting

Shipped included

SPA Square pole mounting

RPA Round pole mounting[10]

WBA Wall bracket[3]

SPUMBA Square pole universal mounting adaptor[11]

RPUMBA Round pole universal mounting adaptor[9]

Shipped separately

KMA8 DDBXD U Mast arm mounting bracket adaptor (specify finish)[12]

Control options

Shipped installed

NLTAIR2 nLight AIR generation 2 enabled[13]

PIRHN Network, high/low motion/ambient sensor[14]

PER NEMA twist-lock receptacle only (controls ordered separate)[15]

PER5 Five-pin receptacle only (controls ordered separate)[15,16]

PER7 Seven-pin receptacle only (controls ordered separate)[15,16]

DMG 0-10v dimming wires pulled outside fixture (for use with an external control, ordered separately)[17]

DS Dual switching[18,19,20]

PIR High/low, motion/ambient sensor, 8-15' mounting height, ambient sensor enabled at 5fc[20,21]

PIRH High/low, motion/ambient sensor, 15-30' mounting height, ambient sensor enabled at 5fc[20,21]

PIR1FC3V High/low, motion/ambient sensor, 8-15' mounting height, ambient sensor enabled at 1fc[20,21]

PIRH1FC3V Bi-level, motion/ambient sensor, 15-30' mounting height, ambient sensor enabled at 1fc[20,21]

FAO Field adjustable output[20,22]

Other options

Shipped installed

HS House-side shield[23]

SF Single fuse (120, 277, 347V)[9]

DF Double fuse (208, 240, 480V)[9]

L90 Left rotated optics[2]

R90 Right rotated optics[2]

HA 50°C ambient operations[1]

BAA Buy America(n) Act Compliant

Shipped separately

BS Bird spikes[24]

EGS External glare shield

Finish *(required)*

DDBXD Dark bronze

DBLXD Black

DNAXD Natural aluminum

DWHXD White

DDBTXD Textured dark bronze

DBLBXD Textured black

DNATXD Textured natural aluminum

DWHGXD Textured white

Generation *(required)*

G1 Generation 1

Ordering Information

Accessories

Ordered and shipped separately.

DLL127F 1.5 JU	Photocell - SSL twist-lock (120-277V) [25]
DLL347F 1.5 CUL JU	Photocell - SSL twist-lock (347V) [25]
DLL480F 1.5 CUL JU	Photocell - SSL twist-lock (480V) [25]
DSHORT SBK U	Shorting cap [25]
DSX1HS 30C G1 U	House-side shield for P1, P2, P3, P4 and P5 [23]
DSX1HS 40C G1 U	House-side shield for P6 and P7 [23]
DSX1HS 60C G1 U	House-side shield for P8, P9, P10, P11 and P12 [23]
PUMBA DDBXD G1 U*	Square and round pole universal mounting bracket (specify finish) [26]
KMA8 DDBXD U	Mast arm mounting bracket adaptor (specify finish) [12]
DSX1EGS (FINISH) G1 U	External glare shield

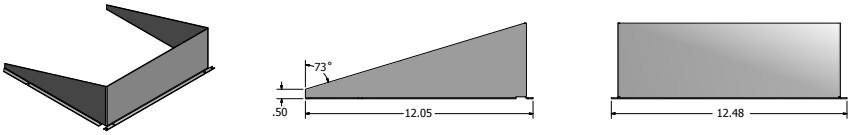
For more control options, visit DTL and ROAM online.

NOTES

1 HA not available with P4, P5, P6, P7, P9 and P13.
2 P10, P11, P12 or P13 and rotated optics (L90, R90) only available together.
3 Any Type 5 distribution with photocell, is not available with WBA.
4 Not available with HS.
5 MVOLT driver operates on any line voltage from 120-277V (50/60 Hz).
6 XVOLT only suitable for use with P3, P5, P6, P7, P9 and P13.
7 XVOLT works with any voltage between 277V and 480V.
8 XVOLT not available with fusing (SF or DF) and not available with PIR, PIRH, PIR1FC3V, PIRH1FC3V.
9 Single fuse (SF) requires 120V, 277V or 347V. Double fuse (DF) requires 208V, 240V or 480V. XVOLT not available with fusing (SF or DF.
10 Suitable for mounting to round poles between 3.5" and 12" diameter.
11 Universal mounting brackets intended for retrofit on existing, pre-drilled poles only. 1.5 G vibration load rating per ANCI C136.31. Only usable when pole's drill pattern is NOT Lithonia template #8
12 Must order fixture with SPA option. KMA8 must be ordered as a separate accessory; see Accessories information. For use with 2-3/8" diameter mast arm (not included).
13 Must be ordered with PIRHN. Sensor cover available only in dark bronze, black, white and natural aluminum colors.
14 Must be ordered with NLTAIR2. For more information on nLight Air 2 visit this link.
15 Photocell ordered and shipped as a separate line item from Acuity Brands Controls. See accessories. Shorting cap included.
16 If ROAM® node required, it must be ordered and shipped as a separate line item from Acuity Brands Controls. Node with integral dimming.
17 DMG not available with PIRHN, PER5, PER7, PIR, PIRH, PIR1FC3V or PIRH1FC3V, FAO.
18 Provides 50/50fixture operation via (2) independent drivers. Not available with PER, PER5, PER7, PIR or PIRH. Not available P1, P2, P3, P4 or P5.
19 Requires (2) separately switched circuits.
20 Reference Controls Options table on page 4.
21 Reference Motion Sensor default settings table on page 4 to see functionality.
22 Not available with other dimming controls options.
23 Not available with BLC, LCCO and RCCO distribution. Also available as a separate accessory; see Accessories information.
24 Must be ordered with fixture for factory pre-drilling.
25 Requires luminaire to be specified with PER, PER5 or PER7 option. See Control Option Table on page 4.
26 For retrofit use only. Only usable when pole's drill pattern is NOT Lithonia template #8.

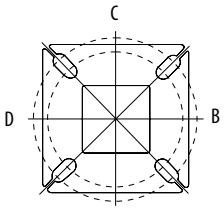
Options

EGS - External Glare Shield

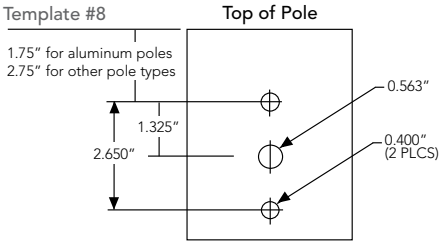


Drilling

HANDHOLE ORIENTATION



Template #8



Tenon Mounting Slipfitter

Tenon O.D.	Mounting	Single Unit	2 @ 180	2 @ 90	3 @ 90	3 @120	4 @ 90
2-3/8"	RPA	AS3-5 190	AS3-5 280	AS3-5 290	AS3-5 390	AS3-5 320	AS3-5 490
2-7/8"	RPA	AST25-190	AST25-280	AST25-290	AST25-390	AST25-320	AST25-490
4"	RPA	AST35-190	AST35-280	AST35-290	AST35-390	AST35-320	AST35-490

Mounting Option	Drilling Template	Single	2 @ 180	2 @ 90	3 @ 90	3 @ 120	4 @ 90
Head Location		Side B	Side B & D	Side B & C	Side B, C & D	Round Pole Only	Side A, B, C & D
Drill Nomenclature	#8	DM19AS	DM28AS	DM29AS	DM39AS	DM32AS	DM49AS

DSX1 Area Luminaire - EPA

*Includes luminaire and integral mounting arm. Other tenons, arms, brackets or other accessories are not included in this EPA data.

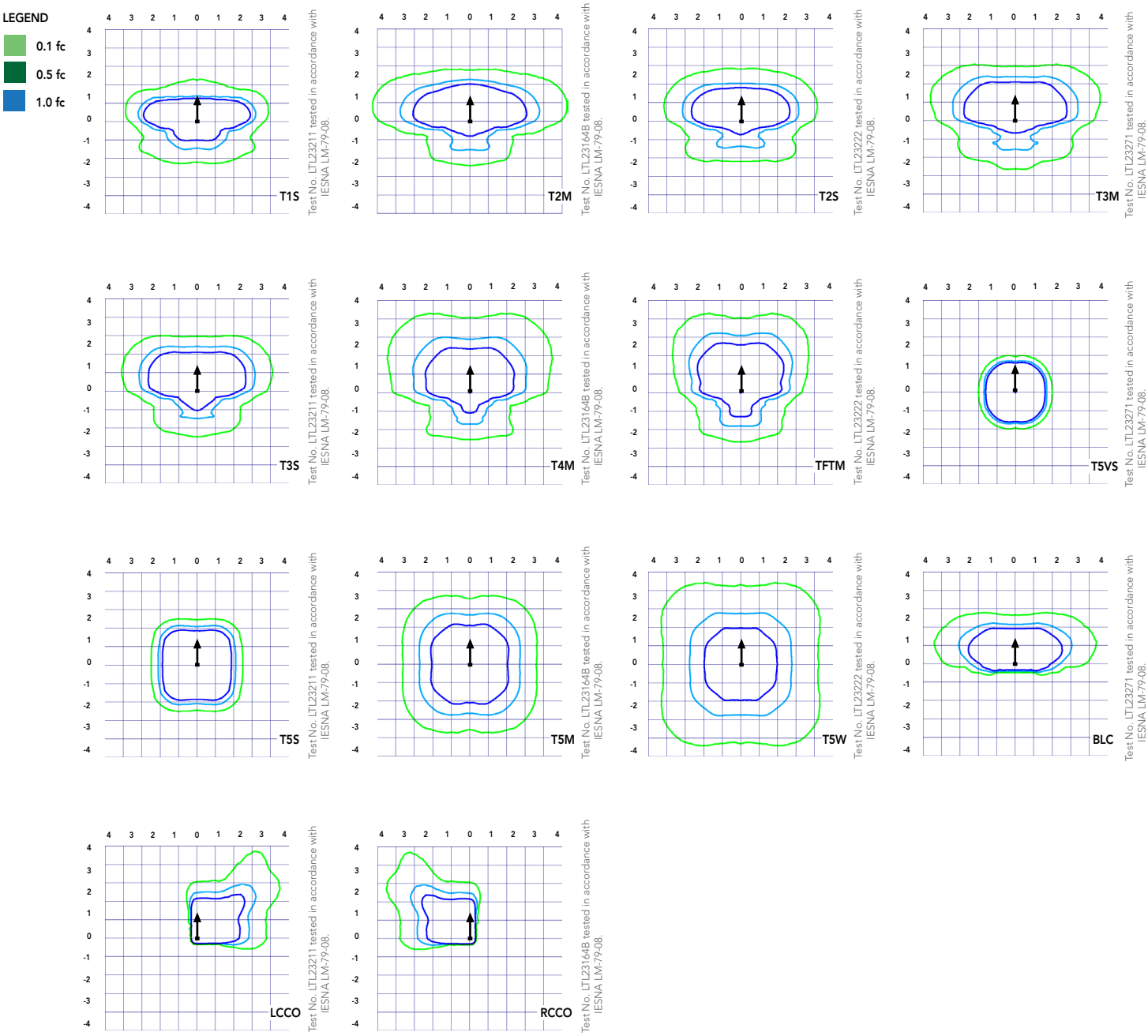
Fixture Quantity & Mounting Configuration	Single DM19	2 @ 180 DM28	2 @ 90 DM29	3 @ 90 DM39	3 @ 120 DM32	4 @ 90 DM49
Mounting Type						
DSX1 LED	1.013	2.025	1.945	3.038	2.850	3.749

	Drilling Template	Minimum Acceptable Outside Pole Dimension					
SPA	#8	2-7/8"	2-7/8"	3.5"	3.5"	3"	3.5"
RPA	#8	2-7/8"	2-7/8"	3.5"	3.5"	3"	3.5"
SPUMBA	#5	2-7/8"	3"	4"	4"	3.5"	4"
RPUMBA	#5	2-7/8"	3.5"	5"	5"	3.5"	5"

Photometric Diagrams

To see complete photometric reports or download .ies files for this product, visit Lithonia Lighting's D-Series Area Size 1 homepage.

Isofootcandle plots for the DSX1 LED P7 40K G1. Distances are in units of mounting height (25').



Performance Data

Lumen Ambient Temperature (LAT) Multipliers

Use these factors to determine relative lumen output for average ambient temperatures from 0-40°C (32-104°F).

Ambient		Lumen Multiplier
0°C	32°F	1.04
5°C	41°F	1.04
10°C	50°F	1.03
15°C	50°F	1.02
20°C	68°F	1.01
25°C	**77°F**	**1.00**
30°C	86°F	0.99
35°C	95°F	0.98
40°C	104°F	0.97

Projected LED Lumen Maintenance

Data references the extrapolated performance projections for the platforms noted in a **25°C ambient**, based on 10,000 hours of LED testing (tested per IESNA LM-80-08 and projected per IESNA TM-21-11).

To calculate LLF, use the lumen maintenance factor that corresponds to the desired number of operating hours below. For other lumen maintenance values, contact factory.

Operating Hours	Lumen Maintenance Factor
0	1.00
25,000	0.96
50,000	0.92
100,000	0.85

Motion Sensor Default Settings						
Option	Dimmed State	High Level (when triggered)	Photocell Operation	Dwell Time	Ramp-up Time	Ramp-down Time
PIR or PIRH	3V (37%) Output	10V (100%) Output	Enabled @ 5FC	5 min	3 sec	5 min
*PIR1FC3V or PIRH1FC3V	3V (37%) Output	10V (100%) Output	Enabled @ 1FC	5 min	3 sec	5 min
*for use when motion sensor is used as dusk to dawn control.						

Electrical Load

					Current (A)					
	Performance Package	LED Count	Drive Current	Wattage	120	208	240	277	347	480
Forward Optics (Non-Rotated)	P1	30	530	54	0.45	0.26	0.23	0.19	0.10	0.12
	P2	30	700	70	0.59	0.34	0.30	0.25	0.20	0.16
	P3	30	1050	102	0.86	0.50	0.44	0.38	0.30	0.22
	P4	30	1250	125	1.06	0.60	0.52	0.46	0.37	0.27
	P5	30	1400	138	1.16	0.67	0.58	0.51	0.40	0.29
	P6	40	1250	163	1.36	0.78	0.68	0.59	0.47	0.34
	P7	40	1400	183	1.53	0.88	0.76	0.66	0.53	0.38
	P8	60	1050	207	1.74	0.98	0.87	0.76	0.64	0.49
	P9	60	1250	241	2.01	1.16	1.01	0.89	0.70	0.51
Rotated Optics (Requires L90 or R90)	P10	60	530	106	0.90	0.52	0.47	0.43	0.33	0.27
	P11	60	700	137	1.15	0.67	0.60	0.53	0.42	0.32
	P12	60	1050	207	1.74	0.99	0.87	0.76	0.60	0.46
	P13	60	1250	231	1.93	1.12	0.97	0.86	0.67	0.49

Controls Options				
Nomenclature	Description	Functionality	Primary control device	Notes
FAO	Field adjustable output device installed inside the luminaire; wired to the driver dimming leads.	Allows the luminaire to be manually dimmed, effectively trimming the light output.	FAO device	Cannot be used with other controls options that need the 0-10V leads
DS	Drivers wired independently for 50/50 luminaire operation	The luminaire is wired to two separate circuits, allowing for 50/50 operation.	Independently wired drivers	Requires two separately switched circuits. Consider nLight AIR as a more cost effective alternative.
PER5 or PER7	Twist-lock photocell recepticle	Compatible with standard twist-lock photocells for dusk to dawn operation, or advanced control nodes that provide 0-10V dimming signals.	Twist-lock photocells such as DLL Elite or advanced control nodes such as ROAM.	Pins 4 & 5 to dimming leads on driver, Pins 6 & 7 are capped inside luminaire
PIR or PIRH	Motion sensors with integral photocell. PIR for 8-15' mounting; PIRH for 15-30' mounting	Luminaires dim when no occupancy is detected.	Acuity Controls SBGR	Also available with PIRH1FC3V when the sensor photocell is used for dusk-to-dawn operation.
NLTAIR2 PIRHN	nLight AIR enabled luminaire for motion sensing, photocell and wireless communication.	Motion and ambient light sensing with group response. Scheduled dimming with motion sensor over-ride when wirelessly connected to the nLight Eclypse.	nLight Air rSDGR	nLight AIR sensors can be programmed and commissioned from the ground using the CIAIRity Pro app.

Performance Data

Lumen Output

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08.

Forward Optics

LED Count	Drive Current	Power Package	System Watts	Dist. Type	30K (3000 K, 70 CRI)					40K (4000 K, 70 CRI)					50K (5000 K, 70 CRI)				
					Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	Lumens	B	U	G	LPW
30	530	**P1**	54W	T1S	6,457	2	0	2	120	6,956	2	0	2	129	7,044	2	0	2	130
				T2S	6,483	1	0	1	120	6,984	2	0	2	129	7,072	2	0	2	131
				T2M	6,450	2	0	2	119	6,948	2	0	2	129	7,036	2	0	2	130
				T3S	6,468	1	0	2	120	6,967	1	0	2	129	7,055	1	0	2	131
				T3M	6,279	2	0	2	116	6,764	2	0	2	125	6,849	2	0	2	127
				T4M	6,327	1	0	2	117	6,816	1	0	2	126	6,902	1	0	2	128
				TFTM	6,464	1	0	2	120	6,963	1	0	2	129	7,051	1	0	2	131
				T5VS	6,722	2	0	0	124	7,242	3	0	0	134	7,334	3	0	0	136
				T5S	6,728	2	0	1	125	7,248	2	0	1	134	7,340	2	0	1	136
				T5M	6,711	3	0	1	124	7,229	3	0	1	134	7,321	3	0	2	136
				T5W	6,667	3	0	2	123	7,182	3	0	2	133	7,273	3	0	2	135
				BLC	5,299	1	0	1	98	5,709	1	0	2	106	5,781	1	0	2	107
				LCCO	3,943	1	0	2	73	4,248	1	0	2	79	4,302	1	0	2	80
				RCCO	3,943	1	0	2	73	4,248	1	0	2	79	4,302	1	0	2	80
30	700	**P2**	70W	T1S	8,249	2	0	2	118	8,886	2	0	2	127	8,999	2	0	2	129
				T2S	8,282	2	0	2	118	8,923	2	0	2	127	9,035	2	0	2	129
				T2M	8,240	2	0	2	118	8,877	2	0	2	127	8,989	2	0	2	128
				T3S	8,262	2	0	2	118	8,901	2	0	2	127	9,013	2	0	2	129
				T3M	8,021	2	0	2	115	8,641	2	0	2	123	8,750	2	0	2	125
				T4M	8,083	2	0	2	115	8,708	2	0	2	124	8,818	2	0	2	126
				TFTM	8,257	2	0	2	118	8,896	2	0	2	127	9,008	2	0	2	129
				T5VS	8,588	3	0	0	123	9,252	3	0	0	132	9,369	3	0	0	134
				T5S	8,595	3	0	1	123	9,259	3	0	1	132	9,376	3	0	1	134
				T5M	8,573	3	0	2	122	9,236	3	0	2	132	9,353	3	0	2	134
				T5W	8,517	3	0	2	122	9,175	4	0	2	131	9,291	4	0	2	133
				BLC	6,770	1	0	2	97	7,293	1	0	2	104	7,386	1	0	2	106
				LCCO	5,038	1	0	2	72	5,427	1	0	2	78	5,496	1	0	2	79
				RCCO	5,038	1	0	2	72	5,427	1	0	2	78	5,496	1	0	2	79
30	1050	**P3**	102W	T1S	11,661	2	0	2	114	12,562	3	0	3	123	12,721	3	0	3	125
				T2S	11,708	2	0	2	115	12,612	2	0	2	124	12.772	2	0	2	125
				T2M	11,648	2	0	2	114	12,548	3	0	3	123	12.707	3	0	3	125
				T3S	11,679	2	0	2	115	12.582	2	0	2	123	12,741	2	0	2	125
				T3M	11,338	2	0	2	111	12.214	3	0	3	120	12,369	3	0	3	121
				T4M	11,426	2	0	3	112	12,309	2	0	3	121	12,465	2	0	3	122
				TFTM	11,673	2	0	2	114	12,575	2	0	3	123	12,734	2	0	3	125
				T5VS	12,140	3	0	1	119	13,078	3	0	1	128	13,244	3	0	1	130
				T5S	12,150	3	0	1	119	13,089	3	0	1	128	13,254	3	0	1	130
				T5M	12,119	4	0	2	119	13,056	4	0	2	128	13,221	4	0	2	130
				T5W	12,040	4	0	3	118	12,970	4	0	3	127	13,134	4	0	3	129
				BLC	9,570	1	0	2	94	10,310	1	0	2	101	10,440	1	0	2	102
				LCCO	7,121	1	0	3	70	7,671	1	0	3	75	7,768	1	0	3	76
				RCCO	7,121	1	0	3	70	7,671	1	0	3	75	7,768	1	0	3	76
30	1250	**P4**	125W	T1S	13,435	3	0	3	107	14,473	3	0	3	116	14,657	3	0	3	117
				T2S	13,489	2	0	2	108	14,532	3	0	3	116	14,716	3	0	3	118
				T2M	13,420	3	0	3	107	14,457	3	0	3	116	14,640	3	0	3	117
				T3S	13,457	2	0	2	108	14,496	2	0	2	116	14,680	2	0	2	117
				T3M	13,064	3	0	3	105	14,073	3	0	3	113	14,251	3	0	3	114
				T4M	13,165	2	0	3	105	14,182	2	0	3	113	14,362	2	0	3	115
				TFTM	13,449	2	0	3	108	14,488	2	0	3	116	14,672	2	0	3	117
				T5VS	13,987	4	0	1	112	15,068	4	0	1	121	15,259	4	0	1	122
				T5S	13,999	3	0	1	112	15,080	3	0	1	121	15,271	3	0	1	122
				T5M	13,963	4	0	2	112	15,042	4	0	2	120	15,233	4	0	2	122
				T5W	13,872	4	0	3	111	14,944	4	0	3	120	15,133	4	0	3	121
				BLC	11,027	1	0	2	88	11,879	1	0	2	95	12,029	1	0	2	96
				LCCO	8,205	1	0	3	66	8,839	1	0	3	71	8,951	1	0	3	72
				RCCO	8,205	1	0	3	66	8,839	1	0	3	71	8,951	1	0	3	72
30	1400	**P5**	138W	T1S	14,679	3	0	3	106	15,814	3	0	3	115	16,014	3	0	3	116
				T2S	14,739	3	0	3	107	15,878	3	0	3	115	16,079	3	0	3	117
				T2M	14,663	3	0	3	106	15,796	3	0	3	114	15,996	3	0	3	116
				T3S	14,703	2	0	3	107	15,839	3	0	3	115	16,039	3	0	3	116
				T3M	14,274	3	0	3	103	15,377	3	0	3	111	15,571	3	0	3	113
				T4M	14,384	2	0	3	104	15,496	3	0	3	112	15,692	3	0	3	114
				TFTM	14,695	2	0	3	106	15,830	3	0	3	115	16,030	3	0	3	116
				T5VS	15,283	4	0	1	111	16,464	4	0	1	119	16,672	4	0	1	121
				T5S	15,295	3	0	1	111	16,477	4	0	1	119	16,686	4	0	1	121
				T5M	15,257	4	0	2	111	16,435	4	0	2	119	16,644	4	0	2	121
				T5W	15,157	4	0	3	110	16,328	4	0	3	118	16,534	4	0	3	120
				BLC	12,048	1	0	2	87	12,979	1	0	2	94	13,143	1	0	2	95
				LCCO	8,965	1	0	3	65	9,657	1	0	3	70	9,780	1	0	3	71
				RCCO	8,965	1	0	3	65	9,657	1	0	3	70	9,780	1	0	3	71

Performance Data

Lumen Output

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown, within the tolerances allowed by Lighting Facts. Contact factory for performance data on any configurations not shown here.

Forward Optics

LED Count	Drive Current	Power Package	System Watts	Dist. Type	30K (3000 K, 70 CRI)					40K (4000 K, 70 CRI)					50K (5000 K, 70 CRI)				
					Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	Lumens	B	U	G	LPW
40	1250	**P6**	163W	T1S	17,654	3	0	3	108	19,018	3	0	3	117	19,259	3	0	3	118
				T2S	17,725	3	0	3	109	19,095	3	0	3	117	19,336	3	0	3	119
				T2M	17,634	3	0	3	108	18,997	3	0	3	117	19,237	3	0	3	118
				T3S	17,682	3	0	3	108	19,048	3	0	3	117	19,289	3	0	3	118
				T3M	17,166	3	0	3	105	18,492	3	0	3	113	18,726	3	0	3	115
				T4M	17,299	3	0	3	106	18,635	3	0	4	114	18,871	3	0	4	116
				TFTM	17,672	3	0	3	108	19,038	3	0	4	117	19,279	3	0	4	118
				T5VS	18,379	4	0	1	113	19,800	4	0	1	121	20,050	4	0	1	123
				T5S	18,394	4	0	2	113	19,816	4	0	2	122	20,066	4	0	2	123
				T5M	18,348	4	0	2	113	19,766	4	0	2	121	20,016	4	0	2	123
				T5W	18,228	5	0	3	112	19,636	5	0	3	120	19,885	5	0	3	122
				BLC	14,489	2	0	2	89	15,609	2	0	3	96	15,806	2	0	3	97
				LCCO	10,781	1	0	3	66	11,614	1	0	3	71	11,761	2	0	3	72
				RCCO	10,781	1	0	3	66	11,614	1	0	3	71	11,761	2	0	3	72
40	1400	**P7**	183W	T1S	19,227	3	0	3	105	20,712	3	0	3	113	20,975	3	0	3	115
				T2S	19,304	3	0	3	105	20,796	3	0	3	114	21,059	3	0	3	115
				T2M	19,205	3	0	3	105	20,689	3	0	3	113	20,951	3	0	3	114
				T3S	19,257	3	0	3	105	20,745	3	0	3	113	21,008	3	0	3	115
				T3M	18,695	3	0	3	102	20,140	3	0	3	110	20,395	3	0	4	111
				T4M	18,840	3	0	4	103	20,296	3	0	4	111	20,553	3	0	4	112
				TFTM	19,246	3	0	4	105	20,734	3	0	4	113	20,996	3	0	4	115
				T5VS	20,017	4	0	1	109	21,564	4	0	1	118	21,837	4	0	1	119
				T5S	20,033	4	0	2	109	21,581	4	0	2	118	21,854	4	0	2	119
				T5M	19,983	4	0	2	109	21,527	5	0	3	118	21,799	5	0	3	119
				T5W	19,852	5	0	3	108	21,386	5	0	3	117	21,656	5	0	3	118
				BLC	15,780	2	0	3	86	16,999	2	0	3	93	17,214	2	0	3	94
				LCCO	11,742	2	0	3	64	12,649	2	0	3	69	12,809	2	0	3	70
				RCCO	11,742	2	0	3	64	12,649	2	0	3	69	12,809	2	0	3	70
60	1050	**P8**	207W	T1S	22,490	3	0	3	109	24,228	3	0	3	117	24,535	3	0	3	119
				T2S	22,581	3	0	3	109	24,326	3	0	3	118	24,634	3	0	3	119
				T2M	22,465	3	0	4	109	24,201	3	0	4	117	24,507	3	0	4	119
				T3S	22,526	3	0	4	109	24,267	3	0	4	117	24,574	3	0	4	119
				T3M	21,869	3	0	4	106	23,558	3	0	4	114	23,857	3	0	4	115
				T4M	22,038	3	0	4	106	23,741	3	0	4	115	24,041	3	0	4	116
				TFTM	22,513	3	0	4	109	24,253	3	0	4	117	24,560	3	0	4	119
				T5VS	23,415	5	0	1	113	25,224	5	0	1	122	25,543	5	0	1	123
				T5S	23,434	4	0	2	113	25,244	4	0	2	122	25,564	4	0	2	123
				T5M	23,374	5	0	3	113	25,181	5	0	3	122	25,499	5	0	3	123
				T5W	23,221	5	0	4	112	25,016	5	0	4	121	25,332	5	0	4	122
				BLC	18,458	2	0	3	89	19,885	2	0	3	96	20,136	2	0	3	97
				LCCO	13,735	2	0	3	66	14,796	2	0	4	71	14,983	2	0	4	72
				RCCO	13,735	2	0	3	66	14,796	2	0	4	71	14,983	2	0	4	72
60	1250	**P9**	241W	T1S	25,575	3	0	3	106	27,551	3	0	3	114	27,900	3	0	3	116
				T2S	25,678	3	0	3	107	27,663	3	0	3	115	28,013	3	0	3	116
				T2M	25,547	3	0	4	106	27,521	3	0	4	114	27,869	3	0	4	116
				T3S	25,616	3	0	4	106	26,791	3	0	4	111	27,945	3	0	4	116
				T3M	24,868	3	0	4	103	27,597	3	0	4	115	27,129	3	0	4	113
				T4M	25,061	3	0	4	104	26,997	3	0	4	112	27,339	3	0	4	113
				TFTM	25,602	3	0	4	106	27,580	3	0	4	114	27,929	3	0	4	116
				T5VS	26,626	5	0	1	110	28,684	5	0	1	119	29,047	5	0	1	121
				T5S	26,648	4	0	2	111	28,707	5	0	2	119	29,070	5	0	2	121
				T5M	26,581	5	0	3	110	28,635	5	0	3	119	28,997	5	0	3	120
				T5W	26,406	5	0	4	110	28,447	5	0	4	118	28,807	5	0	4	120
				BLC	20,990	2	0	3	87	22,612	2	0	3	94	22,898	2	0	3	95
				LCCO	15,619	2	0	4	65	16,825	2	0	4	70	17,038	2	0	4	71
				RCCO	15,619	2	0	4	65	16,825	2	0	4	70	17,038	2	0	4	71

Performance Data

Lumen Output

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown, within the tolerances allowed by Lighting Facts. Contact factory for performance data on any configurations not shown here.

Rotated Optics

LED Count	Drive Current	Power Package	System Watts	Dist. Type	30K (3000 K, 70 CRI)					40K (4000 K, 70 CRI)					50K (5000 K, 70 CRI)				
					Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	Lumens	B	U	G	LPW
60	530	**P10**	106W	T1S	13,042	3	0	3	123	14,050	3	0	3	133	14,228	3	0	3	134
				T2S	13,200	3	0	3	125	14,220	3	0	3	134	14,400	3	0	3	136
				T2M	12,966	4	0	4	122	13,968	4	0	4	132	14,145	4	0	4	133
				T3S	13,193	4	0	4	124	14,212	4	0	4	134	14,392	4	0	4	136
				T3M	12,766	4	0	4	120	13,751	4	0	4	130	13,925	4	0	4	131
				T4M	12,944	4	0	4	122	13,945	4	0	4	132	14,121	4	0	4	133
				TFTM	13,279	4	0	4	125	14,305	4	0	4	135	14,486	4	0	4	137
				T5VS	13,372	3	0	1	126	14,405	4	0	1	136	14,588	4	0	1	138
				T5S	13,260	3	0	1	125	14,284	3	0	1	135	14,465	3	0	1	136
				T5M	13,256	4	0	2	125	14,281	4	0	2	135	14,462	4	0	2	136
				T5W	13,137	4	0	3	124	14,153	4	0	3	134	14,332	4	0	3	135
				BLC	10,906	3	0	3	103	11,749	3	0	3	111	11,898	3	0	3	112
				LCCO	7,789	1	0	3	73	8,391	1	0	3	79	8,497	1	0	3	80
				RCCO	7,779	4	0	4	73	8,380	4	0	4	79	8,486	4	0	4	80
60	700	**P11**	137W	T1S	16,556	3	0	3	121	17,835	3	0	3	130	18,061	4	0	4	132
				T2S	16,757	4	0	4	122	18,052	4	0	4	132	18,280	4	0	4	133
				T2M	16,460	4	0	4	120	17,732	4	0	4	129	17,956	4	0	4	131
				T3S	16,747	4	0	4	122	18,041	4	0	4	132	18,270	4	0	4	133
				T3M	16,204	4	0	4	118	17,456	4	0	4	127	17,677	4	0	4	129
				T4M	16,432	4	0	4	120	17,702	4	0	4	129	17,926	4	0	4	131
				TFTM	16,857	4	0	4	123	18,159	4	0	4	133	18,389	4	0	4	134
				T5VS	16,975	4	0	1	124	18,287	4	0	1	133	18,518	4	0	1	135
				T5S	16,832	4	0	1	123	18,133	4	0	2	132	18,362	4	0	2	134
				T5M	16,828	4	0	2	123	18,128	4	0	2	132	18,358	4	0	2	134
				T5W	16,677	4	0	3	122	17,966	5	0	3	131	18,193	5	0	3	133
				BLC	13,845	3	0	3	101	14,915	3	0	3	109	15,103	3	0	3	110
				LCCO	9,888	1	0	3	72	10,652	2	0	3	78	10,787	2	0	3	79
				RCCO	9,875	4	0	4	72	10,638	4	0	4	78	10,773	4	0	4	79
60	1050	**P12**	207W	T1S	22,996	4	0	4	111	24,773	4	0	4	120	25,087	4	0	4	121
				T2S	23,276	4	0	4	112	25,074	4	0	4	121	25,392	4	0	4	123
				T2M	22,863	4	0	4	110	24,630	5	0	5	119	24,941	5	0	5	120
				T3S	23,262	4	0	4	112	25,060	4	0	4	121	25,377	4	0	4	123
				T3M	22,508	4	0	4	109	24,247	5	0	5	121	24,554	5	0	5	119
				T4M	22,824	5	0	5	110	24,588	5	0	5	119	24,899	5	0	5	120
				TFTM	23,414	5	0	5	113	25,223	5	0	5	122	25,543	5	0	5	123
				T5VS	23,579	5	0	1	114	25,401	5	0	1	123	25,722	5	0	1	124
				T5S	23,380	4	0	2	113	25,187	4	0	2	122	25,506	4	0	2	123
				T5M	23,374	5	0	3	113	25,181	5	0	3	122	25,499	5	0	3	123
				T5W	23,165	5	0	4	112	24,955	5	0	4	121	25,271	5	0	4	122
				BLC	19,231	4	0	4	93	20,717	4	0	4	100	20,979	4	0	4	101
				LCCO	13,734	2	0	3	66	14,796	2	0	4	71	14,983	2	0	4	72
				RCCO	13,716	4	0	4	66	14,776	4	0	4	71	14,963	4	0	4	72
60	1250	**P13**	231W	T1S	25,400	4	0	4	110	27,363	4	0	4	118	27,709	4	0	4	120
				T2S	25,709	4	0	4	111	27,695	4	0	4	120	28,046	4	0	4	121
				T2M	25,253	5	0	5	109	27,204	5	0	5	118	27,548	5	0	5	119
				T3S	25,694	5	0	5	111	27,679	5	0	5	120	28,029	5	0	5	121
				T3M	24,861	5	0	5	108	26,782	5	0	5	116	27,121	5	0	5	117
				T4M	25,210	5	0	5	109	27,158	5	0	5	118	27,502	5	0	5	119
				TFTM	25,861	5	0	5	112	27,860	5	0	5	121	28,212	5	0	5	122
				T5VS	26,043	5	0	1	113	28,056	5	0	1	121	28,411	5	0	1	123
				T5S	25,824	4	0	2	112	27,819	5	0	2	120	28,172	5	0	2	122
				T5M	25,818	5	0	3	112	27,813	5	0	3	120	28,165	5	0	3	122
				T5W	25,586	5	0	4	111	27,563	5	0	4	119	27,912	5	0	4	121
				BLC	21,241	4	0	4	92	22,882	4	0	4	99	23,172	4	0	4	100
				LCCO	15,170	2	0	4	66	16,342	2	0	4	71	16,549	2	0	4	72
				RCCO	15,150	5	0	5	66	16,321	5	0	5	71	16,527	5	0	5	72

FEATURES & SPECIFICATIONS

INTENDED USE
The sleek design of the D-Series Size 1 reflects the embedded high performance LED technology. It is ideal for many commercial and municipal applications, such as parking lots, plazas, campuses, and streetscapes.

CONSTRUCTION
Single-piece die-cast aluminum housing has integral heat sink fins to optimize thermal management through conductive and convective cooling. Modular design allows for ease of maintenance and future light engine upgrades. The LED drivers are mounted in direct contact with the casting to promote low operating temperature and long life. Housing is completely sealed against moisture and environmental contaminants (IP65). Low EPA (1.01 ft^2) for optimized pole wind loading.

FINISH
Exterior parts are protected by a zinc-infused Super Durable TGIC thermoset powder coat finish that provides superior resistance to corrosion and weathering. A tightly controlled multi-stage process ensures a minimum 3 mils thickness for a finish that can withstand extreme climate changes without cracking or peeling. Available in both textured and non-textured finishes.

OPTICS
Precision-molded proprietary acrylic lenses are engineered for superior area lighting distribution, uniformity, and pole spacing. Light engines are available in standard 3000 K, 4000 K and 5000 K (70 CRI) configurations. The D-Series Size 1 has zero uplight and qualifies as a Nighttime Friendly™ product, meaning it is consistent with the LEED® and Green Globes™ criteria for eliminating wasteful uplight.

ELECTRICAL
Light engine configurations consist of high-efficacy LEDs mounted to metal-core circuit boards to maximize heat dissipation and promote long life (up to L85/100,000 hours at 25°C). Class 1 electronic drivers are designed to have a power factor >90%, THD <20%, and an expected life of 100,000 hours with <1% failure rate. Easily serviceable 10kV surge protection device meets a minimum Category C Low operation (per ANSI/IEEE C62.41.2).

STANDARD CONTROLS
The DSX1 LED area luminaire has a number of control options. DSX Size 1, comes standard with 0-10V dimming drivers. Dusk to dawn controls can be utilized via optional NEMA twist-lock photocell receptacles. Integrated motion sensors with on-board photocells feature field-adjustable programing and are suitable for mounting heights up to 30 feet.

nLIGHT AIR CONTROLS
The DSX1 LED area luminaire is also available with nLight® AIR for the ultimate in wireless control. This powerful controls platform provides out-of-the-box basic motion sensing and photocontrol functionality and is suitable for mounting heights up to 40 feet. Once commissioned using a smartphone and the easy-to-use CLAIRITY app, nLight AIR equipped luminaries can be grouped, resulting in motion sensor and photocell group response without the need for additional equipment. Scheduled dimming with motion sensor over-ride can be achieved when used with the nLight Eclypse. Additional information about nLight Air can be found here.

INSTALLATION
Included mounting block and integral arm facilitate quick and easy installation. Stainless steel bolts fasten the mounting block securely to poles and walls, enabling the D-Series Size 1 to withstand up to a 3.0 G vibration load rating per ANSI C136.31. The D-Series Size 1 utilizes the AERIS™ series pole drilling pattern (template #8). NEMA photocontrol receptacle are also available.

LISTINGS
UL listed to meet U.S. and Canadian standards. UL Listed for wet locations. Light engines are IP66 rated; luminaire is IP65 rated. Rated for -40°C minimum ambient. U.S. Patent No. D672,492 S. International patent pending.

DesignLights Consortium® (DLC) Premium qualified product and DLC qualified product. Not all versions of this product may be DLC Premium qualified or DLC qualified. Please check the DLC Qualified Products List at www.designlights.org/QPL to confirm which versions are qualified.

International Dark-Sky Association (IDA) Fixture Seal of Approval (FSA) is available for all products on this page utilizing 3000K color temperature only.

BUY AMERICAN ACT
Product with the BAA option is assembled in the USA and meets the Buy America(n) government procurement requirements under FAR, DFARS and DOT regulations. Please refer to www.acuitybrands.com/buy-american for additional information.

WARRANTY
5-year limited warranty. This is the only warranty provided and no other statements in this specification sheet create any warranty of any kind. All other express and implied warranties are disclaimed. Complete warranty terms located at: www.acuitybrands.com/support/warranty/terms-and-conditions

Note: Actual performance may differ as a result of end-user environment and application.
All values are design or typical values, measured under laboratory conditions at 25 °C.
Specifications subject to change without notice.

D-Series Size 1

Legacy LED Area Luminaire

Catalog Number

Notes

Type L11

Hit the Tab key or mouse over the page to see all interactive elements.

Specifications

EPA: 1.01 ft² (0.09 m²)

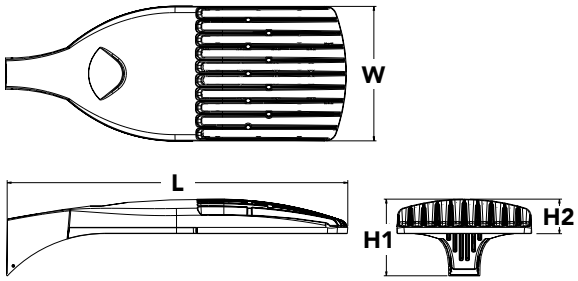
Length: 33" (83.8 cm)

Width: 13" (33.0 cm)

Height H1: 7-1/2" (19.0 cm)

Height H2: 3-1/2"

Weight (max): 27 lbs (12.2 kg)



Introduction

The modern styling of the D-Series is striking yet unobtrusive - making a bold, progressive statement even as it blends seamlessly with its environment. The D-Series distills the benefits of the latest in LED technology into a high performance, high efficacy, long-life luminaire.

The outstanding photometric performance results in sites with excellent uniformity, greater pole spacing and lower power density. It is ideal for replacing up to 750W metal halide in pedestrian and area lighting applications with typical energy savings of 65% and expected service life of over 100,000 hours.

Ordering Information

EXAMPLE: DSX1 LED P7 40K T3M MVOLT SPA NLTAIR2 PIRHN DDBXD G1

DSX1 LED

Series

DSX1 LED

LEDs

Forward optics

P1 P4[1] P7[1]
P2 P5[1] P8
P3 P6[1] P9[1]

Rotated optics

P10[2] P12[2]
P11[2] P13[1,2]

Color temperature

30K	3000 K
40K	4000 K
50K	5000 K

Distribution

T1S	Type I short (Automotive)
T2S	Type II short
T2M	Type II medium
T3S	Type III short
T3M	Type III medium
T4M	Type IV medium
TFTM	Forward throw medium
T5VS	Type V very short[3]
T5S	Type V short[3]
T5M	Type V medium[3]
T5W	Type V wide[3]
BLC	Backlight control[4]
LCCO	Left corner cutoff[4]
RCCO	Right corner cutoff[4]

Voltage

MVOLT[5]
XVOLT (277V-480V)[6,7,8]
120[9]
208[9]
240[9]
277[9]
347[9]
480[9]

Mounting

Shipped included

SPA	Square pole mounting
RPA	Round pole mounting[10]
WBA	Wall bracket[3]
SPUMBA	Square pole universal mounting adaptor[11]
RPUMBA	Round pole universal mounting adaptor[9]

Shipped separately

KMA8 DDBXD U	Mast arm mounting bracket adaptor (specify finish)[12]

Control options

Shipped installed

NLTAIR2	nLight AIR generation 2 enabled[13]
PIRHN	Network, high/low motion/ambient sensor[14]
PER	NEMA twist-lock receptacle only (controls ordered separate)[15]
PER5	Five-pin receptacle only (controls ordered separate)[15,16]
PER7	Seven-pin receptacle only (controls ordered separate)[15,16]
DMG	0-10v dimming wires pulled outside fixture (for use with an external control, ordered separately)[17]
DS	Dual switching[18,19,20]
PIR	High/low, motion/ambient sensor, 8-15' mounting height, ambient sensor enabled at 5fc[20,21]
PIRH	High/low, motion/ambient sensor, 15-30' mounting height, ambient sensor enabled at 5fc[20,21]
PIR1FC3V	High/low, motion/ambient sensor, 8-15' mounting height, ambient sensor enabled at 1fc[20,21]
PIRH1FC3V	Bi-level, motion/ambient sensor, 15-30' mounting height, ambient sensor enabled at 1fc[20,21]
FAO	Field adjustable output[20,22]

Other options

Shipped installed

HS	House-side shield[23]
SF	Single fuse (120, 277, 347V)[9]
DF	Double fuse (208, 240, 480V)[9]
L90	Left rotated optics[2]
R90	Right rotated optics[2]
HA	50°C ambient operations[1]
BAA	Buy America(n) Act Compliant

Shipped separately

BS	Bird spikes[24]
EGS	External glare shield

Finish *(required)*

DDBXD	Dark bronze
DBLXD	Black
DNAXD	Natural aluminum
DWHXD	White
DDBTXD	Textured dark bronze
DBLBXD	Textured black
DNATXD	Textured natural aluminum
DWHGXD	Textured white

Generation *(required)*

G1 Generation 1

Ordering Information

Accessories

Ordered and shipped separately.

DLL127F 1.5 JU	Photocell - SSL twist-lock (120-277V) [25]
DLL347F 1.5 CUL JU	Photocell - SSL twist-lock (347V) [25]
DLL480F 1.5 CUL JU	Photocell - SSL twist-lock (480V) [25]
DSHORT SBK U	Shorting cap [25]
DSX1HS 30C G1 U	House-side shield for P1, P2, P3, P4 and P5 [23]
DSX1HS 40C G1 U	House-side shield for P6 and P7 [23]
DSX1HS 60C G1 U	House-side shield for P8, P9, P10, P11 and P12 [23]
PUMBA DDBXD G1 U*	Square and round pole universal mounting bracket (specify finish) [26]
KMA8 DDBXD U	Mast arm mounting bracket adaptor (specify finish) [12]
DSX1EGS (FINISH) G1 U	External glare shield

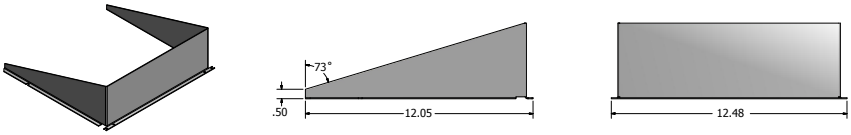
For more control options, visit DTL and ROAM online.

NOTES

1 HA not available with P4, P5, P6, P7, P9 and P13.
2 P10, P11, P12 or P13 and rotated optics (L90, R90) only available together.
3 Any Type 5 distribution with photocell, is not available with WBA.
4 Not available with HS.
5 MVOLT driver operates on any line voltage from 120-277V (50/60 Hz).
6 XVOLT only suitable for use with P3, P5, P6, P7, P9 and P13.
7 XVOLT works with any voltage between 277V and 480V.
8 XVOLT not available with fusing (SF or DF) and not available with PIR, PIRH, PIR1FC3V, PIRH1FC3V.
9 Single fuse (SF) requires 120V, 277V or 347V. Double fuse (DF) requires 208V, 240V or 480V. XVOLT not available with fusing (SF or DF.
10 Suitable for mounting to round poles between 3.5" and 12" diameter.
11 Universal mounting brackets intended for retrofit on existing, pre-drilled poles only. 1.5 G vibration load rating per ANCI C136.31. Only usable when pole's drill pattern is NOT Lithonia template #8
12 Must order fixture with SPA option. KMA8 must be ordered as a separate accessory; see Accessories information. For use with 2-3/8" diameter mast arm (not included).
13 Must be ordered with PIRHN. Sensor cover available only in dark bronze, black, white and natural aluminum colors.
14 Must be ordered with NLTAIR2. For more information on nLight Air 2 visit this link.
15 Photocell ordered and shipped as a separate line item from Acuity Brands Controls. See accessories. Shorting cap included.
16 If ROAM® node required, it must be ordered and shipped as a separate line item from Acuity Brands Controls. Node with integral dimming.
17 DMG not available with PIRHN, PER5, PER7, PIR, PIRH, PIR1FC3V or PIRH1FC3V, FAO.
18 Provides 50/50fixture operation via (2) independent drivers. Not available with PER, PER5, PER7, PIR or PIRH. Not available P1, P2, P3, P4 or P5.
19 Requires (2) separately switched circuits.
20 Reference Controls Options table on page 4.
21 Reference Motion Sensor default settings table on page 4 to see functionality.
22 Not available with other dimming controls options.
23 Not available with BLC, LCCO and RCCO distribution. Also available as a separate accessory; see Accessories information.
24 Must be ordered with fixture for factory pre-drilling.
25 Requires luminaire to be specified with PER, PER5 or PER7 option. See Control Option Table on page 4.
26 For retrofit use only. Only usable when pole's drill pattern is NOT Lithonia template #8.

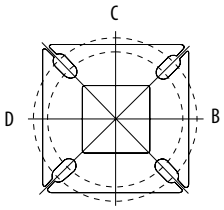
Options

EGS - External Glare Shield

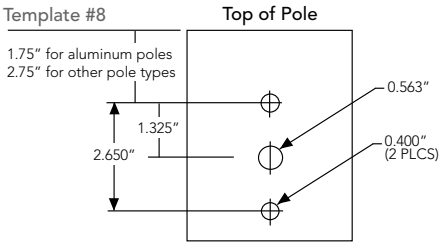


Drilling

HANDHOLE ORIENTATION



Template #8



Tenon Mounting Slipfitter

Tenon O.D.	Mounting	Single Unit	2 @ 180	2 @ 90	3 @ 90	3 @120	4 @ 90
2-3/8"	RPA	AS3-5 190	AS3-5 280	AS3-5 290	AS3-5 390	AS3-5 320	AS3-5 490
2-7/8"	RPA	AST25-190	AST25-280	AST25-290	AST25-390	AST25-320	AST25-490
4"	RPA	AST35-190	AST35-280	AST35-290	AST35-390	AST35-320	AST35-490

Mounting Option	Drilling Template	Single	2 @ 180	2 @ 90	3 @ 90	3 @ 120	4 @ 90
Head Location		Side B	Side B & D	Side B & C	Side B, C & D	Round Pole Only	Side A, B, C & D
Drill Nomenclature	#8	DM19AS	DM28AS	DM29AS	DM39AS	DM32AS	DM49AS

DSX1 Area Luminaire - EPA

*Includes luminaire and integral mounting arm. Other tenons, arms, brackets or other accessories are not included in this EPA data.

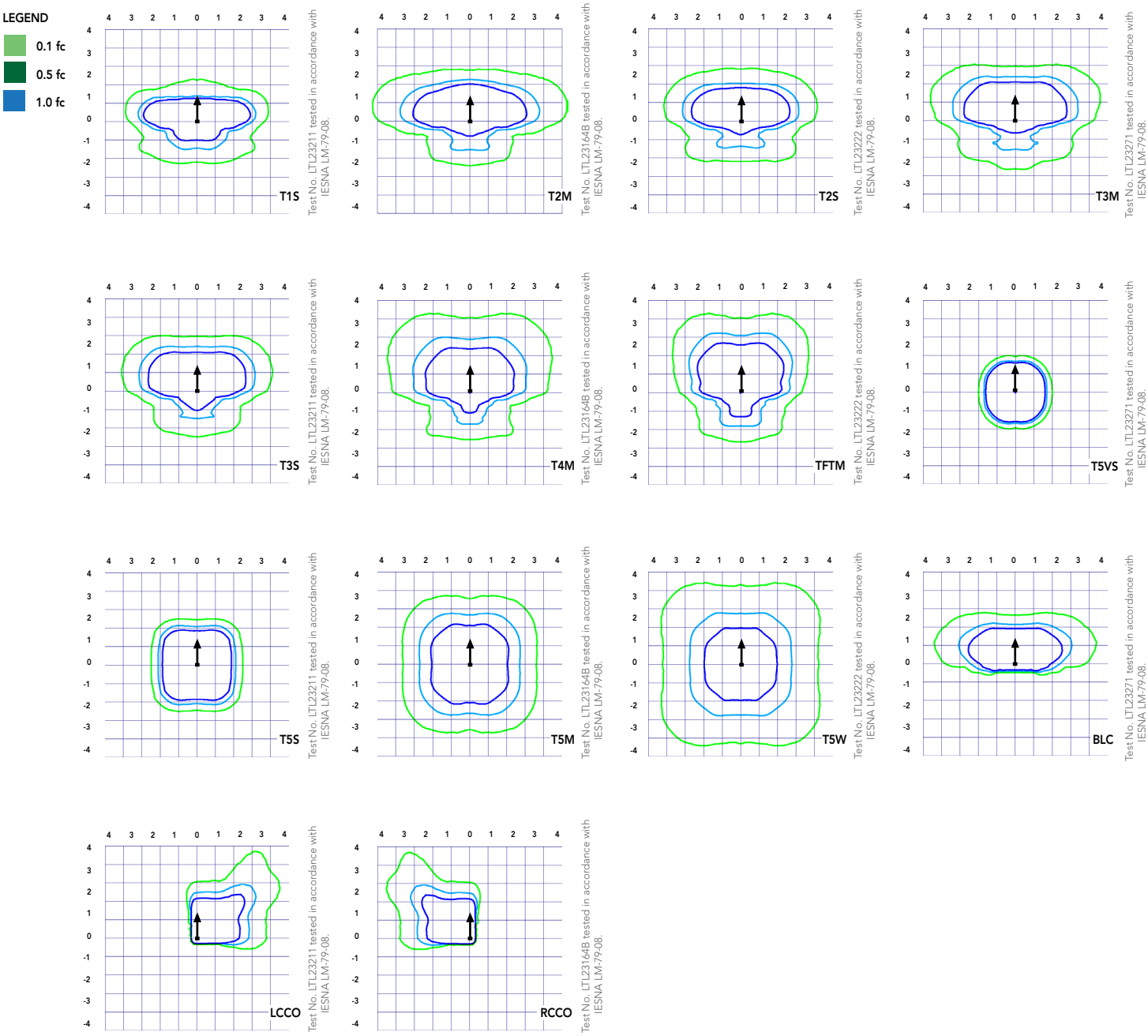
Fixture Quantity & Mounting Configuration	Single DM19	2 @ 180 DM28	2 @ 90 DM29	3 @ 90 DM39	3 @ 120 DM32	4 @ 90 DM49
Mounting Type						
DSX1 LED	1.013	2.025	1.945	3.038	2.850	3.749

	Drilling Template	Minimum Acceptable Outside Pole Dimension					
SPA	#8	2-7/8"	2-7/8"	3.5"	3.5"	3"	3.5"
RPA	#8	2-7/8"	2-7/8"	3.5"	3.5"	3"	3.5"
SPUMBA	#5	2-7/8"	3"	4"	4"	3.5"	4"
RPUMBA	#5	2-7/8"	3.5"	5"	5"	3.5"	5"

Photometric Diagrams

To see complete photometric reports or download .ies files for this product, visit Lithonia Lighting's D-Series Area Size 1 homepage.

Isofootcandle plots for the DSX1 LED P7 40K G1. Distances are in units of mounting height (25').



Performance Data

Lumen Ambient Temperature (LAT) Multipliers

Use these factors to determine relative lumen output for average ambient temperatures from 0-40°C (32-104°F).

Ambient		Lumen Multiplier
0°C	32°F	1.04
5°C	41°F	1.04
10°C	50°F	1.03
15°C	50°F	1.02
20°C	68°F	1.01
25°C	**77°F**	**1.00**
30°C	86°F	0.99
35°C	95°F	0.98
40°C	104°F	0.97

Projected LED Lumen Maintenance

Data references the extrapolated performance projections for the platforms noted in a **25°C ambient**, based on 10,000 hours of LED testing (tested per IESNA LM-80-08 and projected per IESNA TM-21-11).

To calculate LLF, use the lumen maintenance factor that corresponds to the desired number of operating hours below. For other lumen maintenance values, contact factory.

Operating Hours	Lumen Maintenance Factor
0	1.00
25,000	0.96
50,000	0.92
100,000	0.85

Motion Sensor Default Settings						
Option	Dimmed State	High Level (when triggered)	Phototcell Operation	Dwell Time	Ramp-up Time	Ramp-down Time
PIR or PIRH	3V (37%) Output	10V (100%) Output	Enabled @ 5FC	5 min	3 sec	5 min
*PIR1FC3V or PIRH1FC3V	3V (37%) Output	10V (100%) Output	Enabled @ 1FC	5 min	3 sec	5 min
*for use when motion sensor is used as dusk to dawn control.						

Electrical Load

					Current (A)					
	Performance Package	LED Count	Drive Current	Wattage	120	208	240	277	347	480
Forward Optics (Non-Rotated)	P1	30	530	54	0.45	0.26	0.23	0.19	0.10	0.12
	P2	30	700	70	0.59	0.34	0.30	0.25	0.20	0.16
	P3	30	1050	102	0.86	0.50	0.44	0.38	0.30	0.22
	P4	30	1250	125	1.06	0.60	0.52	0.46	0.37	0.27
	P5	30	1400	138	1.16	0.67	0.58	0.51	0.40	0.29
	P6	40	1250	163	1.36	0.78	0.68	0.59	0.47	0.34
	P7	40	1400	183	1.53	0.88	0.76	0.66	0.53	0.38
	P8	60	1050	207	1.74	0.98	0.87	0.76	0.64	0.49
	P9	60	1250	241	2.01	1.16	1.01	0.89	0.70	0.51
Rotated Optics (Requires L90 or R90)	P10	60	530	106	0.90	0.52	0.47	0.43	0.33	0.27
	P11	60	700	137	1.15	0.67	0.60	0.53	0.42	0.32
	P12	60	1050	207	1.74	0.99	0.87	0.76	0.60	0.46
	P13	60	1250	231	1.93	1.12	0.97	0.86	0.67	0.49

Controls Options				
Nomenclature	Description	Functionality	Primary control device	Notes
FAO	Field adjustable output device installed inside the luminaire; wired to the driver dimming leads.	Allows the luminaire to be manually dimmed, effectively trimming the light output.	FAO device	Cannot be used with other controls options that need the 0-10V leads
DS	Drivers wired independently for 50/50 luminaire operation	The luminaire is wired to two separate circuits, allowing for 50/50 operation.	Independently wired drivers	Requires two separately switched circuits. Consider nLight AIR as a more cost effective alternative.
PER5 or PER7	Twist-lock photocell recepticle	Compatible with standard twist-lock photocells for dusk to dawn operation, or advanced control nodes that provide 0-10V dimming signals.	Twist-lock photocells such as DLL Elite or advanced control nodes such as ROAM.	Pins 4 & 5 to dimming leads on driver, Pins 6 & 7 are capped inside luminaire
PIR or PIRH	Motion sensors with integral photocell. PIR for 8-15' mounting; PIRH for 15-30' mounting	Luminaires dim when no occupancy is detected.	Acuity Controls SBGR	Also available with PIRH1FC3V when the sensor photocell is used for dusk-to-dawn operation.
NLTAIR2 PIRHN	nLight AIR enabled luminaire for motion sensing, photocell and wireless communication.	Motion and ambient light sensing with group response. Scheduled dimming with motion sensor over-ride when wirelessly connected to the nLight Eclypse.	nLight Air rSDGR	nLight AIR sensors can be programmed and commissioned from the ground using the CIAIRity Pro app.

Performance Data

Lumen Output

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08.

Forward Optics

LED Count	Drive Current	Power Package	System Watts	Dist. Type	30K (3000 K, 70 CRI)					40K (4000 K, 70 CRI)					50K (5000 K, 70 CRI)				
					Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	Lumens	B	U	G	LPW
30	530	**P1**	54W	T1S	6,457	2	0	2	120	6,956	2	0	2	129	7,044	2	0	2	130
				T2S	6,483	1	0	1	120	6,984	2	0	2	129	7,072	2	0	2	131
				T2M	6,450	2	0	2	119	6,948	2	0	2	129	7,036	2	0	2	130
				T3S	6,468	1	0	2	120	6,967	1	0	2	129	7,055	1	0	2	131
				T3M	6,279	2	0	2	116	6,764	2	0	2	125	6,849	2	0	2	127
				T4M	6,327	1	0	2	117	6,816	1	0	2	126	6,902	1	0	2	128
				TFTM	6,464	1	0	2	120	6,963	1	0	2	129	7,051	1	0	2	131
				T5VS	6,722	2	0	0	124	7,242	3	0	0	134	7,334	3	0	0	136
				T5S	6,728	2	0	1	125	7,248	2	0	1	134	7,340	2	0	1	136
				T5M	6,711	3	0	1	124	7,229	3	0	1	134	7,321	3	0	2	136
				T5W	6,667	3	0	2	123	7,182	3	0	2	133	7,273	3	0	2	135
				BLC	5,299	1	0	1	98	5,709	1	0	2	106	5,781	1	0	2	107
				LCCO	3,943	1	0	2	73	4,248	1	0	2	79	4,302	1	0	2	80
				RCCO	3,943	1	0	2	73	4,248	1	0	2	79	4,302	1	0	2	80
30	700	**P2**	70W	T1S	8,249	2	0	2	118	8,886	2	0	2	127	8,999	2	0	2	129
				T2S	8,282	2	0	2	118	8,923	2	0	2	127	9,035	2	0	2	129
				T2M	8,240	2	0	2	118	8,877	2	0	2	127	8,989	2	0	2	128
				T3S	8,262	2	0	2	118	8,901	2	0	2	127	9,013	2	0	2	129
				T3M	8,021	2	0	2	115	8,641	2	0	2	123	8,750	2	0	2	125
				T4M	8,083	2	0	2	115	8,708	2	0	2	124	8,818	2	0	2	126
				TFTM	8,257	2	0	2	118	8,896	2	0	2	127	9,008	2	0	2	129
				T5VS	8,588	3	0	0	123	9,252	3	0	0	132	9,369	3	0	0	134
				T5S	8,595	3	0	1	123	9,259	3	0	1	132	9,376	3	0	1	134
				T5M	8,573	3	0	2	122	9,236	3	0	2	132	9,353	3	0	2	134
				T5W	8,517	3	0	2	122	9,175	4	0	2	131	9,291	4	0	2	133
				BLC	6,770	1	0	2	97	7,293	1	0	2	104	7,386	1	0	2	106
				LCCO	5,038	1	0	2	72	5,427	1	0	2	78	5,496	1	0	2	79
				RCCO	5,038	1	0	2	72	5,427	1	0	2	78	5,496	1	0	2	79
30	1050	**P3**	102W	T1S	11,661	2	0	2	114	12,562	3	0	3	123	12,721	3	0	3	125
				T2S	11,708	2	0	2	115	12,612	2	0	2	124	12.772	2	0	2	125
				T2M	11,648	2	0	2	114	12,548	3	0	3	123	12.707	3	0	3	125
				T3S	11,679	2	0	2	115	12.582	2	0	2	123	12,741	2	0	2	125
				T3M	11,338	2	0	2	111	12.214	3	0	3	120	12,369	3	0	3	121
				T4M	11,426	2	0	3	112	12,309	2	0	3	121	12,465	2	0	3	122
				TFTM	11,673	2	0	2	114	12,575	2	0	3	123	12,734	2	0	3	125
				T5VS	12,140	3	0	1	119	13,078	3	0	1	128	13,244	3	0	1	130
				T5S	12,150	3	0	1	119	13,089	3	0	1	128	13,254	3	0	1	130
				T5M	12,119	4	0	2	119	13,056	4	0	2	128	13,221	4	0	2	130
				T5W	12,040	4	0	3	118	12,970	4	0	3	127	13,134	4	0	3	129
				BLC	9,570	1	0	2	94	10,310	1	0	2	101	10,440	1	0	2	102
				LCCO	7,121	1	0	3	70	7,671	1	0	3	75	7,768	1	0	3	76
				RCCO	7,121	1	0	3	70	7,671	1	0	3	75	7,768	1	0	3	76
30	1250	**P4**	125W	T1S	13,435	3	0	3	107	14,473	3	0	3	116	14,657	3	0	3	117
				T2S	13,489	2	0	2	108	14,532	3	0	3	116	14,716	3	0	3	118
				T2M	13,420	3	0	3	107	14,457	3	0	3	116	14,640	3	0	3	117
				T3S	13,457	2	0	2	108	14,496	2	0	2	116	14,680	2	0	2	117
				T3M	13,064	3	0	3	105	14,073	3	0	3	113	14,251	3	0	3	114
				T4M	13,165	2	0	3	105	14,182	2	0	3	113	14,362	2	0	3	115
				TFTM	13,449	2	0	3	108	14,488	2	0	3	116	14,672	2	0	3	117
				T5VS	13,987	4	0	1	112	15,068	4	0	1	121	15,259	4	0	1	122
				T5S	13,999	3	0	1	112	15,080	3	0	1	121	15,271	3	0	1	122
				T5M	13,963	4	0	2	112	15,042	4	0	2	120	15,233	4	0	2	122
				T5W	13,872	4	0	3	111	14,944	4	0	3	120	15,133	4	0	3	121
				BLC	11,027	1	0	2	88	11,879	1	0	2	95	12,029	1	0	2	96
				LCCO	8,205	1	0	3	66	8,839	1	0	3	71	8,951	1	0	3	72
				RCCO	8,205	1	0	3	66	8,839	1	0	3	71	8,951	1	0	3	72
30	1400	**P5**	138W	T1S	14,679	3	0	3	106	15,814	3	0	3	115	16,014	3	0	3	116
				T2S	14,739	3	0	3	107	15,878	3	0	3	115	16,079	3	0	3	117
				T2M	14,663	3	0	3	106	15,796	3	0	3	114	15,996	3	0	3	116
				T3S	14,703	2	0	3	107	15,839	3	0	3	115	16,039	3	0	3	116
				T3M	14,274	3	0	3	103	15,377	3	0	3	111	15,571	3	0	3	113
				T4M	14,384	2	0	3	104	15,496	3	0	3	112	15,692	3	0	3	114
				TFTM	14,695	2	0	3	106	15,830	3	0	3	115	16,030	3	0	3	116
				T5VS	15,283	4	0	1	111	16,464	4	0	1	119	16,672	4	0	1	121
				T5S	15,295	3	0	1	111	16,477	4	0	1	119	16,686	4	0	1	121
				T5M	15,257	4	0	2	111	16,435	4	0	2	119	16,644	4	0	2	121
				T5W	15,157	4	0	3	110	16,328	4	0	3	118	16,534	4	0	3	120
				BLC	12,048	1	0	2	87	12,979	1	0	2	94	13,143	1	0	2	95
				LCCO	8,965	1	0	3	65	9,657	1	0	3	70	9,780	1	0	3	71
				RCCO	8,965	1	0	3	65	9,657	1	0	3	70	9,780	1	0	3	71

Performance Data

Lumen Output

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown, within the tolerances allowed by Lighting Facts. Contact factory for performance data on any configurations not shown here.

Forward Optics

LED Count	Drive Current	Power Package	System Watts	Dist. Type	30K (3000 K, 70 CRI)					40K (4000 K, 70 CRI)					50K (5000 K, 70 CRI)				
					Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	Lumens	B	U	G	LPW
40	1250	**P6**	163W	T1S	17,654	3	0	3	108	19,018	3	0	3	117	19,259	3	0	3	118
				T2S	17,725	3	0	3	109	19,095	3	0	3	117	19,336	3	0	3	119
				T2M	17,634	3	0	3	108	18,997	3	0	3	117	19,237	3	0	3	118
				T3S	17,682	3	0	3	108	19,048	3	0	3	117	19,289	3	0	3	118
				T3M	17,166	3	0	3	105	18,492	3	0	3	113	18,726	3	0	3	115
				T4M	17,299	3	0	3	106	18,635	3	0	4	114	18,871	3	0	4	116
				TFTM	17,672	3	0	3	108	19,038	3	0	4	117	19,279	3	0	4	118
				T5VS	18,379	4	0	1	113	19,800	4	0	1	121	20,050	4	0	1	123
				T5S	18,394	4	0	2	113	19,816	4	0	2	122	20,066	4	0	2	123
				T5M	18,348	4	0	2	113	19,766	4	0	2	121	20,016	4	0	2	123
				T5W	18,228	5	0	3	112	19,636	5	0	3	120	19,885	5	0	3	122
				BLC	14,489	2	0	2	89	15,609	2	0	3	96	15,806	2	0	3	97
				LCCO	10,781	1	0	3	66	11,614	1	0	3	71	11,761	2	0	3	72
				RCCO	10,781	1	0	3	66	11,614	1	0	3	71	11,761	2	0	3	72
40	1400	**P7**	183W	T1S	19,227	3	0	3	105	20,712	3	0	3	113	20,975	3	0	3	115
				T2S	19,304	3	0	3	105	20,796	3	0	3	114	21,059	3	0	3	115
				T2M	19,205	3	0	3	105	20,689	3	0	3	113	20,951	3	0	3	114
				T3S	19,257	3	0	3	105	20,745	3	0	3	113	21,008	3	0	3	115
				T3M	18,695	3	0	3	102	20,140	3	0	3	110	20,395	3	0	4	111
				T4M	18,840	3	0	4	103	20,296	3	0	4	111	20,553	3	0	4	112
				TFTM	19,246	3	0	4	105	20,734	3	0	4	113	20,996	3	0	4	115
				T5VS	20,017	4	0	1	109	21,564	4	0	1	118	21,837	4	0	1	119
				T5S	20,033	4	0	2	109	21,581	4	0	2	118	21,854	4	0	2	119
				T5M	19,983	4	0	2	109	21,527	5	0	3	118	21,799	5	0	3	119
				T5W	19,852	5	0	3	108	21,386	5	0	3	117	21,656	5	0	3	118
				BLC	15,780	2	0	3	86	16,999	2	0	3	93	17,214	2	0	3	94
				LCCO	11,742	2	0	3	64	12,649	2	0	3	69	12,809	2	0	3	70
				RCCO	11,742	2	0	3	64	12,649	2	0	3	69	12,809	2	0	3	70
60	1050	**P8**	207W	T1S	22,490	3	0	3	109	24,228	3	0	3	117	24,535	3	0	3	119
				T2S	22,581	3	0	3	109	24,326	3	0	3	118	24,634	3	0	3	119
				T2M	22,465	3	0	4	109	24,201	3	0	4	117	24,507	3	0	4	119
				T3S	22,526	3	0	4	109	24,267	3	0	4	117	24,574	3	0	4	119
				T3M	21,869	3	0	4	106	23,558	3	0	4	114	23,857	3	0	4	115
				T4M	22,038	3	0	4	106	23,741	3	0	4	115	24,041	3	0	4	116
				TFTM	22,513	3	0	4	109	24,253	3	0	4	117	24,560	3	0	4	119
				T5VS	23,415	5	0	1	113	25,224	5	0	1	122	25,543	5	0	1	123
				T5S	23,434	4	0	2	113	25,244	4	0	2	122	25,564	4	0	2	123
				T5M	23,374	5	0	3	113	25,181	5	0	3	122	25,499	5	0	3	123
				T5W	23,221	5	0	4	112	25,016	5	0	4	121	25,332	5	0	4	122
				BLC	18,458	2	0	3	89	19,885	2	0	3	96	20,136	2	0	3	97
				LCCO	13,735	2	0	3	66	14,796	2	0	4	71	14,983	2	0	4	72
				RCCO	13,735	2	0	3	66	14,796	2	0	4	71	14,983	2	0	4	72
60	1250	**P9**	241W	T1S	25,575	3	0	3	106	27,551	3	0	3	114	27,900	3	0	3	116
				T2S	25,678	3	0	3	107	27,663	3	0	3	115	28,013	3	0	3	116
				T2M	25,547	3	0	4	106	27,521	3	0	4	114	27,869	3	0	4	116
				T3S	25,616	3	0	4	106	26,791	3	0	4	111	27,945	3	0	4	116
				T3M	24,868	3	0	4	103	27,597	3	0	4	115	27,129	3	0	4	113
				T4M	25,061	3	0	4	104	26,997	3	0	4	112	27,339	3	0	4	113
				TFTM	25,602	3	0	4	106	27,580	3	0	4	114	27,929	3	0	4	116
				T5VS	26,626	5	0	1	110	28,684	5	0	1	119	29,047	5	0	1	121
				T5S	26,648	4	0	2	111	28,707	5	0	2	119	29,070	5	0	2	121
				T5M	26,581	5	0	3	110	28,635	5	0	3	119	28,997	5	0	3	120
				T5W	26,406	5	0	4	110	28,447	5	0	4	118	28,807	5	0	4	120
				BLC	20,990	2	0	3	87	22,612	2	0	3	94	22,898	2	0	3	95
				LCCO	15,619	2	0	4	65	16,825	2	0	4	70	17,038	2	0	4	71
				RCCO	15,619	2	0	4	65	16,825	2	0	4	70	17,038	2	0	4	71

Performance Data

Lumen Output

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown, within the tolerances allowed by Lighting Facts. Contact factory for performance data on any configurations not shown here.

Rotated Optics

LED Count	Drive Current	Power Package	System Watts	Dist. Type	30K (3000 K, 70 CRI)					40K (4000 K, 70 CRI)					50K (5000 K, 70 CRI)				
					Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	Lumens	B	U	G	LPW
60	530	**P10**	106W	T1S	13,042	3	0	3	123	14,050	3	0	3	133	14,228	3	0	3	134
				T2S	13,200	3	0	3	125	14,220	3	0	3	134	14,400	3	0	3	136
				T2M	12,966	4	0	4	122	13,968	4	0	4	132	14,145	4	0	4	133
				T3S	13,193	4	0	4	124	14,212	4	0	4	134	14,392	4	0	4	136
				T3M	12,766	4	0	4	120	13,751	4	0	4	130	13,925	4	0	4	131
				T4M	12,944	4	0	4	122	13,945	4	0	4	132	14,121	4	0	4	133
				TFTM	13,279	4	0	4	125	14,305	4	0	4	135	14,486	4	0	4	137
				T5VS	13,372	3	0	1	126	14,405	4	0	1	136	14,588	4	0	1	138
				T5S	13,260	3	0	1	125	14,284	3	0	1	135	14,465	3	0	1	136
				T5M	13,256	4	0	2	125	14,281	4	0	2	135	14,462	4	0	2	136
				T5W	13,137	4	0	3	124	14,153	4	0	3	134	14,332	4	0	3	135
				BLC	10,906	3	0	3	103	11,749	3	0	3	111	11,898	3	0	3	112
				LCCO	7,789	1	0	3	73	8,391	1	0	3	79	8,497	1	0	3	80
				RCCO	7,779	4	0	4	73	8,380	4	0	4	79	8,486	4	0	4	80
60	700	**P11**	137W	T1S	16,556	3	0	3	121	17,835	3	0	3	130	18,061	4	0	4	132
				T2S	16,757	4	0	4	122	18,052	4	0	4	132	18,280	4	0	4	133
				T2M	16,460	4	0	4	120	17,732	4	0	4	129	17,956	4	0	4	131
				T3S	16,747	4	0	4	122	18,041	4	0	4	132	18,270	4	0	4	133
				T3M	16,204	4	0	4	118	17,456	4	0	4	127	17,677	4	0	4	129
				T4M	16,432	4	0	4	120	17,702	4	0	4	129	17,926	4	0	4	131
				TFTM	16,857	4	0	4	123	18,159	4	0	4	133	18,389	4	0	4	134
				T5VS	16,975	4	0	1	124	18,287	4	0	1	133	18,518	4	0	1	135
				T5S	16,832	4	0	1	123	18,133	4	0	2	132	18,362	4	0	2	134
				T5M	16,828	4	0	2	123	18,128	4	0	2	132	18,358	4	0	2	134
				T5W	16,677	4	0	3	122	17,966	5	0	3	131	18,193	5	0	3	133
				BLC	13,845	3	0	3	101	14,915	3	0	3	109	15,103	3	0	3	110
				LCCO	9,888	1	0	3	72	10,652	2	0	3	78	10,787	2	0	3	79
				RCCO	9,875	4	0	4	72	10,638	4	0	4	78	10,773	4	0	4	79
60	1050	**P12**	207W	T1S	22,996	4	0	4	111	24,773	4	0	4	120	25,087	4	0	4	121
				T2S	23,276	4	0	4	112	25,074	4	0	4	121	25,392	4	0	4	123
				T2M	22,863	4	0	4	110	24,630	5	0	5	119	24,941	5	0	5	120
				T3S	23,262	4	0	4	112	25,060	4	0	4	121	25,377	4	0	4	123
				T3M	22,508	4	0	4	109	24,247	5	0	5	121	24,554	5	0	5	119
				T4M	22,824	5	0	5	110	24,588	5	0	5	119	24,899	5	0	5	120
				TFTM	23,414	5	0	5	113	25,223	5	0	5	122	25,543	5	0	5	123
				T5VS	23,579	5	0	1	114	25,401	5	0	1	123	25,722	5	0	1	124
				T5S	23,380	4	0	2	113	25,187	4	0	2	122	25,506	4	0	2	123
				T5M	23,374	5	0	3	113	25,181	5	0	3	122	25,499	5	0	3	123
				T5W	23,165	5	0	4	112	24,955	5	0	4	121	25,271	5	0	4	122
				BLC	19,231	4	0	4	93	20,717	4	0	4	100	20,979	4	0	4	101
				LCCO	13,734	2	0	3	66	14,796	2	0	4	71	14,983	2	0	4	72
				RCCO	13,716	4	0	4	66	14,776	4	0	4	71	14,963	4	0	4	72
60	1250	**P13**	231W	T1S	25,400	4	0	4	110	27,363	4	0	4	118	27,709	4	0	4	120
				T2S	25,709	4	0	4	111	27,695	4	0	4	120	28,046	4	0	4	121
				T2M	25,253	5	0	5	109	27,204	5	0	5	118	27,548	5	0	5	119
				T3S	25,694	5	0	5	111	27,679	5	0	5	120	28,029	5	0	5	121
				T3M	24,861	5	0	5	108	26,782	5	0	5	116	27,121	5	0	5	117
				T4M	25,210	5	0	5	109	27,158	5	0	5	118	27,502	5	0	5	119
				TFTM	25,861	5	0	5	112	27,860	5	0	5	121	28,212	5	0	5	122
				T5VS	26,043	5	0	1	113	28,056	5	0	1	121	28,411	5	0	1	123
				T5S	25,824	4	0	2	112	27,819	5	0	2	120	28,172	5	0	2	122
				T5M	25,818	5	0	3	112	27,813	5	0	3	120	28,165	5	0	3	122
				T5W	25,586	5	0	4	111	27,563	5	0	4	119	27,912	5	0	4	121
				BLC	21,241	4	0	4	92	22,882	4	0	4	99	23,172	4	0	4	100
				LCCO	15,170	2	0	4	66	16,342	2	0	4	71	16,549	2	0	4	72
				RCCO	15,150	5	0	5	66	16,321	5	0	5	71	16,527	5	0	5	72

FEATURES & SPECIFICATIONS

INTENDED USE
The sleek design of the D-Series Size 1 reflects the embedded high performance LED technology. It is ideal for many commercial and municipal applications, such as parking lots, plazas, campuses, and streetscapes.

CONSTRUCTION
Single-piece die-cast aluminum housing has integral heat sink fins to optimize thermal management through conductive and convective cooling. Modular design allows for ease of maintenance and future light engine upgrades. The LED drivers are mounted in direct contact with the casting to promote low operating temperature and long life. Housing is completely sealed against moisture and environmental contaminants (IP65). Low EPA (1.01 ft^2) for optimized pole wind loading.

FINISH
Exterior parts are protected by a zinc-infused Super Durable TGIC thermoset powder coat finish that provides superior resistance to corrosion and weathering. A tightly controlled multi-stage process ensures a minimum 3 mils thickness for a finish that can withstand extreme climate changes without cracking or peeling. Available in both textured and non-textured finishes.

OPTICS
Precision-molded proprietary acrylic lenses are engineered for superior area lighting distribution, uniformity, and pole spacing. Light engines are available in standard 3000 K, 4000 K and 5000 K (70 CRI) configurations. The D-Series Size 1 has zero uplight and qualifies as a Nighttime Friendly™ product, meaning it is consistent with the LEED® and Green Globes™ criteria for eliminating wasteful uplight.

ELECTRICAL
Light engine configurations consist of high-efficacy LEDs mounted to metal-core circuit boards to maximize heat dissipation and promote long life (up to L85/100,000 hours at 25°C). Class 1 electronic drivers are designed to have a power factor >90%, THD <20%, and an expected life of 100,000 hours with <1% failure rate. Easily serviceable 10kV surge protection device meets a minimum Category C Low operation (per ANSI/IEEE C62.41.2).

STANDARD CONTROLS
The DSX1 LED area luminaire has a number of control options. DSX Size 1, comes standard with 0-10V dimming drivers. Dusk to dawn controls can be utilized via optional NEMA twist-lock photocell receptacles. Integrated motion sensors with on-board photocells feature field-adjustable programing and are suitable for mounting heights up to 30 feet.

nLIGHT AIR CONTROLS
The DSX1 LED area luminaire is also available with nLight® AIR for the ultimate in wireless control. This powerful controls platform provides out-of-the-box basic motion sensing and photocontrol functionality and is suitable for mounting heights up to 40 feet. Once commissioned using a smartphone and the easy-to-use CLAIRITY app, nLight AIR equipped luminaries can be grouped, resulting in motion sensor and photocell group response without the need for additional equipment. Scheduled dimming with motion sensor over-ride can be achieved when used with the nLight Eclypse. Additional information about nLight Air can be found here.

INSTALLATION
Included mounting block and integral arm facilitate quick and easy installation. Stainless steel bolts fasten the mounting block securely to poles and walls, enabling the D-Series Size 1 to withstand up to a 3.0 G vibration load rating per ANSI C136.31. The D-Series Size 1 utilizes the AERIS™ series pole drilling pattern (template #8). NEMA photocontrol receptacle are also available.

LISTINGS
UL listed to meet U.S. and Canadian standards. UL Listed for wet locations. Light engines are IP66 rated; luminaire is IP65 rated. Rated for -40°C minimum ambient. U.S. Patent No. D672,492 S. International patent pending.

DesignLights Consortium® (DLC) Premium qualified product and DLC qualified product. Not all versions of this product may be DLC Premium qualified or DLC qualified. Please check the DLC Qualified Products List at www.designlights.org/QPL to confirm which versions are qualified.

International Dark-Sky Association (IDA) Fixture Seal of Approval (FSA) is available for all products on this page utilizing 3000K color temperature only.

BUY AMERICAN ACT
Product with the BAA option is assembled in the USA and meets the Buy America(n) government procurement requirements under FAR, DFARS and DOT regulations. Please refer to www.acuitybrands.com/buy-american for additional information.

WARRANTY
5-year limited warranty. This is the only warranty provided and no other statements in this specification sheet create any warranty of any kind. All other express and implied warranties are disclaimed. Complete warranty terms located at: www.acuitybrands.com/support/warranty/terms-and-conditions

Note: Actual performance may differ as a result of end-user environment and application.
All values are design or typical values, measured under laboratory conditions at 25 °C.
Specifications subject to change without notice.

Date

Project

INDUSTRIAL LIGHTING
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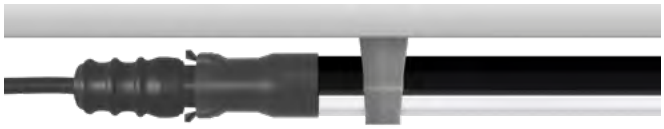
www.ggled.net

c UL us LISTED

DIRECT AC DRIVERLESS

GPX DRIVERLESS LINEAR



Low-Profile, Driverless Linkable IP67 LED Linear Luminaire

Product Features

Maintenance-Free Driverless Design

Connects directly to AC line voltage without an LED driver or electrolytic capacitors, for extreme reliability and lifetime. Requires zero maintenance.

Easy to Install Quick-Connect Cabling

Convenient push-and-click connectors and cabling make GPX Series fixtures easy to install and daisy chain.

Coextruded Copolyester/Aluminum Housing

Our patented process combines copolyester and aluminum together, with no seals or gaskets. The result is a single piece enclosure with excellent heatsinking characteristics for long lifetime.

Superior Chemical & UV Resistance

Seamless polymeric outer shell provides IP67 ingress protection and is specialized for superior chemical resistance. An additional protective coating is available which integrates a UV inhibitor and UV blocker for outdoor applications.

Performance Summary

Delivered Light Output: Up to 8,000 Lumens

Efficacy: 130 LPW

CRI: Typical 85 CRI

CCT: 5000K & 4000K

Lifetime: Designed to last 100,000 Hours at 25°C

Warranty: 5 Years (See ggled.net for Terms)

Mounting: Ceiling or Wall

Protection Class: IP67

Voltage: 120 VAC or 277 VAC Input

Maximum Run Length: Refer to the Table on Page 2

Ambient Temperature: -40°C to 55°C

Ordering Information

Product	Length		Lumen Output		Color Temp.		Lens Diffusion		UV Protection		Through Wired		Voltage
GPX		–		–		–		–		–		–	
	2 2-Foot		**SO** Standard Output 600 Lumens/Ft		**50K** (standard) 5000 Kelvin		**Blank** (standard) Chemical Resistant Clear Lens		**Blank** (standard) No Coating, Rated for Indoor Use		**Blank** (standard) Connectors on Input & Output for ability to Daisy Chain fixtures		**120V** 120 VAC Input
	4 4-Foot		**HO*** High Output 1000 Lumens/Ft		**40K*** 4000 Kelvin		**GC** (glare control) Chemical Resistant Lens with Added Diffusion Sheet		**UVO** Outdoor-Rated with UV-Blocking Coating		**SE** (Single-Ended) Connector on Input Only, No Daisy Chain, for Standalone Install		**277V** 277 VAC Input
	6 6-Foot		*Available in 2', 4' & 8' only		*N/A in 2' HO								
	8 8-Foot												

Power & Connection Accessories

Cable	Type	Length	Wire
*No Jumper Cable Required on End-to-End Connection			
GPX-JMP-1	Jumper	1ft	18 AWG SJTW
GPX-JMP-2	Jumper	2ft	18 AWG SJTW
GPX-JMP-4	Jumper	4ft	18 AWG SJTW
GPX-JMP-8	Jumper	8ft	18 AWG SJTW
GPX-LDR-10	Leader Cable	10ft	18 AWG SJTW
GPX-LDR-25	Leader Cable	25ft	18 AWG SJTW

Mounting Hardware	Description
GPX-MNT-NM	Non-Metalic Quick Latch
GPX-MNT-SS	Stainless Steel Bolt Latch

*For serviceability and expansion/contraction considerations G&G limits the number of luminaires connected end-to-end (without a jumper cable) to a maximum of 4.

Rev Date 22 1108

G&G INDUSTRIAL LIGHTING
T 800.285.6780 E sales@ggled.net
www.ggled.net

G&G FULLY INTEGRATED GUARANTEE
OUR PRODUCTS ARE ENGINEERED TESTED MANUFACTURED ASSEMBLED & SHIPPED FROM ONE FACILITY

Low-Profile, Driverless Linkable IP67 LED Linear Luminaire

Product Specifications

Construction & Materials

Convenient push-and-click connectors let you easily and rapidly install Leader Cables and Jumper Cables. Multiple cable lengths support a variety of layouts.

Integrated aluminum heat spreader.

Seamless polymeric outer shell provides IP67 ingress protection and is specialized for superior chemical resistance. An additional protective coating is available which integrates a UV inhibitor and UV blocker for outdoor applications.

All G&G luminaires and components (with the exception of our LED boards and drivers) are proudly manufactured and assembled in the USA.

Electrical System

Power Factor: 0.9 nominal.

Input Power: Stays consistent over life.

Temperature Rating: Designed to operate in temperatures -40°C to 55°C.

Total Harmonic Distortion: < 20%

Regulatory Qualifications

cULus Listed

UL Listed for Wet Locations

NEMA 4X Rated

c UL us LISTED

DIRECT AC DRIVERLESS

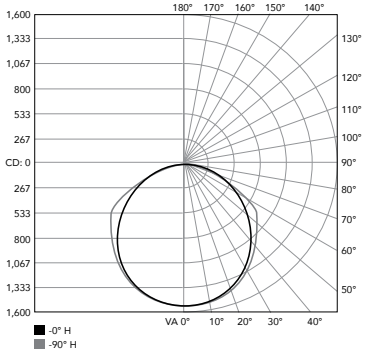
Photometry

GPX Series

Based on DTC Report Test #: 14404-T

Fixture photometry has been conducted by a NVLAP accredited testing laboratory in accordance with IESNA LM-79-08. IESNA LM-79-08 specifies the entire luminaire as the source resulting in a fixture efficiency of 100%.

Polar Candela Distribution



Zonal Lumen Summary

Zone	Luminaire
0-30	26.2%
0-40	43.2%
0-60	77.4%
0-90	98.5%
0-180	100%

Lumen & Power Data

Length & Output	Lumens	Wattage	Amps @120V	Amps @277V
GPX2-SO	1200	9	0.075	0.032
GPX4-SO	2400	18	0.150	0.065
GPX6-SO	3600	27	0.225	0.097
GPX8-SO	4800	36	0.300	0.130
GPX2-HO	2000	16	0.130	0.060
GPX4-HO	4000	31 (36 @ 277V)	0.258	0.112
GPX8-HO	8000	62 (72 @ 277V)	0.517	0.224

Dimensions

Model	Fixture Diameter	Fixture Length		Mounted	
		Thru Wire	Single End	Width	Height
GPX2	1.0"	25.15"	24.00"	1.25"	1.75"
GPX4	1.0"	47.15"	46.00"	1.25"	1.75"
GPX6	1.0"	69.15"	68.00"	1.25"	1.75"
GPX8	1.0"	91.15"	90.00"	1.25"	1.75"

Maximum Fixture Run

Maximum Fixture Run (Per 1 Leader Cable): **120VAC**

	GPX2-SO (9W)	**GPX4-SO** (18W)	**GPX4-HO** (31W)	**GPX6-SO** (27W)	**GPX8-SO** (36W)	**GPX8-HO** (62W)
JMP1 (1FT)	66 (198')	37 (185')	23 (115')	26 (182')	20 (180')	12 (108')
JMP2 (2FT)	59 (236')	34 (204')	21 (126')	24 (192')	19 (190')	12 (120')
JMP4 (4FT)	50 (300')	31 (248')	19 (152')	22 (220')	17 (204')	10 (120')
JMP8 (8FT)	40 (400')	26 (312')	16 192')	19 (266')	15 (240')	9 (144')

Maximum Fixture Run (Per 1 Leader Cable): **277VAC**

	GPX2-SO (9W)	**GPX4-SO** (18W)	**GPX4-HO** (36W)	**GPX6-SO** (27W)	**GPX8-SO** (36W)	**GPX8-HO** (72W)
JMP1 (1FT)	157 (471')	89 (445')	58 (290')	63 (441')	48 (432')	30 (270')
JMP2 (2FT)	141 (564')	83 (498')	55 (330')	59 (472')	46 (460')	30 (300')
JMP4 (4FT)	119 (714')	73 (584')	48 (384')	54 (540')	42 (504')	27 (324')
JMP8 (8FT)	95 (950')	61 (732')	40 (480')	46 (644')	37 (592')	24 (384')

Rev Date 22 1108

DRAINAGE REPORT

Car Wash- Preliminary

Truckee, CA

Prepared For:

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Prepared By:

SCO PLANNING & ENGINEERING, INC.
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Phone: (530) 272-5841
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September 2023

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ENGINEERING
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140 LITTON DRIVE, SUITE 240
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530.272.5841 / www.scopeinc.net

Table of Contents

List of Tables

Appendices

1. Project Description

The project site consists of approximately one acre in Truckee, California. The property is undeveloped except for infrastructure associated with Edwin Way. Proposed development includes construction of a commercial car wash

The purpose of this document is to:

1) Describe the existing watershed characteristics of the Project area;
2) Evaluate pre- and post-development hydrology for the 10-year and 100-year storm events to meet Town of Truckee flood control requirements; and
3) Provide documentation for design and sizing of water-quality treatment and hydromodification management features to meet requirements of the Phase II Municipal Separate Storm System (MS4) Permit.

2. Existing Conditions

2.1 Existing Land Uses

The project site is currently undeveloped except for Edwin Way that connects to Henness Road to the south and Prosser Dam Road to the north with associated utilities.

2.2 Existing Site Drainage

Surface water drainage across the undeveloped portion of the site consists of overland sheet flow east towards Edwin Way and an existing drainage course to the south. Runoff is collected in the road gutter is conveyed to existing subsurface drainage and ultimately discharges to Prosser Creek below Prosser Creek Reservoir. Existing Drainage Management Areas (DMAs) are shown on Plate 1.

2.3 Existing Soils Data

A geotechnical investigation prepared by NV5 and dated January 16th, 2020 concluded the top 6 to 12 inches of soil consisted of loose silty sand containing organic material. Medium dense to very sense silty sand and sandy gravel with varying amounts of cobbles were observed between 2 and 14 feet. Essential refusal was encountered on very dense soil approximately 3 to 7 feet depths.

2.4 Groundwater

No groundwater was encountered during subsurface investigations by NV5.

3. Proposed Conditions

3.1 Proposed Land Uses

This project site is proposed to have drive-thru car wash with parking for cleaning and employees.

3.2 Proposed Site Drainage

The proposed drainage utilizes and expands on the exiting drainage facilities located within Edwin Road and discharges at two locations as shown in Plate 2. Runoff from the roof is treated by a bioretention pond which outfalls to a drainage ditch returning to flow at the southern side of the property. The western portion of the property is conveyed by concrete gutters to inlets, where it is treated by underground infiltration chambers before being routed to an existing inlet structure at Edwin Road.

4. Hydrologic and Hydraulic Modeling

4.1 Methodology

The hydrology and hydraulics of the storm drainage for the project site was modeled using Hydrology Studio Software. Rainfall to runoff calculations were completed according to USDA Soil Conservation Service (SCS) Methods outlined in Technical Release 55. The SCS curve numbers were assigned per Town of Truckee Standards (SD#65). A composite curve number was applied to each basin representative of the land use. A snow coverage adjustment was applied to the curve number representing the reduced infiltration from the potential of frozen ground.

The average annual precipitation in the watershed is 32 inches per Truckee Standards Precipitation Map (SD#63). NOAA Atlas 14 were used for the 2-, 10-, and 100-year rainfall depths and are presented in Table 1. The time of concentration was calculated per the TR-55 guidelines and the time used was 0.1 hours (6 minutes). Hydrology Studio allows for a large variety of design storms to calculate pre and post flows. The model was run using a Type IA 24-hr unit hydrograph.

Table 1 - Analysis Rainfall Depth

	Active	1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr
Active			✔			✔			✔
SCS Storms	> SCS Dimensionless Storms								
SCS 6hr		1.07	1.24	0	1.50	1.73	2.08	2.39	2.73
Type I, 24-hr		2.28	2.92	0	3.75	4.42	5.31	5.99	6.67
Type IA, 24-hr	✔	2.28	2.92	0	3.75	4.42	5.31	5.99	6.67

4.2 Existing and Proposed Conditions Modeling and Results

The existing condition model was configured to determine the runoff to outlets locations 1 and 2 to provide equitable comparison to post-development runoff and are presented in Table 2.

The modeling for the proposed condition accounts for the increase in impervious areas of the proposed road improvements and associated developments. The proposed development redistributes shed area discharge towards outlet 2. As a result, no peak flow attenuation is required for runoff to outlet 1.

Table 2 - Existing and Proposed Conditions Model Results

Hyd. No.	Hydrograph Type	Hydrograph Name	Peak Outflow (cfs)							
			1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr
1	NRCS Runoff	Pre dma 1		0.123			0.233			0.405
2	NRCS Runoff	Pre dma 2		0.261			0.495			0.861
3	NRCS Runoff	Post dma 1.1		0.061			0.107			0.175
4	NRCS Runoff	Post dma 1.2		0.142			0.219			0.332
5	NRCS Runoff	Post dma 1.3		0.038			0.073			0.127
6	NRCS Runoff	Post dma 2.1		0.132			0.226			0.365
7	NRCS Runoff	Post dma 2.2		0.107			0.204			0.354
8	Junction	junction 1		0.203			0.325			0.507
9	Pond Route	Post chamber 1		0.041			0.164			0.260
10	Junction	Post dma 1 outfall		0.054			0.225			0.368
11	Pond Route	Post pond 1		0.129			0.226			0.365
12	Junction	Post dma 2 outfall		0.235			0.430			0.720

5. Water Quality Management

Water Quality requirements are met using a bioretention basin and infiltration chambers and are to be finalized during final design. Preliminary Town of Truckee Storm Water BMP calculator results shown in appendix. Infiltration chambers are a dual system for both water quality and flood attenuation. The Town of Truckee calculator shows the entire volume of the system. However, in practice an orifice plate is located within chambers to allow for outflow after the required water quality volume. See stage storage report appendix I.

6. Limitations

This report was prepared on a preliminary level and in general accordance with the accepted standards of practice existing in Northern California for projects of similar size. No warranties, express or implied, are made.

Findings in this report are intended for the exclusive use of the project specified, and the design shown. Use beyond the specified could lead to environmental/structural damage, and noncompliance with regulatory requirements.

Readers should recognize that evaluation and study of hydrologic systems is an inexact art. Conclusions and recommendations are generally made with incomplete knowledge and assumptions. More extensive studies can reduce, but not eliminate the uncertainties associated with hydrologic design. Standard information, such as rainfall data, topographic mapping, and soils data, without verification or modification has been used. New information or regulations could fundamentally influence design. As the project is finalized or as additional information becomes available this report may require change.

Readers and, or reviewers who have additional information that is pertinent to this design or have noted material errors should contact us at the earliest opportunity, to facilitate timely changes.

7. References

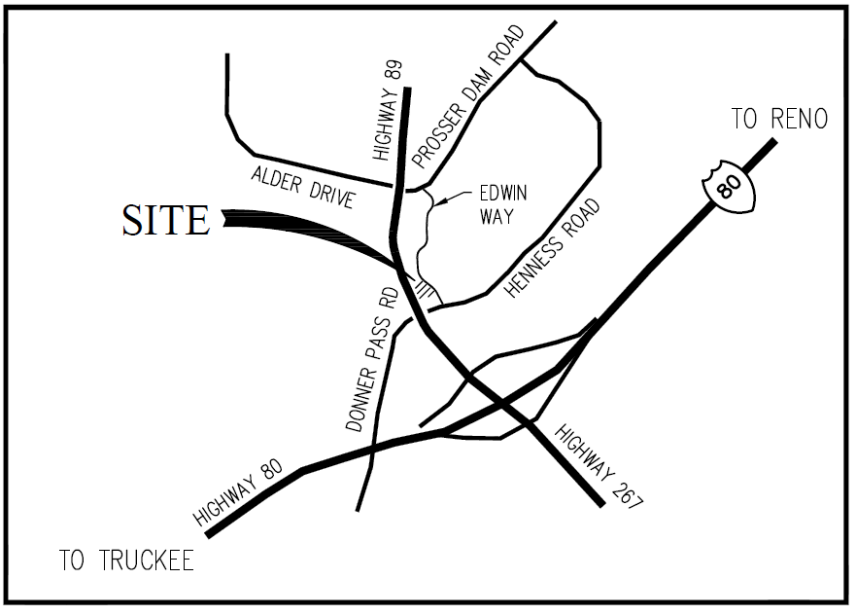
California Stormwater Quality Association (CASQA), 2003, Stormwater best management practices handbook, new development and redevelopment

State Water Resources Control Board, 2013, Water quality order no. 2013-0001-DWQ, National pollutant discharge elimination system (NPDES) general permit no. CAS000004, Waste discharge requirements (WDRs) for storm water discharges from small municipal separate storm sewer systems (MS4s) (General Permit)

Town of Truckee, 2003, Town of Truckee Public Improvement and Engineering Standards

US Department of Agriculture (USDA), 1986, Urban hydrology for small watershed TR-55, for the Natural Resources Conservation Service and Conservation Engineering Division,

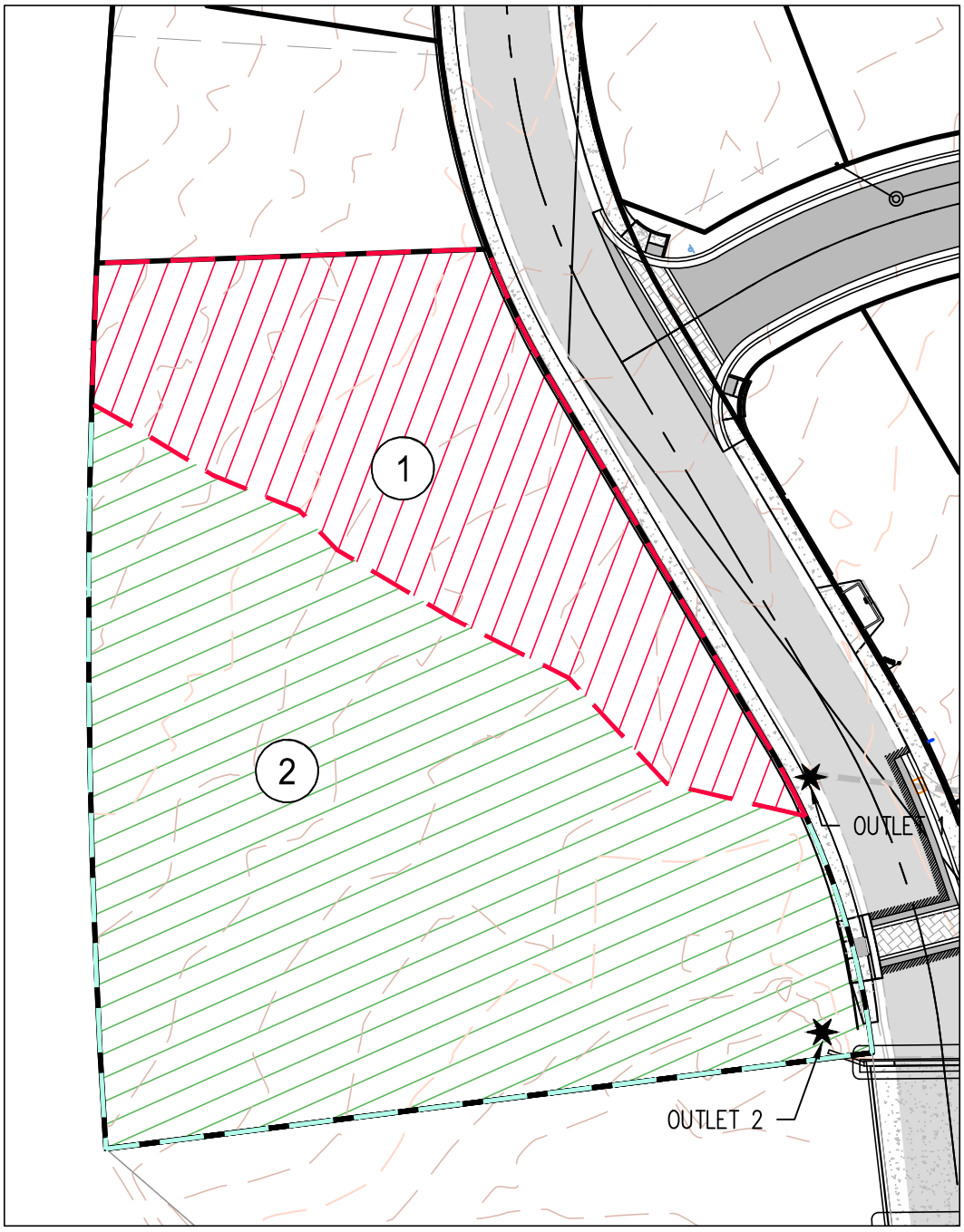
APPENDIX A



VICINITY MAP

NO SCALE

APPENDIX B



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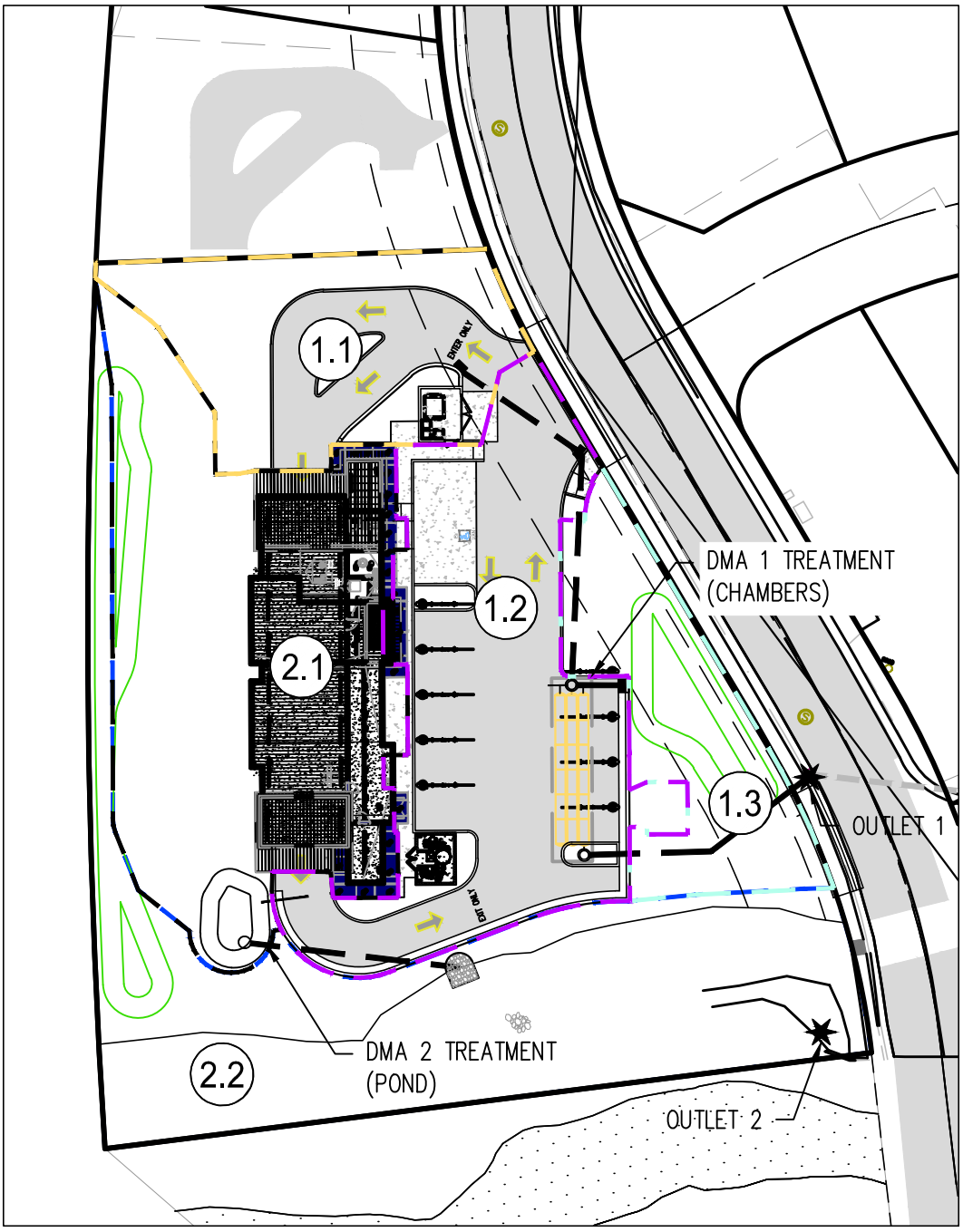
SCALE: 1" = 50'

PLATE 1

APPENDIX C



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SCALE: 1" = 50'

PLATE 2

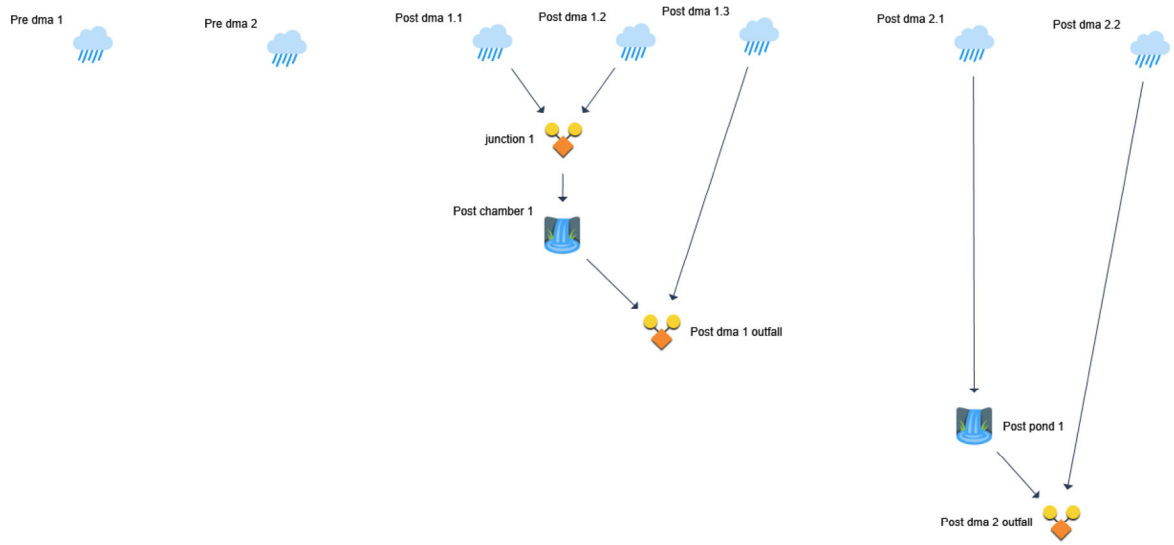
APPENDIX D

Basin Model

Hydrology Studio v 3.0.0.27

Project Name:

09-25-2023



APPENDIX E

Hydrograph Report

Project Name:

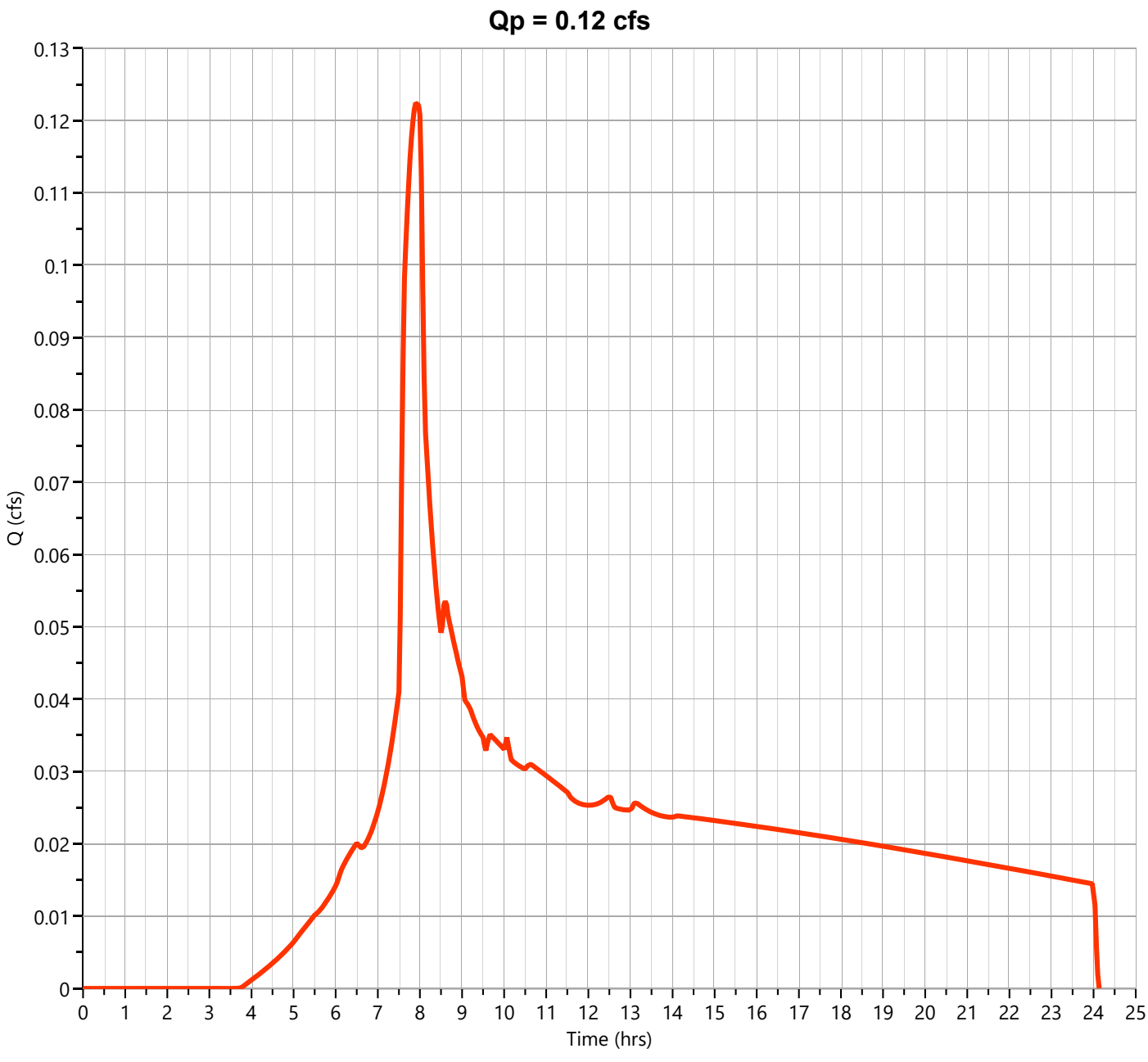
Hydrology Studio v 3.0.0.27

09-25-2023

Pre dma 1

Hyd. No. 1

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.123 cfs
Storm Frequency	= 2-yr	Time to Peak	= 7.93 hrs
Time Interval	= 2 min	Runoff Volume	= 1,801 cuft
Drainage Area	= 0.32 ac	Curve Number	= 86.8
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 2.92 in	Design Storm	= Type IA
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

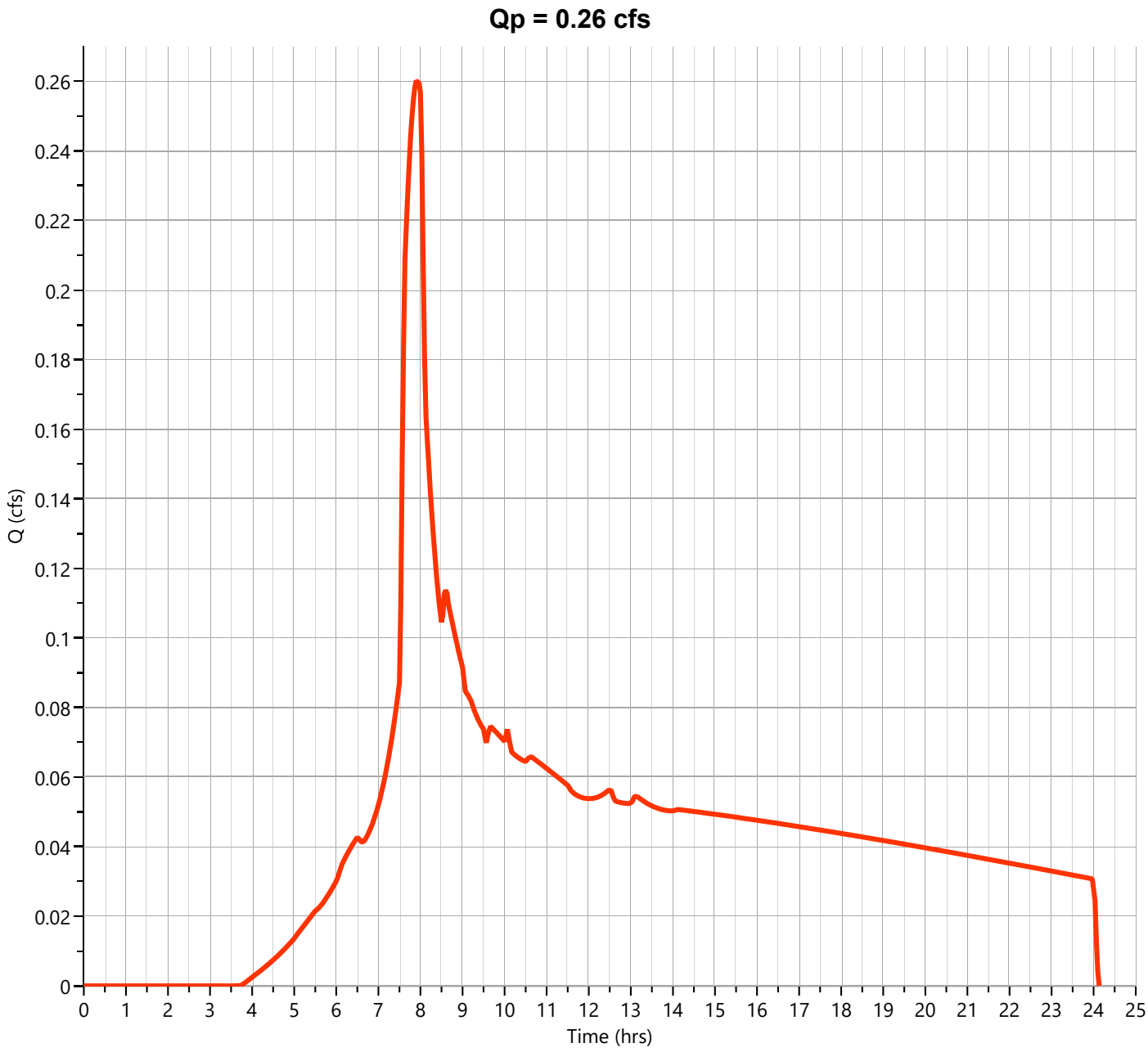
Hydrology Studio v 3.0.0.27

09-25-2023

Pre dma 2

Hyd. No. 2

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.261 cfs
Storm Frequency	= 2-yr	Time to Peak	= 7.93 hrs
Time Interval	= 2 min	Runoff Volume	= 3,828 cuft
Drainage Area	= 0.68 ac	Curve Number	= 86.8
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 2.92 in	Design Storm	= Type IA
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

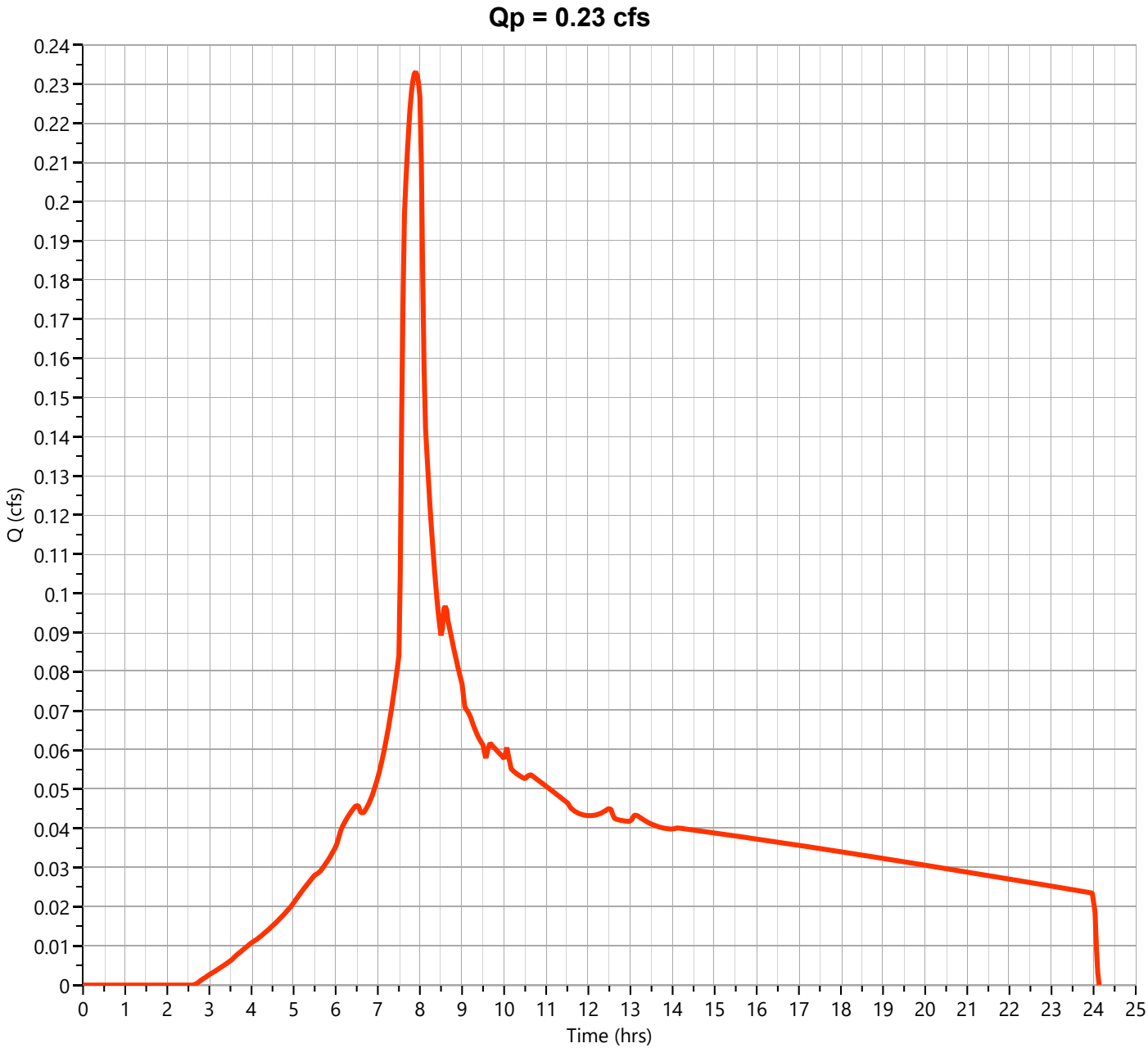
Hydrology Studio v 3.0.0.27

09-25-2023

Pre dma 1

Hyd. No. 1

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.233 cfs
Storm Frequency	= 10-yr	Time to Peak	= 7.90 hrs
Time Interval	= 2 min	Runoff Volume	= 3,273 cuft
Drainage Area	= 0.32 ac	Curve Number	= 86.8
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 4.42 in	Design Storm	= Type IA
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

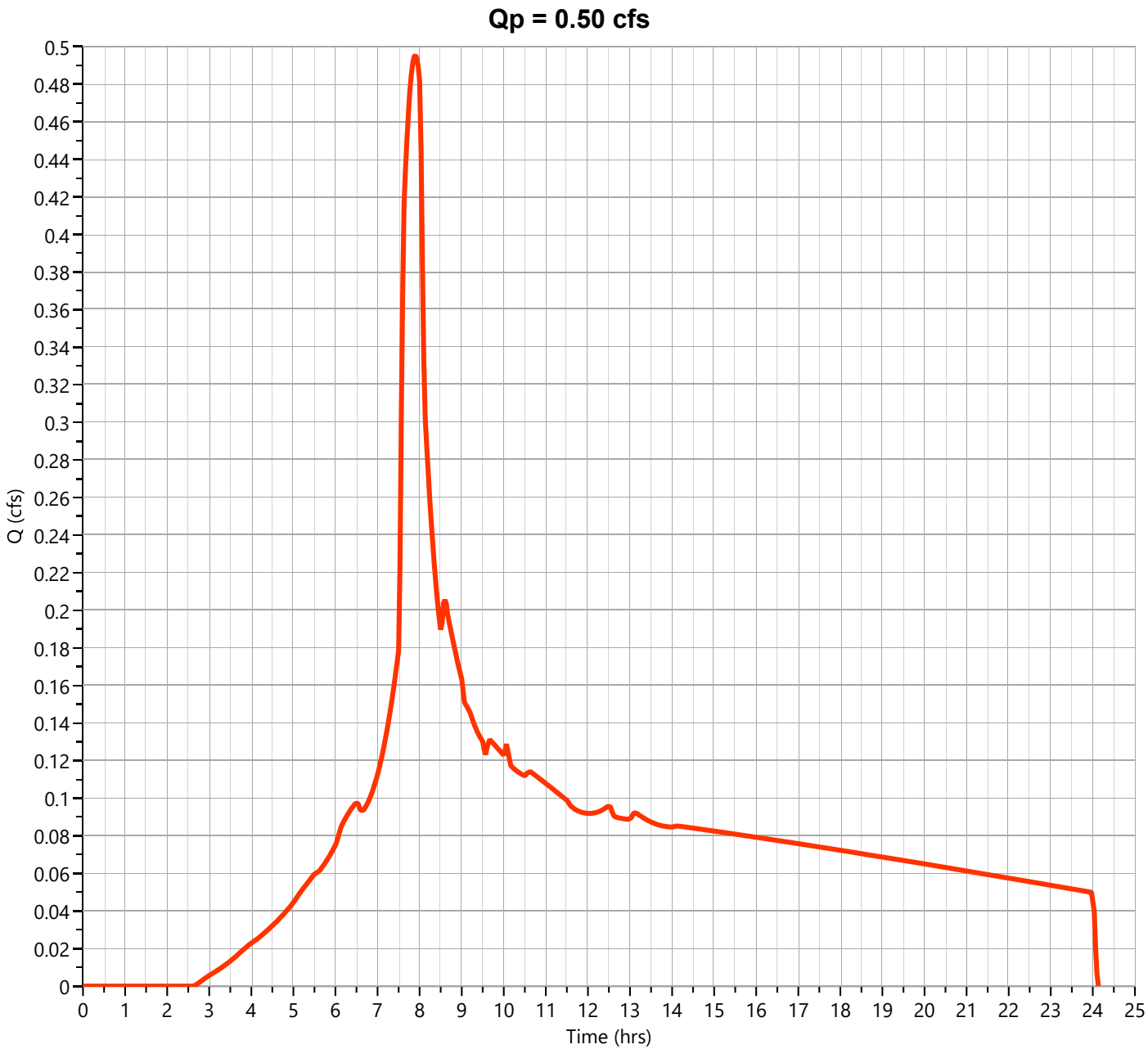
Hydrology Studio v 3.0.0.27

09-25-2023

Pre dma 2

Hyd. No. 2

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.495 cfs
Storm Frequency	= 10-yr	Time to Peak	= 7.90 hrs
Time Interval	= 2 min	Runoff Volume	= 6,955 cuft
Drainage Area	= 0.68 ac	Curve Number	= 86.8
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 4.42 in	Design Storm	= Type IA
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

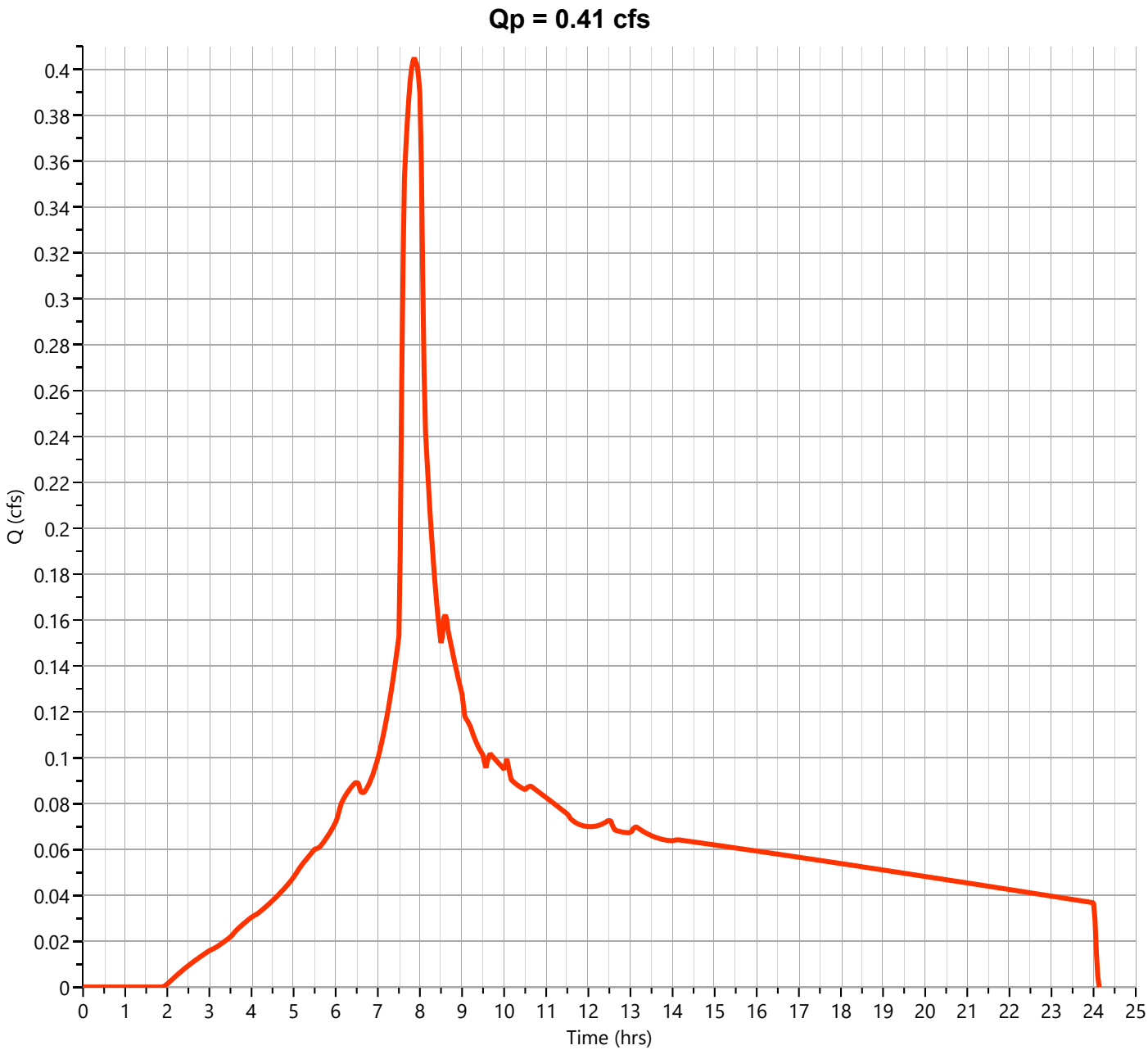
Hydrology Studio v 3.0.0.27

09-25-2023

Pre dma 1

Hyd. No. 1

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.405 cfs
Storm Frequency	= 100-yr	Time to Peak	= 7.87 hrs
Time Interval	= 2 min	Runoff Volume	= 5,596 cuft
Drainage Area	= 0.32 ac	Curve Number	= 86.8
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 6.67 in	Design Storm	= Type IA
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

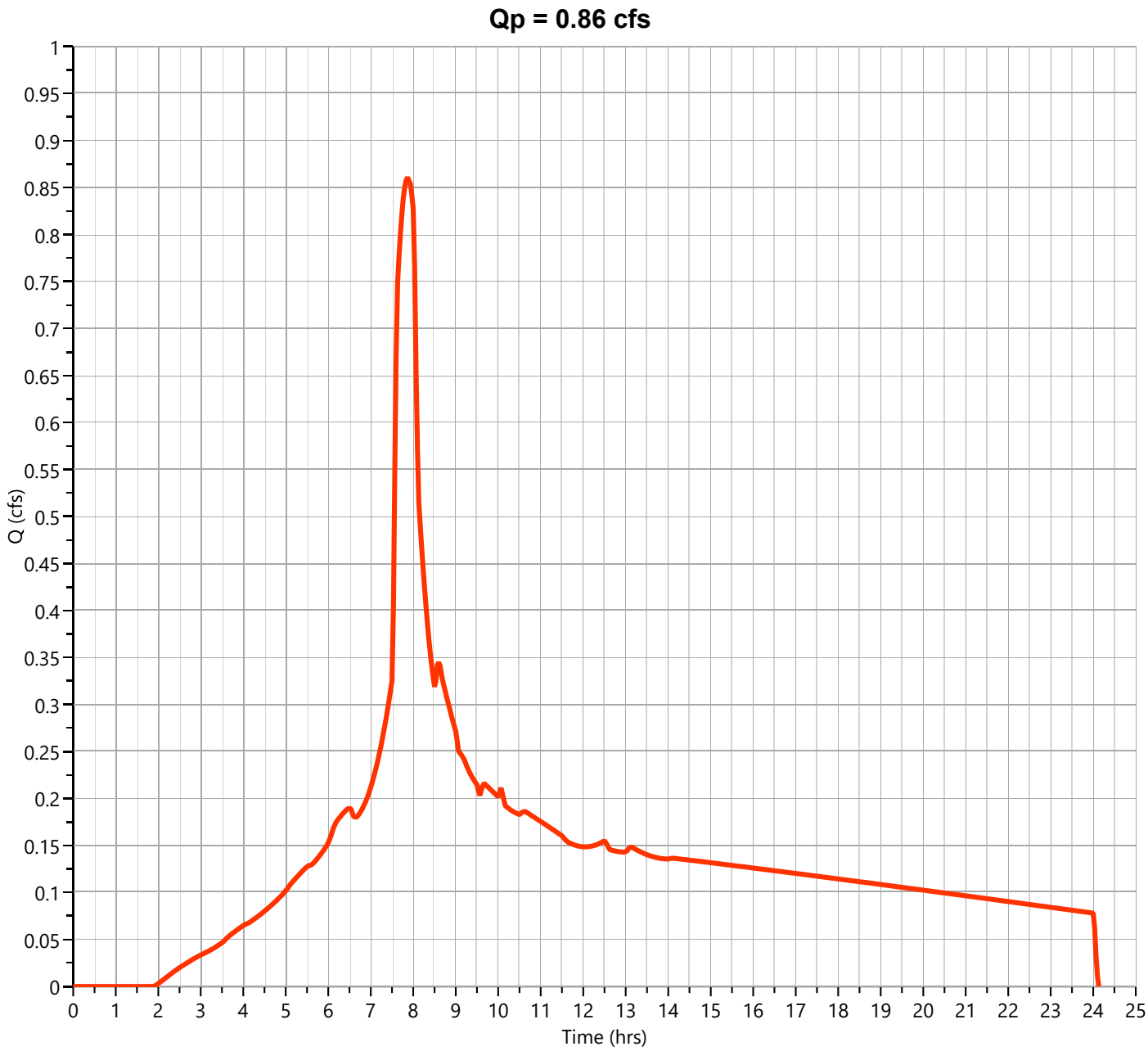
Hydrology Studio v 3.0.0.27

09-25-2023

Pre dma 2

Hyd. No. 2

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.861 cfs
Storm Frequency	= 100-yr	Time to Peak	= 7.87 hrs
Time Interval	= 2 min	Runoff Volume	= 11,891 cuft
Drainage Area	= 0.68 ac	Curve Number	= 86.8
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 6.67 in	Design Storm	= Type IA
Storm Duration	= 24 hrs	Shape Factor	= 484



APPENDIX F

Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

09-25-2023

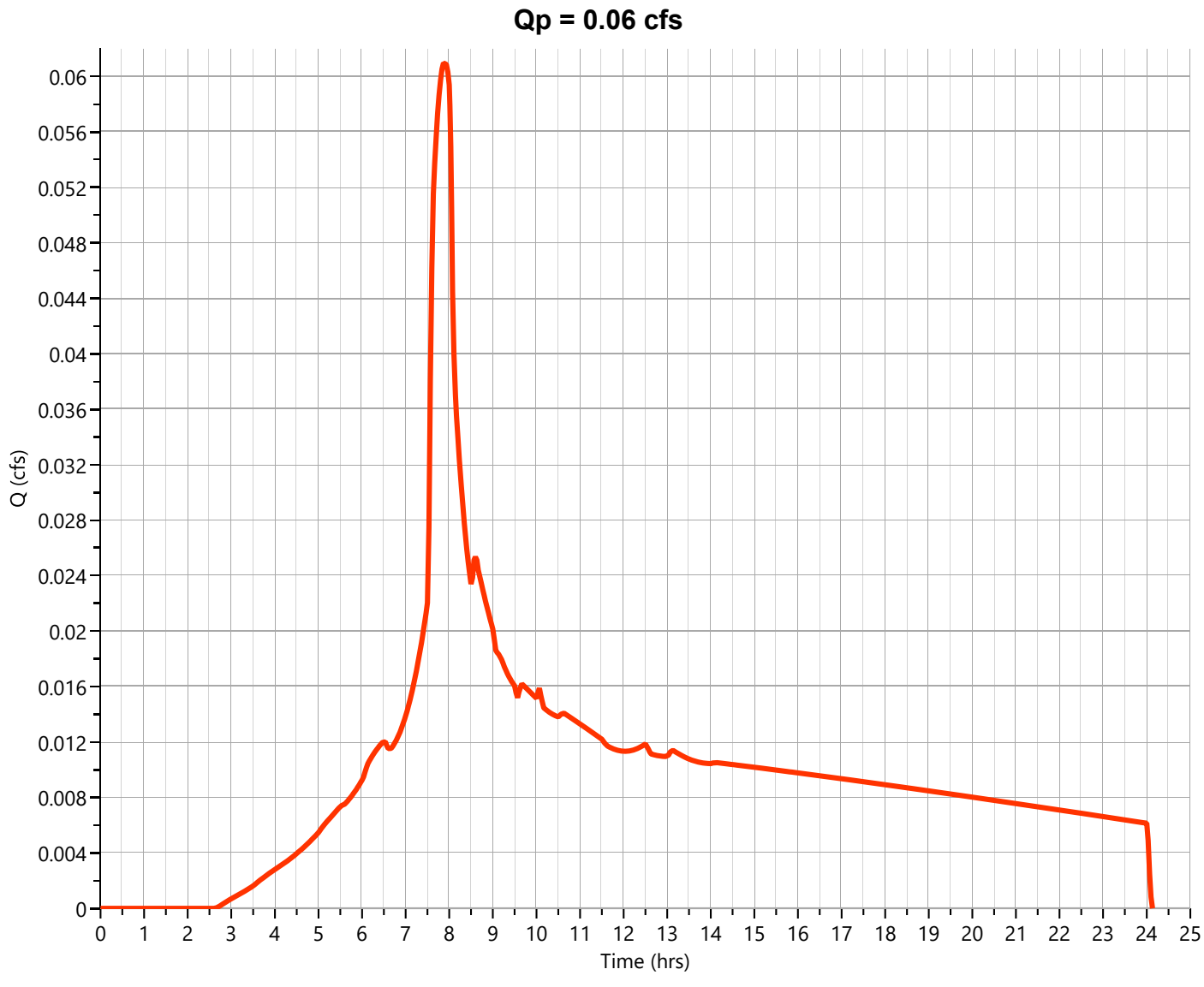
Post dma 1.1

Hyd. No. 3

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.061 cfs
Storm Frequency	= 2-yr	Time to Peak	= 7.90 hrs
Time Interval	= 2 min	Runoff Volume	= 858 cuft
Drainage Area	= 0.127 ac	Curve Number	= 90.86*
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 2.92 in	Design Storm	= Type IA
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
0.081	87	landscaping
0.046	98	pavement
0.127	**91**	Weighted CN Method Employed



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

09-25-2023

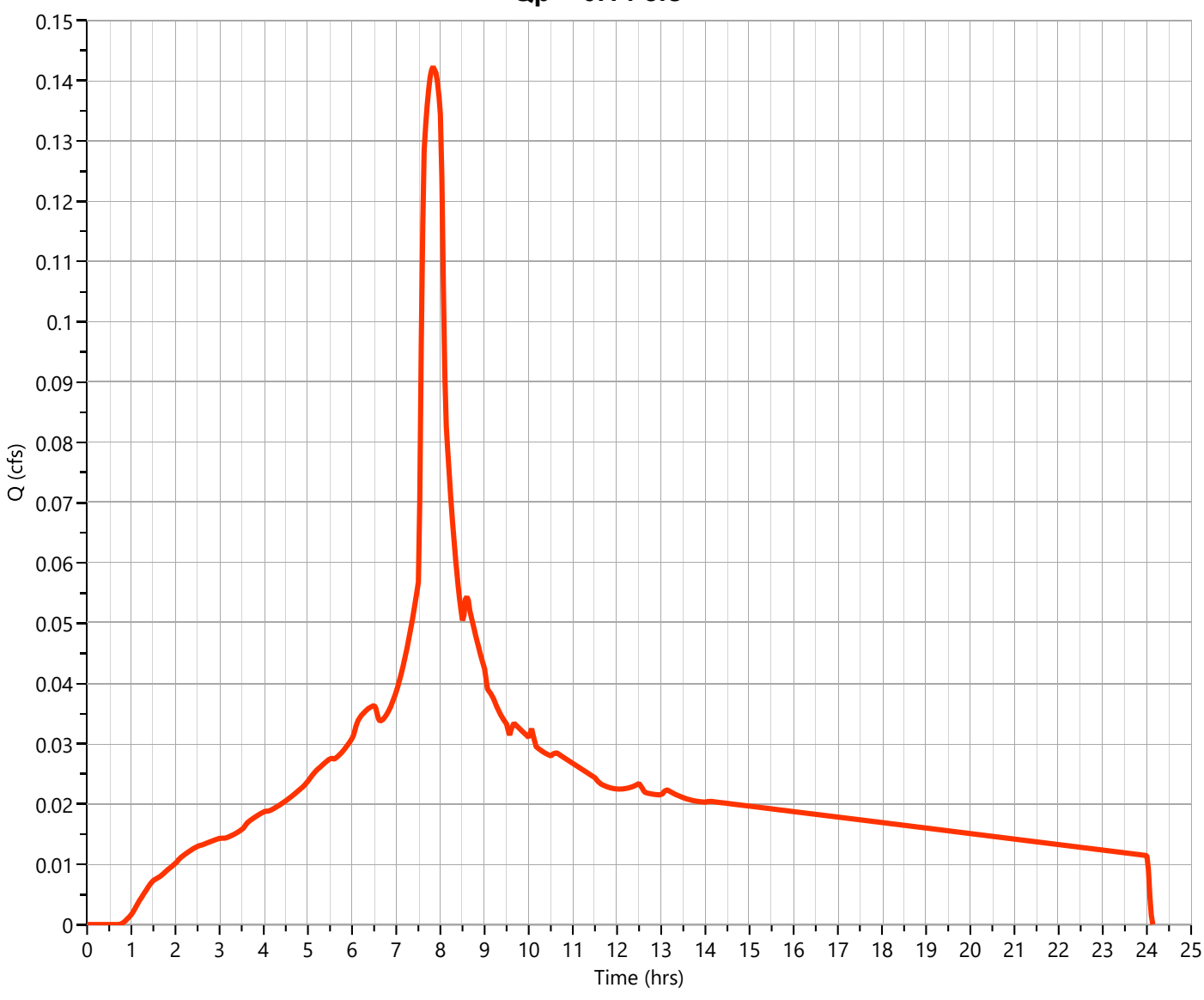
Post dma 1.2

Hyd. No. 4

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.142 cfs
Storm Frequency	= 2-yr	Time to Peak	= 7.83 hrs
Time Interval	= 2 min	Runoff Volume	= 2,013 cuft
Drainage Area	= 0.22 ac	Curve Number	= 98*
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 2.92 in	Design Storm	= Type IA
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
0.22	98	ac
0.22	**98**	Weighted CN Method Employed



Hydrograph Report

Project Name:

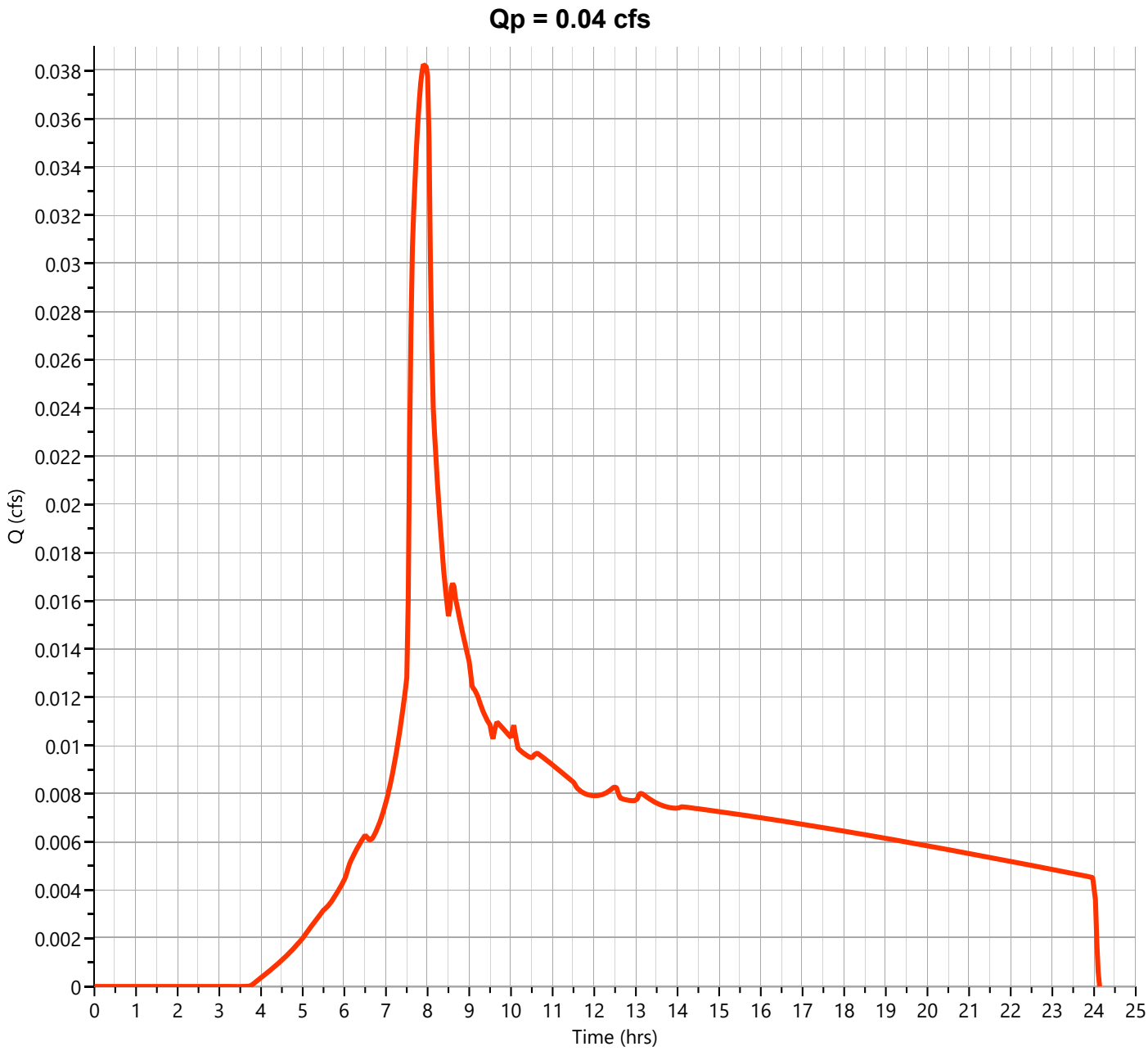
Hydrology Studio v 3.0.0.27

09-25-2023

Post dma 1.3

Hyd. No. 5

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.038 cfs
Storm Frequency	= 2-yr	Time to Peak	= 7.93 hrs
Time Interval	= 2 min	Runoff Volume	= 563 cuft
Drainage Area	= 0.1 ac	Curve Number	= 86.8
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 2.92 in	Design Storm	= Type IA
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

09-25-2023

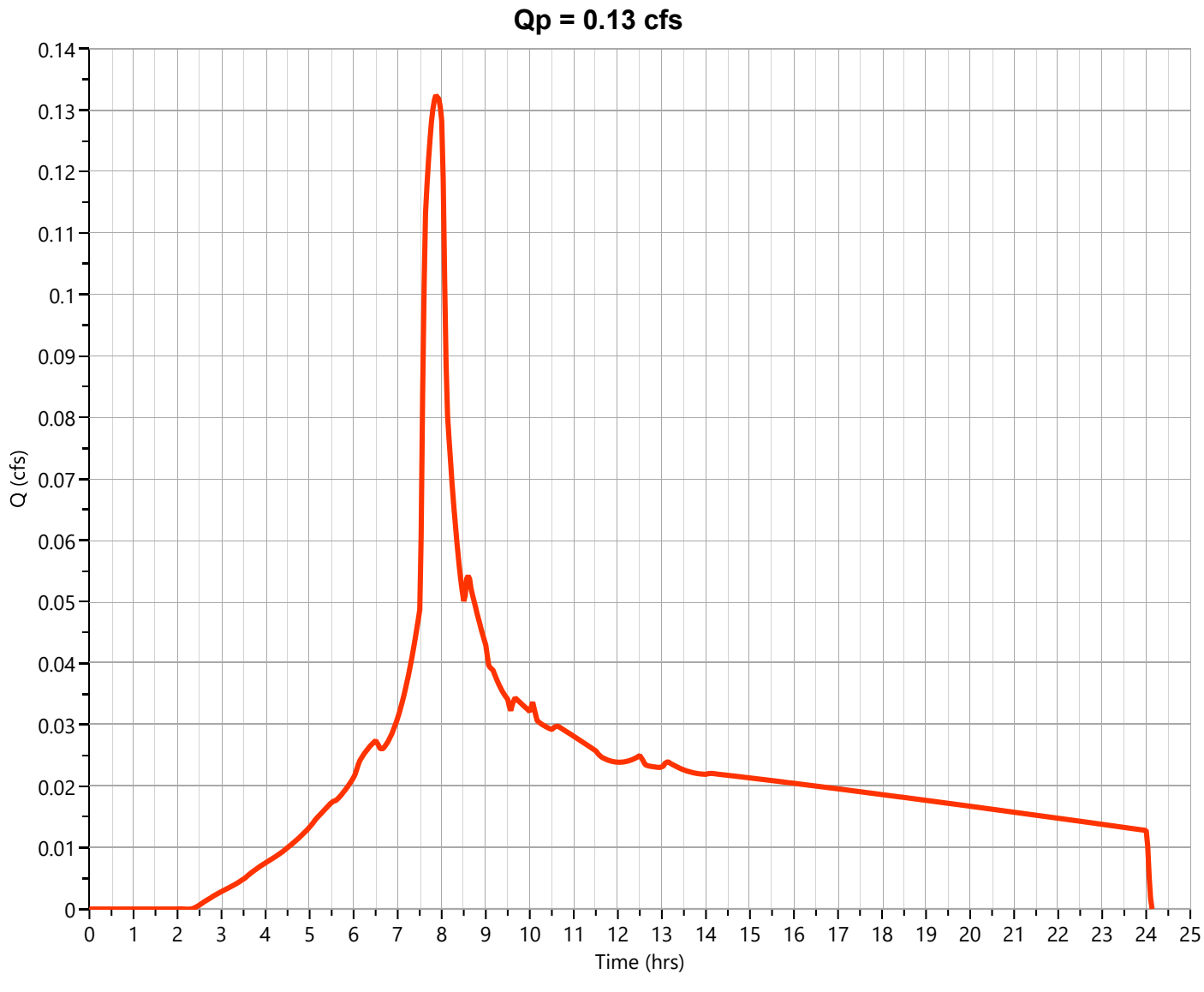
Post dma 2.1

Hyd. No. 6

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.132 cfs
Storm Frequency	= 2-yr	Time to Peak	= 7.90 hrs
Time Interval	= 2 min	Runoff Volume	= 1,845 cuft
Drainage Area	= 0.26 ac	Curve Number	= 92*
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 2.92 in	Design Storm	= Type IA
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
0.11	98	roof
0.15	87	landscape
0.26	**92**	Weighted CN Method Employed



Hydrograph Report

Project Name:

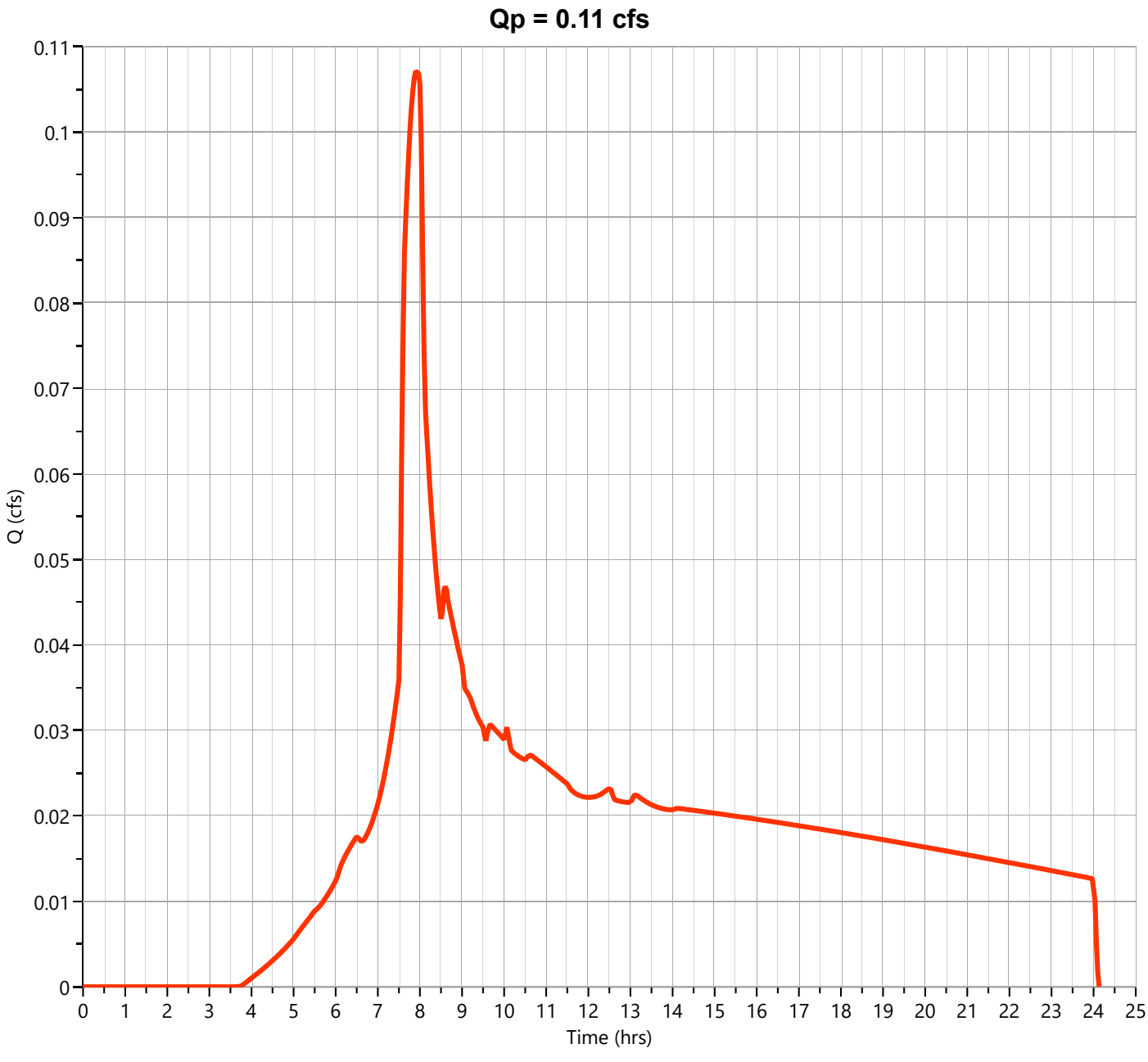
Hydrology Studio v 3.0.0.27

09-25-2023

Post dma 2.2

Hyd. No. 7

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.107 cfs
Storm Frequency	= 2-yr	Time to Peak	= 7.93 hrs
Time Interval	= 2 min	Runoff Volume	= 1,576 cuft
Drainage Area	= 0.28 ac	Curve Number	= 86.8
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 2.92 in	Design Storm	= Type IA
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

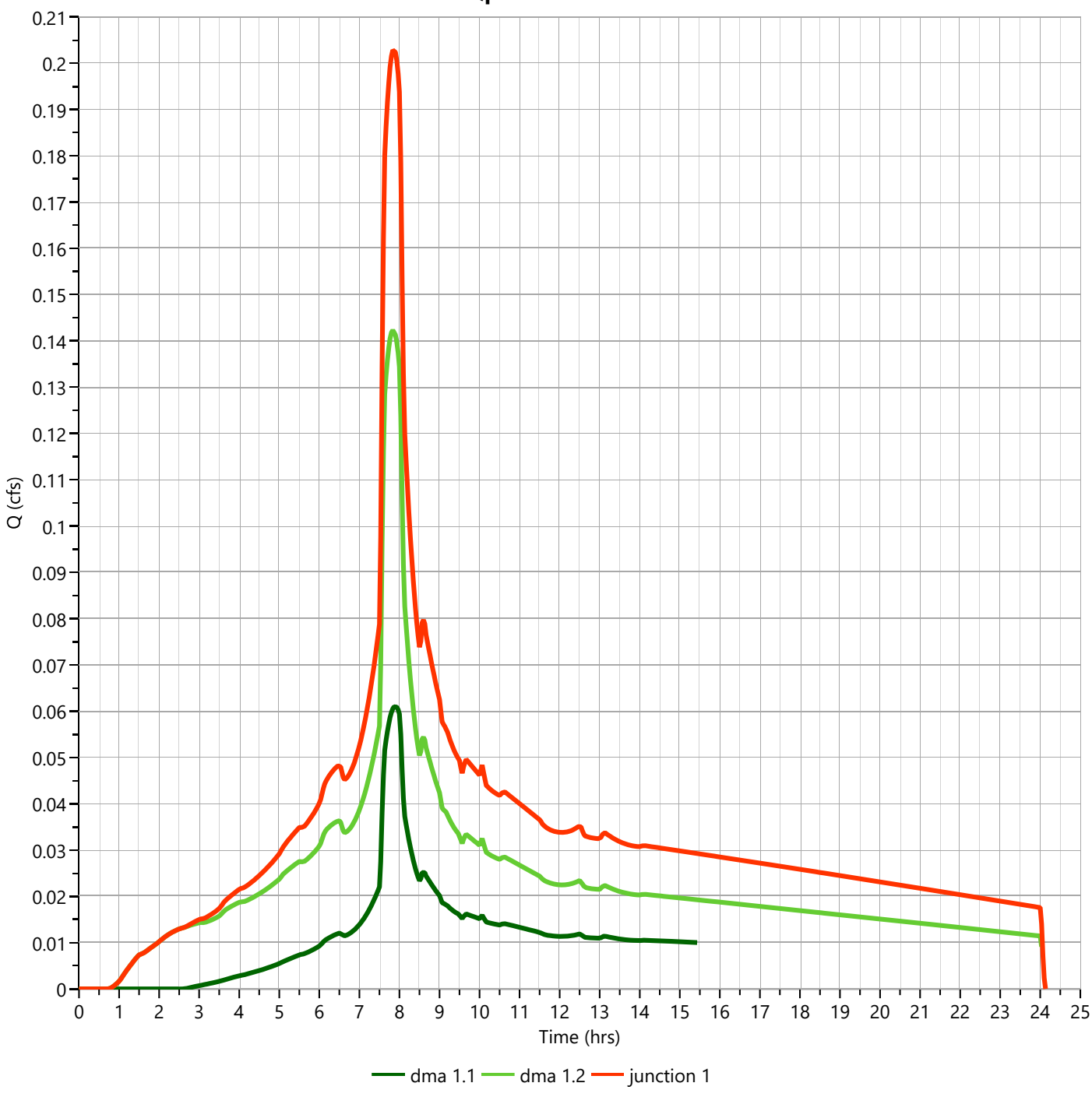
Hydrology Studio v 3.0.0.27

09-25-2023

junction 1

Hyd. No. 8

Hydrograph Type	= Junction	Peak Flow	= 0.203 cfs
Storm Frequency	= 2-yr	Time to Peak	= 7.87 hrs
Time Interval	= 2 min	Hydrograph Volume	= 2,871 cuft
Inflow Hydrographs	= 3, 4	Total Contrib. Area	= 0.347 ac



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

09-25-2023

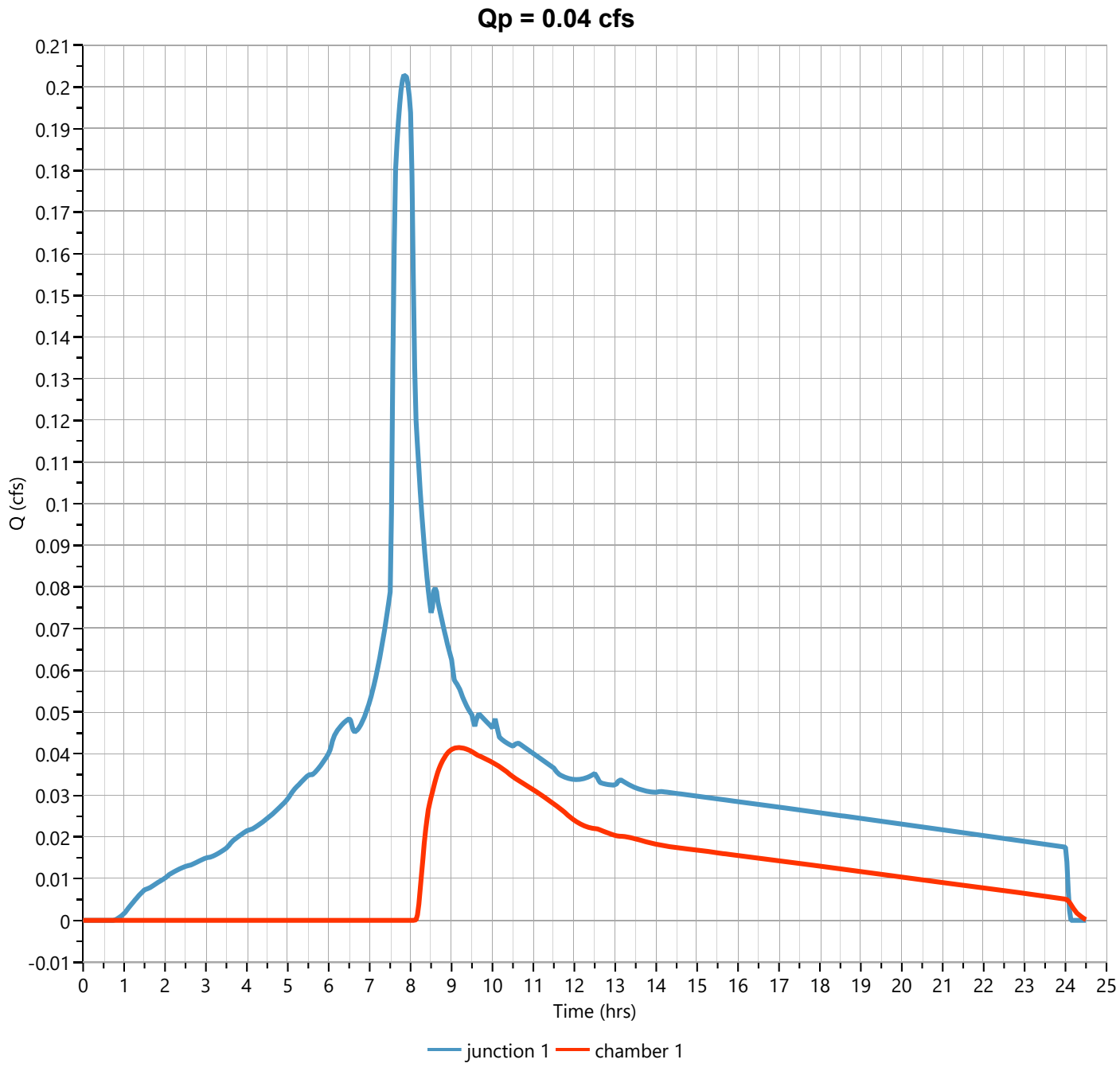
Post chamber 1

Hyd. No. 9

Hydrograph Type	= Pond Route	Peak Flow	= 0.041 cfs
Storm Frequency	= 2-yr	Time to Peak	= 9.20 hrs
Time Interval	= 2 min	Hydrograph Volume	= 1,030 cuft
Inflow Hydrograph	= 8 - junction 1	Max. Elevation	= 102.57 ft
Pond Name	= chambers 1	Max. Storage	= 1,006 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 2.31 hrs



Hydrograph Report

Project Name:

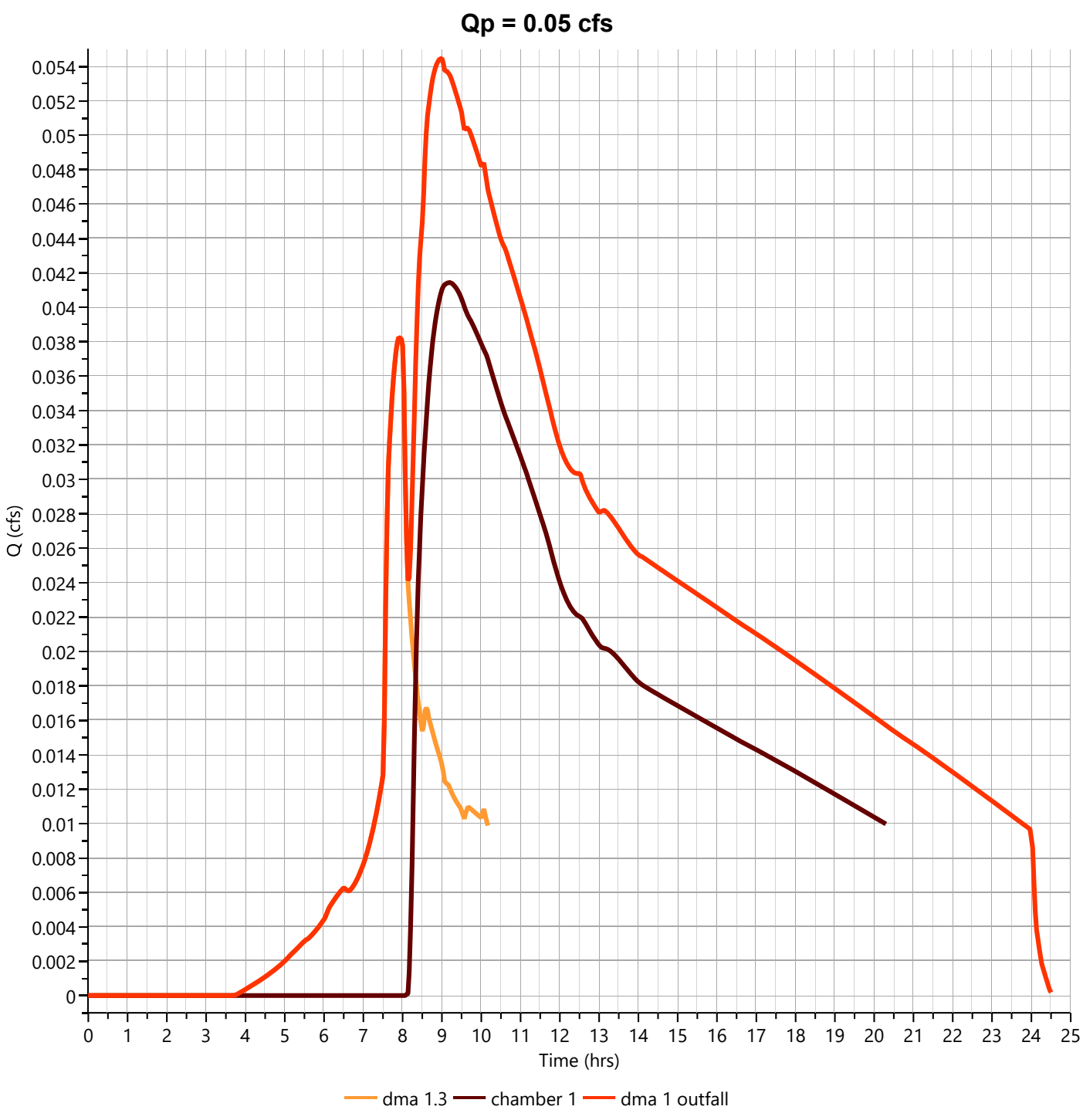
Hydrology Studio v 3.0.0.27

09-25-2023

Post dma 1 outfall

Hyd. No. 10

Hydrograph Type	= Junction	Peak Flow	= 0.054 cfs
Storm Frequency	= 2-yr	Time to Peak	= 9.00 hrs
Time Interval	= 2 min	Hydrograph Volume	= 1,593 cuft
Inflow Hydrographs	= 5, 9	Total Contrib. Area	= 0.1 ac



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

09-25-2023

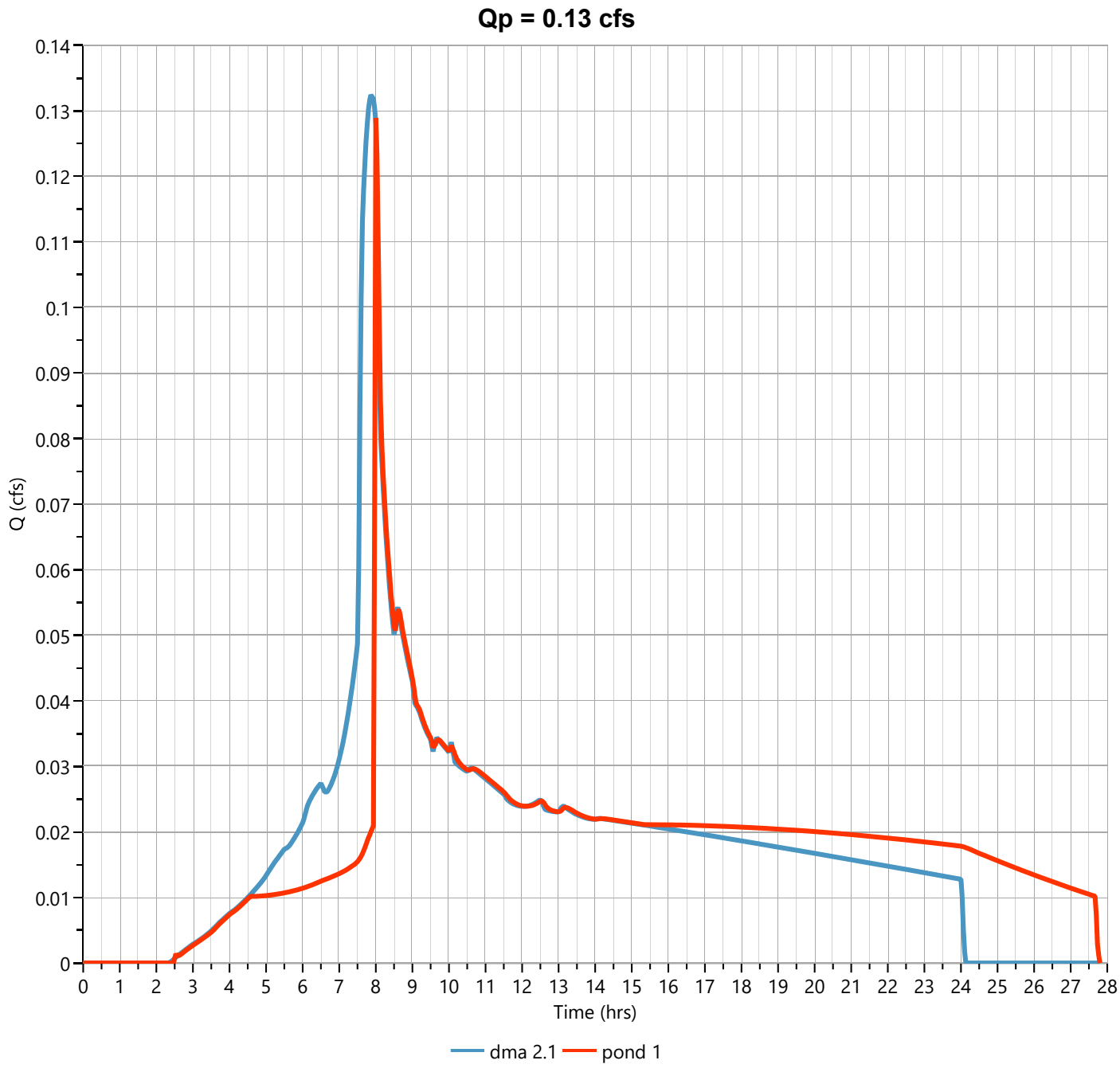
Post pond 1

Hyd. No. 11

Hydrograph Type	= Pond Route	Peak Flow	= 0.129 cfs
Storm Frequency	= 2-yr	Time to Peak	= 8.00 hrs
Time Interval	= 2 min	Hydrograph Volume	= 1,845 cuft
Inflow Hydrograph	= 6 - dma 2.1	Max. Elevation	= 101.02 ft
Pond Name	= pond 1	Max. Storage	= 284 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 2.51 hrs



Hydrograph Report

Project Name:

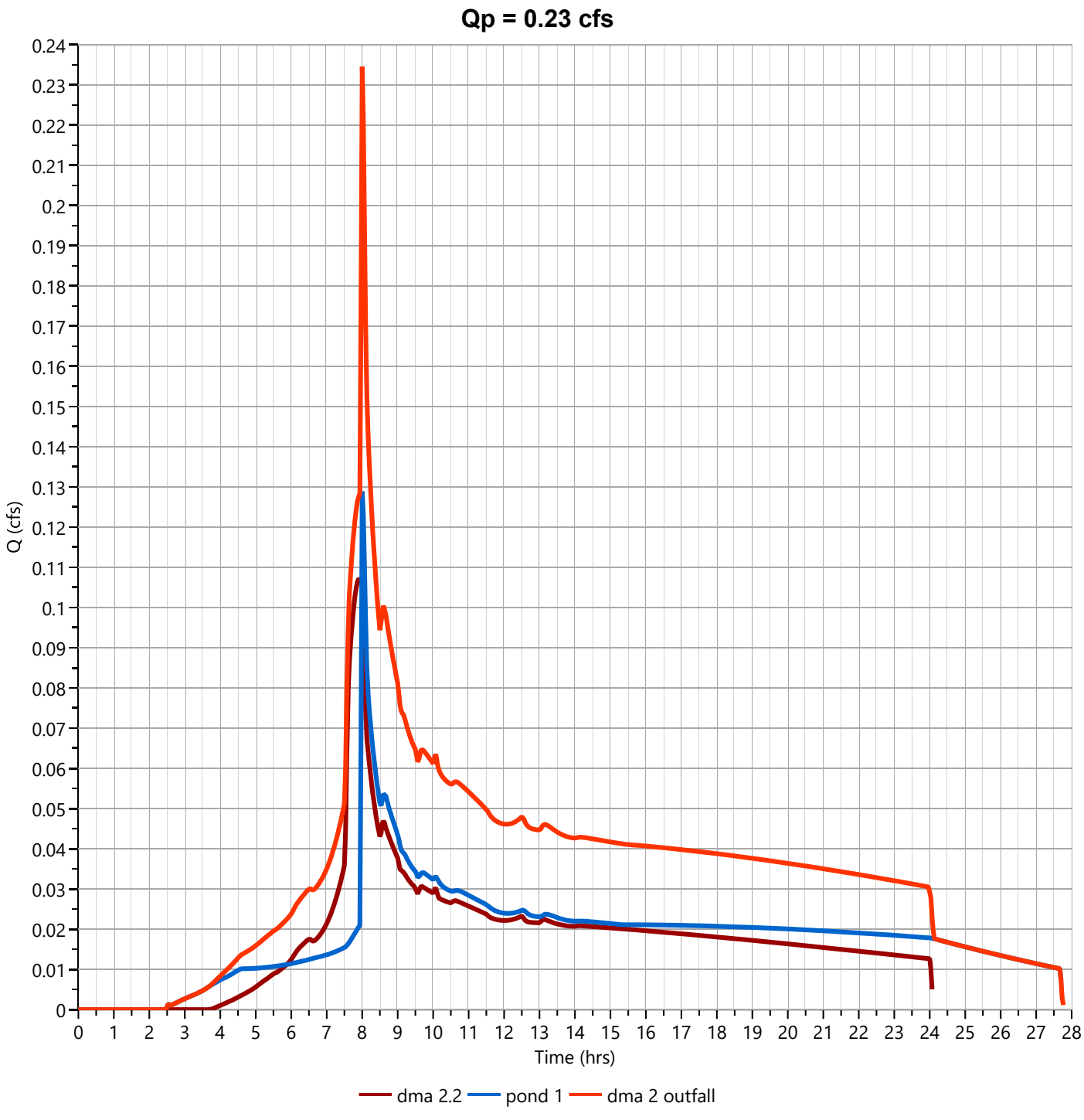
Hydrology Studio v 3.0.0.27

09-25-2023

Post dma 2 outfall

Hyd. No. 12

Hydrograph Type	= Junction	Peak Flow	= 0.235 cfs
Storm Frequency	= 2-yr	Time to Peak	= 8.00 hrs
Time Interval	= 2 min	Hydrograph Volume	= 3,422 cuft
Inflow Hydrographs	= 7, 11	Total Contrib. Area	= 0.28 ac



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

09-25-2023

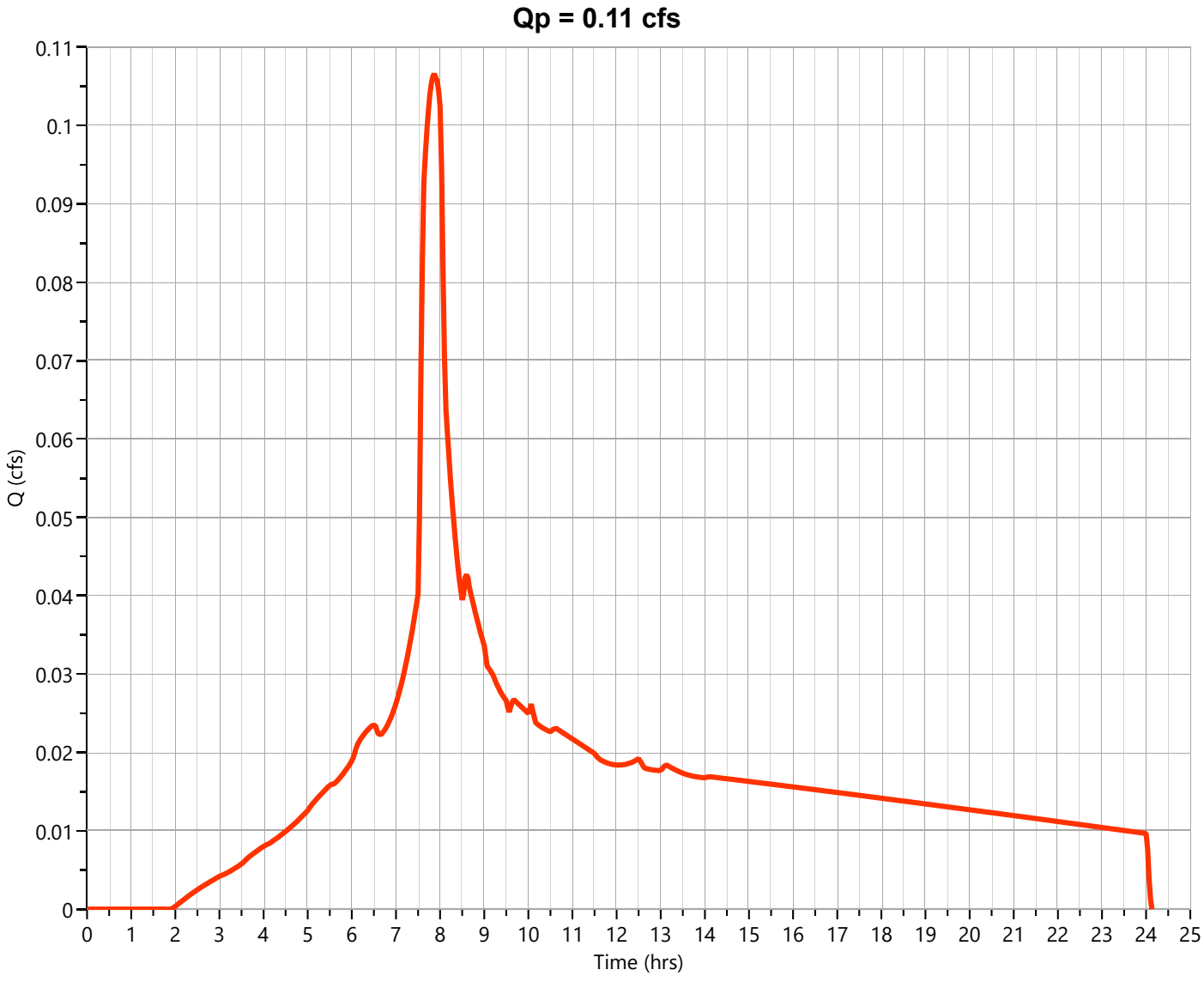
Post dma 1.1

Hyd. No. 3

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.107 cfs
Storm Frequency	= 10-yr	Time to Peak	= 7.87 hrs
Time Interval	= 2 min	Runoff Volume	= 1,472 cuft
Drainage Area	= 0.127 ac	Curve Number	= 90.86*
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 4.42 in	Design Storm	= Type IA
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
0.081	87	landscaping
0.046	98	pavement
0.127	**91**	Weighted CN Method Employed



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

09-25-2023

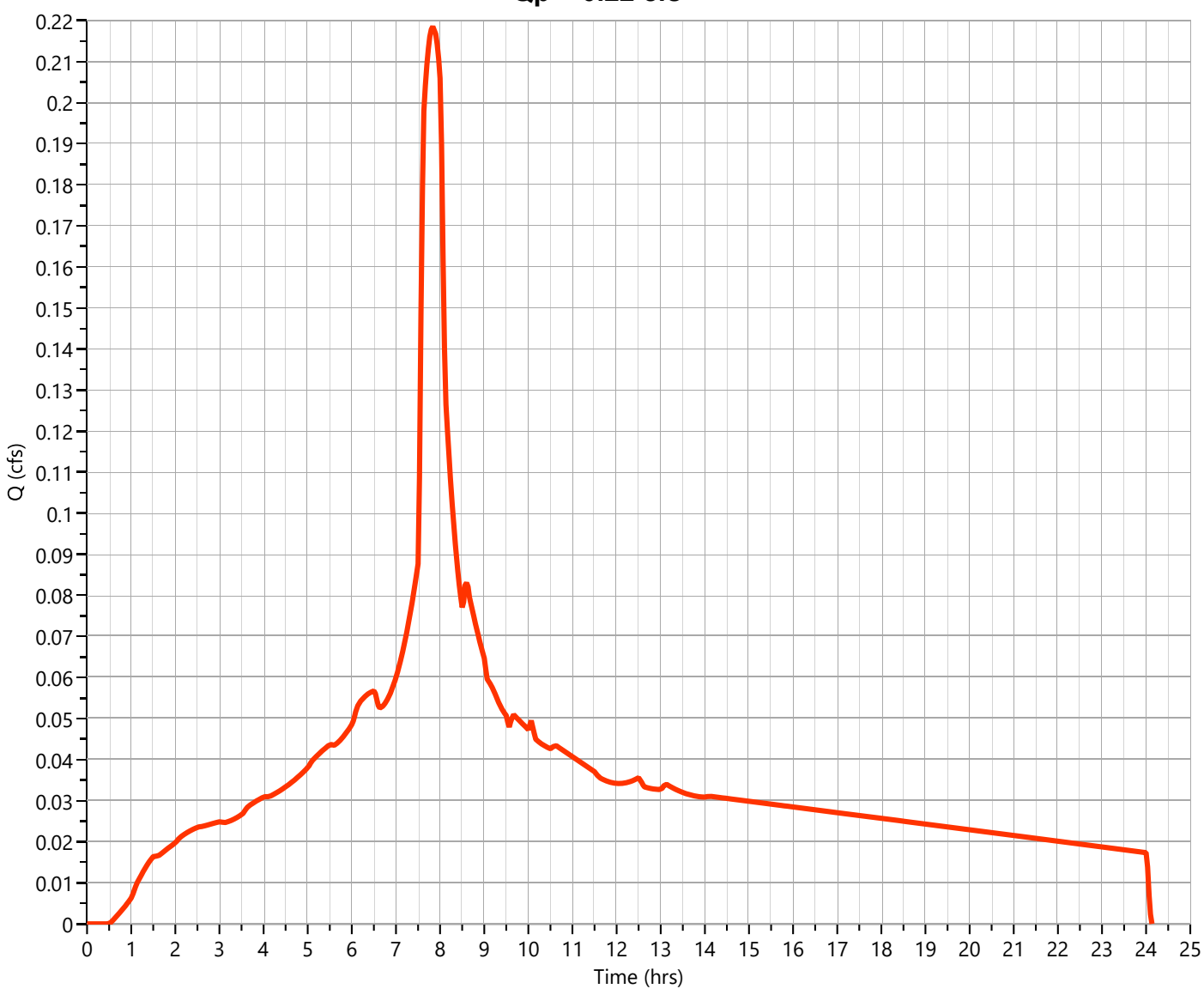
Post dma 1.2

Hyd. No. 4

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.219 cfs
Storm Frequency	= 10-yr	Time to Peak	= 7.83 hrs
Time Interval	= 2 min	Runoff Volume	= 3,133 cuft
Drainage Area	= 0.22 ac	Curve Number	= 98*
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 4.42 in	Design Storm	= Type IA
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
0.22	98	ac
0.22	**98**	Weighted CN Method Employed



Hydrograph Report

Project Name:

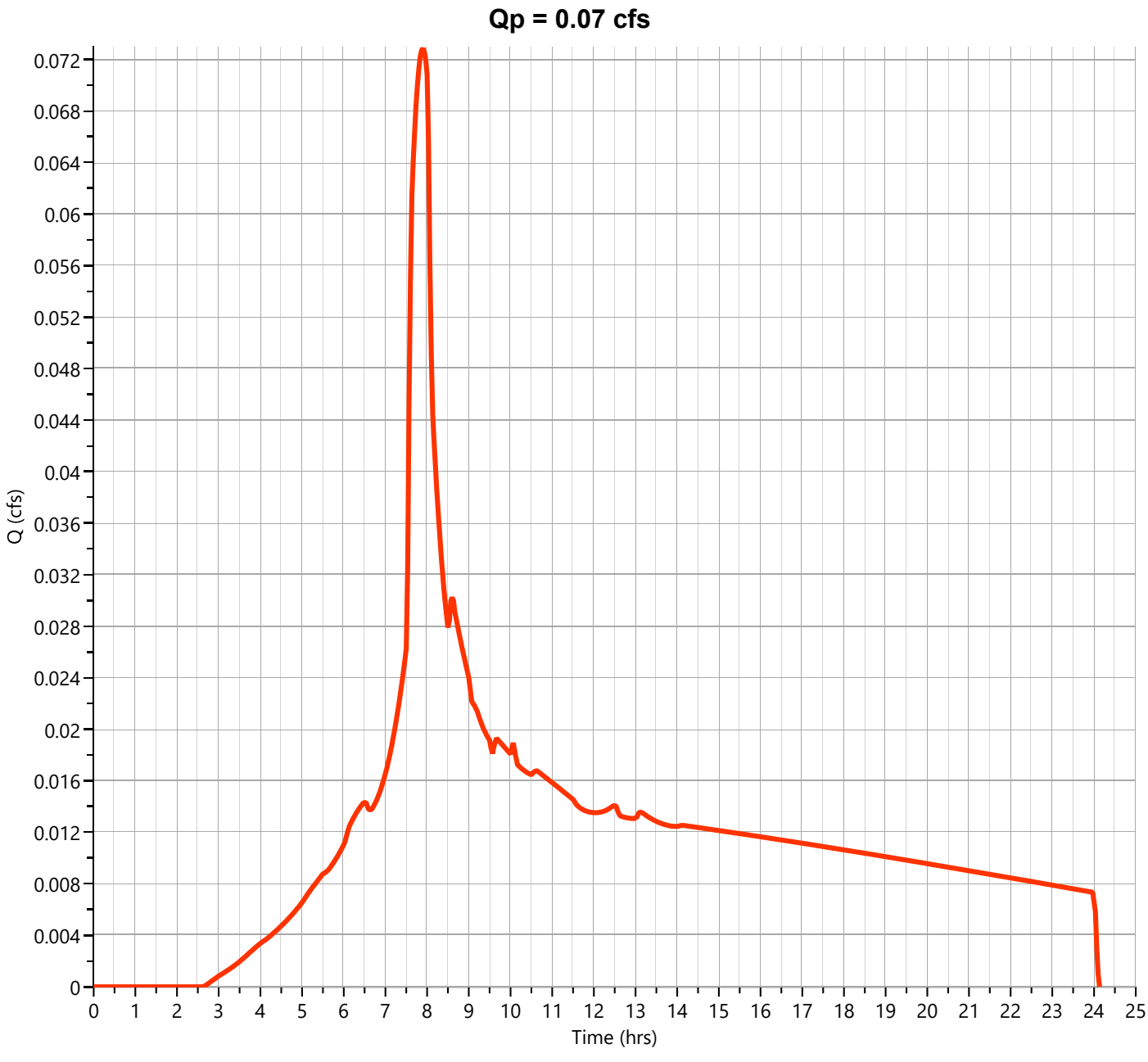
Hydrology Studio v 3.0.0.27

09-25-2023

Post dma 1.3

Hyd. No. 5

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.073 cfs
Storm Frequency	= 10-yr	Time to Peak	= 7.90 hrs
Time Interval	= 2 min	Runoff Volume	= 1,023 cuft
Drainage Area	= 0.1 ac	Curve Number	= 86.8
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 4.42 in	Design Storm	= Type IA
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

09-25-2023

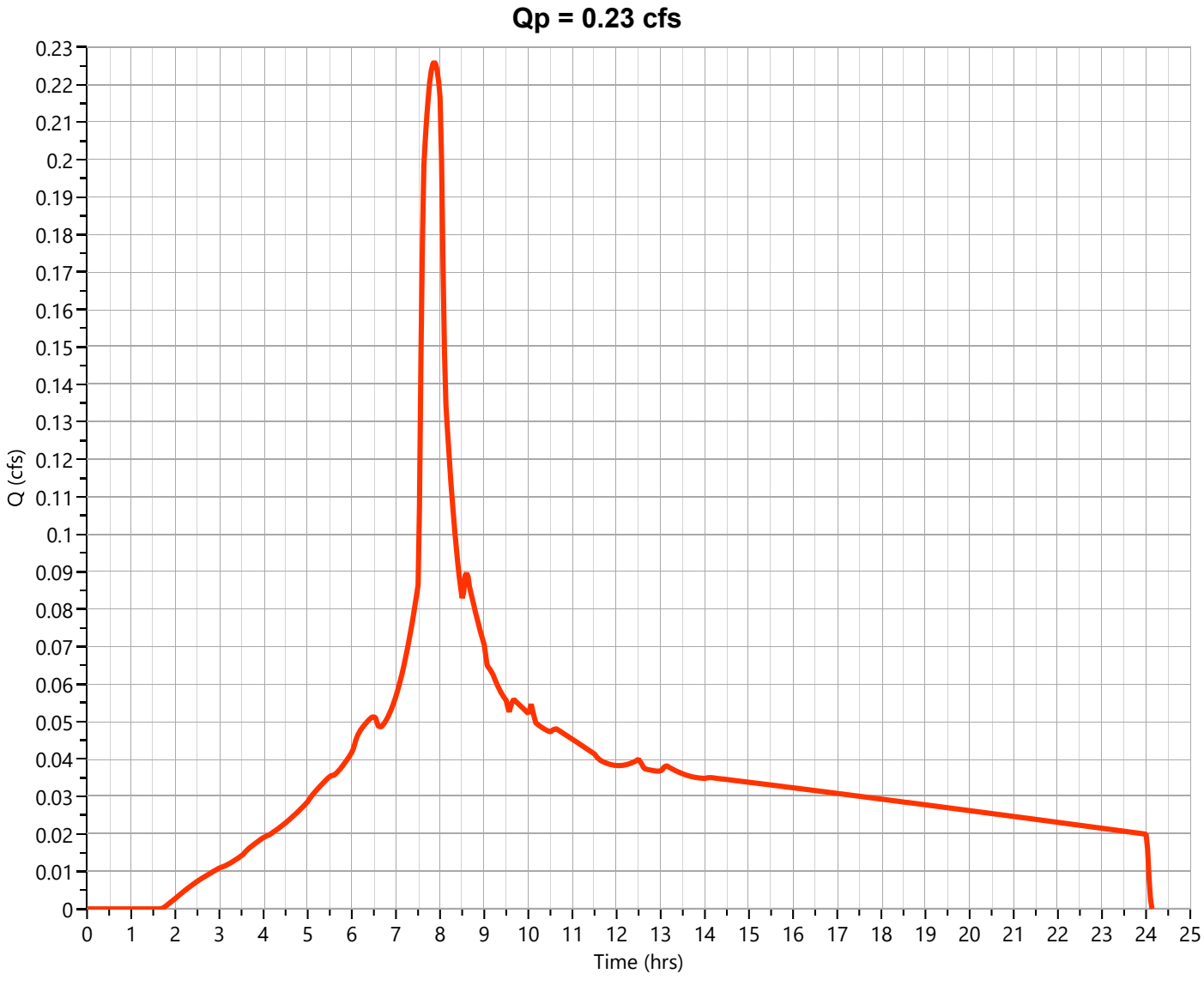
Post dma 2.1

Hyd. No. 6

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.226 cfs
Storm Frequency	= 10-yr	Time to Peak	= 7.87 hrs
Time Interval	= 2 min	Runoff Volume	= 3,118 cuft
Drainage Area	= 0.26 ac	Curve Number	= 92*
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 4.42 in	Design Storm	= Type IA
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
0.11	98	roof
0.15	87	landscape
0.26	**92**	Weighted CN Method Employed



Hydrograph Report

Project Name:

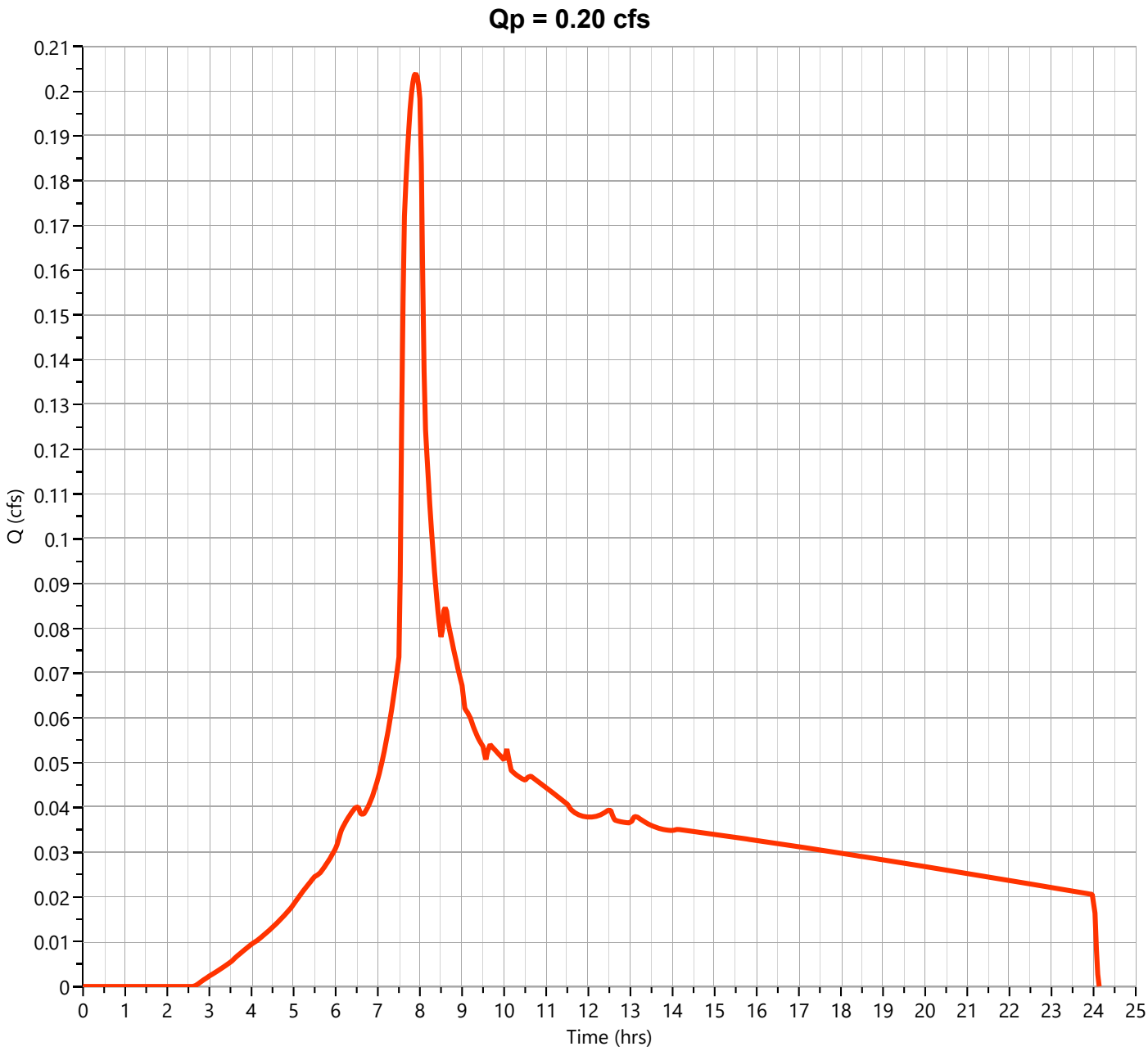
Hydrology Studio v 3.0.0.27

09-25-2023

Post dma 2.2

Hyd. No. 7

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.204 cfs
Storm Frequency	= 10-yr	Time to Peak	= 7.90 hrs
Time Interval	= 2 min	Runoff Volume	= 2,864 cuft
Drainage Area	= 0.28 ac	Curve Number	= 86.8
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 4.42 in	Design Storm	= Type IA
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

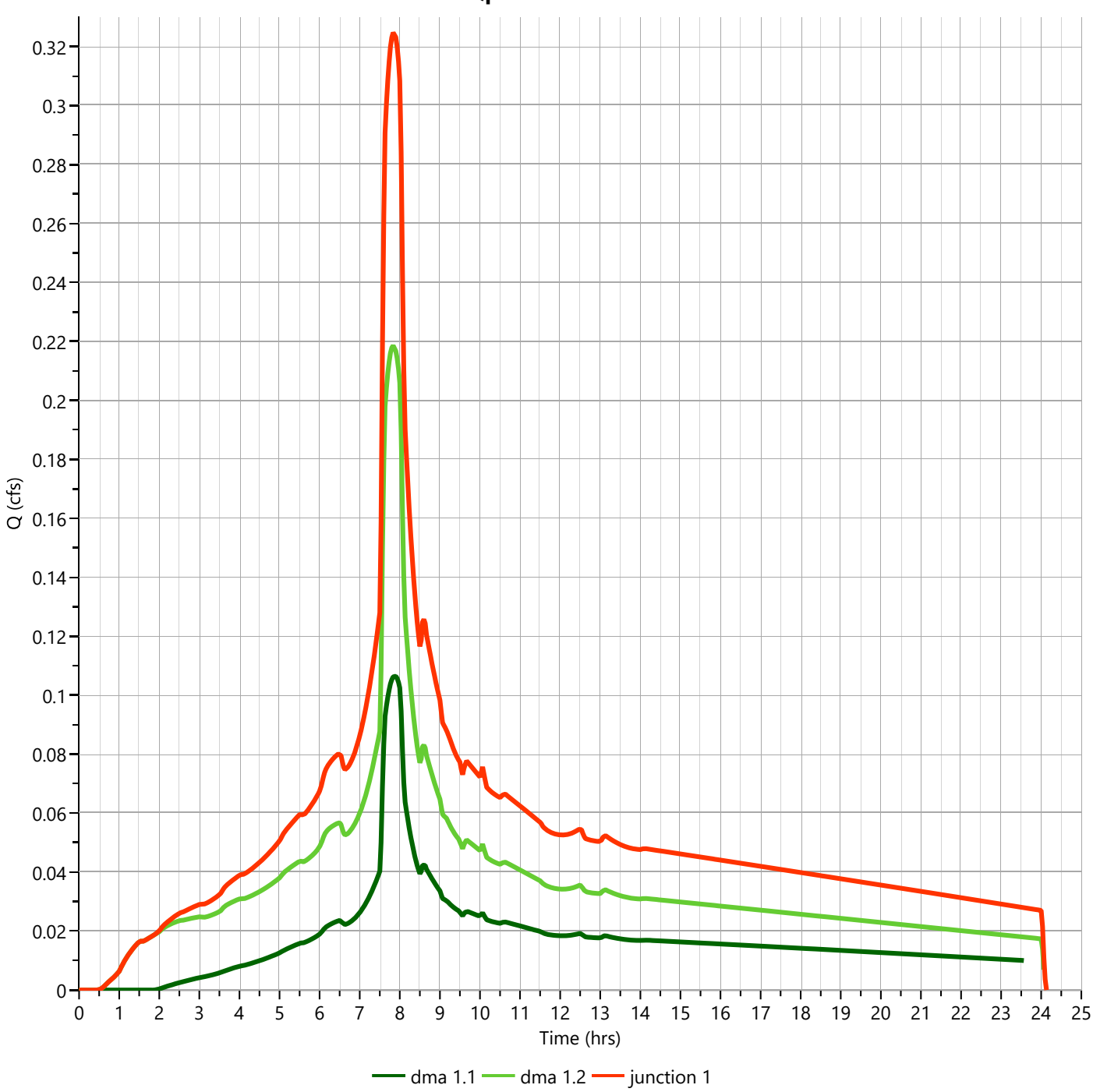
Hydrology Studio v 3.0.0.27

09-25-2023

junction 1

Hyd. No. 8

Hydrograph Type	= Junction	Peak Flow	= 0.325 cfs
Storm Frequency	= 10-yr	Time to Peak	= 7.87 hrs
Time Interval	= 2 min	Hydrograph Volume	= 4,605 cuft
Inflow Hydrographs	= 3, 4	Total Contrib. Area	= 0.347 ac



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

09-25-2023

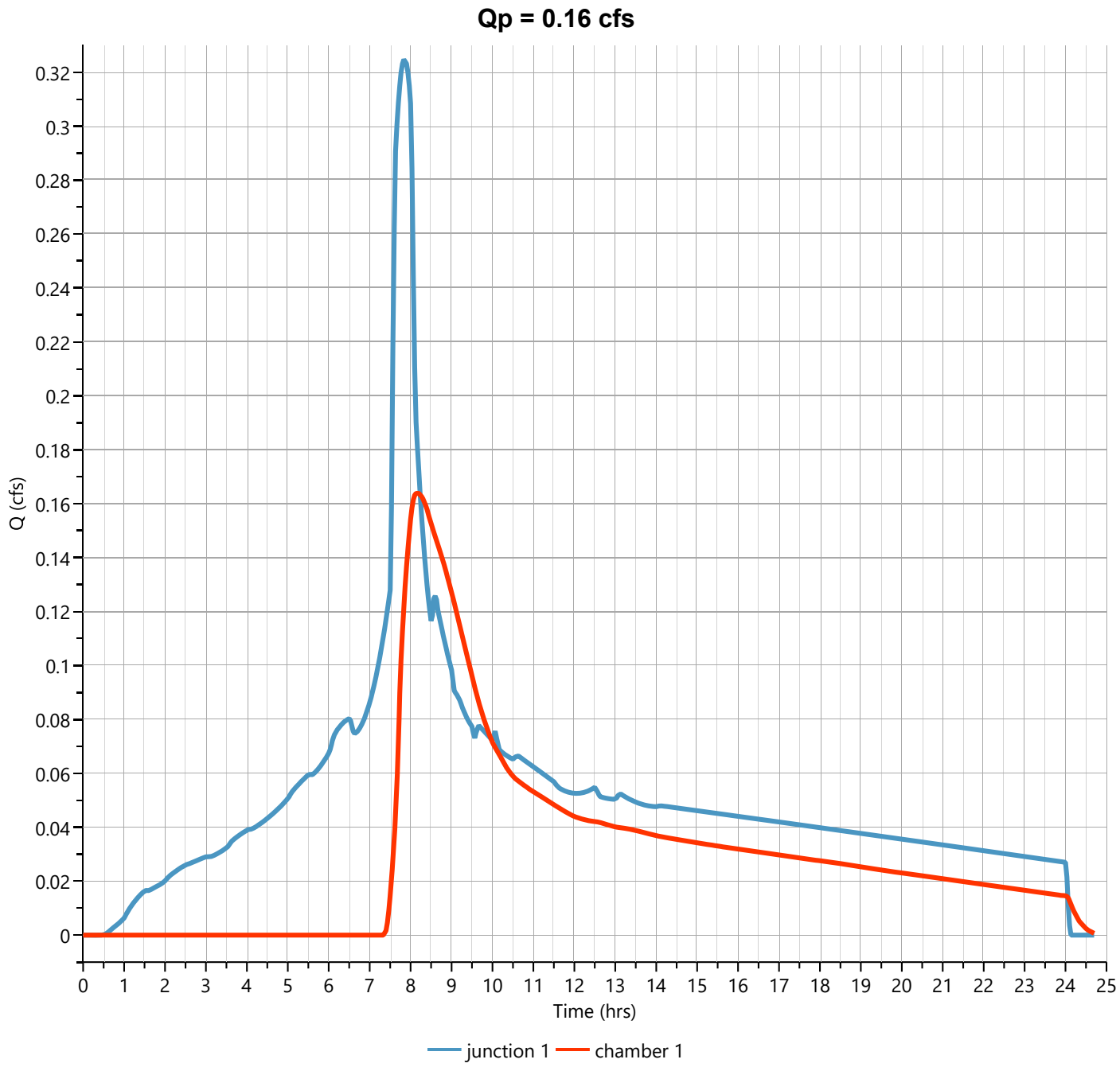
Post chamber 1

Hyd. No. 9

Hydrograph Type	= Pond Route	Peak Flow	= 0.164 cfs
Storm Frequency	= 10-yr	Time to Peak	= 8.17 hrs
Time Interval	= 2 min	Hydrograph Volume	= 2,664 cuft
Inflow Hydrograph	= 8 - junction 1	Max. Elevation	= 103.15 ft
Pond Name	= chambers 1	Max. Storage	= 1,299 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 1.61 hrs



Hydrograph Report

Project Name:

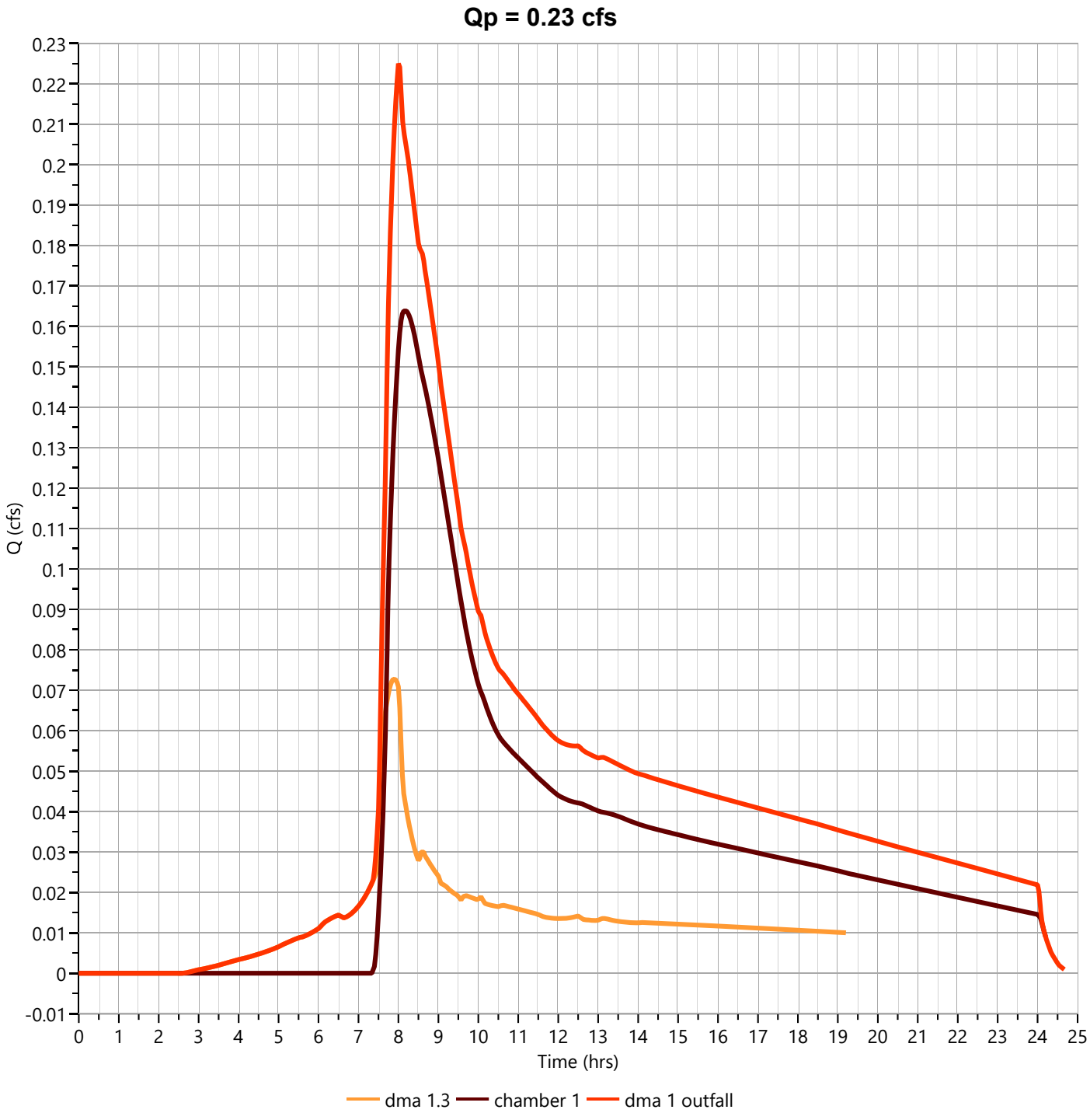
Hydrology Studio v 3.0.0.27

09-25-2023

Post dma 1 outfall

Hyd. No. 10

Hydrograph Type	= Junction	Peak Flow	= 0.225 cfs
Storm Frequency	= 10-yr	Time to Peak	= 8.00 hrs
Time Interval	= 2 min	Hydrograph Volume	= 3,687 cuft
Inflow Hydrographs	= 5, 9	Total Contrib. Area	= 0.1 ac



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

09-25-2023

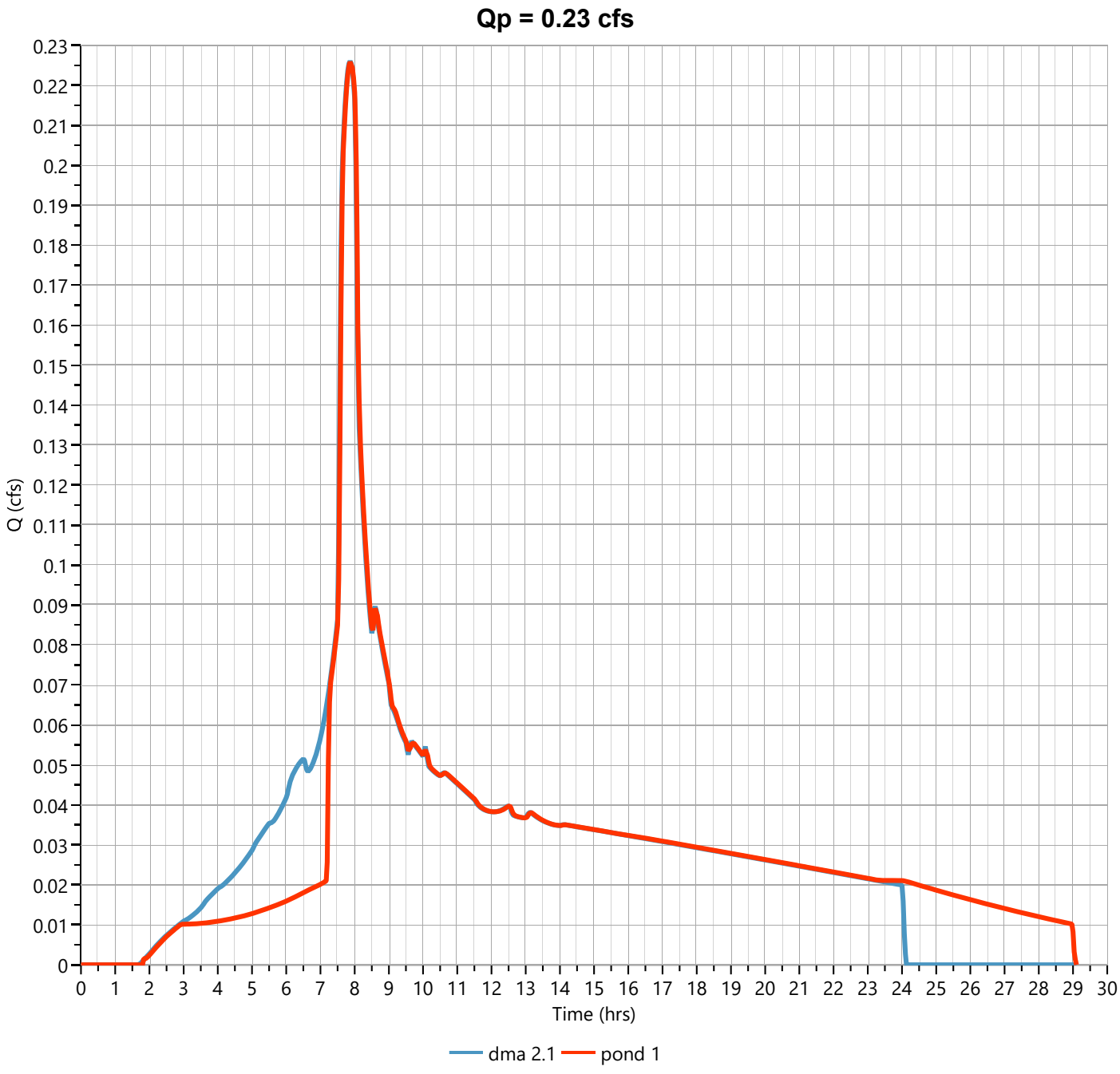
Post pond 1

Hyd. No. 11

Hydrograph Type	= Pond Route	Peak Flow	= 0.226 cfs
Storm Frequency	= 10-yr	Time to Peak	= 7.87 hrs
Time Interval	= 2 min	Hydrograph Volume	= 3,118 cuft
Inflow Hydrograph	= 6 - dma 2.1	Max. Elevation	= 101.04 ft
Pond Name	= pond 1	Max. Storage	= 288 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 1.81 hrs



Hydrograph Report

Project Name:

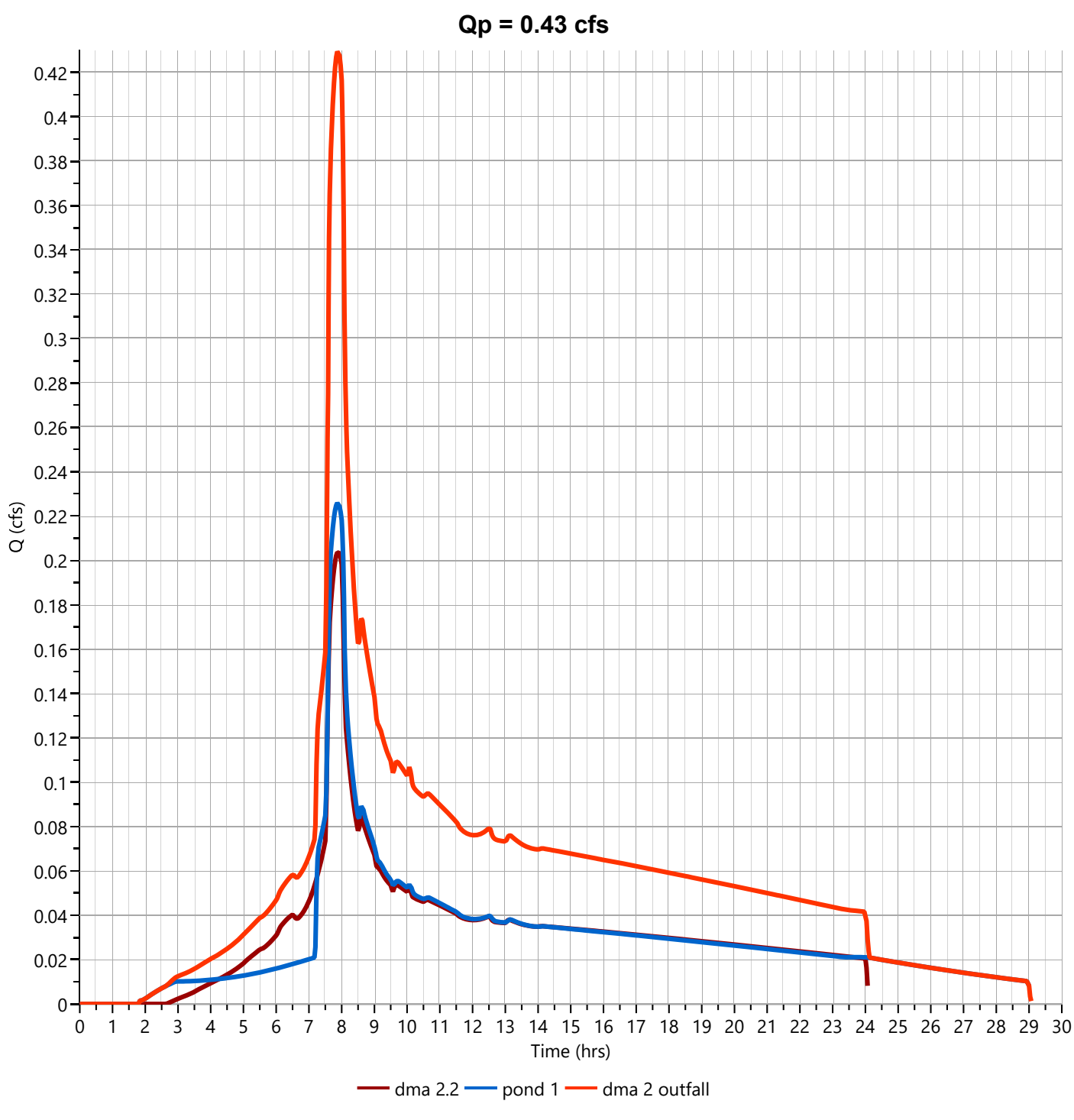
Hydrology Studio v 3.0.0.27

09-25-2023

Post dma 2 outfall

Hyd. No. 12

Hydrograph Type	= Junction	Peak Flow	= 0.430 cfs
Storm Frequency	= 10-yr	Time to Peak	= 7.90 hrs
Time Interval	= 2 min	Hydrograph Volume	= 5,982 cuft
Inflow Hydrographs	= 7, 11	Total Contrib. Area	= 0.28 ac



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

09-25-2023

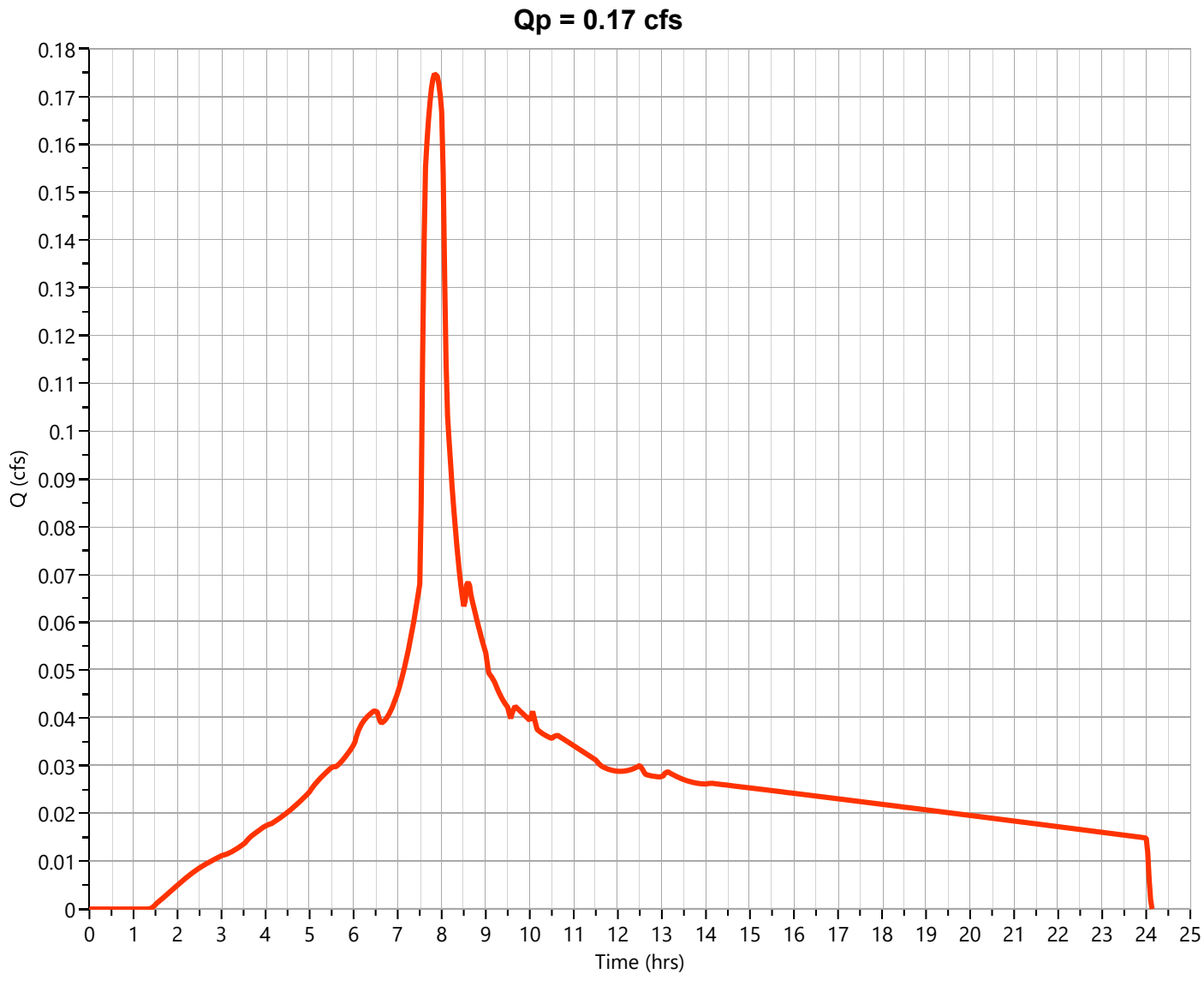
Post dma 1.1

Hyd. No. 3

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.175 cfs
Storm Frequency	= 100-yr	Time to Peak	= 7.87 hrs
Time Interval	= 2 min	Runoff Volume	= 2,420 cuft
Drainage Area	= 0.127 ac	Curve Number	= 90.86*
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 6.67 in	Design Storm	= Type IA
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
0.081	87	landscaping
0.046	98	pavement
0.127	**91**	Weighted CN Method Employed



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

09-25-2023

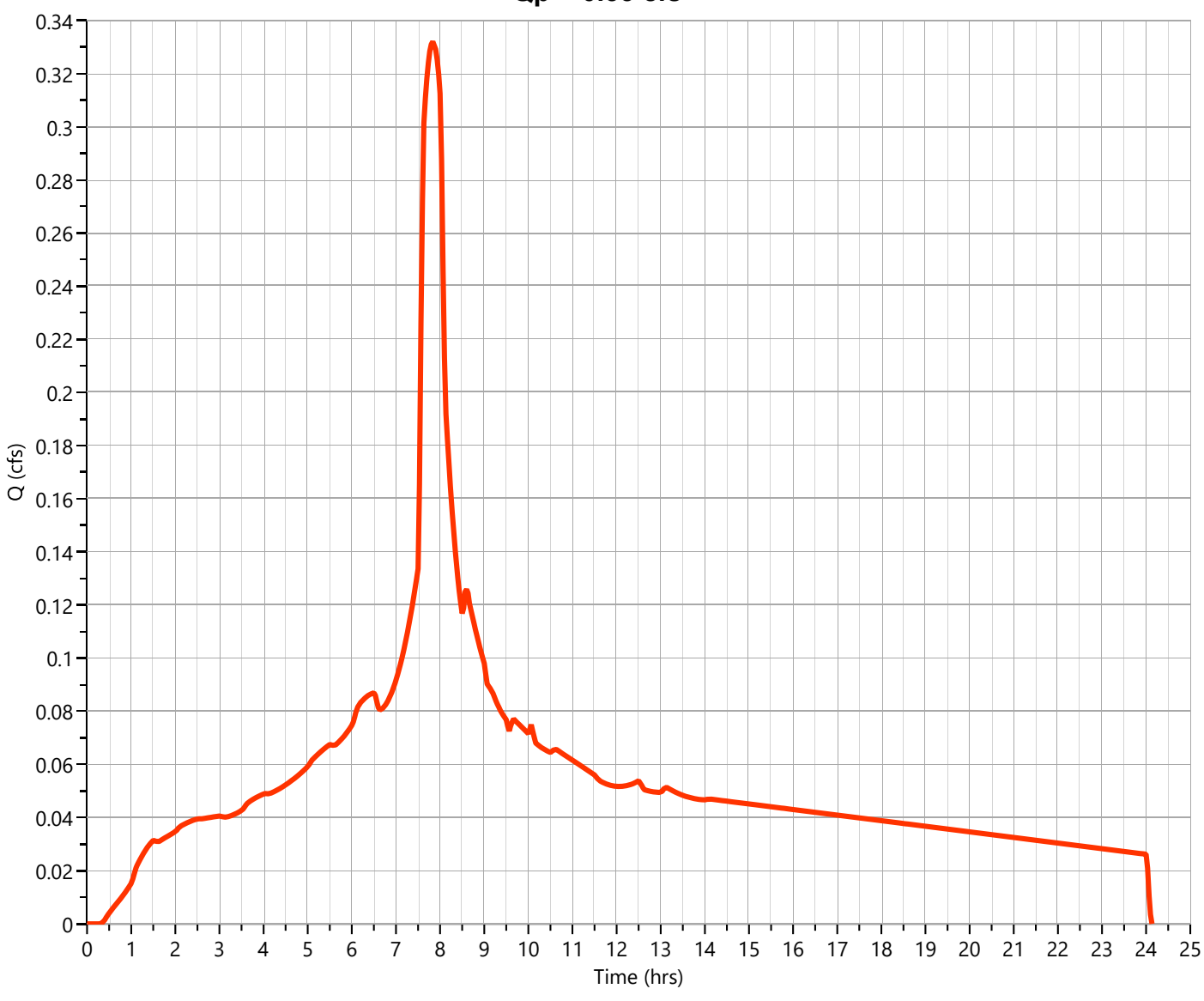
Post dma 1.2

Hyd. No. 4

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.332 cfs
Storm Frequency	= 100-yr	Time to Peak	= 7.83 hrs
Time Interval	= 2 min	Runoff Volume	= 4,815 cuft
Drainage Area	= 0.22 ac	Curve Number	= 98*
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 6.67 in	Design Storm	= Type IA
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
0.22	98	ac
0.22	**98**	Weighted CN Method Employed



Hydrograph Report

Project Name:

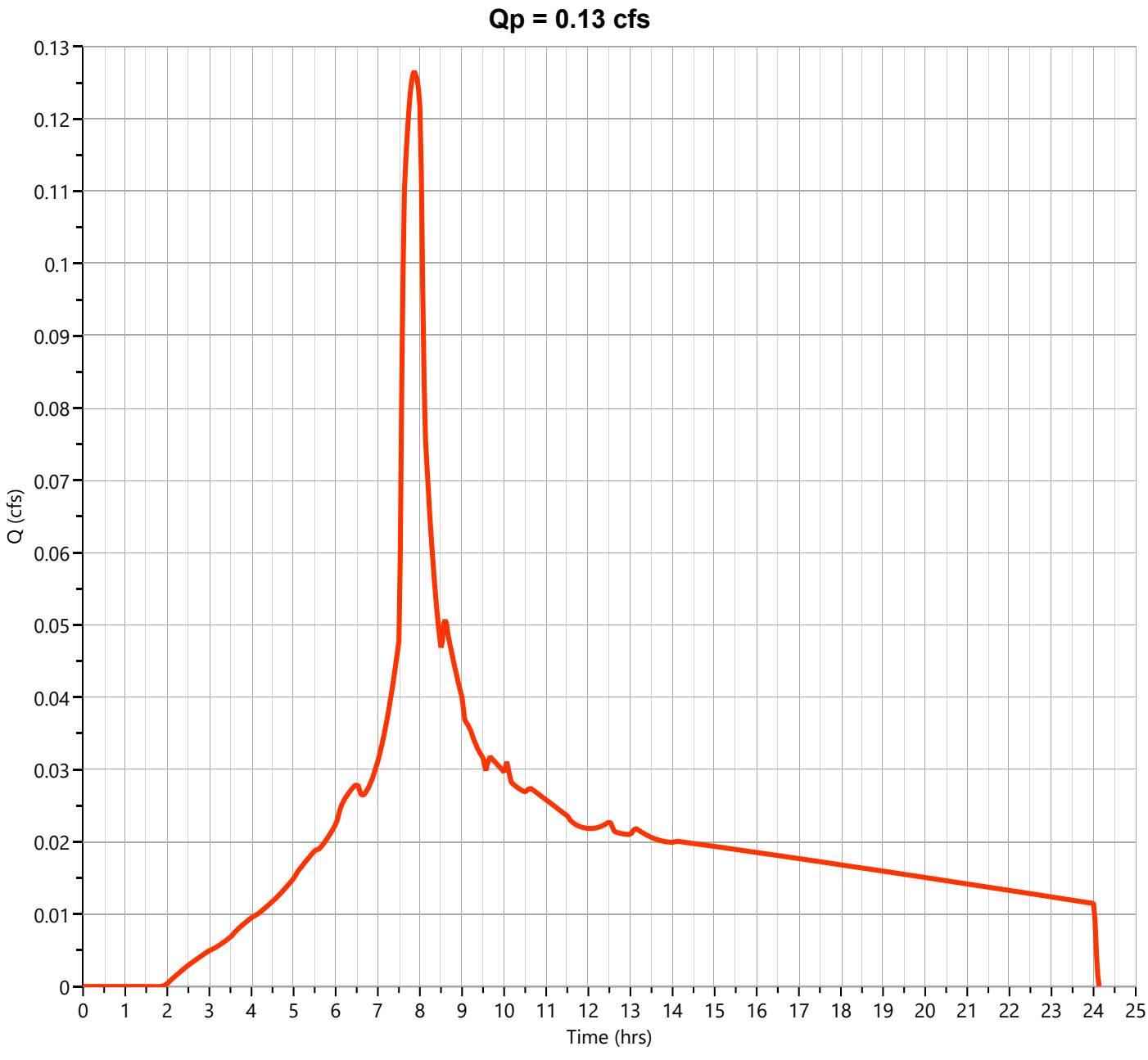
Hydrology Studio v 3.0.0.27

09-25-2023

Post dma 1.3

Hyd. No. 5

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.127 cfs
Storm Frequency	= 100-yr	Time to Peak	= 7.87 hrs
Time Interval	= 2 min	Runoff Volume	= 1,749 cuft
Drainage Area	= 0.1 ac	Curve Number	= 86.8
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 6.67 in	Design Storm	= Type IA
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

09-25-2023

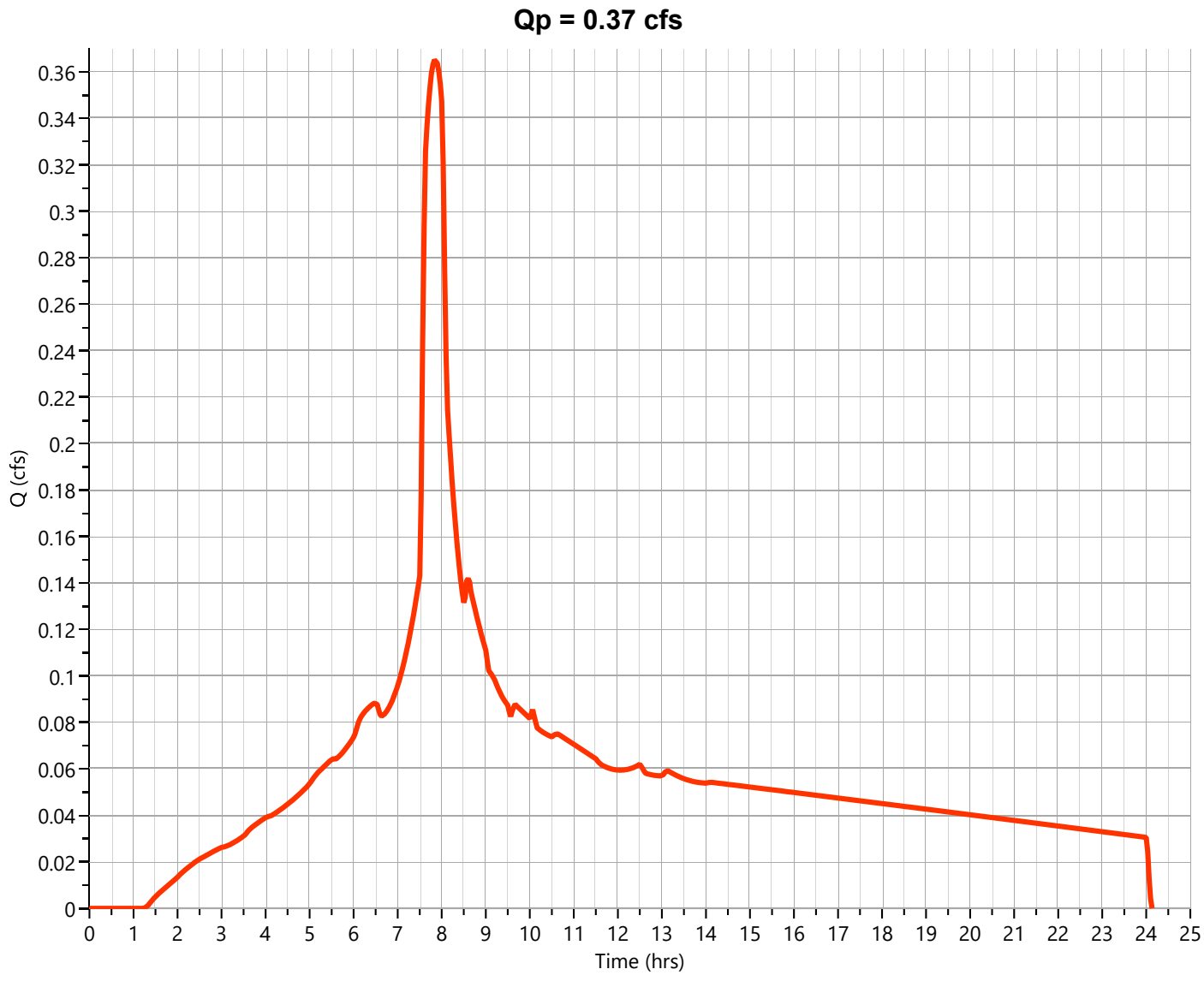
Post dma 2.1

Hyd. No. 6

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.365 cfs
Storm Frequency	= 100-yr	Time to Peak	= 7.87 hrs
Time Interval	= 2 min	Runoff Volume	= 5,069 cuft
Drainage Area	= 0.26 ac	Curve Number	= 92*
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 6.67 in	Design Storm	= Type IA
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
0.11	98	roof
0.15	87	landscape
0.26	**92**	Weighted CN Method Employed



Hydrograph Report

Project Name:

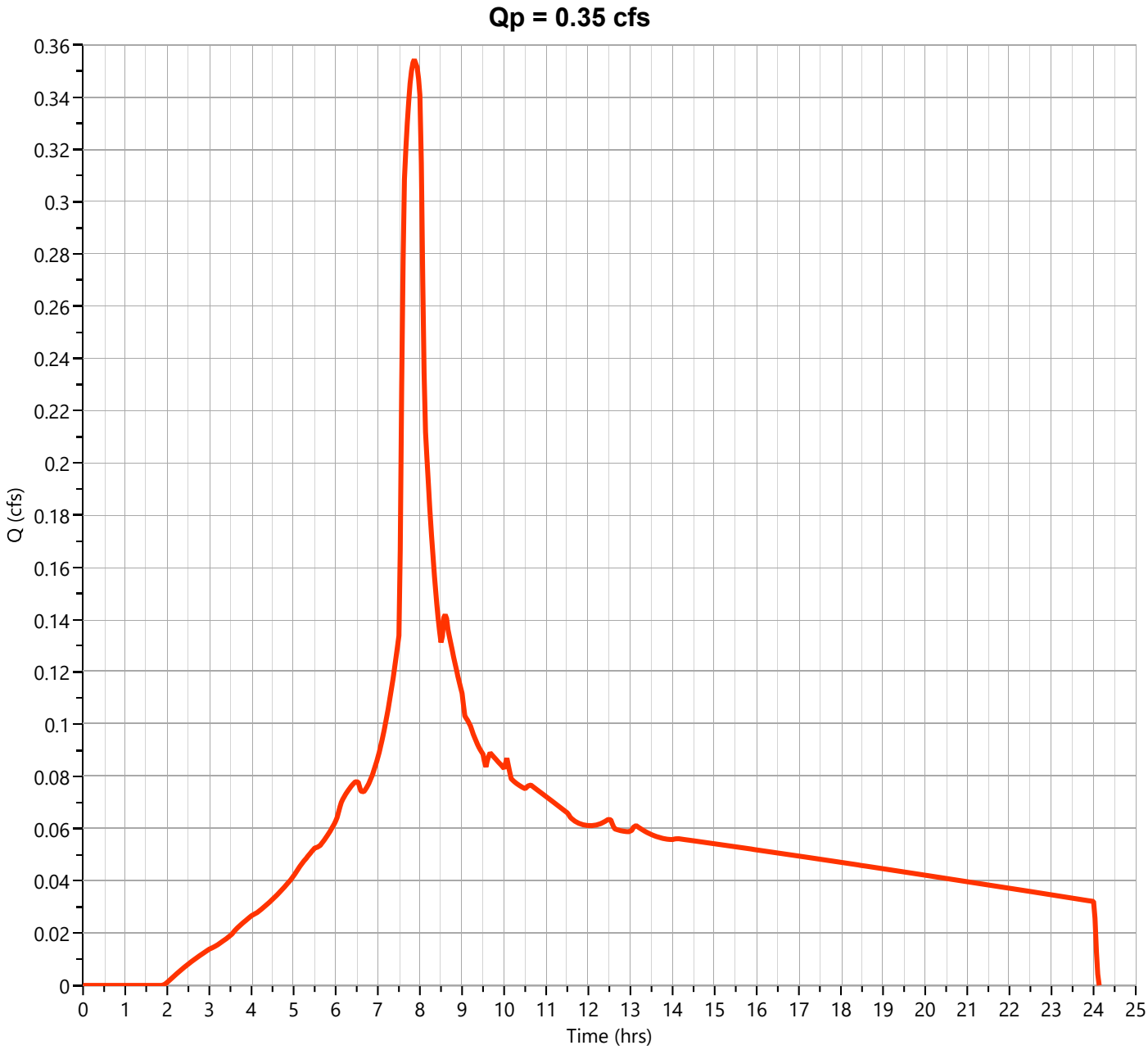
Hydrology Studio v 3.0.0.27

09-25-2023

Post dma 2.2

Hyd. No. 7

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.354 cfs
Storm Frequency	= 100-yr	Time to Peak	= 7.87 hrs
Time Interval	= 2 min	Runoff Volume	= 4,896 cuft
Drainage Area	= 0.28 ac	Curve Number	= 86.8
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 6.67 in	Design Storm	= Type IA
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

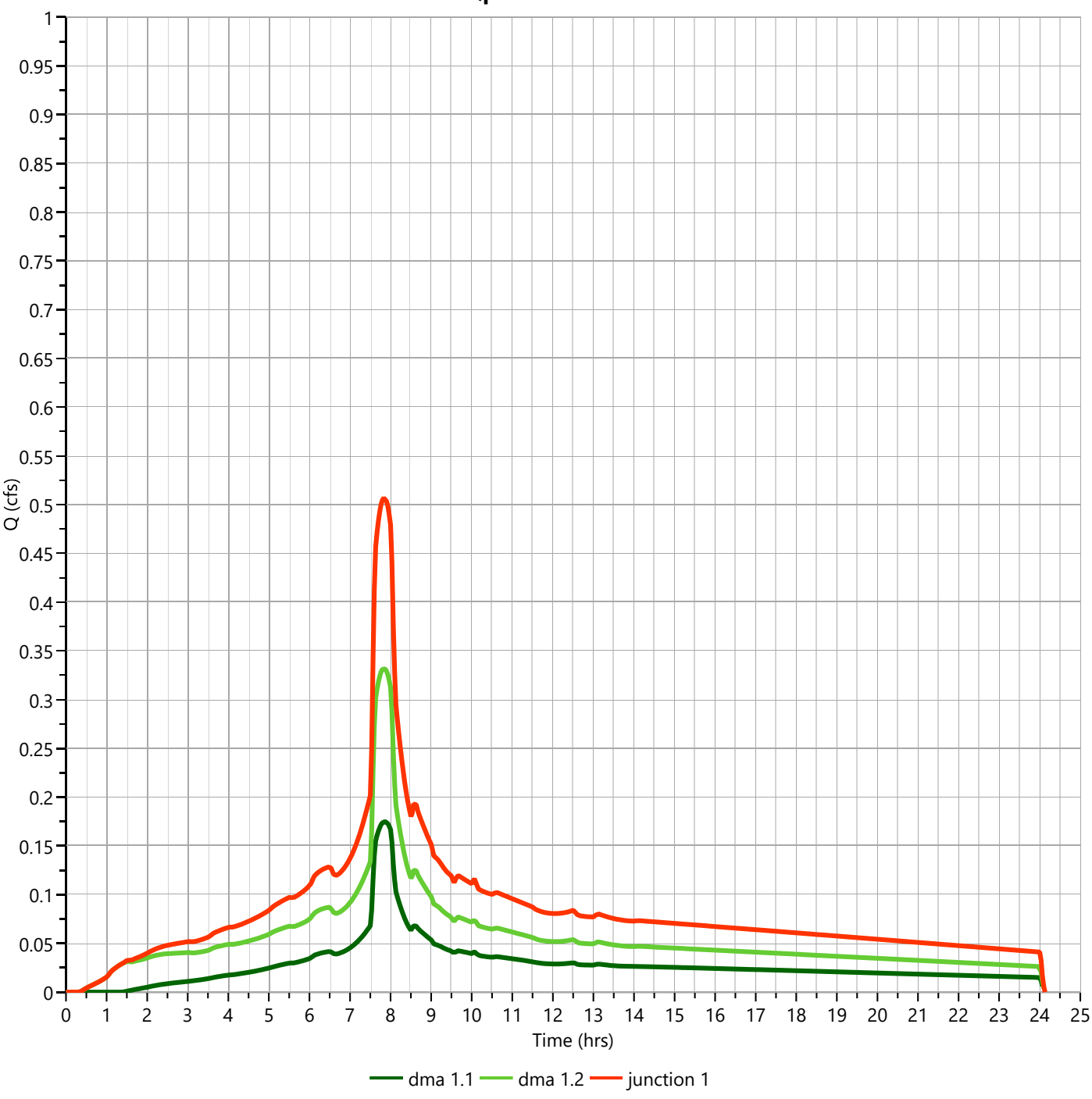
Hydrology Studio v 3.0.0.27

09-25-2023

junction 1

Hyd. No. 8

Hydrograph Type	= Junction	Peak Flow	= 0.507 cfs
Storm Frequency	= 100-yr	Time to Peak	= 7.83 hrs
Time Interval	= 2 min	Hydrograph Volume	= 7,234 cuft
Inflow Hydrographs	= 3, 4	Total Contrib. Area	= 0.347 ac



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

09-25-2023

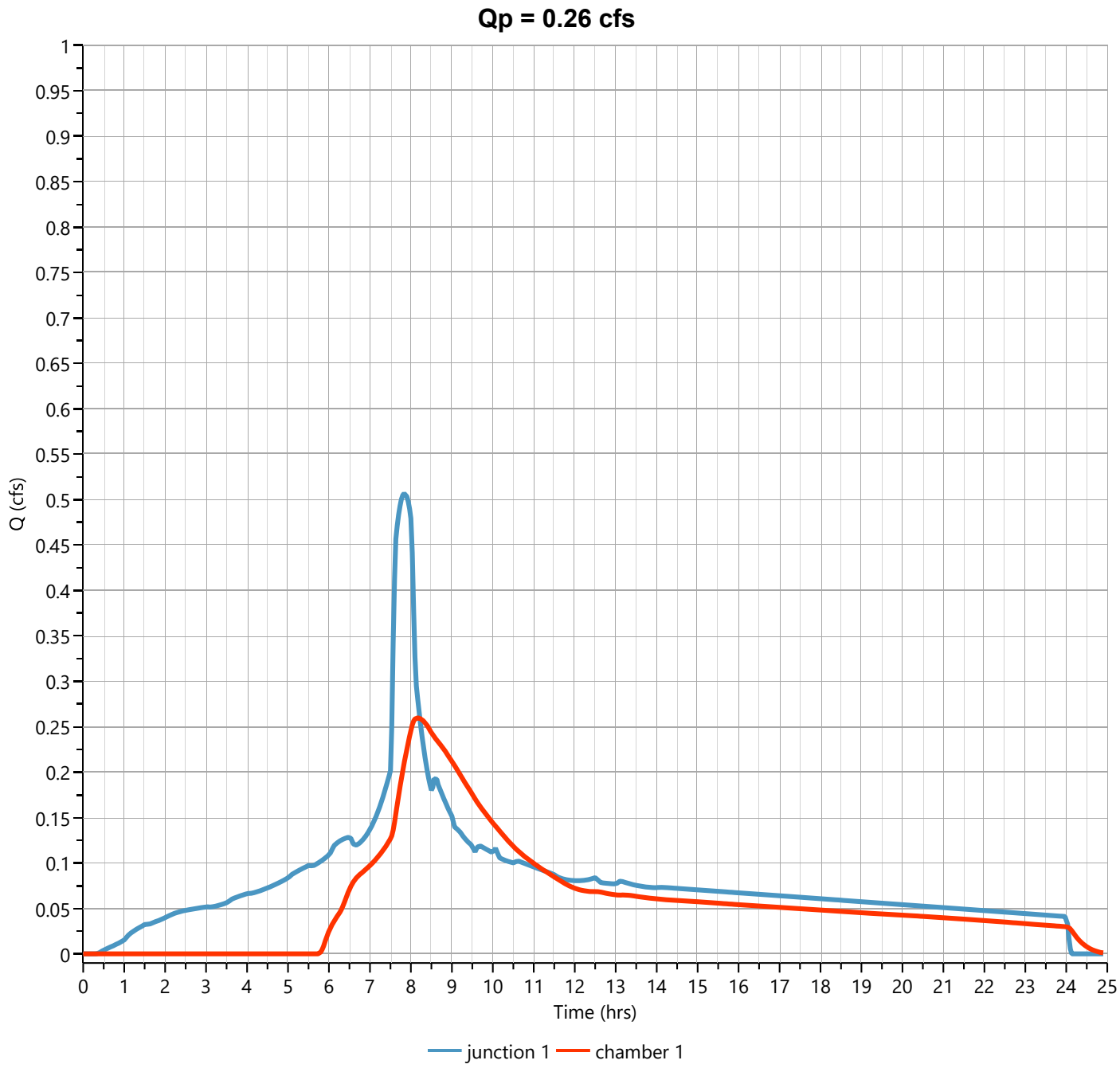
Post chamber 1

Hyd. No. 9

Hydrograph Type	= Pond Route	Peak Flow	= 0.260 cfs
Storm Frequency	= 100-yr	Time to Peak	= 8.17 hrs
Time Interval	= 2 min	Hydrograph Volume	= 5,169 cuft
Inflow Hydrograph	= 8 - junction 1	Max. Elevation	= 104.07 ft
Pond Name	= chambers 1	Max. Storage	= 1,677 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 1.38 hrs



Hydrograph Report

Project Name:

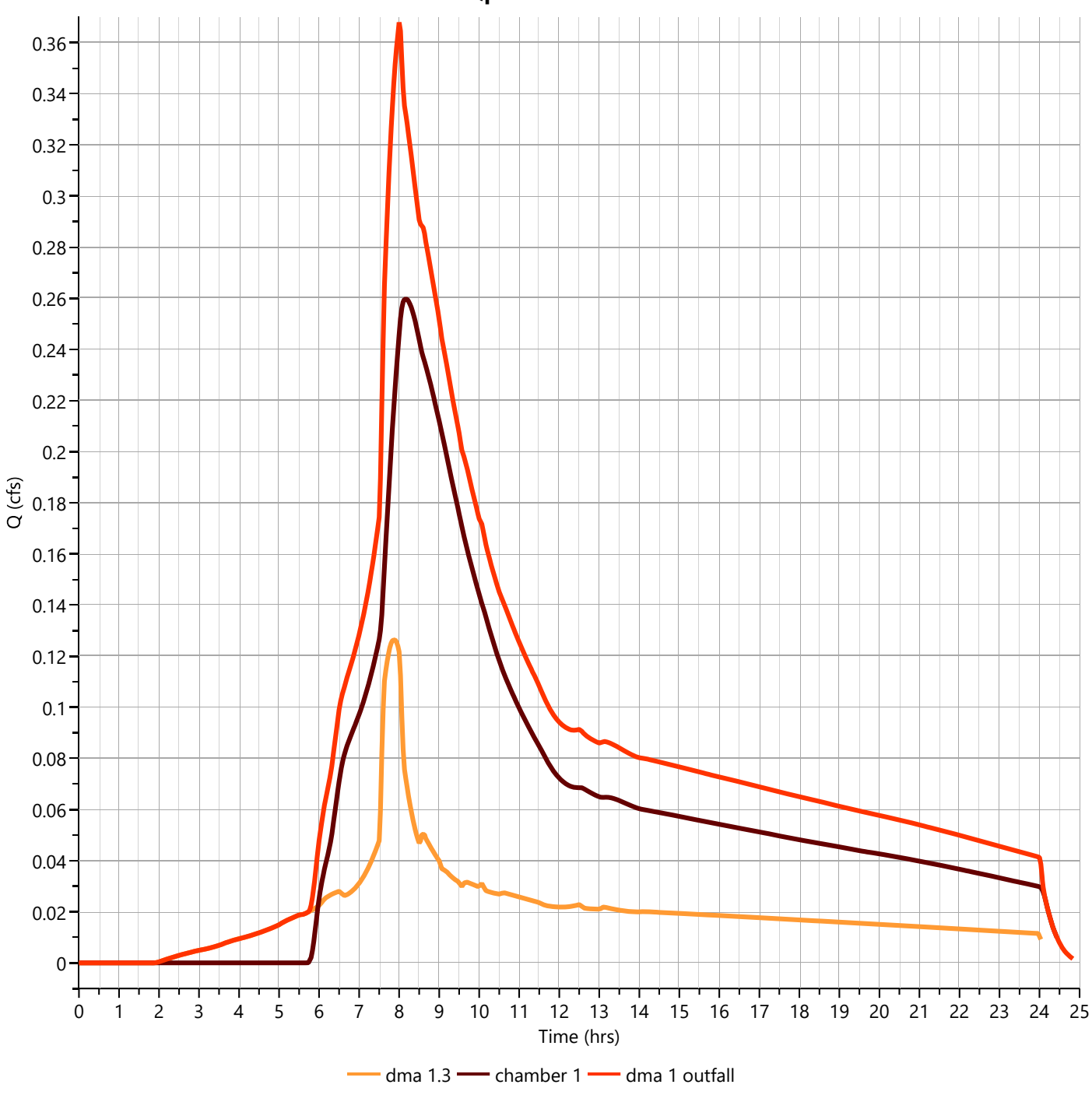
Hydrology Studio v 3.0.0.27

09-25-2023

Post dma 1 outfall

Hyd. No. 10

Hydrograph Type	= Junction	Peak Flow	= 0.368 cfs
Storm Frequency	= 100-yr	Time to Peak	= 8.00 hrs
Time Interval	= 2 min	Hydrograph Volume	= 6,917 cuft
Inflow Hydrographs	= 5, 9	Total Contrib. Area	= 0.1 ac



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.27

09-25-2023

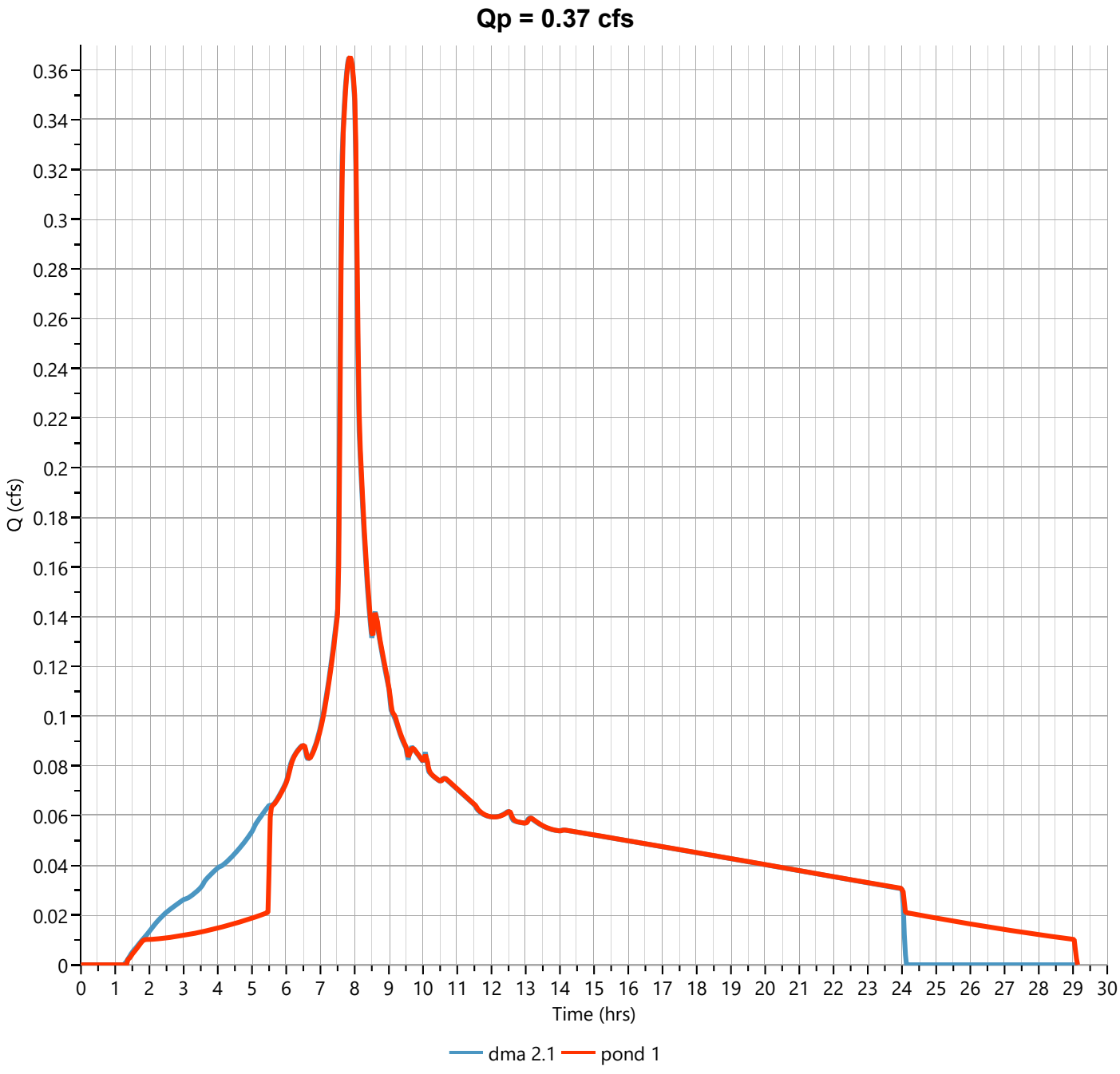
Post pond 1

Hyd. No. 11

Hydrograph Type	= Pond Route	Peak Flow	= 0.365 cfs
Storm Frequency	= 100-yr	Time to Peak	= 7.87 hrs
Time Interval	= 2 min	Hydrograph Volume	= 5,069 cuft
Inflow Hydrograph	= 6 - dma 2.1	Max. Elevation	= 101.05 ft
Pond Name	= pond 1	Max. Storage	= 294 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 1.21 hrs



Hydrograph Report

Project Name:

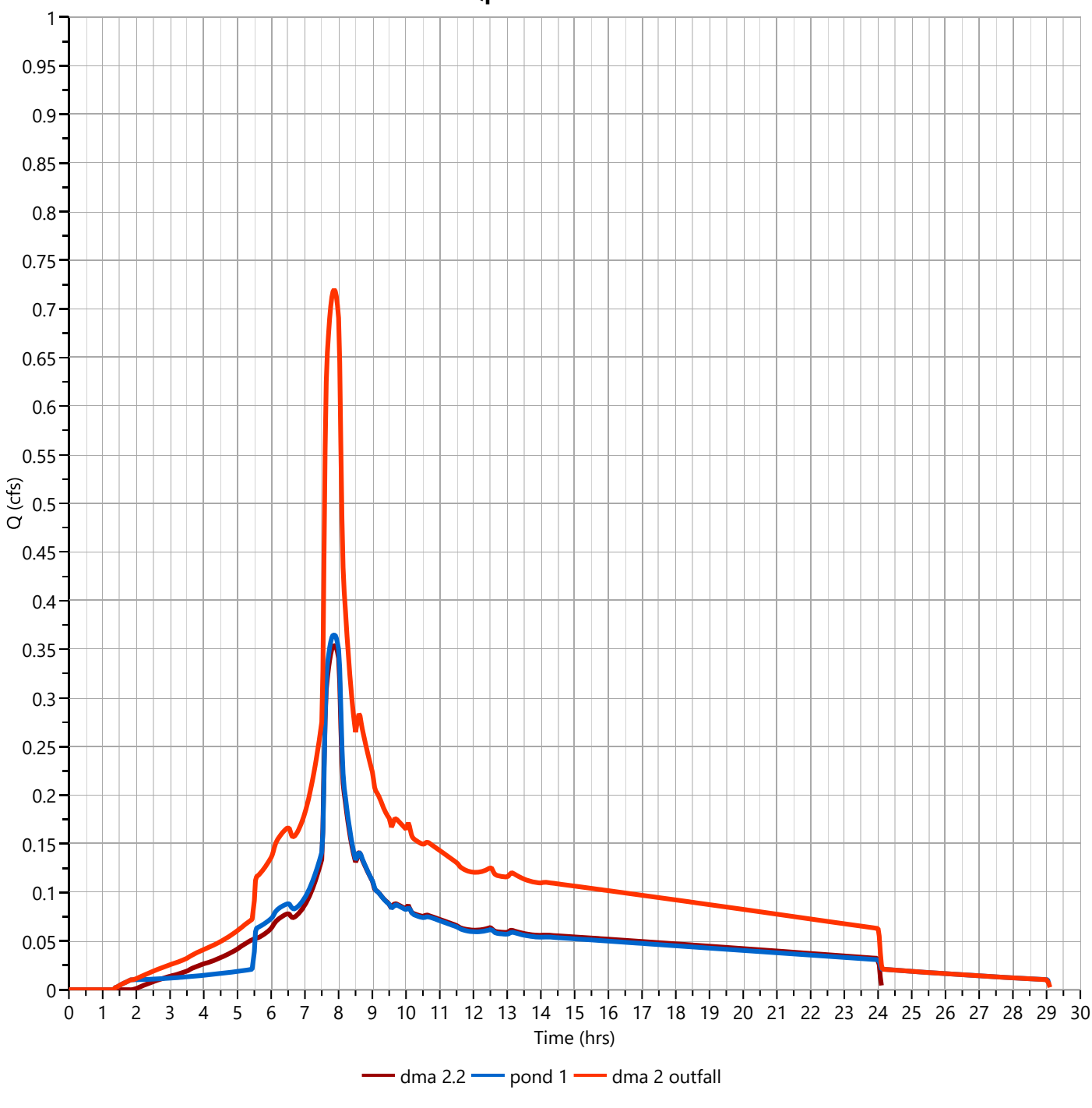
Hydrology Studio v 3.0.0.27

09-25-2023

Post dma 2 outfall

Hyd. No. 12

Hydrograph Type	= Junction	Peak Flow	= 0.720 cfs
Storm Frequency	= 100-yr	Time to Peak	= 7.87 hrs
Time Interval	= 2 min	Hydrograph Volume	= 9,965 cuft
Inflow Hydrographs	= 7, 11	Total Contrib. Area	= 0.28 ac



APPENDIX G

Hydrograph by Return Period

Project Name:

09-25-2023

Hydrology Studio v 3.0.0.27

Hyd. No.	Hydrograph Type	Hydrograph Name	Peak Outflow (cfs)							
			1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr
1	NRCS Runoff	Pre dma 1		0.123			0.233			0.405
2	NRCS Runoff	Pre dma 2		0.261			0.495			0.861
3	NRCS Runoff	Post dma 1.1		0.061			0.107			0.175
4	NRCS Runoff	Post dma 1.2		0.142			0.219			0.332
5	NRCS Runoff	Post dma 1.3		0.038			0.073			0.127
6	NRCS Runoff	Post dma 2.1		0.132			0.226			0.365
7	NRCS Runoff	Post dma 2.2		0.107			0.204			0.354
8	Junction	junction 1		0.203			0.325			0.507
9	Pond Route	Post chamber 1		0.041			0.164			0.260
10	Junction	Post dma 1 outfall		0.054			0.225			0.368
11	Pond Route	Post pond 1		0.129			0.226			0.365
12	Junction	Post dma 2 outfall		0.235			0.430			0.720

Hydrograph 2-yr Summary

Project Name:

09-25-2023

Hydrology Studio v 3.0.0.27

Hyd. No.	Hydrograph Type	Hydrograph Name	Peak Flow (cfs)	Time to Peak (hrs)	Hydrograph Volume (cuft)	Inflow Hyd(s)	Maximum Elevation (ft)	Maximum Storage (cuft)
1	NRCS Runoff	Pre dma 1	0.123	7.93	1,801	----		
2	NRCS Runoff	Pre dma 2	0.261	7.93	3,828	----		
3	NRCS Runoff	Post dma 1.1	0.061	7.90	858	----		
4	NRCS Runoff	Post dma 1.2	0.142	7.83	2,013	----		
5	NRCS Runoff	Post dma 1.3	0.038	7.93	563	----		
6	NRCS Runoff	Post dma 2.1	0.132	7.90	1,845	----		
7	NRCS Runoff	Post dma 2.2	0.107	7.93	1,576	----		
8	Junction	junction 1	0.203	7.87	2,871	3, 4		
9	Pond Route	Post chamber 1	0.041	9.20	1,030	8	102.57	1,006
10	Junction	Post dma 1 outfall	0.054	9.00	1,593	5, 9		
11	Pond Route	Post pond 1	0.129	8.00	1,845	6	101.02	284
12	Junction	Post dma 2 outfall	0.235	8.00	3,422	7, 11		

Hydrograph 10-yr Summary

Project Name:

09-25-2023

Hydrology Studio v 3.0.0.27

Hyd. No.	Hydrograph Type	Hydrograph Name	Peak Flow (cfs)	Time to Peak (hrs)	Hydrograph Volume (cuft)	Inflow Hyd(s)	Maximum Elevation (ft)	Maximum Storage (cuft)
1	NRCS Runoff	Pre dma 1	0.233	7.90	3,273	----		
2	NRCS Runoff	Pre dma 2	0.495	7.90	6,955	----		
3	NRCS Runoff	Post dma 1.1	0.107	7.87	1,472	----		
4	NRCS Runoff	Post dma 1.2	0.219	7.83	3,133	----		
5	NRCS Runoff	Post dma 1.3	0.073	7.90	1,023	----		
6	NRCS Runoff	Post dma 2.1	0.226	7.87	3,118	----		
7	NRCS Runoff	Post dma 2.2	0.204	7.90	2,864	----		
8	Junction	junction 1	0.325	7.87	4,605	3, 4		
9	Pond Route	Post chamber 1	0.164	8.17	2,664	8	103.15	1,299
10	Junction	Post dma 1 outfall	0.225	8.00	3,687	5, 9		
11	Pond Route	Post pond 1	0.226	7.87	3,118	6	101.04	288
12	Junction	Post dma 2 outfall	0.430	7.90	5,982	7, 11		

Hydrograph 100-yr Summary

Project Name:

09-25-2023

Hydrology Studio v 3.0.0.27

Hyd. No.	Hydrograph Type	Hydrograph Name	Peak Flow (cfs)	Time to Peak (hrs)	Hydrograph Volume (cuft)	Inflow Hyd(s)	Maximum Elevation (ft)	Maximum Storage (cuft)
1	NRCS Runoff	Pre dma 1	0.405	7.87	5,596	----		
2	NRCS Runoff	Pre dma 2	0.861	7.87	11,891	----		
3	NRCS Runoff	Post dma 1.1	0.175	7.87	2,420	----		
4	NRCS Runoff	Post dma 1.2	0.332	7.83	4,815	----		
5	NRCS Runoff	Post dma 1.3	0.127	7.87	1,749	----		
6	NRCS Runoff	Post dma 2.1	0.365	7.87	5,069	----		
7	NRCS Runoff	Post dma 2.2	0.354	7.87	4,896	----		
8	Junction	junction 1	0.507	7.83	7,234	3, 4		
9	Pond Route	Post chamber 1	0.260	8.17	5,169	8	104.07	1,677
10	Junction	Post dma 1 outfall	0.368	8.00	6,917	5, 9		
11	Pond Route	Post pond 1	0.365	7.87	5,069	6	101.05	294
12	Junction	Post dma 2 outfall	0.720	7.87	9,965	7, 11		

APPENDIX H

Design Storm Report

Custom Storm filename:

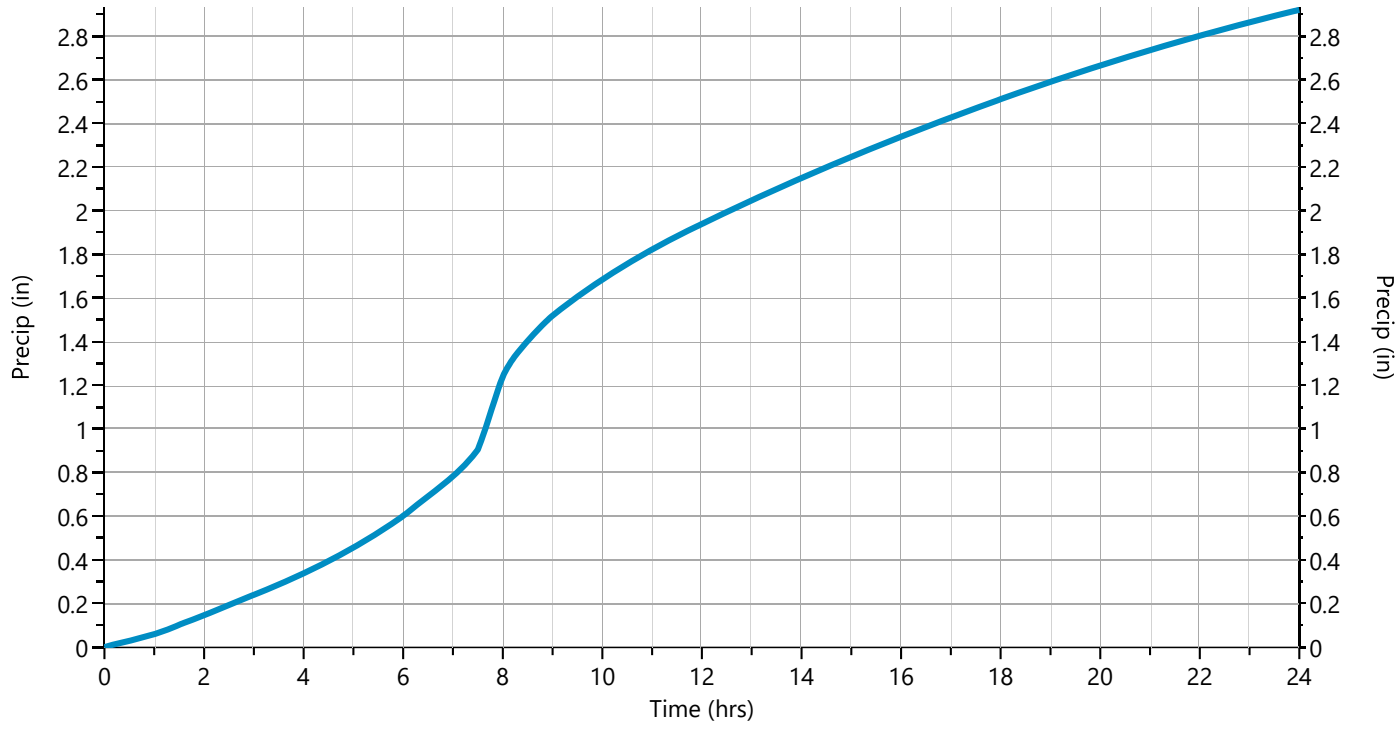
Hydrology Studio v 3.0.0.27

09-25-2023

Storm Distribution: NRCS/SCS - Type IA, 24-hr

Storm Duration	Total Rainfall Volume (in)								
	1-yr	✔ 2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr	
24 hrs	2.28	2.92	0.00	3.75	4.42	5.31	5.99	6.67	

Incremental Rainfall Distribution, 2-yr									
Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)
6.80	0.006022	7.17	0.007488	7.53	0.019920	7.90	0.022876	8.27	0.010342
6.83	0.006108	7.20	0.007678	7.57	0.020882	7.93	0.022443	8.30	0.009875
6.87	0.006203	7.23	0.007878	7.60	0.021599	7.97	0.021894	8.33	0.009447
6.90	0.006307	7.27	0.008087	7.63	0.022201	8.00	0.021231	8.37	0.009058
6.93	0.006422	7.30	0.008306	7.67	0.022689	8.03	0.014798	8.40	0.008707
6.97	0.006545	7.33	0.008535	7.70	0.023061	8.07	0.013963	8.43	0.008396
7.00	0.006679	7.37	0.008772	7.73	0.023318	8.10	0.013262	8.47	0.008123
7.03	0.006821	7.40	0.009020	7.77	0.023459	8.13	0.012600	8.50	0.007889
7.07	0.006974	7.43	0.009277	**7.80**	**0.023486**	8.17	0.011977	8.53	0.009634
7.10	0.007136	7.47	0.009543	7.83	0.023398	8.20	0.011394	8.57	0.008798
7.13	0.007307	7.50	0.009819	7.87	0.023195	8.23	0.010848	8.60	0.008611



Design Storm Report

Custom Storm filename:

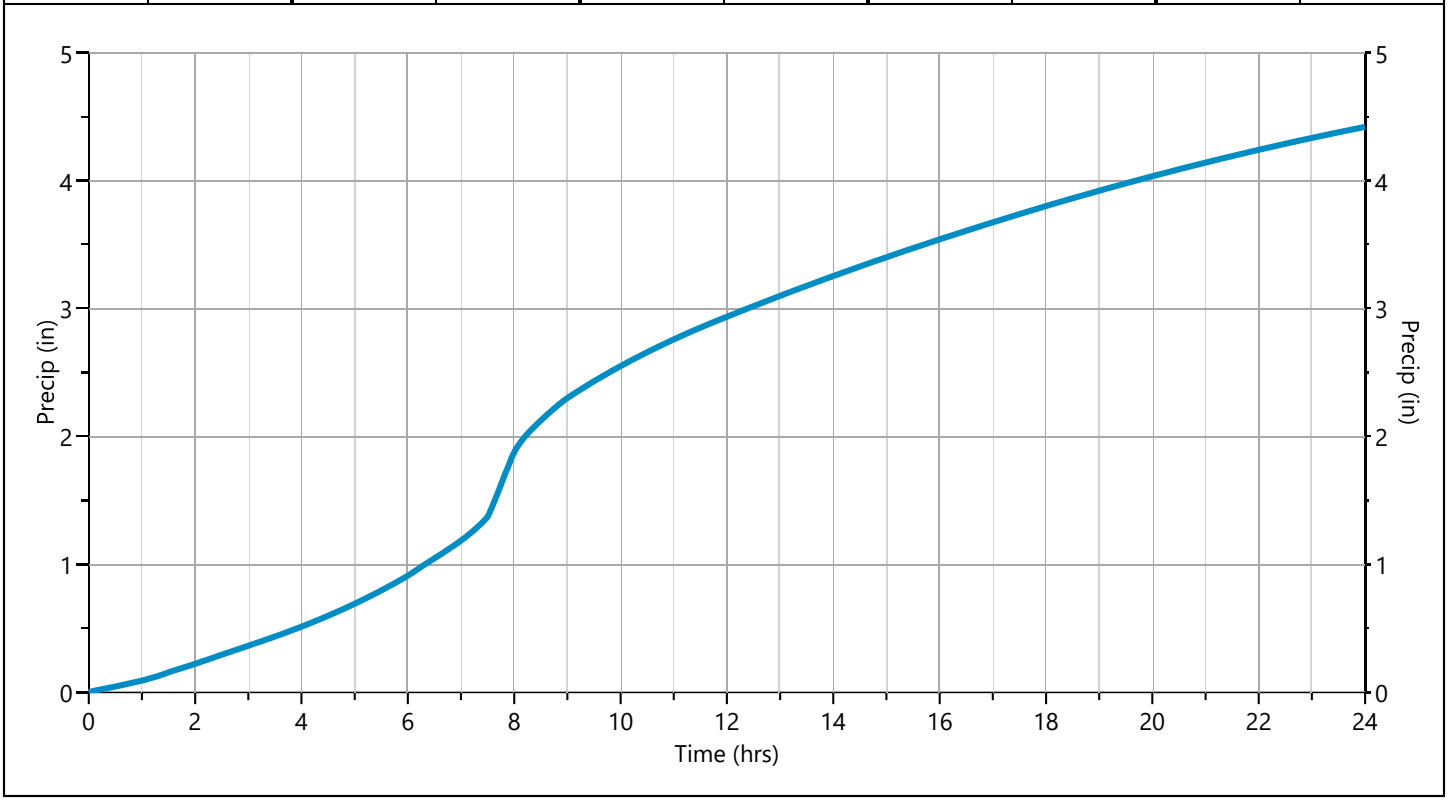
Hydrology Studio v 3.0.0.27

09-25-2023

Storm Distribution: NRCS/SCS - Type IA, 24-hr

Storm Duration	Total Rainfall Volume (in)								
	1-yr	2-yr	3-yr	5-yr	✔ 10-yr	25-yr	50-yr	100-yr	
24 hrs	2.28	2.92	0.00	3.75	4.42	5.31	5.99	6.67	

Incremental Rainfall Distribution, 10-yr									
Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)
6.80	0.009115	7.17	0.011334	7.53	0.030153	7.90	0.034628	8.27	0.015655
6.83	0.009245	7.20	0.011622	7.57	0.031609	7.93	0.033972	8.30	0.014948
6.87	0.009389	7.23	0.011925	7.60	0.032695	7.97	0.033141	8.33	0.014300
6.90	0.009548	7.27	0.012242	7.63	0.033606	8.00	0.032137	8.37	0.013710
6.93	0.009720	7.30	0.012573	7.67	0.034344	8.03	0.022399	8.40	0.013180
6.97	0.009908	7.33	0.012919	7.70	0.034907	8.07	0.021136	8.43	0.012708
7.00	0.010110	7.37	0.013279	7.73	0.035296	8.10	0.020075	8.47	0.012296
7.03	0.010326	7.40	0.013653	7.77	0.035510	8.13	0.019073	8.50	0.011942
7.07	0.010556	7.43	0.014042	**7.80**	**0.035551**	8.17	0.018130	8.53	0.014583
7.10	0.010801	7.47	0.014446	7.83	0.035417	8.20	0.017246	8.57	0.013317
7.13	0.011060	7.50	0.014863	7.87	0.035110	8.23	0.016421	8.60	0.013035



Design Storm Report

Custom Storm filename:

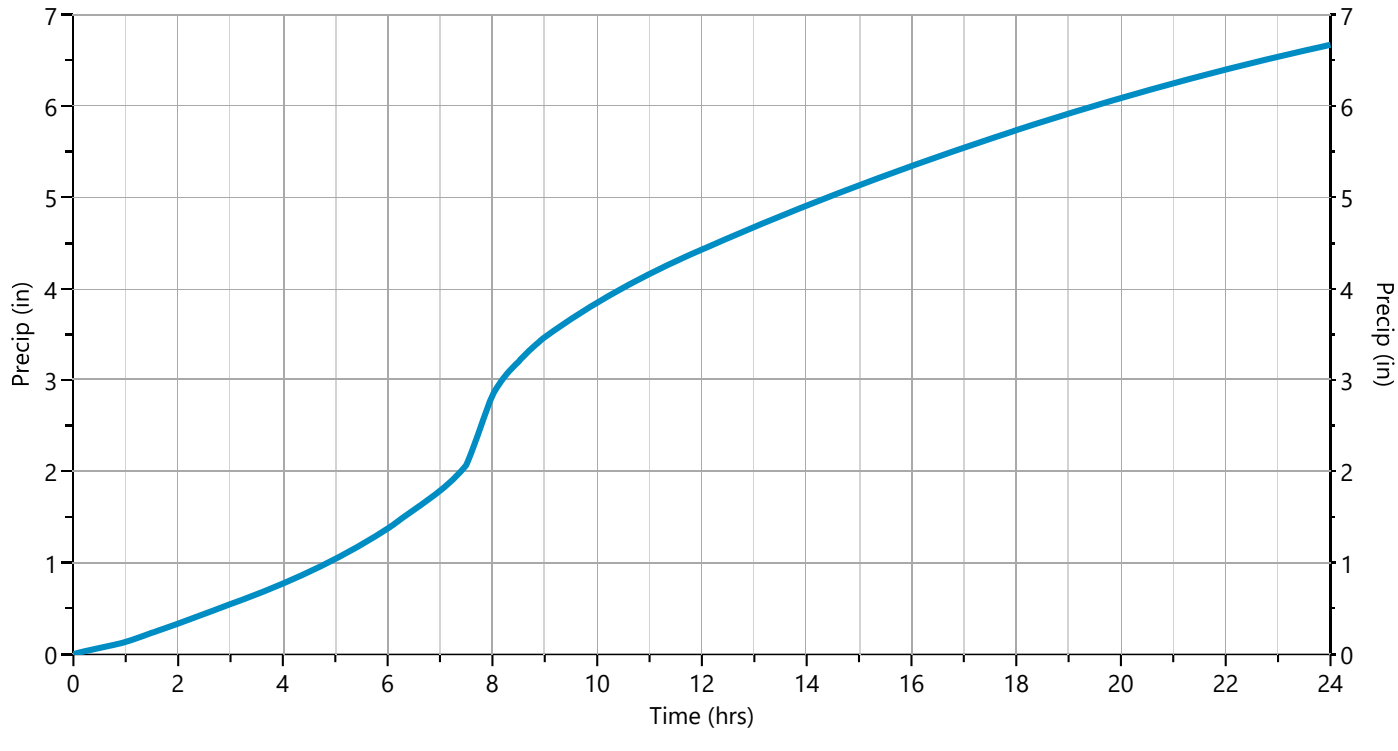
Hydrology Studio v 3.0.0.27

09-25-2023

Storm Distribution: NRCS/SCS - Type IA, 24-hr

Storm Duration	Total Rainfall Volume (in)								
	1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	✔ 100-yr	
24 hrs	2.28	2.92	0.00	3.75	4.42	5.31	5.99	6.67	

Incremental Rainfall Distribution, 100-yr									
Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)	Time (hrs)	Precip (in)
6.80	0.013756	7.17	0.017104	7.53	0.045502	7.90	0.052255	8.27	0.023624
6.83	0.013951	7.20	0.017538	7.57	0.047700	7.93	0.051265	8.30	0.022557
6.87	0.014169	7.23	0.017995	7.60	0.049338	7.97	0.050012	8.33	0.021579
6.90	0.014408	7.27	0.018473	7.63	0.050714	8.00	0.048496	8.37	0.020689
6.93	0.014669	7.30	0.018973	7.67	0.051826	8.03	0.033801	8.40	0.019889
6.97	0.014951	7.33	0.019495	7.70	0.052676	8.07	0.031895	8.43	0.019178
7.00	0.015256	7.37	0.020038	7.73	0.053263	8.10	0.030294	8.47	0.018555
7.03	0.015582	7.40	0.020604	7.77	0.053587	8.13	0.028782	8.50	0.018021
7.07	0.015930	7.43	0.021191	**7.80**	**0.053648**	8.17	0.027359	8.53	0.022007
7.10	0.016299	7.47	0.021799	7.83	0.053447	8.20	0.026026	8.57	0.020096
7.13	0.016691	7.50	0.022430	7.87	0.052982	8.23	0.024780	8.60	0.019671



IDF Report

IDF filename: IDF.idf

Hydrology Studio v 3.0.0.27

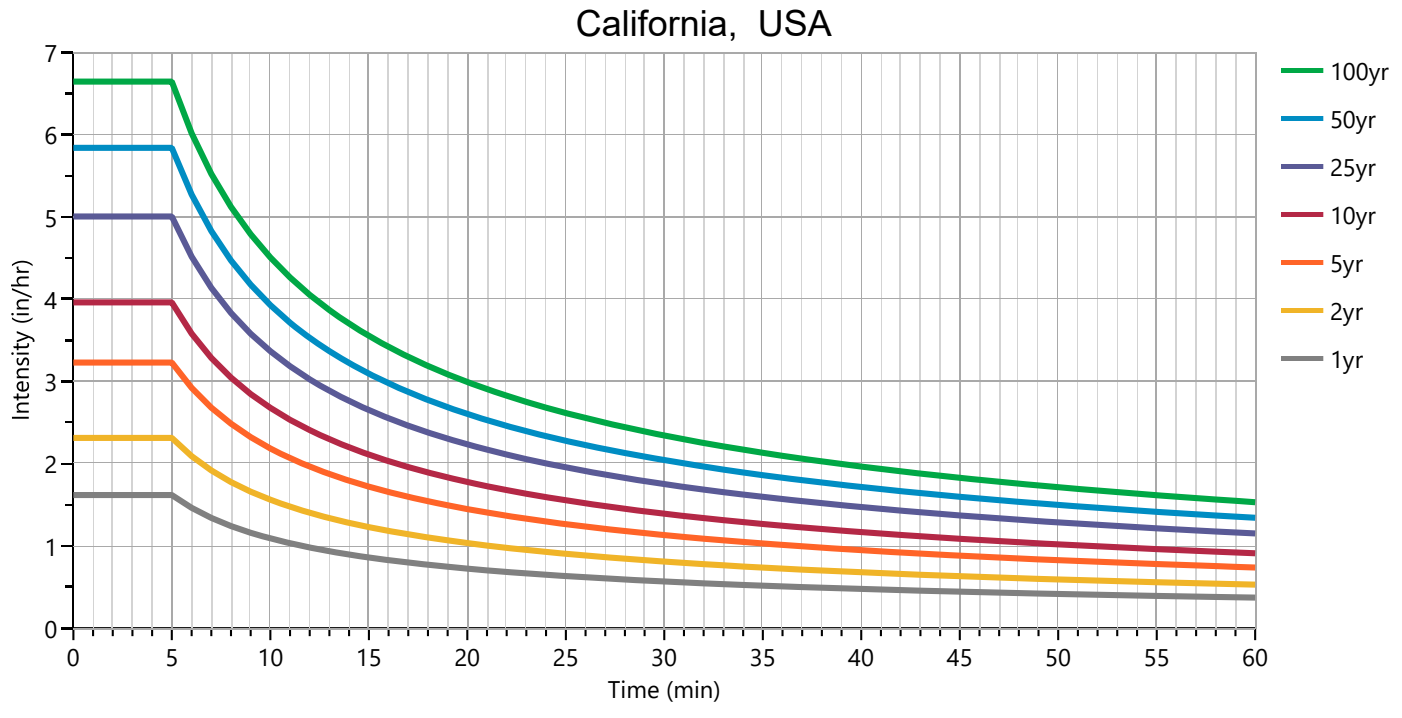
09-25-2023

Equation Coefficients	Intensity = B / (Tc + D)^E (in/hr)								
	1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr	
B	4.6908	6.8485	0.0000	9.7396	11.6724	14.2205	16.6123	19.9160	
D	0.6000	0.7000	0.0000	0.8000	0.7000	0.5000	0.5000	0.8000	
E	0.6182	0.6241	0.0000	0.6284	0.6214	0.6130	0.6136	0.6248	

Minimum Tc = 5 minutes

Tc (min)	Intensity Values (in/hr)								
	1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr	
Cf	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
5	1.62	2.31	0	3.23	3.96	5.00	5.84	6.64	
10	1.09	1.56	0	2.18	2.68	3.36	3.92	4.50	
15	0.86	1.23	0	1.72	2.11	2.65	3.09	3.55	
20	0.72	1.03	0	1.45	1.78	2.23	2.60	2.99	
25	0.63	0.90	0	1.26	1.55	1.95	2.28	2.61	
30	0.57	0.81	0	1.13	1.39	1.75	2.04	2.34	
35	0.52	0.74	0	1.03	1.27	1.59	1.86	2.13	
40	0.48	0.68	0	0.95	1.17	1.47	1.71	1.96	
45	0.44	0.63	0	0.88	1.09	1.37	1.60	1.83	
50	0.41	0.59	0	0.83	1.02	1.28	1.50	1.71	
55	0.39	0.56	0	0.78	0.96	1.21	1.41	1.61	
60	0.37	0.53	0	0.74	0.91	1.15	1.34	1.53	

Cf = Correction Factor applied to Rational Method runoff coefficient.



Precipitation Report

Precipitation filename: Precip.pcp

Hydrology Studio v 3.0.0.27 (Rainfall totals in Inches)

09-25-2023

	Active	1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr
Active			✔			✔			✔
SCS Storms	**> SCS Dimensionless Storms**								
SCS 6hr		1.07	1.24	0	1.50	1.73	2.08	2.39	2.73
Type I, 24-hr		2.28	2.92	0	3.75	4.42	5.31	5.99	6.67
Type IA, 24-hr	✔	2.28	2.92	0	3.75	4.42	5.31	5.99	6.67
Type II, 24-hr		2.28	2.92	0	3.75	4.42	5.31	5.99	6.67
Type II FL, 24-hr		2.28	2.92	0	3.75	4.42	5.31	5.99	6.67
Type III, 24-hr		2.28	2.92	0	3.75	4.42	5.31	5.99	6.67
Synthetic Storms	**> IDF-Based Synthetic Storms**								
1-hr		0.37	0.53	0	0.74	0.91	1.15	1.34	1.53
2-hr		0.48	0.69	0	0.96	1.19	1.51	1.76	1.99
3-hr		0.57	0.80	0	1.11	1.39	1.77	2.06	2.32
6-hr		0.74	1.04	0	1.44	1.80	2.31	2.69	3.02
12-hr		0.96	1.35	0	1.87	2.35	3.02	3.52	3.92
24-hr		1.26	1.76	0	2.42	3.05	3.95	4.60	5.08
Huff Distribution	**> 1st Quartile (0 to 6 hrs)**								
1-hr		0.37	0.53	0	0.74	0.91	1.15	1.34	1.53
2-hr		0.54	0.69	0	0.90	1.08	1.34	1.56	1.79
3-hr		0.69	0.84	0	1.06	1.25	1.53	1.77	2.02
6-hr		1.07	1.24	0	1.50	1.73	2.08	2.39	2.73
Huff Distribution	**> 2nd Quartile (>6 to 12 hrs)**								
8-hr		0	0	0	0	0	0	0	0
12-hr		1.62	1.93	0	2.37	2.74	3.28	3.71	4.17
Huff Distribution	**> 3rd Quartile (>12 to 24 hrs)**								
18-hr		0	0	0	0	0	0	0	0
24-hr		2.28	2.92	0	3.75	4.42	5.31	5.99	6.67
Custom Storms	**> Custom Storm Distributions**								
My Custom Storm 1		0	0	0	0	0	0	0	0
My Custom Storm 2		0	0	0	0	0	0	0	0
My Custom Storm 3		0	0	0	0	0	0	0	0
My Custom Storm 4		0	0	0	0	0	0	0	0
My Custom Storm 5		0	0	0	0	0	0	0	0
My Custom Storm 6		0	0	0	0	0	0	0	0
My Custom Storm 7		0	0	0	0	0	0	0	0
My Custom Storm 8		0	0	0	0	0	0	0	0
My Custom Storm 9		0	0	0	0	0	0	0	0
My Custom Storm 10		0	0	0	0	0	0	0	0

APPENDIX I

Pond Report

Project Name:

Hydrology Studio v 3.0.0.27

09-25-2023

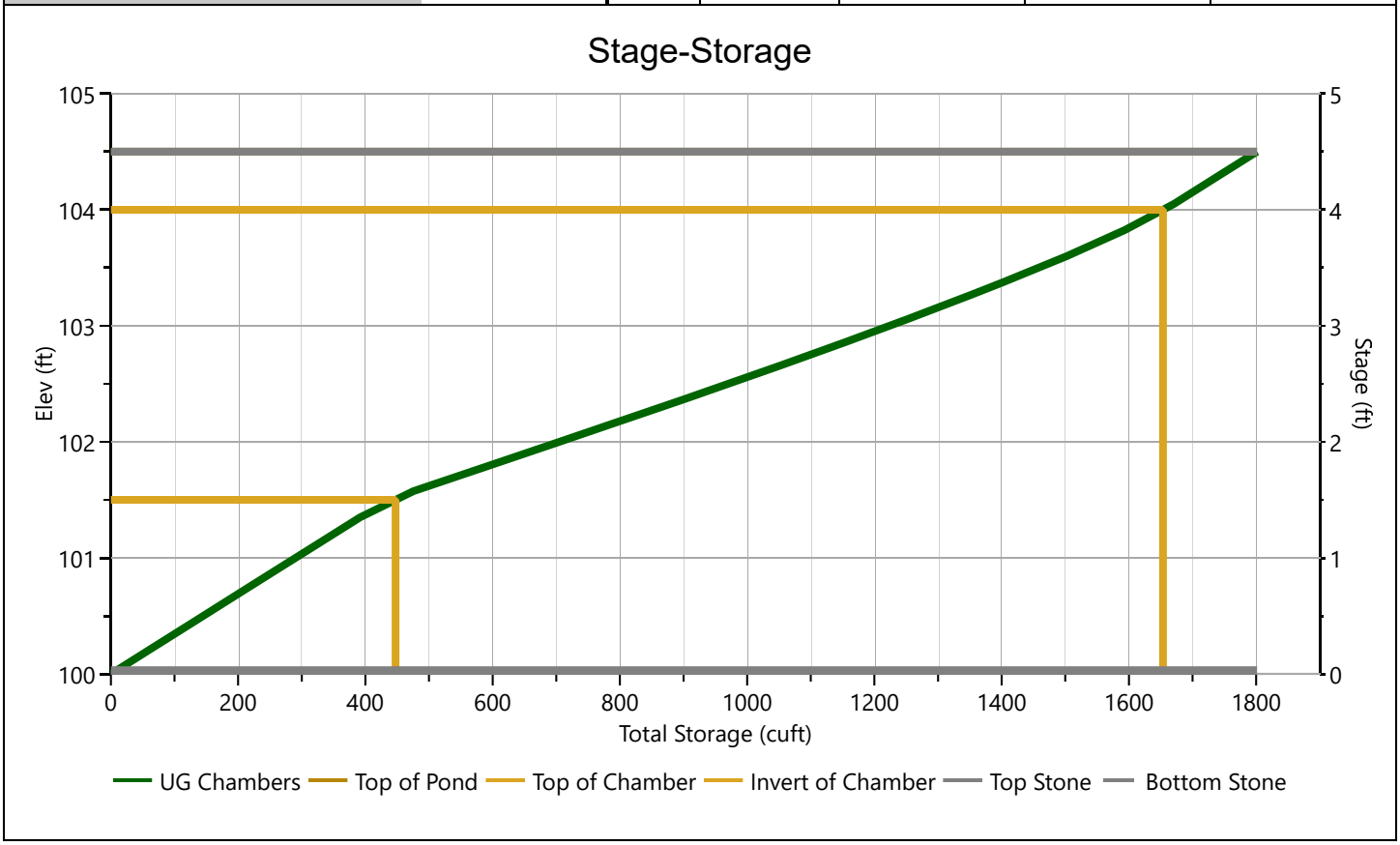
chambers 1

Stage-Storage

StormTech® SC-740™ Chamber	
Description	**Input**
Chamber Height, in	30
Chamber Shape	Arch
Chamber Width, in	51
Installed Length, ft	7.12
No. Chambers	18
Bare Chamber Stor, cuft	826
No. Rows	3
Space Between Rows, in	6
Stone Above, in	6
Stone Below, in	18
Stone Sides, in	12
Stone Ends, in	12
Encasement Voids, %	40.00
Encasement Bottom Elevation, ft	100.00

Stage / Storage Table

Stage (in)	Elevation (ft)	Contour Area (sqft)	Incr. Storage (cuft)	Total Storage (cuft)
0.0	100.00	725	0.000	0.000
2.7	100.23	725	65.3	65.3
5.4	100.45	725	65.3	131
8.1	100.68	725	65.3	196
10.8	100.90	725	65.3	261
13.5	101.13	725	65.3	326
16.2	101.35	725	65.3	392
18.9	101.58	725	83.7	475
21.6	101.80	725	122	597
24.3	102.03	725	121	718
27.0	102.25	725	120	839
29.7	102.48	725	119	957
32.4	102.70	725	116	1,073
35.1	102.93	725	114	1,187
37.8	103.15	725	110	1,297
40.5	103.38	725	105	1,402
43.2	103.60	725	99.6	1,502
45.9	103.83	725	91.5	1,594
48.6	104.05	725	77.2	1,671
51.3	104.28	725	65.3	1,736
54.0	104.50	725	65.3	1,801



Pond Report

Project Name:

Hydrology Studio v 3.0.0.27

09-25-2023

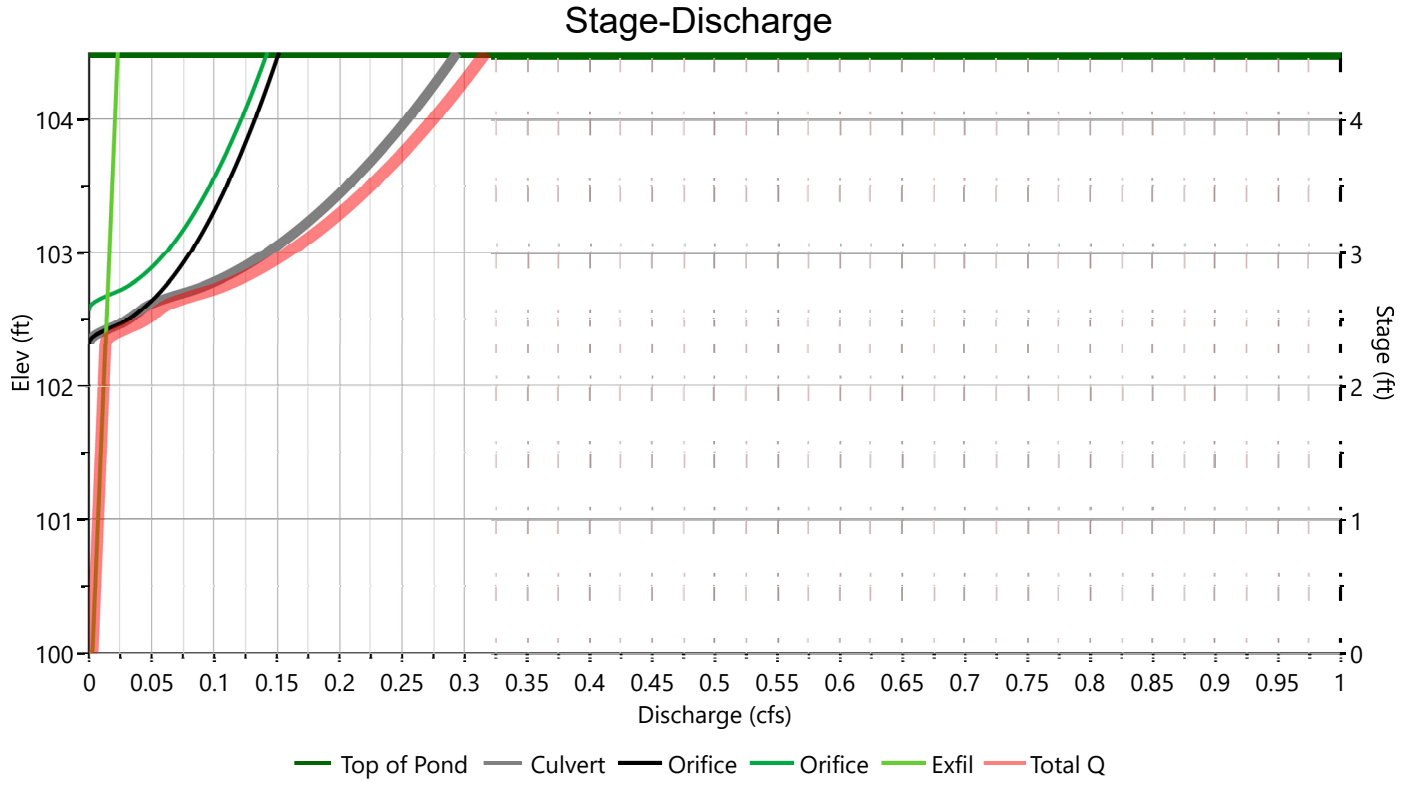
chambers 1

Stage-Discharge

Culvert / Orifices	Culvert	Orifices			Perforated Riser	
		1*	2*	3		
Rise, in	15	2	2		Hole Diameter, in	
Span, in	15	2	2		No. holes	
No. Barrels	1	1	1	1	Invert Elevation, ft	
Invert Elevation, ft	100.00	102.33	102.58	103.00	Height, ft	
Orifice Coefficient, Co	0.60	0.60	0.60	0.60	Orifice Coefficient, Co	
Length, ft	50					
Barrel Slope, %	1					
N-Value, n	0.013					

Weirs	Riser*	Weirs			Ancillary	
		1	2	3		
Shape / Type					Exfiltration, in/hr	0.17**
Crest Elevation, ft						
Crest Length, ft						
Angle, deg						
Weir Coefficient, Cw						

*Routes through Culvert. **Exfiltration extracted from outflow hydrograph. Rate applied to contours.



Pond Report

Project Name:

Hydrology Studio v 3.0.0.27

09-25-2023

chambers 1

Stage-Storage-Discharge Summary

Stage (ft)	Elev. (ft)	Storage (cuft)	Culvert (cfs)	Orifices, cfs			Riser (cfs)	Weirs, cfs			Pf Riser (cfs)	Exfil (cfs)	User (cfs)	Total (cfs)
				1	2	3		1	2	3				
0.00	100.00	0.000	0.000	0.000	0.000							0.000		0.000
0.23	100.23	65.3	0.000	0.000	0.000							0.004		0.004
0.45	100.45	131	0.000	0.000	0.000							0.005		0.005
0.68	100.68	196	0.000	0.000	0.000							0.006		0.006
0.90	100.90	261	0.000	0.000	0.000							0.007		0.007
1.13	101.13	326	0.000	0.000	0.000							0.008		0.008
1.35	101.35	392	0.000	0.000	0.000							0.009		0.009
1.58	101.58	475	0.000	0.000	0.000							0.010		0.010
1.80	101.80	597	0.000	0.000	0.000							0.011		0.011
2.03	102.03	718	0.000	0.000	0.000							0.012		0.012
2.25	102.25	839	0.000	0.000	0.000							0.013		0.013
2.48	102.48	957	0.026 ic	0.026	0.000							0.014		0.040
2.70	102.70	1,073	0.076 ic	0.056	0.020							0.015		0.091
2.93	102.93	1,187	0.129 ic	0.075	0.054							0.016		0.145
3.15	103.15	1,297	0.163 ic	0.090	0.073							0.017		0.180
3.38	103.38	1,402	0.192 ic	0.103	0.089							0.018		0.209
3.60	103.60	1,502	0.216 ic	0.114	0.102							0.019		0.235
3.82	103.83	1,594	0.238 ic	0.125	0.113							0.020		0.258
4.05	104.05	1,671	0.258 ic	0.134	0.124							0.021		0.279
4.27	104.28	1,736	0.277 ic	0.143	0.133							0.022		0.299
4.50	104.50	1,801	0.294 ic	0.152	0.142							0.023		0.317

Suffix key: ic = inlet control, oc = outlet control, s = submerged weir

Pond Report

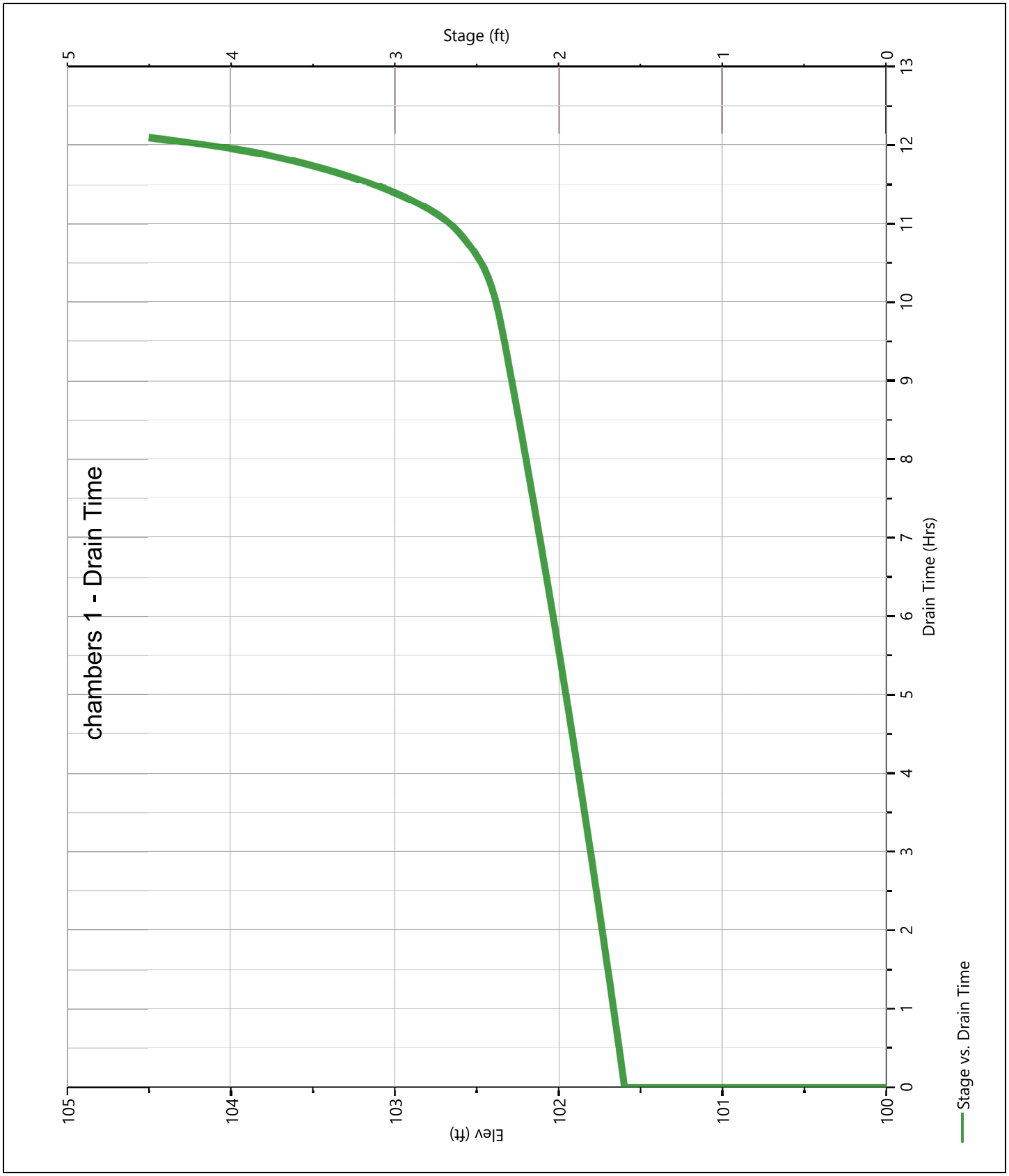
Project Name:

Hydrology Studio v 3.0.0.27

09-25-2023

chambers 1

Pond Drawdown



Pond Report

Project Name:

Hydrology Studio v 3.0.0.27

09-25-2023

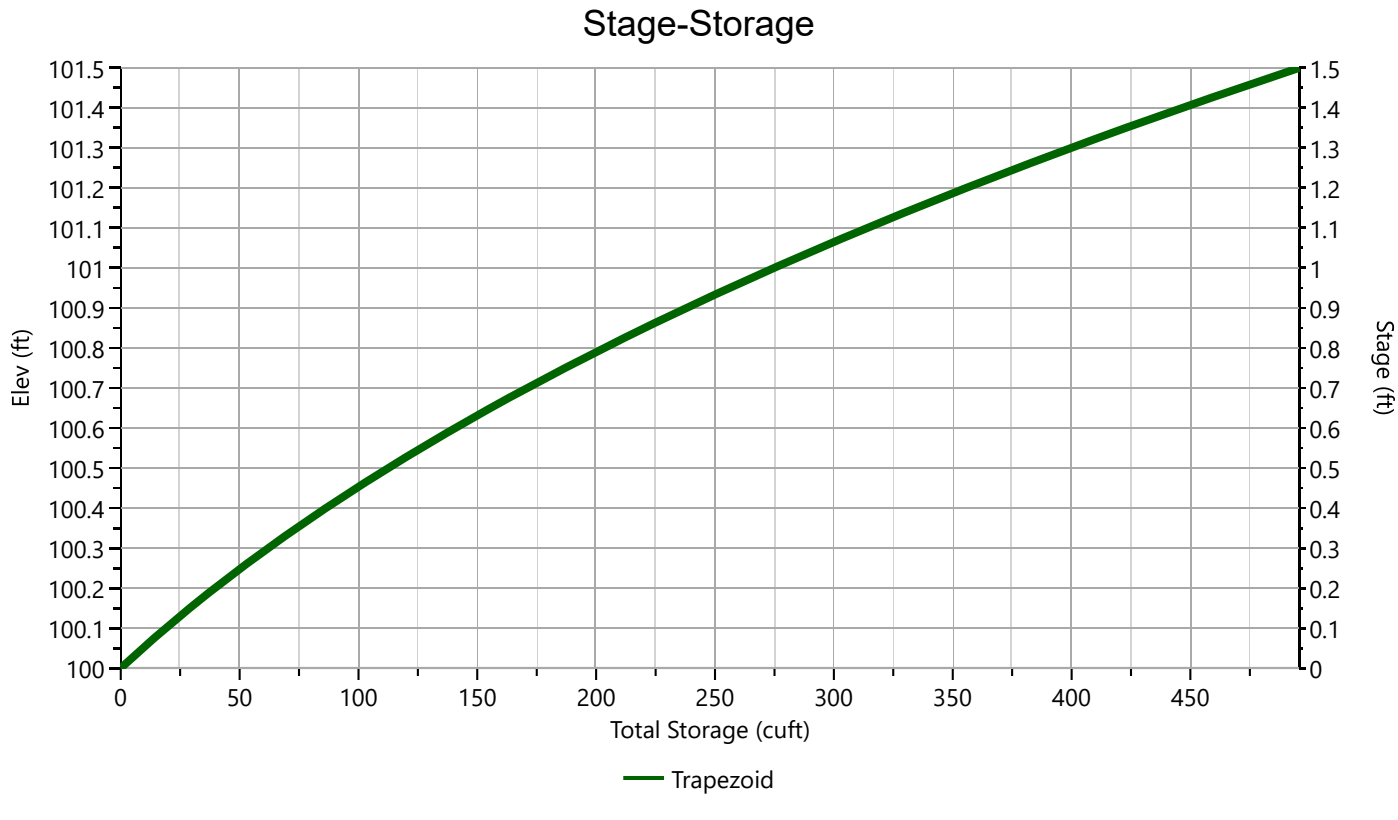
pond 1

Stage-Storage

Trapezoid	
Description	**Input**
Bottom Elevation, ft	100.00
Bottom Length, ft	15.28
Bottom Width, ft	11.87
Side Slope, H:1	3.00
Total Depth, ft	1.50
Voids (%)	100.00

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour Area (sqft)	Incr. Storage (cuft)	Total Storage (cuft)
0.00	100.00	181	0.000	0.000
0.08	100.08	194	14.1	14.1
0.15	100.15	207	15.0	29.1
0.23	100.23	220	16.0	45.1
0.30	100.30	233	17.0	62.1
0.38	100.38	248	18.0	80.1
0.45	100.45	262	19.1	99.2
0.53	100.53	277	20.2	119
0.60	100.60	292	21.3	141
0.68	100.68	308	22.5	163
0.75	100.75	324	23.7	187
0.82	100.83	340	24.9	212
0.90	100.90	357	26.2	238
0.97	100.98	374	27.4	265
1.05	101.05	392	28.7	294
1.13	101.13	410	30.1	324
1.20	101.20	429	31.5	356
1.28	101.28	448	32.9	389
1.35	101.35	467	34.3	423
1.43	101.43	487	35.8	459
1.50	101.50	507	37.2	496



Pond Report

Project Name:

Hydrology Studio v 3.0.0.27

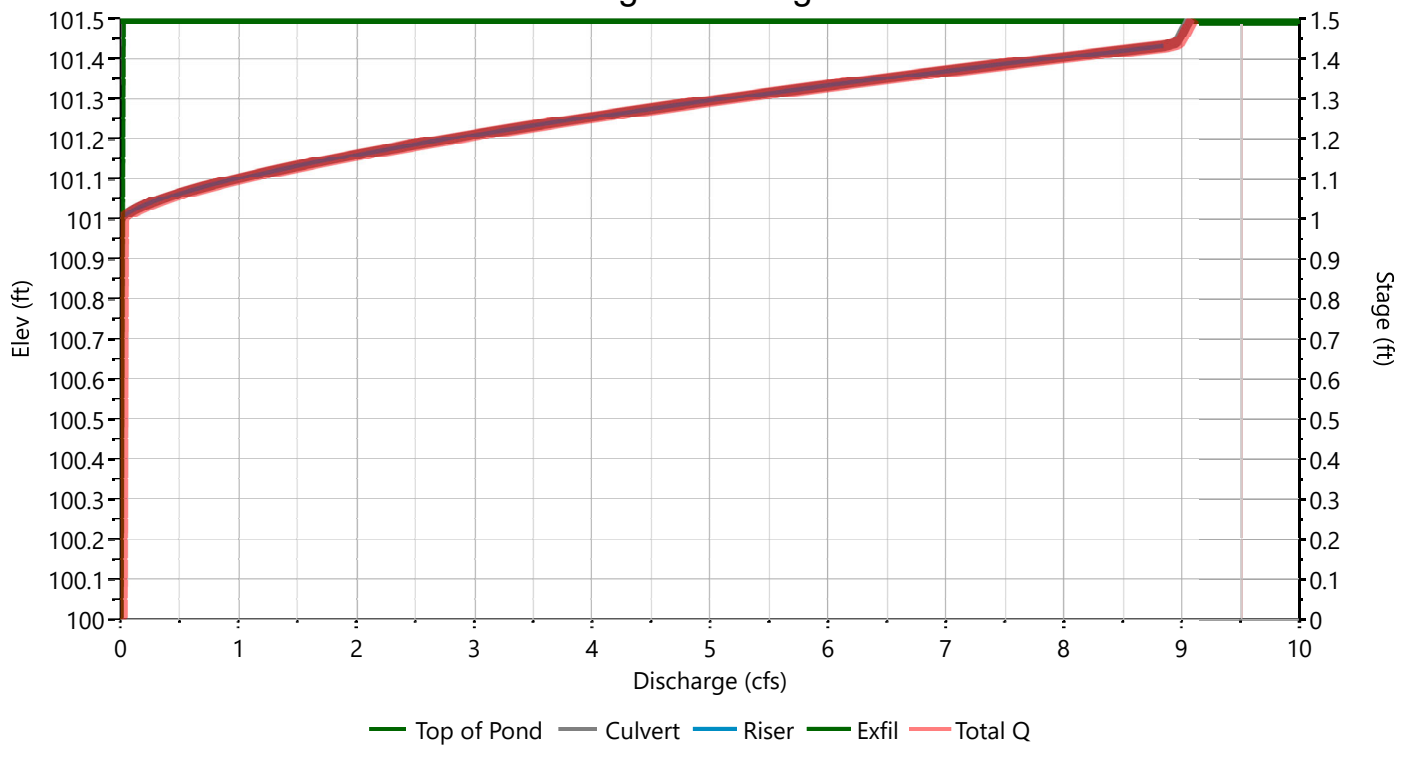
09-25-2023

pond 1

Stage-Discharge

Culvert / Orifices	Culvert	Orifices			Orifice Plate	
		1	2	3		
Rise, in	15				Orifice Dia, in	
Span, in	15				No. Orifices	
No. Barrels	1				Invert Elevation, ft	
Invert Elevation, ft	98.50				Height, ft	
Orifice Coefficient, Co	0.60				Orifice Coefficient, Co	
Length, ft	50					
Barrel Slope, %	1					
N-Value, n	0.013					
Weirs	**Riser***	**Weirs**			**Ancillary**	
		1	2	3		
Shape / Type	Circular				Exfiltration, in/hr	2.40**
Crest Elevation, ft	101					
Crest Length, ft	9.42					
Angle, deg						
Weir Coefficient, Cw	3.3					

**Routes through Culvert. **Rate applied to contours.*



Pond Report

Project Name:

Hydrology Studio v 3.0.0.27

09-25-2023

pond 1

Stage-Storage-Discharge Summary

Stage (ft)	Elev. (ft)	Storage (cuft)	Culvert (cfs)	Orifices, cfs			Riser (cfs)	Weirs, cfs			Pf Riser (cfs)	Exfil (cfs)	User (cfs)	Total (cfs)
				1	2	3		1	2	3				
0.00	100.00	0.000	0.000				0.000					0.000		0.000
0.08	100.08	14.1	0.000 oc				0.000					0.011		0.011
0.15	100.15	29.1	0.000 oc				0.000					0.011		0.011
0.23	100.23	45.1	0.000 oc				0.000					0.012		0.012
0.30	100.30	62.1	0.000 oc				0.000					0.013		0.013
0.38	100.38	80.1	0.000 oc				0.000					0.014		0.014
0.45	100.45	99.2	0.000 oc				0.000					0.015		0.015
0.53	100.53	119	0.000 oc				0.000					0.015		0.015
0.60	100.60	141	0.000 oc				0.000					0.016		0.016
0.68	100.68	163	0.000 oc				0.000					0.017		0.017
0.75	100.75	187	0.000 oc				0.000					0.018		0.018
0.82	100.83	212	0.000 oc				0.000					0.019		0.019
0.90	100.90	238	0.000 oc				0.000					0.020		0.020
0.97	100.98	265	0.000 oc				0.000					0.021		0.021
1.05	101.05	294	0.348 oc				0.348					0.022		0.369
1.13	101.13	324	1.374 oc				1.374					0.023		1.397
1.20	101.20	356	2.780 oc				2.780					0.024		2.804
1.28	101.28	389	4.483 oc				4.483					0.025		4.508
1.35	101.35	423	6.437 oc				6.437					0.026		6.463
1.43	101.43	459	8.613 oc				8.613					0.027		8.640
1.50	101.50	496	9.071 oc				0.000					0.028		9.099

Suffix key: ic = inlet control, oc = outlet control, s = submerged weir

Pond Report

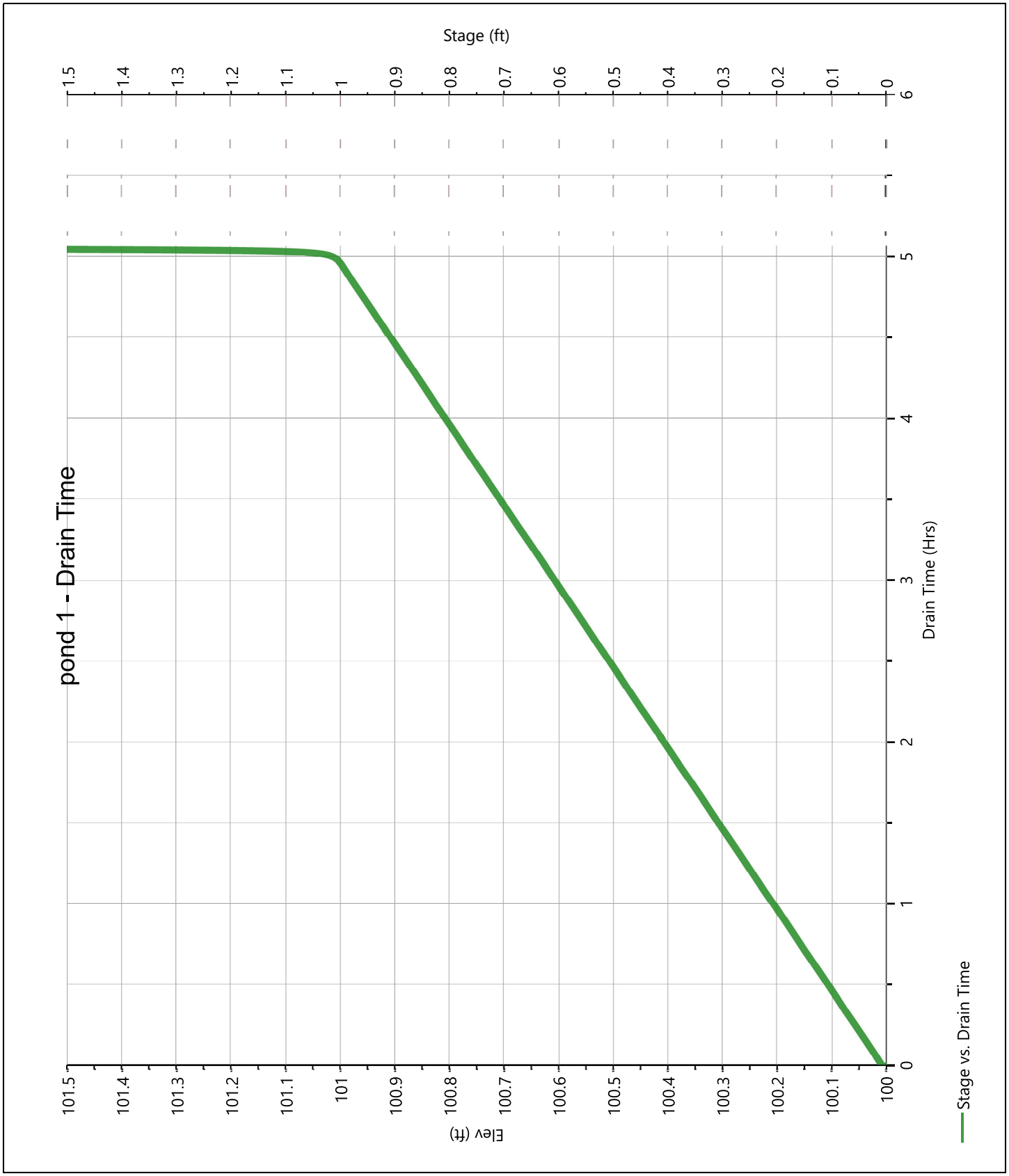
Project Name:

Hydrology Studio v 3.0.0.27

09-25-2023

pond 1

Pond Drawdown



APPENDIX J

Project Info

village	carwash
043-070-005	UNKNOWN ADDRESS
2.22837	0.9

Drainage Management Areas (DMAs)

DMA #	(A_{imp}) Impervious Area (sf)	(V_{ret}) Storm Volume (cf)	Volume Check
1	11718.23	878	☑
2	4791.6	359	☑

Infiltration Trenches (IT), Dry Wells & Subsurface Retention

Associated DMA #	(V_v) Void Volume (0.4 = 40%)	(L) Length (ft)	(W) Width (ft)	(D) Depth (ft)	(V_{ret}) Retention Volume (cf)
1	.66	52.5	11.5	4.5	1934

Infiltration Basins

Associated DMA #	(V_{ret}) Retention Volume (cf)
2	360

Environmental Noise Assessment

Village Car Wash

Truckee, California

BAC Job # 2022-145

Prepared For:

SCO Planning & Engineering, Inc.

Attn: Martin D. Wood
140 Litton Drive, Suite 240
Grass Valley, CA 95945

Prepared By:

Bollard Acoustical Consultants, Inc.

Dario Gotchet, Principal Consultant

September 20, 2023

BOLLARD
Acoustical Consultants

Introduction

The proposed Village Car Wash (project) is located at the northeast intersection of State Route 89 (SR 89) and Henness Road in the Town of Truckee, California. The project proposes a car wash tunnel and vacuum system within the Village Development. The project site location with aerial imagery is shown in Figure 1. The Village Development site plan is presented in Figure 2. The site plan for the car wash component is provided in Figure 3.

Due to the proximity of the proposed project to existing and future noise-sensitive uses (residential), Bollard Acoustical Consultants, Inc. (BAC) was retained to prepare an assessment of potential noise impacts associated with the project. Specifically, the purposes of this assessment are to quantify noise levels associated with proposed car wash and vacuum system operations, to assess the state of compliance of those noise levels with applicable Town of Truckee noise criteria, and if necessary, to recommend measures to reduce those noise levels to acceptable limits at the nearest noise-sensitive uses.

It should be noted that a convenience store (c-store) / gas station component was previously proposed at the same location as the proposed car wash. At the request of the Town of Truckee planning staff, this report includes a comparison of noise level exposure associated with the car wash and c-store / gas station components at nearby existing and future residential uses.

Noise Fundamentals and Terminology

Noise is often described as unwanted sound. Sound is defined as any pressure variation in air that the human ear can detect. If the pressure variations occur frequently enough (at least 20 times per second), they can be heard, and thus are called sound. Measuring sound directly in terms of pressure would require a very large and awkward range of numbers. To avoid this, the decibel scale was devised. The decibel scale allows a million-fold increase in pressure to be expressed as 120 dB. Another useful aspect of the decibel scale is that changes in levels (dB) correspond closely to human perception of relative loudness. Appendix A contains definitions of Acoustical Terminology. Figure 4 shows common noise levels associated with various sources.

The perceived loudness of sounds is dependent upon many factors, including sound pressure level and frequency content. However, within the usual range of environmental noise levels, perception of loudness is relatively predictable, and can be approximated by weighing the frequency response of a sound level meter by means of the standardized A-weighing network. All noise levels reported in this section are in terms of A-weighted levels in decibels. Community noise is commonly described in terms of the “ambient” noise level, which is defined as the all-encompassing noise level associated with a given noise environment. A common statistical tool to measure the ambient noise level is the average, or equivalent, sound level (L_{eq}) over a given time period (usually one hour). The L_{eq} is the foundation of the Day-Night Average Level noise descriptor, DNL or L_{dn}, and shows very good correlation with community response to noise.

Legend

- Car Wash Component Boundary (Approximate)
- 2017 Long-Term Ambient Noise Survey Sites

N

Scale (Feet)

0 100 200

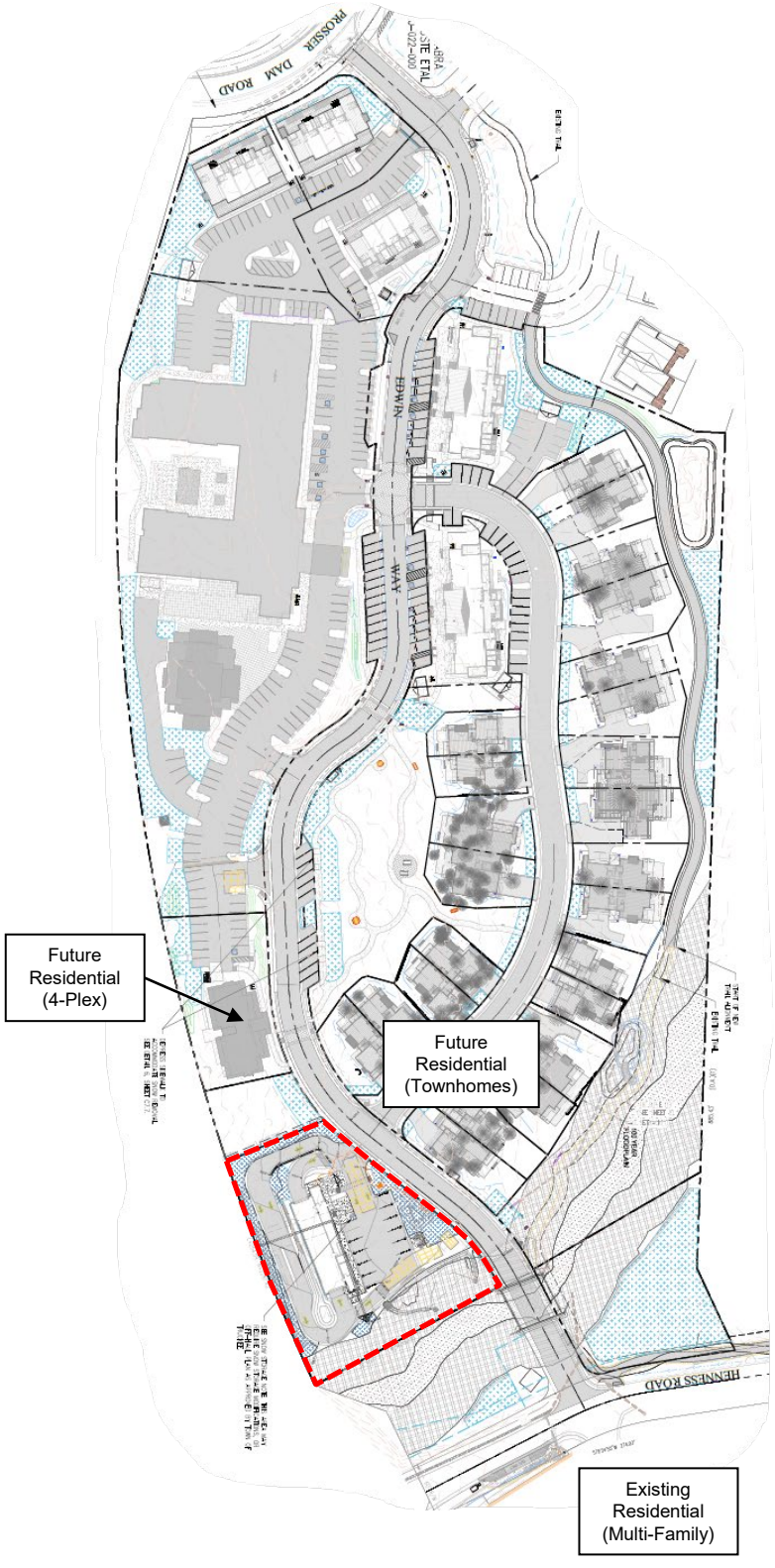
Village Car Wash

Truckee, California

Project Area

Figure 1

BOLLARD Acoustical Consultants



Legend

Car Wash Component Boundary (Approximate)

N

Scale (Feet)

0 75 150

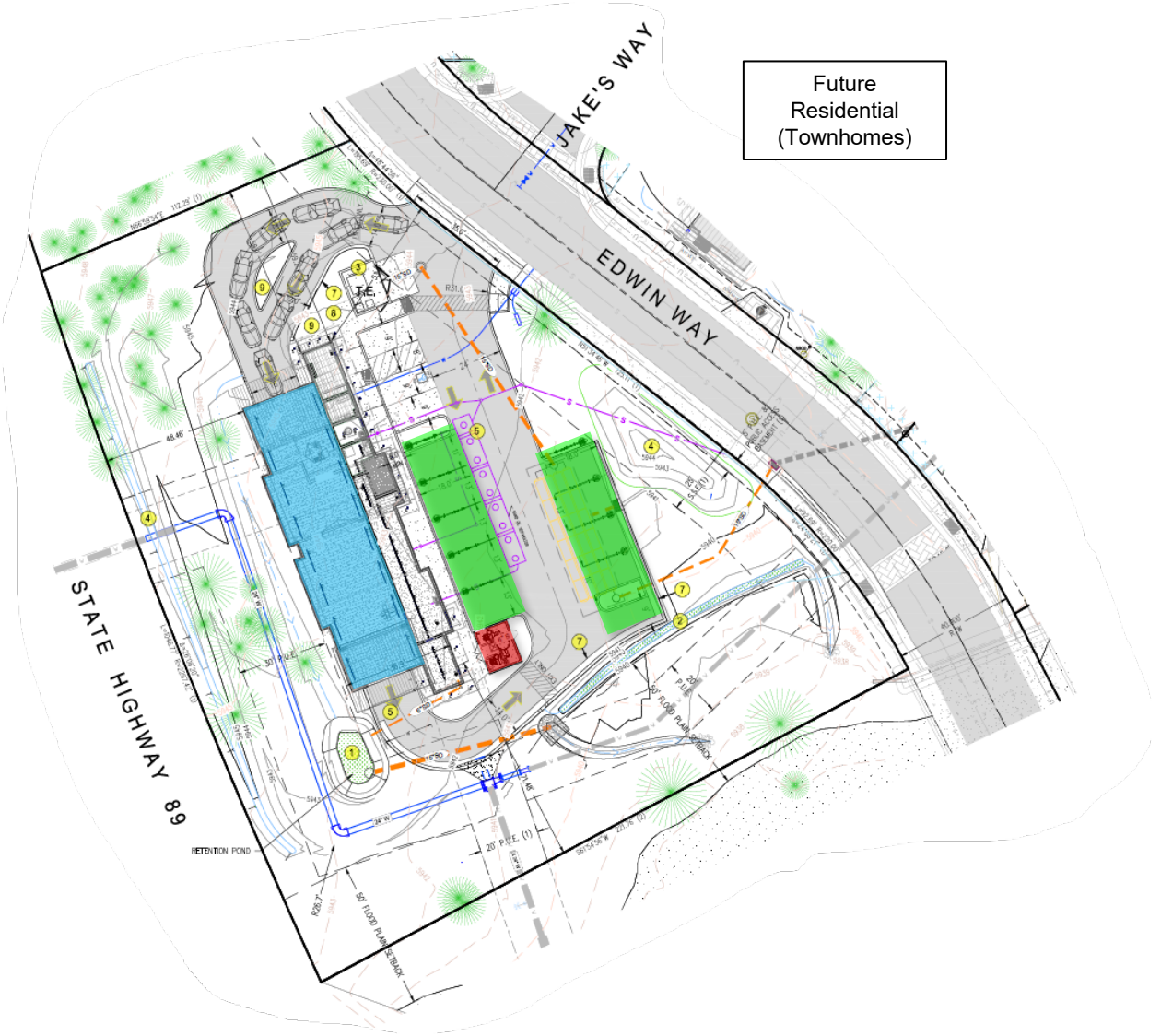
Village Car Wash

Truckee, California

Village Development Site Plan

Figure 2

BOLLARD Acoustical Consultants



Site Plan Dated 8/7/2023

Legend

- Car Wash Tunnel
- Vacuum Areas (9 Parking Stalls – 16 Hoses)
- Fully-Enclosed Vacuum Producer Enclosure

N

Scale (Feet)

0 25 50

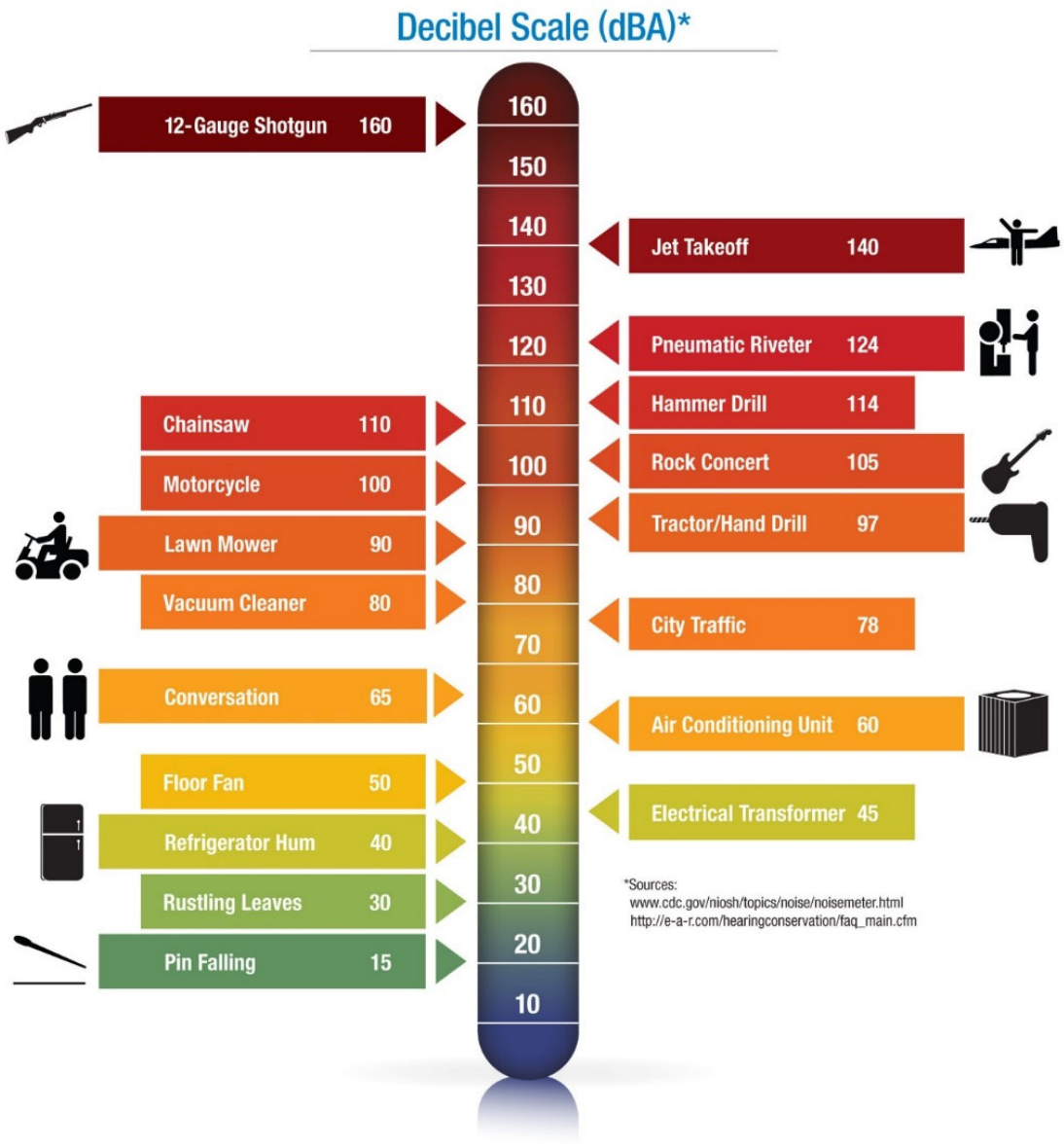
Village Car Wash
Truckee, California

Car Wash Parcel Site Plan

Figure 3

BOLLARD
Acoustical Consultants

Figure 4
Typical A-Weighted Sound Levels of Common Noise Sources



The Day-Night Average Level (DNL or L_{dn}) is based upon the average noise level over a 24-hour day, with a +10-decibel weighting applied to noise occurring during nighttime (10:00 p.m. to 7:00 a.m.) hours. The nighttime penalty is based upon the assumption that people react to nighttime noise exposures as though they were twice as loud as daytime exposures. Because DNL represents a 24-hour average, it tends to disguise short-term variations in the noise environment. DNL-based noise standards are commonly used to assess noise impacts associated with traffic, railroad, and aircraft noise sources.

Existing Ambient Noise Environment within the Project Vicinity

The existing ambient noise environment at the project site is primarily defined by traffic on State Route 89, and to a lesser extent by traffic on Prosser Dam Road, Henness Road, and Interstate 80. To generally quantify the existing ambient noise environment in the immediate project vicinity, BAC utilized the results from a long-term (72-hour) noise level survey conducted May 2-4, 2017, at three locations located within the Village Development. The 2017 noise survey locations are identified in Figure 1.

Larson-Davis Laboratories (LDL) Model 820 precision integrating sound level meters were used to complete the noise level surveys. The meters were calibrated before and after use with an LDL Model CAL200 acoustical calibrator to ensure the accuracy off the measurements. The equipment used meets all pertinent specifications of the American National Standards Institute for Type 1 sound level meters (ANSI S1.4). The results of the long-term ambient noise survey are shown numerically and graphically in Appendices B and C (respectively) and are summarized below in Table 1.

Table 1
Summary of 2017 BAC Long-Term Ambient Noise Monitoring Results[1,2]

	Daytime[3] (7 a.m. to 10 p.m.)			Nighttime[3] (10 p.m. to 7 a.m.)			DNL
Date	L_{eq}	L_{50}	L_{max}	L_{eq}	L_{50}	L_{max}	(dB)
Site 1 – Approximately 115' from centerline of Highway 89							
May 2, 2017	61 (59-64)	59 (52-63)	78 (73-87)	54 (47-61)	48 (44-58)	78 (73-87)	63
May 3, 2017	61 (56-64)	59 (52-63)	77 (72-84)	55 (48-61)	49 (45-59)	70 (64-77)	63
May 4, 2017	62 (57-64)	59 (52-63)	77 (72-83)	55 (48-61)	49 (46-59)	70 (67-75)	63
Site 2 – Approximately 305' from centerline of Highway 89							
May 2, 2017	52 (50-55)	48 (47-52)	72 (67-78)	50 (47-54)	48 (46-53)	61 (56-71)	57
May 3, 2017	53 (50-54)	50 (47-54)	70 (64-74)	51 (47-55)	49 (46-54)	64 (57-72)	57
May 4, 2017	54 (50-56)	52 (48-55)	70 (63-77)	51 (47-55)	49 (46-54)	60 (55-71)	58
Site 3 – Approximately 85' from centerline of Henness Road							
May 2, 2017	51 (49-53)	47 (44-50)	72 (62-81)	50 (47-53)	48 (46-52)	61 (54-70)	57
May 3, 2017	52 (48-56)	49 (45-52)	72 (64-87)	52 (47-55)	49 (46-54)	66 (58-84)	58
May 4, 2017	54 (51-56)	51 (46-55)	71 (63-77)	51 (48-56)	49 (47-53)	61 (56-68)	58

[1] Long-term ambient noise monitoring locations are identified in Figure 1.
[2] Detailed long-term noise measurement results are provided in Appendices B and C.
[3] Data format: Average (Low-High)

Source: BAC 2017.

Criteria for Acceptable Noise Exposure

The Town of Truckee Municipal Code

Chapter 18.44 of the Town of Truckee Municipal Code (Noise) contains codes and ordinances which are pertinent to the evaluation of project on-site commercial operations noise sources. The applicable criteria are reproduced and summarized as follows:

18.44.040 – Exterior Noise Standards

It shall be unlawful for any person, at any location within the Town, to create any noise or to allow the creation of any noise on property leased, occupied, owned, or otherwise controlled by the person which does not comply with the provisions of this Section, unless the provisions of either Sections 18.44.050 (Residential Interior Noise Standards) or 18.44.070 (Exceptions), below, have been met.

A. Exterior levels. Exterior noise levels, when measured at any receiving church, commercial property, public library, residential or school property, do not conform to the provisions of this Section when they exceed the noise level standards established by (Municipal Code) Table 2 (Municipal Code Table 3-7).

B. Ambient noise level adjustment. In the event the measured ambient noise level exceeds the applicable noise level standard in any category above, the applicable standards shall be adjusted to equal the ambient noise level. For example, if the applicable noise level standard is 60 dB(A) and the ambient noise level is 63 dB(A), the applicable noise level standard would be adjusted to 63 dB(A). In these cases, a use would not exceed the applicable noise level standard if it did not increase the ambient noise level by more than 3.0 dB(A) when the ambient noise level is between 60 and 65 dB(A) or by more than 1.5 dB(A) when the ambient noise level is greater than 65 dB(A).

Table 2
Summary of Town of Truckee Municipal Code Exterior Noise Level Standards
Receiving Land Use – Residential Uses

Duration Exceeded, Min.	Statistical Descriptor	Noise Level (dB)	
		Daytime (7 a.m.-10 p.m.)	Nighttime (10 p.m.-7 a.m.)
30[1]	L_{50}	55	50
15	L_{25}	60	55
5	L_{8}	65	60
1	L_{2}	70	65
0	L_{max}	75	70

[1] For example, this means the measured noise level may not exceed 55 dB for more than 30 minutes out of any one-hour time period.

Source: Town of Truckee Municipal Code, Chapter 18.44, Table 3-7.

Noise Standards Applied to the Project

The Town of Truckee Municipal Code noise level standards shown in Table 2 depend on what time of day the noise occurs and the duration of operation each given noise source during a given hour. The project applicant has indicated that the car wash and vacuum hours of operation will be limited to daytime hours, 7:00 a.m. to 9:00 p.m. In addition, car wash operations could potentially exceed 30 minutes during a given busy hour. Based on the provided project operations information, the Town's daytime median (L_{50}) noise level standard of 55 dB was applied to project car wash and vacuum system operational noise levels and assessed at the nearest existing and future residential uses. Satisfaction of the Town's noise level criterion at the nearest existing and future residential uses would ensure for satisfaction of the Town's noise level limit at existing and future residential uses located farther away.

Evaluation of Project Car Wash Operations Noise Levels

Noise generated by project car wash operations were quantified through a combination of manufacturer reference noise level data, application of accepted noise modeling techniques, and utilization of the provided site plans. The most significant noise sources associated with proposed car wash operations have been identified as the car wash drying assembly (used for drying vehicles at the end of the wash cycle) and the vacuum system equipment. The proposed locations of the car wash tunnel and vacuum areas are shown in Figure 3. Predicted noise levels resulting from those sources at the nearest existing and future residential uses are evaluated in the following sections.

Car Wash Drying Assembly

Based on the experience of Bollard Acoustical Consultants, noise levels generated by car washes are primarily due to the drying portion of the operation. It is the understanding of BAC that the project proposes the installation of four (4) Sonny's Enterprises blower arch assemblies, Part # BL1-45HP-1. According to manufacturer's noise specification data sheet in Appendix D, each blower arch assembly generates a maximum noise level of 79 dB L_{max} at 50 feet. The combined noise level from the simultaneous operation of all four blower arch assemblies is calculated to be 85 dB L_{max} at 50 feet.

Based on BAC's experience with noise level data collection at various existing car washes, the noise level generation of car wash drying assemblies vary depending on the orientation of the measurement position relative to the tunnel opening. Worst-case drying assembly noise levels occur at a position directly facing the car wash exit, considered to be 0 degrees off-axis. For car wash tunnels that are 100 feet or more in length, drying assembly noise levels at the car wash entrance are approximately 10 dB lower than those at the exit. At off-axis positions, the building facade provides varying degrees of noise level reduction. At positions 45 degrees off-axis relative to the facade of the car wash exit and entrance, drying assembly noise levels are approximately 6 dB lower. At 90 degrees off-axis, drying assembly noise levels are approximately 15 dB lower.

According to a car wash system representative, the car wash cycle is approximately 1.5 minutes in duration, and that the drying assembly would be in operation during the last 30 seconds (or 0.5 minutes) of the cycle. Based on this information, the car wash is calculated to go through 40 full cycles (60 minutes ÷ 1.5 minutes per cycle) and the dryer would operate for approximately 20 minutes (40 car wash cycles x 0.5 minutes of drying) during a busy hour of operations. However, the project's emissions assessment states that approximately 45 cars are expected to be generated during a maximum peak hour for the car wash. Assuming 45 car wash cycles per hour, approximately 22 minutes of drying assembly operation is calculated. Based on 22 minutes of dryer operations per hour, the resulting median (L_{50}) drying assembly noise level is calculated to be approximately 5 dB lower than the equipment's reference maximum (L_{max}) noise levels presented in Appendix D.

Finally, it is the understanding of BAC that the car wash tunnel entrance and exit will be equipped with polycarbonate doors manufactured by BayWatch. It is our further understanding that the doors will remain closed during each car wash cycle. According to the equipment manufacturer measurement data (provided as Appendix E), this specific door provides approximately 14 dB of dryer noise reduction. Based on this information, an adjustment of -14 dB was applied to drying assembly noise level exposure at the nearest existing and future residential uses.

Car wash drying assembly noise level exposure was calculated based on the orientation to tunnel entrance/exit, as discussed above. Noise attenuation due to distance was calculated based on standard spherical spreading loss from a point source (-6 dB per doubling of distance). Car wash drying assembly noise exposure was calculated at the property lines of the nearest existing and future residential uses and the results of those calculations relative to the applicable Town of Truckee Municipal Code noise level criterion are presented in Table 3.

Table 3
Predicted Car Wash Drying Assembly Noise Levels at Nearest Residential Uses

Receiver[1]	Direction	Distance (ft)[2]	Predicted Noise Level, L_{50} (dB)[3,4]
Future Residential (Townhomes)	Northeast	220	38
Future Residential (4-Plex)	North	255	52
Existing Residential (Multi-Family)	South	290	51
Municipal Code Daytime Noise Level Standard, L_{50} (dB)			**55**

[1] Receiver locations shown in Figure 1.
[2] Distances scaled from car wash dryers to property lines using the provided site plans.
[3] Predicted noise levels include offsets for orientation to tunnel entrance/exit, as discussed in this report.
[4] Predicted noise levels include consideration of proposed entrance and exit doors in closed position during dryer operations, as discussed in this report.

Source: BAC 2023.

As indicated in Table 3, car wash drying assembly equipment noise levels are predicted satisfy the Town of Truckee Municipal Code 55 dB L_{50} daytime noise level standard at the nearest

existing and future residential uses. As a result, no further consideration of car wash drying assembly noise mitigation measures would be warranted for the project.

Vacuum Station Equipment

It is our understanding that the project proposes the installation of a 16-hose central dry vacuum system with palm arches offered by Vacutech. The project site plan indicates that there will be two vacuum areas, which are shown in Figure 3.

It is our understanding that the central vacuum piping system will be powered by one (1) 40 HP direct drive vacuum producer. According to the provided plans, the noise-generating vacuum turbine producer will be contained within a fully-enclosed equipment enclosure. The location of the vacuum producer enclosure is shown in Figure 3. The site plans further indicate that the vacuum enclosure walls will be constructed of 8-inch-thick CMU block and have a combination plywood/corrugated metal roof. Further, it is our understanding that the vacuum producer will be equipped with a muffler kit containing a silencer. After a review of the provided vacuum enclosure construction plans and based on BAC's experience and field observations with similarly configured car washes and equipment enclosures, noise impacts due to the operation of the vacuum turbine producer are not expected due to the significant transmission loss that would be provided by the proposed vacuum motor enclosure. As a result, no further analysis would be warranted for the vacuum system turbine producer.

Based on noise level measurements conducted by BAC staff at recently completed car wash projects, the primary noise-generating aspects of central vacuum piping systems are use of the suction nozzles located at each of the stalls – specifically, noise associated with active suction nozzles hanging off nozzle hangers. Reference sound level data obtained from the proposed vacuum system manufacturer (Vacutech) is provided as Appendix F. The sound level data provided in Appendix F show measured and projected sound levels from 19 vacuum hoses off their respective nozzle hangers at distances ranging from 45 to 85 feet.

For the purposes of this analysis, it was conservatively assumed that all 16 proposed vacuum suction nozzles would be in concurrent operation (worst-case noise exposure). Based on the manufacturer sound level data in Appendix F, the operations assumptions above, and assuming standard spherical spreading loss (-6 dB per doubling of distance from a stationary source), worst-case project vacuum equipment noise exposure was calculated at the property lines of the nearest existing and future residential uses. The results of those calculations relative to the applicable Town of Truckee Municipal Code noise level criterion are presented in Table 4.

Table 4
Predicted Worst-Case Vacuum Nozzle Noise Levels at Nearest Residential Uses

Receiver[1]	Direction	Distance (ft)[2]	Predicted Noise Level, L_{50} (dB)[3]
Future Residential (Townhome)	Northeast	160	44
Future Residential (4-Plex)	North	235	40
Existing Residential (Multi-Family)	South	290	38
Municipal Code Daytime Noise Level Standard, L_{50} (dB)			**55**

[1] Receiver locations shown in Figure 1.
[2] Distances scaled from effective noise center of vacuum areas to property lines using the provided site plans.
[3] Predicted combined noise level from operation of all proposed vacuum nozzles concurrently (worst-case).

Source: BAC 2023.

The Table 4 data indicate that worst-case vacuum nozzle noise levels are predicted to satisfy the Town of Truckee Municipal Code 55 dB L_{50} daytime noise level standard at the nearest existing and future residential uses. As a result, no further consideration of vacuum system equipment noise mitigation measures would be warranted for the project.

Car Wash Building HVAC Equipment

Heating, ventilating, and air conditioning (HVAC) requirements for the car wash building would most likely be met using packaged roof-mounted system. According to BAC reference file data, HVAC systems for similar uses (12.5-ton packaged unit system) are expected to have a reference noise level of 45 dB L_{50} at a distance of 100 feet.

Based on the sound power data above, and assuming standard spherical spreading loss (-6 dB per doubling of distance), car wash building HVAC equipment noise exposure was calculated at the property lines of the nearest existing and future residential uses. The results of those calculations relative to the applicable Town of Truckee Municipal Code noise level criterion are presented in Table 5.

Table 5
Predicted HVAC Equipment Noise Levels at Nearest Residential Uses

Receiver[1]	Direction	Distance (ft)[2]	Predicted Noise Level, L_{50} (dB)
Future Residential (Townhome)	Northeast	160	41
Future Residential (4-Plex)	North	175	40
Existing Residential (Multi-Family)	South	280	36
Municipal Code Daytime Noise Level Standard, L_{50} (dB)			**55**

[1] Receiver locations shown in Figure 1.
[2] Distances scaled from car wash building rooftop to property lines using the provided site plans.

Source: BAC 2023.

As shown in Table 5, car wash building HVAC equipment noise levels are predicted satisfy the Town of Truckee Municipal Code 55 dB L_{50} daytime noise level standard at the nearest existing and future residential uses. As a result, no further consideration of car wash building HVAC equipment noise mitigation measures would be warranted for the project.

Combined Project Car Wash Component Noise Generation

The preceding analyses consisted of the noise-generation associated with car wash drying assembly, vacuum system, and building HVAC equipment independently. Because it is likely that the noise sources will operate simultaneously, an analysis of cumulative (combined) noise-generation was also conducted for the project. The calculated combined noise generation of project car wash dryers, vacuum system, and building HVAC equipment at the property lines of the nearest existing and future residential uses was calculated and the results of those calculations relative to the applicable Town of Truckee Municipal Code noise level criterion is presented in Table 6.

It should be noted that due to the logarithmic nature of the decibel scale, the sum of two noise values which differ by 10 dB equates to an overall increase in noise levels of 0.4 dB. When the noise sources are equivalent, the sum would result in an overall increase in noise levels of 3 dB.

Table 6
Predicted Combined Equipment Noise Levels at Nearest Residential Uses

Receiver	Predicted Noise Levels, L_{50} (dB)[1]			Calculated Combined, L_{50}[2]
	Car Wash Dryers	Vacuums	HVAC	
Future Residential (Townhome)	38	44	41	46
Future Residential (4-Plex)	52	40	40	52
Existing Residential (Multi-Family)	51	38	36	51
Municipal Code Daytime Noise Level Standard, L_{50} (dB)				**55**

[1] Predicted equipment noise levels from Tables 3-5.
[2] Calculated combined equipment noise level exposure.

Source: BAC 2023.

As shown in Table 6, calculated combined equipment noise level exposure would comply with Town of Truckee 55 dB L_{50} daytime noise level standard at the nearest existing and future residential uses. As a result, additional consideration of car wash component equipment noise mitigation measures would not be warranted for the project.

Comparison of Car Wash & C-Store / Gas Station Operations Noise

As mentioned previously, a c-store / gas station was previously proposed at the same location as the car wash. At the request of the Town of Truckee planning staff, the following section includes a comparison of predicted noise level exposure associated with car wash and c-store / gas station operations at nearby existing and future residential uses. The most significant noise sources associated with c-store / gas station operations have been identified as mechanical

equipment (HVAC), parking lot movements, and truck deliveries (i.e., deliveries of product to c-store and fueling tankers), and on-site truck circulation.

C-Store / Gas Station Component Mechanical Equipment (HVAC)

Heating, ventilating, and air conditioning (HVAC) requirements for the proposed convenience store will most likely be met using packaged roof-mounted systems. As a means of determining potential noise exposure due to rooftop mechanical equipment, BAC utilized reference file data collected for previous studies. BAC reference file data for HVAC systems indicate that a 12.5-ton packaged unit can be expected to generate an A-weighted sound power level of 85 dB, or equivalent to approximately 45 dB L_{50} at a distance of 100 feet. When projected from the c-store building to the nearest future residential use to the northeast located approximately 225 away, median HVAC noise level exposure is calculated to be 38 dB L_{50}. When projected from the c-store building to the nearest future residential use to the north located approximately 230 away, median HVAC noise level exposure is calculated to be 38 dB L_{50}. Finally, when projected to the nearest existing residential use to the south located approximately 300 feet away, median HVAC noise level exposure is calculated to be 35 dB L_{50}.

C-Store / Gas Station Component Parking Lot Movements

As a means of determining potential noise exposure due to project parking lot activities, Bollard Acoustical Consultants, Inc. utilized specific parking lot noise level measurements conducted by BAC. Specifically, a series of individual noise measurements were conducted of multiple vehicle types arriving and departing a parking area, including engines starting and stopping, car doors opening and closing, and persons conversing as they entered and exited the vehicles. The results of those measurements revealed that individual parking lot movements generated mean noise levels of 65 dB SEL at a distance of 50 feet.

According to the project site plans, the c-store / gas station would have approximately 10 parking spaces and 8 gas pumps. Conservatively assuming each vehicle spends five minutes in the parking lot, this would result in a total of 216 vehicle trips to and from the site per hour at maximum capacity. Peak hour parking and gas pump area noise exposure was determined using the following equation:

$$\text{Peak Hour } L_{eq}/L_{50} = 65+10*\log(N) - 35.6$$

Where 65 is the SEL for a single automobile parking operation, N is the number of parking area operations in a peak hour (216 in this case), and 35.6 is 10 times the logarithm of the number of seconds in an hour. Given the equation above, the reference median noise level is calculated to be 53 dB L_{50} at a distance of 50 feet. When projected from the c-store / gas station parking area to the nearest future residential use to the northeast located approximately 200 feet away, median parking lot noise level exposure is calculated to be 41 dB L_{50}. When projected from the parking area to the nearest future residential use to the north, also located approximately 200 feet away, median parking lot noise level exposure is calculated to be 41 dB L_{50}. Finally, when projected to the nearest existing residential use to the south located approximately 315 away, median parking area noise level exposure is calculated to be 37 dB L_{50}.

C-Store / Gas Station Component Truck Deliveries

It is the experience of BAC that deliveries of product to c-stores occur at the front of the store with medium-duty vendor trucks/vans. The primary noise sources associated with delivery activities are trucks stopping (air brakes), trucks backing into position (back-up alarms), and pulling away from the delivery area (revving engines).

For a conservative assessment of daily truck delivery noise levels at c-store / gas station component, it was assumed that 4 medium duty trucks/vans would have deliveries on a typical busy day. For the purposes of comparison against the Town's median (L_{50}) noise level standard, it was assumed that 2 medium duty trucks/vans could have deliveries to the site during the same worst-case hour.

BAC file data indicate that noise level exposure associated with medium-duty truck deliveries (including side-step vans) is approximately 76 dB SEL at a distance of 100 feet. Based on 2 medium duty truck deliveries during a worst-case busy hour and an SEL of 76 dB, the median noise level computes to 43 dB L_{50} at a reference distance of 100 feet during the worst-case hour of deliveries. When projected from the c-store delivery area to the nearest future residential use to the northeast located approximately 200 feet away, median truck delivery activity noise level exposure is calculated to be 37 dB L_{50}. When projected from the delivery area to the nearest future residential use to the north located approximately 250 feet away, median truck delivery activity noise level exposure is calculated to be 35 dB L_{50}. Finally, when projected to the nearest existing residential use to the south located approximately 300 feet away, median truck delivery noise level exposure is calculated to be 34 dB L_{50}.

C-Store / Gas Station Component On-Site Truck Circulation

As mentioned above, it is the experience of BAC that deliveries of product to c-stores occur at the front of the store with medium-duty vendor trucks/vans. However, the gas station would also receive deliveries from heavy fueling trucks for the purposes of refiling the underground fuel storage tanks.

On-site truck passbys are expected to be relatively brief and will occur at low speeds. To predict noise levels generated by on-site truck circulation, BAC utilized file data obtained from measurements conducted by BAC of heavy and medium duty truck passbys. According to BAC file data, single-event heavy truck passby noise levels are approximately 83 dB SEL at a reference distance of 50 feet. BAC file data also indicate that single-event medium truck passby noise levels are approximately 76 SEL at a reference distance of 50 feet.

For the purposes of comparison against the Town's median (L_{50}) noise level standard, it was assumed that 1 heavy fueling truck and 2 medium duty trucks/vans could have deliveries to the site during the same worst-case hour. Given the aforementioned worst-case hour of deliveries, the median noise level computes to 49 dB L_{50} at a reference distance of 50 feet from the passby route. When projected from the on-site truck passby route to the nearest future residential use to the northeast located approximately 100 feet away, median on-site truck circulation noise level exposure is calculated to be 43 dB L_{50}. When projected from the on-site truck passby

route to the nearest future residential use to the north located approximately 175 feet away, median on-site truck circulation noise level exposure is calculated to be 38 dB L_{50}. Finally, when projected to the nearest existing residential use to the south located approximately 300 away, on-site truck circulation noise level exposure is calculated to be 33 dB L_{50}.

Comparison of Car Wash vs. C-Store / Gas Station Operations Noise

Predicted noise levels associated with car wash and c-store / gas station operations are summarized below in Tables 7 and 8, respectively.

Table 7
Combined Car Wash Component Noise Exposure at Nearest Residential Uses

Receiver	Predicted Noise Levels, L_{50} (dB)		Calculated Combined
	Drying Assembly	Vacuums	
Future Residential (Townhome)	47	44	49
Future Residential (4-Plex)	53	41	53
Existing Residential (Multi-Family)	51	38	51

Source: BAC 2023.

Table 8
Combined C-Store / Gas Station Component Noise Exposure at Nearest Residential Uses

Receiver	Predicted Noise Levels, L_{50} (dB)				Calculated Combined
	HVAC	Parking	Truck Deliveries	Truck Circ.	
Future Residential (Townhome)	38	41	37	43	46
Future Residential (4-Plex)	38	41	35	38	44
Existing Residential (Multi-Family)	35	37	34	33	41

Source: BAC 2023.

Based on the data provided in Tables 7 and 8, combined noise levels associated with the car wash component are calculated to be higher than those associated with a c-store / gas station component. Nonetheless, noise exposure from the development of either component is predicted to comply with the Town's 55 dB L_{50} daytime noise level standard at the closest existing and future residential uses.

Conclusions

Based on the analysis and results presented in this report, noise level exposure from the Village Car Wash is predicted to satisfy the Town of Truckee 55 dB L_{50} daytime noise level standard at the nearest existing and future residential uses.

At the request of the Town of Truckee planning staff, this report includes a comparison of noise level exposure associated with car wash and c-store / gas station operations at nearby existing and future residential uses. Based on the analysis and results presented in this report,

combined noise levels associated with the car wash component are calculated to be higher than those associated with a c-store / gas station component. Nonetheless, the results presented in this report indicate that noise exposure from the development of either component is predicted to comply with the Town's 55 dB L_{50} daytime noise level standard at the closest existing and future residential uses.

These conclusions are based on the provided site plans, equipment manufacturer noise level data, BAC file data and field observations, and equipment operations assumptions cited herein. Deviations from the resources or assumptions cited above could cause actual noise levels to differ from those predicted in this assessment.

This concludes BAC's noise assessment for the Village Car Wash in Truckee, California. Please contact BAC at (530) 537-2328 or dariog@bacnoise.com with any questions regarding this assessment.

Appendix A
Acoustical Terminology

Acoustics The science of sound.

Ambient Noise The distinctive acoustical characteristics of a given space consisting of all noise sources audible at that location. In many cases, the term ambient is used to describe an existing or pre-project condition such as the setting in an environmental noise study.

Attenuation The reduction of an acoustic signal.

A-Weighting A frequency-response adjustment of a sound level meter that conditions the output signal to approximate human response.

Decibel or dB Fundamental unit of sound. A Bell is defined as the logarithm of the ratio of the sound pressure squared over the reference pressure squared. A Decibel is one-tenth of a Bell.

CNEL Community Noise Equivalent Level. Defined as the 24-hour average noise level with noise occurring during evening hours (7 - 10 p.m.) weighted by a factor of three and nighttime hours weighted by a factor of 10 prior to averaging.

Frequency The measure of the rapidity of alterations of a periodic signal, expressed in cycles per second or hertz.

IIC Impact Insulation Class (IIC): A single-number representation of a floor/ceiling partition's impact generated noise insulation performance. The field-measured version of this number is the FIIC.

L_{dn} Day/Night Average Sound Level. Similar to CNEL but with no evening weighting.

L_{eq} Equivalent or energy-averaged sound level.

L_{max} The highest root-mean-square (RMS) sound level measured over a given period of time.

Loudness A subjective term for the sensation of the magnitude of sound.

Masking The amount (or the process) by which the threshold of audibility is for one sound is raised by the presence of another (masking) sound.

Noise Unwanted sound.

Peak Noise The level corresponding to the highest (not RMS) sound pressure measured over a given period of time. This term is often confused with the "Maximum" level, which is the highest RMS level.

RT_{60} The time it takes reverberant sound to decay by 60 dB once the source has been removed.

STC Sound Transmission Class (STC): A single-number representation of a partition's noise insulation performance. This number is based on laboratory-measured, 16-band (1/3-octave) transmission loss (TL) data of the subject partition. The field-measured version of this number is the FSTC.

Appendix B-1
Village at Grays Crossing
Ambient Noise Monitoring Results - Site 1
Tuesday, May 02, 2017

Hour	Leq	Lmax	L50	L90
0:00	50	68	45	41
1:00	47	66	44	41
2:00	48	66	46	42
3:00	49	67	45	42
4:00	52	74	48	44
5:00	56	77	49	45
6:00	61	73	58	51
7:00	64	82	63	54
8:00	62	73	61	53
9:00	62	78	60	49
10:00	60	73	57	47
11:00	61	75	58	47
12:00	61	77	58	48
13:00	61	75	58	48
14:00	62	77	60	50
15:00	62	76	60	51
16:00	62	77	61	53
17:00	62	76	61	53
18:00	61	84	58	50
19:00	60	77	57	49
20:00	61	87	54	48
21:00	59	86	52	48
22:00	54	68	50	47
23:00	52	69	49	45

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average
Leq (Average)	64	59	61	61	47	54
Lmax (Maximum)	87	73	78	77	66	70
L50 (Median)	63	52	59	58	44	48
L90 (Background)	54	47	50	51	41	44

Computed Ldn, dB	63
% Daytime Energy	89%
% Nighttime Energy	11%

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Appendix B-2
Village at Grays Crossing
Ambient Noise Monitoring Results - Site 1
Wednesday, May 03, 2017

Hour	Leq	Lmax	L50	L90
0:00	51	68	48	44
1:00	49	71	45	41
2:00	50	69	46	42
3:00	48	64	46	41
4:00	51	69	48	45
5:00	56	77	51	47
6:00	61	72	59	52
7:00	64	74	63	56
8:00	63	75	61	52
9:00	61	77	59	47
10:00	61	75	57	46
11:00	60	73	57	45
12:00	61	82	59	51
13:00	61	78	59	52
14:00	62	76	60	52
15:00	61	73	59	50
16:00	62	77	61	52
17:00	62	83	61	51
18:00	61	76	59	50
19:00	59	74	57	51
20:00	61	84	54	50
21:00	56	72	52	48
22:00	54	69	50	47
23:00	54	72	49	45

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average
Leq (Average)	64	56	61	61	48	55
Lmax (Maximum)	84	72	77	77	64	70
L50 (Median)	63	52	59	59	45	49
L90 (Background)	56	45	50	52	41	45

Computed Ldn, dB	63
% Daytime Energy	88%
% Nighttime Energy	12%

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Appendix B-3
Village at Grays Crossing
Ambient Noise Monitoring Results - Site 1
Thursday, May 04, 2017

Hour	Leq	Lmax	L50	L90
0:00	50	69	46	41
1:00	49	71	46	41
2:00	50	69	47	43
3:00	48	67	46	42
4:00	51	67	48	44
5:00	57	75	50	47
6:00	61	73	59	53
7:00	64	75	63	56
8:00	63	78	62	54
9:00	62	75	60	50
10:00	61	79	58	48
11:00	61	74	59	51
12:00	62	77	60	52
13:00	62	79	60	53
14:00	63	76	61	54
15:00	63	80	61	54
16:00	63	79	62	55
17:00	62	74	61	54
18:00	61	83	59	51
19:00	60	74	57	50
20:00	60	81	54	48
21:00	57	72	52	47
22:00	55	70	50	47
23:00	53	68	50	46

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average
Leq (Average)	64	57	62	61	48	55
Lmax (Maximum)	83	72	77	75	67	70
L50 (Median)	63	52	59	59	46	49
L90 (Background)	56	47	52	53	41	45

Computed Ldn, dB	63
% Daytime Energy	89%
% Nighttime Energy	11%

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Appendix B-4
Village at Grays Crossing
Ambient Noise Monitoring Results - Site 2
Tuesday, May 02, 2017

Hour	Leq	Lmax	L50	L90
0:00	47	57	46	42
1:00	48	64	46	42
2:00	48	56	46	43
3:00	47	56	46	42
4:00	49	62	49	45
5:00	49	61	48	46
6:00	54	71	53	51
7:00	55	74	52	49
8:00	53	72	49	47
9:00	51	74	48	45
10:00	50	68	47	44
11:00	51	72	47	44
12:00	55	78	48	45
13:00	51	72	48	45
14:00	52	72	48	46
15:00	52	73	48	44
16:00	50	70	48	46
17:00	51	67	49	46
18:00	52	77	47	45
19:00	50	71	48	45
20:00	50	69	49	47
21:00	51	67	50	48
22:00	51	65	50	47
23:00	50	59	49	46

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average
Leq (Average)	55	50	52	54	47	50
Lmax (Maximum)	78	67	72	71	56	61
L50 (Median)	52	47	48	53	46	48
L90 (Background)	49	44	46	51	42	45

Computed Ldn, dB	57
% Daytime Energy	72%
% Nighttime Energy	28%

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Appendix B-5
Village at Grays Crossing
Ambient Noise Monitoring Results - Site 2
Wednesday, May 03, 2017

Hour	Leq	Lmax	L50	L90
0:00	49	58	48	45
1:00	47	57	46	42
2:00	49	64	48	43
3:00	48	62	47	42
4:00	50	69	49	46
5:00	52	61	51	48
6:00	55	72	54	52
7:00	54	70	53	50
8:00	52	71	50	47
9:00	50	64	48	45
10:00	51	72	47	44
11:00	50	65	47	44
12:00	54	73	53	50
13:00	54	69	54	51
14:00	54	73	53	50
15:00	54	74	50	47
16:00	52	74	49	47
17:00	50	67	49	46
18:00	51	67	48	45
19:00	54	67	53	50
20:00	52	72	51	49
21:00	52	71	50	48
22:00	50	61	50	47
23:00	50	68	49	45

Statistical Summary						
	Daytime (7 a.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average
Leq (Average)	54	50	53	55	47	51
Lmax (Maximum)	74	64	70	72	57	64
L50 (Median)	54	47	50	54	46	49
L90 (Background)	51	44	47	52	42	46

Computed Ldn, dB	57
% Daytime Energy	72%
% Nighttime Energy	28%

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Appendix B-6
Village at Grays Crossing
Ambient Noise Monitoring Results - Site 2
Thursday, May 04, 2017

Hour	Leq	Lmax	L50	L90
0:00	48	57	46	40
1:00	47	58	46	42
2:00	49	65	47	44
3:00	48	55	47	42
4:00	50	58	49	45
5:00	50	61	49	47
6:00	55	71	54	52
7:00	55	72	54	51
8:00	53	71	51	48
9:00	50	63	49	46
10:00	51	69	48	45
11:00	54	73	53	50
12:00	55	77	54	52
13:00	55	70	54	52
14:00	56	73	54	52
15:00	56	69	55	53
16:00	55	71	54	52
17:00	54	63	53	51
18:00	53	77	51	49
19:00	52	70	51	48
20:00	51	66	50	48
21:00	52	72	50	47
22:00	50	59	50	47
23:00	51	59	50	47

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average
Leq (Average)	56	50	54	55	47	51
Lmax (Maximum)	77	63	70	71	55	60
L50 (Median)	55	48	52	54	46	49
L90 (Background)	53	45	50	52	40	45

Computed Ldn, dB	58
% Daytime Energy	78%
% Nighttime Energy	22%

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Appendix B-7
Village at Grays Crossing
Ambient Noise Monitoring Results - Site 3
Tuesday, May 02, 2017

Hour	Leq	Lmax	L50	L90
0:00	48	61	46	41
1:00	49	58	47	43
2:00	48	57	46	42
3:00	50	60	48	45
4:00	47	54	47	44
5:00	53	62	52	50
6:00	53	70	50	46
7:00	52	72	47	44
8:00	52	80	45	43
9:00	51	71	44	42
10:00	49	68	45	43
11:00	53	77	46	43
12:00	50	67	46	43
13:00	50	73	46	43
14:00	50	71	46	42
15:00	49	63	47	44
16:00	49	67	47	44
17:00	53	81	46	43
18:00	51	75	47	44
19:00	50	62	49	46
20:00	52	76	50	47
21:00	51	72	50	47
22:00	51	62	50	46
23:00	50	63	49	44

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average
Leq (Average)	53	49	51	53	47	50
Lmax (Maximum)	81	62	72	70	54	61
L50 (Median)	50	44	47	52	46	48
L90 (Background)	47	42	44	50	41	45

Computed Ldn, dB	57
% Daytime Energy	67%
% Nighttime Energy	33%

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Appendix B-8
Village at Grays Crossing
Ambient Noise Monitoring Results - Site 3
Wednesday, May 03, 2017

Hour	Leq	Lmax	L50	L90
0:00	47	58	46	42
1:00	50	64	48	43
2:00	50	66	48	42
3:00	51	65	50	46
4:00	51	59	51	47
5:00	55	66	54	51
6:00	53	68	51	48
7:00	50	68	47	44
8:00	48	65	46	43
9:00	52	74	45	43
10:00	48	68	45	42
11:00	53	67	51	48
12:00	53	69	52	49
13:00	53	75	50	47
14:00	52	72	48	44
15:00	50	65	48	44
16:00	50	76	47	44
17:00	51	70	47	44
18:00	54	79	52	49
19:00	56	87	52	49
20:00	54	78	51	48
21:00	52	64	51	48
22:00	55	84	50	46
23:00	49	61	48	41

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average
Leq (Average)	56	48	52	55	47	52
Lmax (Maximum)	87	64	72	84	58	66
L50 (Median)	52	45	49	54	46	49
L90 (Background)	49	42	46	51	41	45

Computed Ldn, dB	58
% Daytime Energy	65%
% Nighttime Energy	35%

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Appendix B-9
Village at Grays Crossing
Ambient Noise Monitoring Results - Site 3
Thursday, May 04, 2017

Hour	Leq	Lmax	L50	L90
0:00	49	58	48	43
1:00	50	64	48	44
2:00	48	56	47	41
3:00	50	59	49	44
4:00	50	58	50	47
5:00	54	67	53	50
6:00	56	68	53	51
7:00	52	73	49	47
8:00	51	73	47	44
9:00	51	67	46	42
10:00	54	74	52	49
11:00	55	76	54	51
12:00	55	67	54	51
13:00	55	73	54	51
14:00	56	67	55	52
15:00	56	72	54	52
16:00	54	66	53	50
17:00	54	77	51	48
18:00	54	74	52	49
19:00	52	63	51	48
20:00	53	77	51	47
21:00	51	63	50	47
22:00	52	60	51	47
23:00	48	62	47	43

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average
Leq (Average)	56	51	54	56	48	51
Lmax (Maximum)	77	63	71	68	56	61
L50 (Median)	55	46	51	53	47	49
L90 (Background)	52	42	49	51	41	46

Computed Ldn, dB	58
% Daytime Energy	74%
% Nighttime Energy	26%

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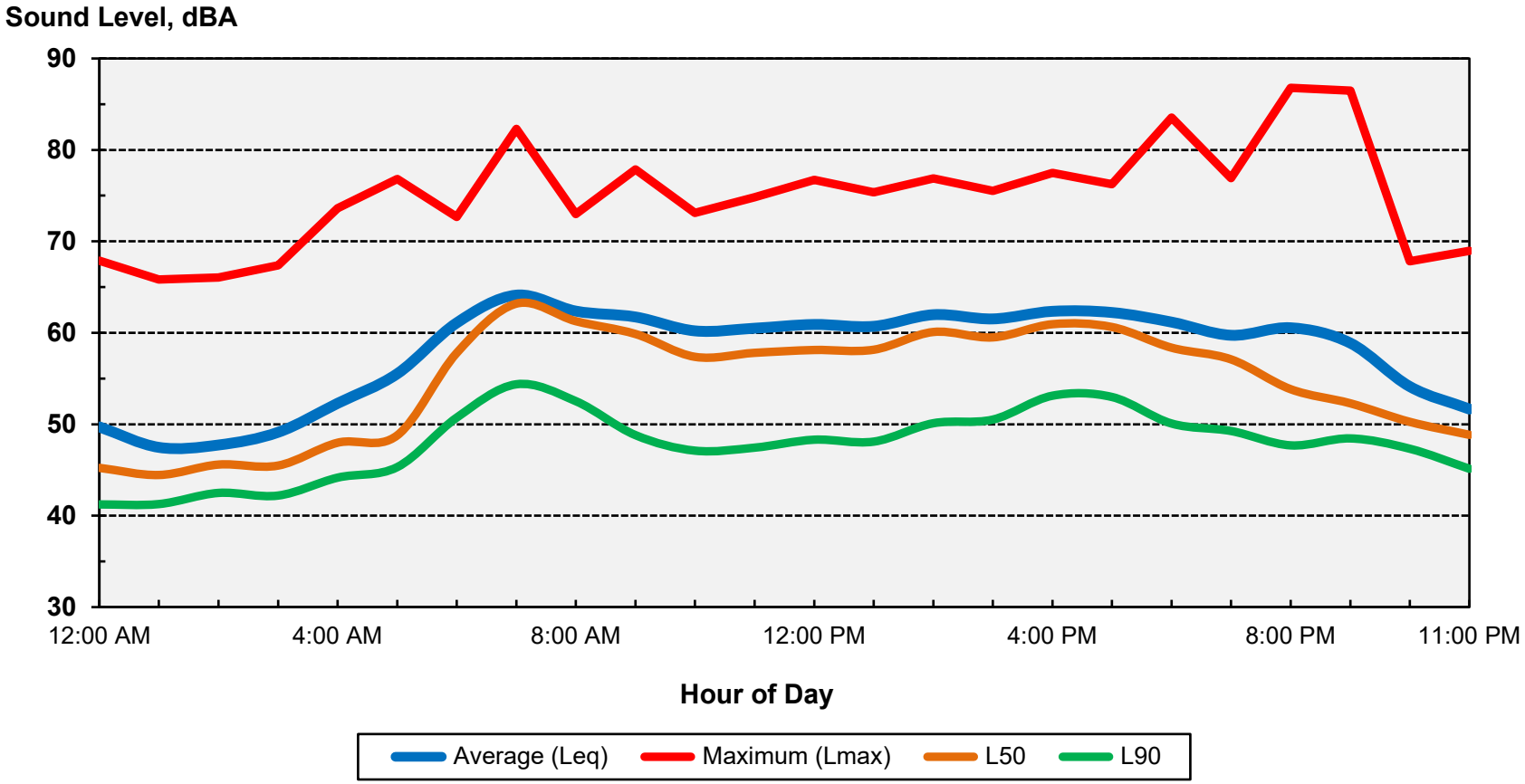
Appendix C-1
Village at Grays Crossing
Ambient Noise Monitoring Results - Site 1
Tuesday, May 02, 2017



Ldn: 63 dB

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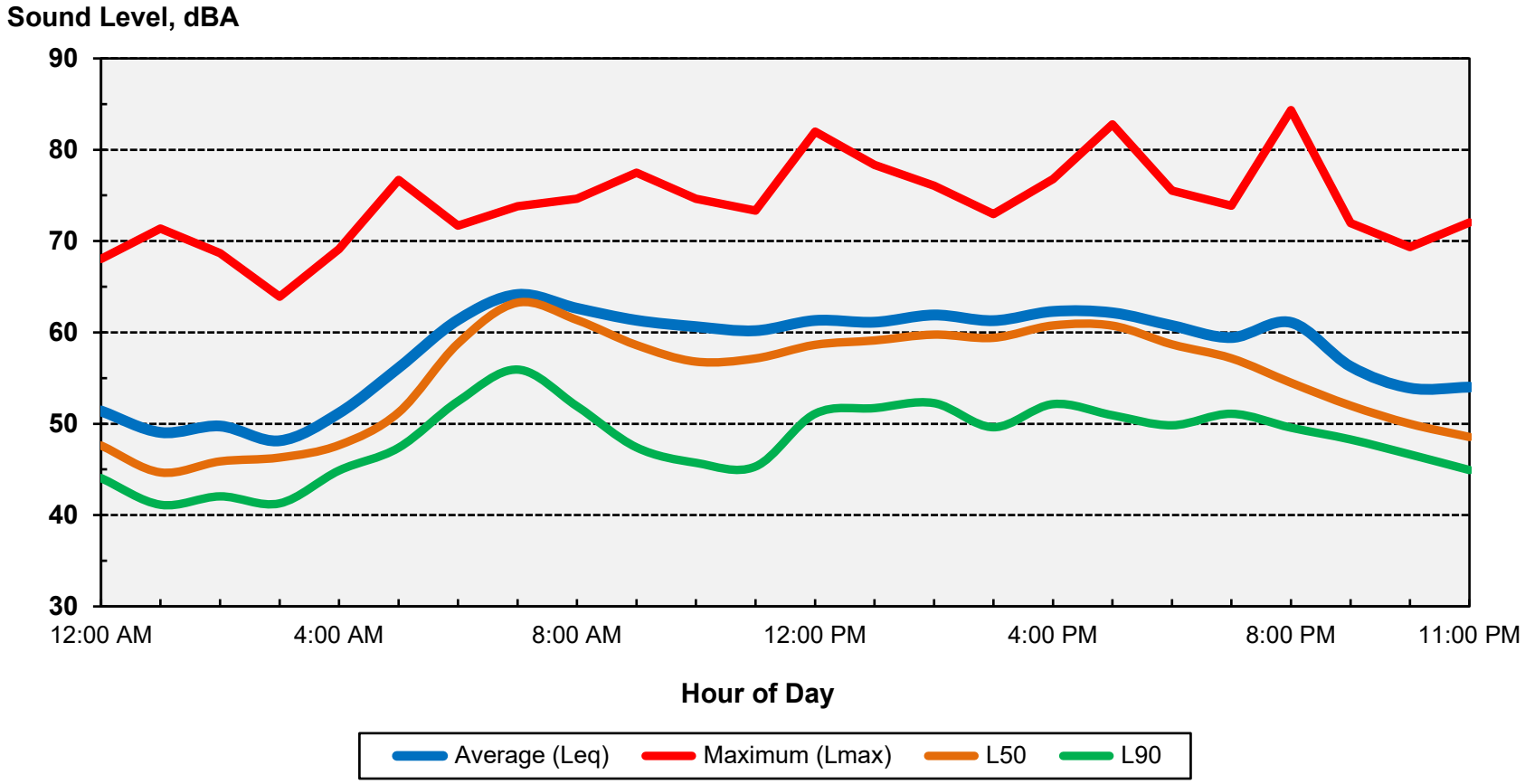
Appendix C-2
Village at Grays Crossing
Ambient Noise Monitoring Results - Site 1
Wednesday, May 03, 2017



Ldn: 63 dB

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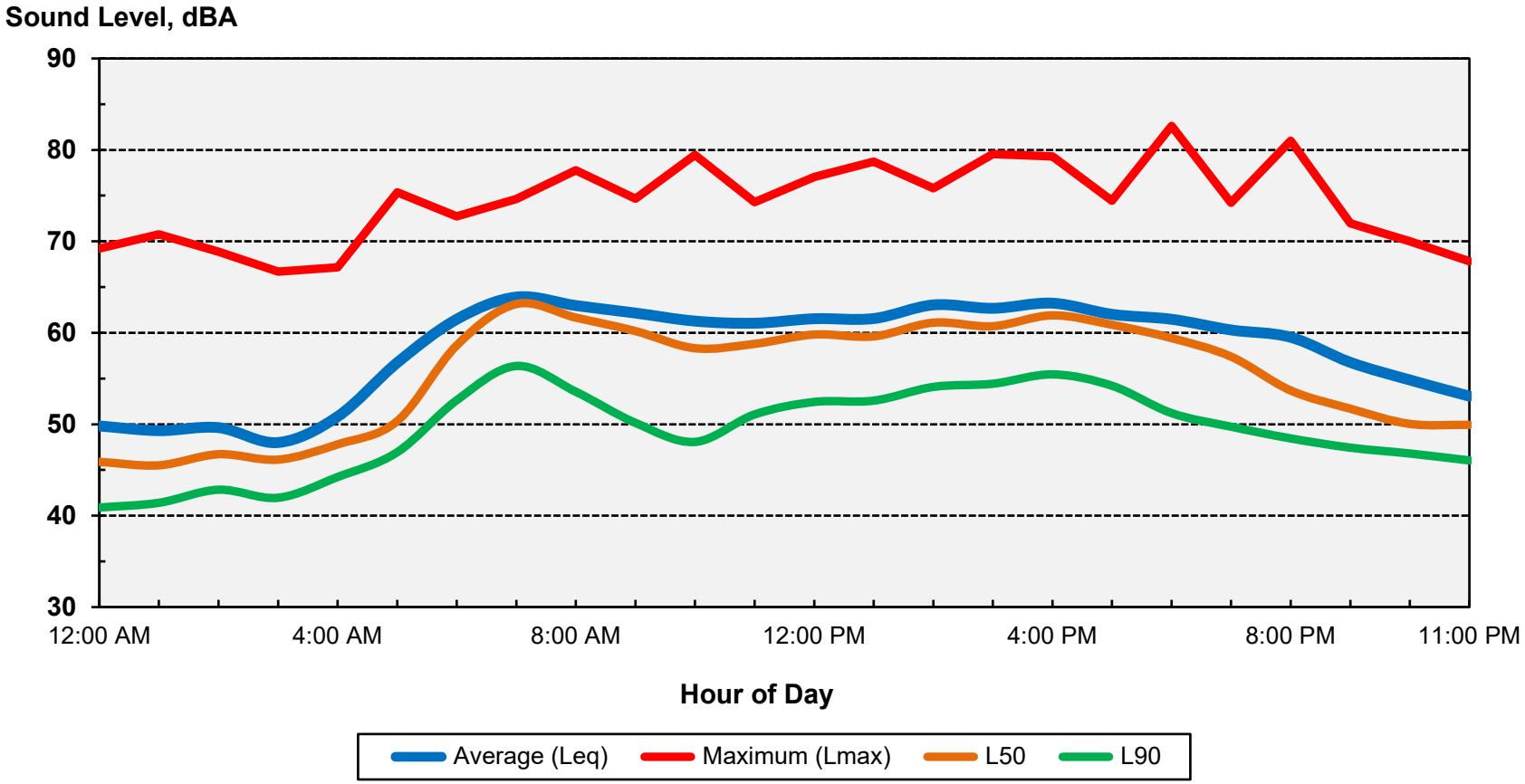
Appendix C-3
Village at Grays Crossing
Ambient Noise Monitoring Results - Site 1
Thursday, May 04, 2017



Ldn: 63 dB

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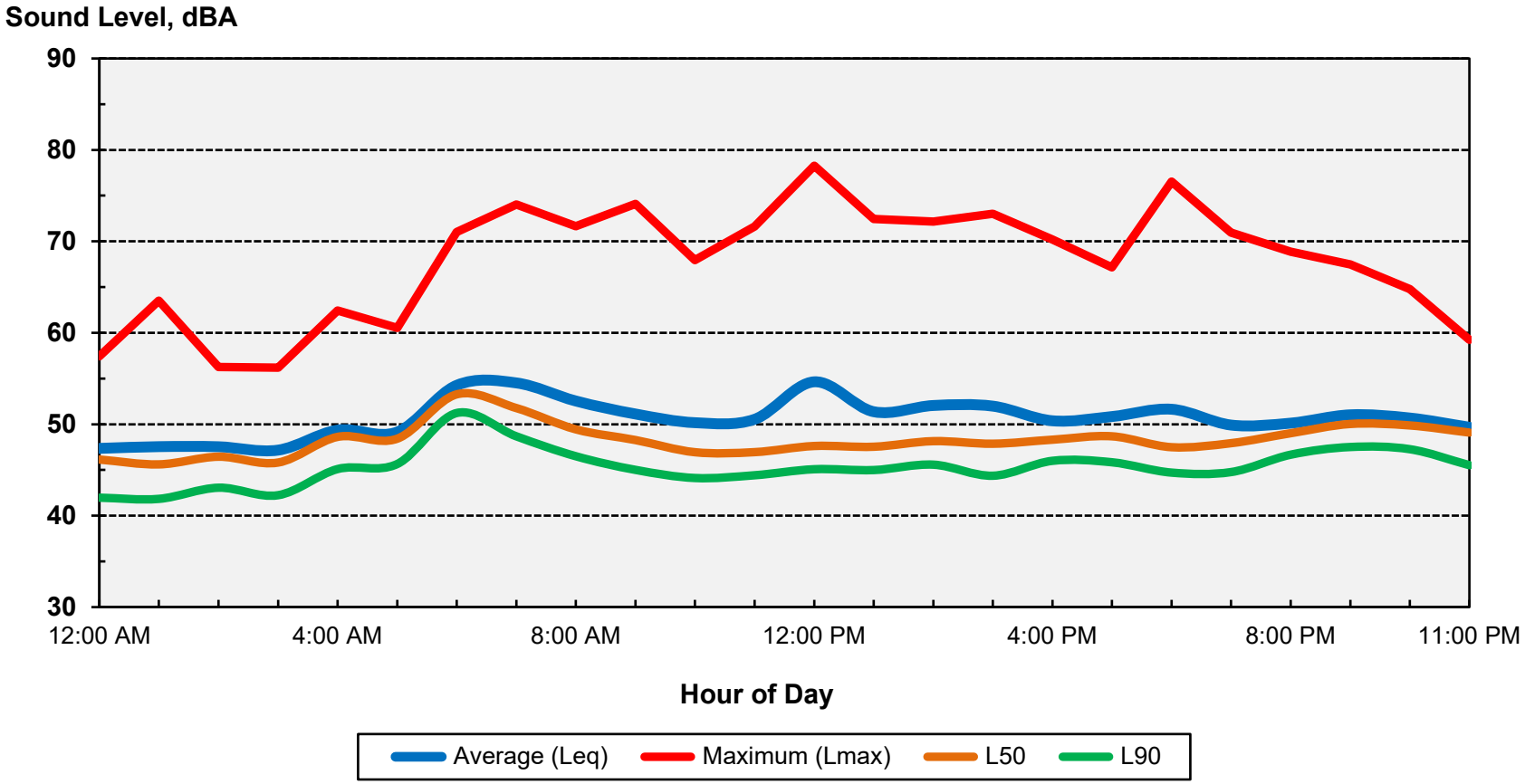
Appendix C-4
Village at Grays Crossing
Ambient Noise Monitoring Results - Site 2
Tuesday, May 02, 2017



Ldn: 57 dB

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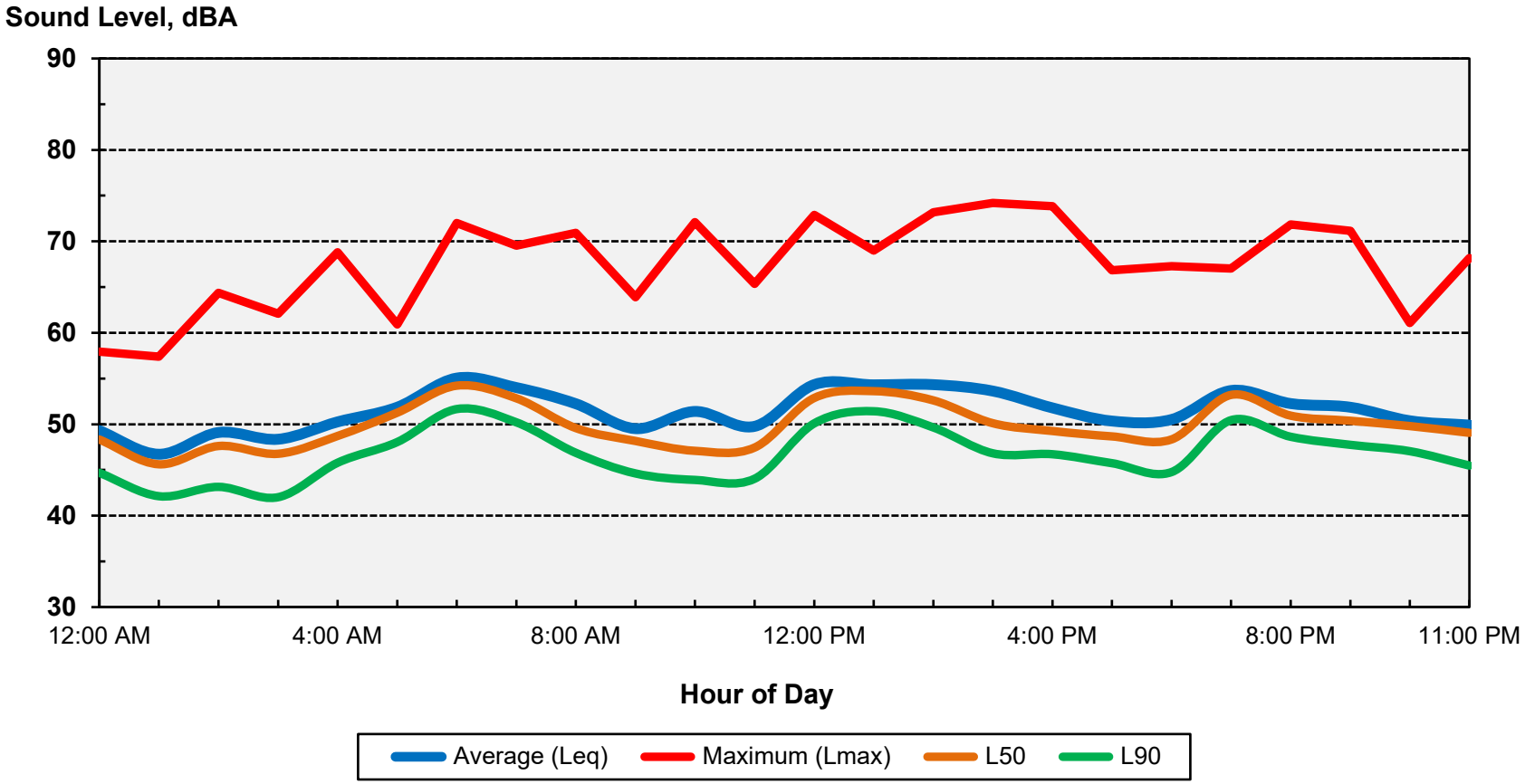
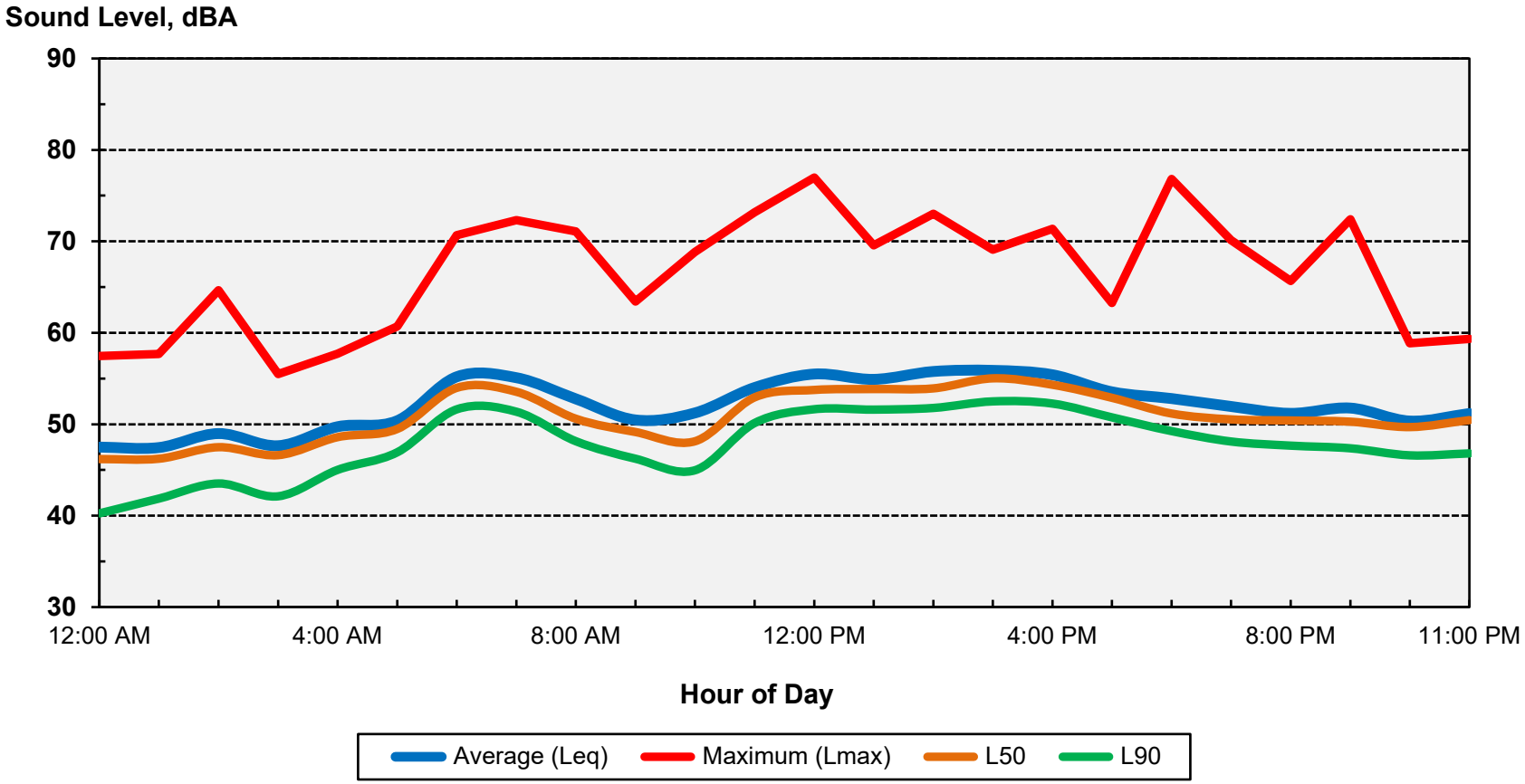
Appendix C-5
Village at Grays Crossing
Ambient Noise Monitoring Results - Site 2
Wednesday, May 03, 2017



Ldn: 57 dB

BOLLARD
Acoustical Consultants

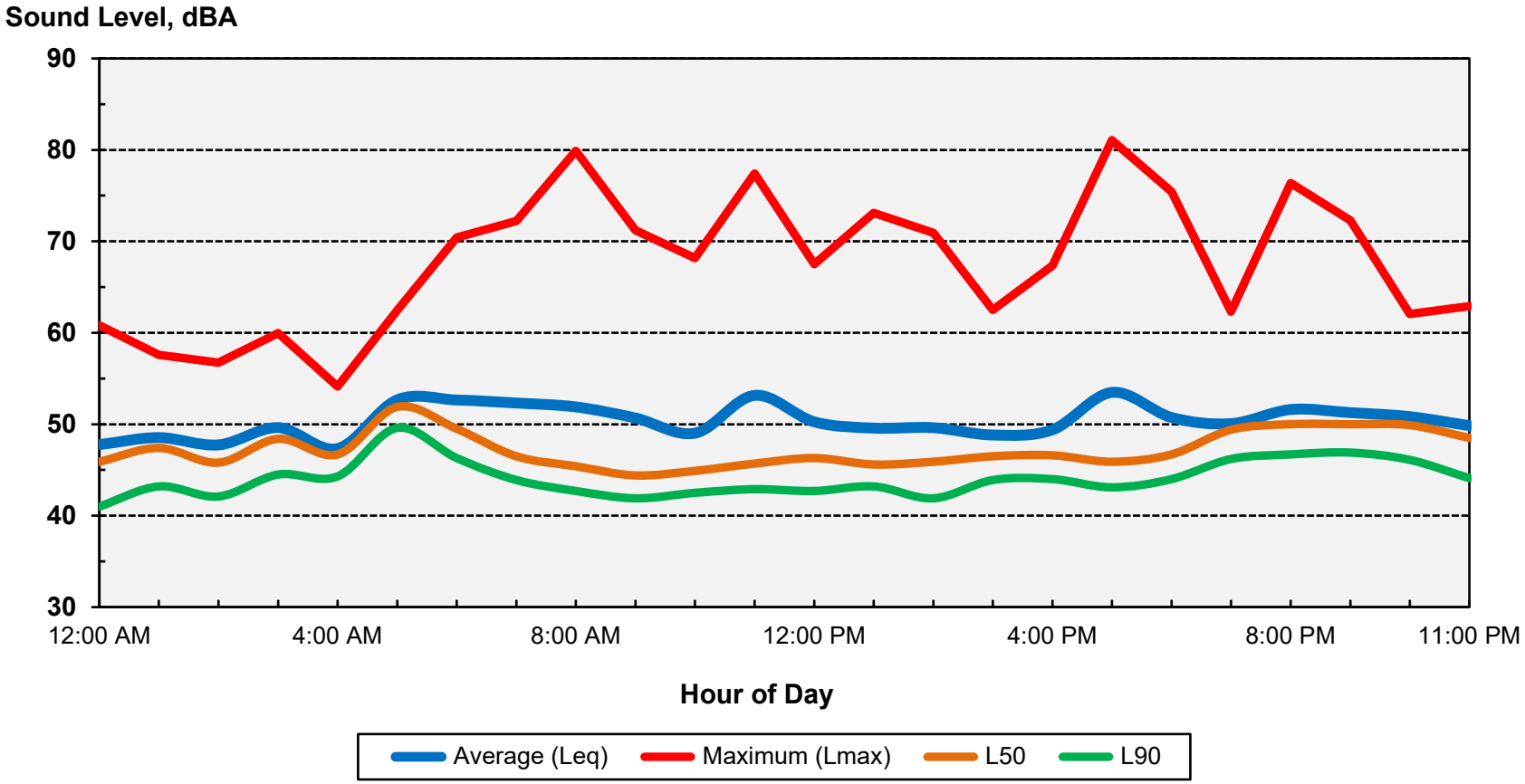
Appendix C-6
Village at Grays Crossing
Ambient Noise Monitoring Results - Site 2
Thursday, May 04, 2017



Ldn: 58 dB

BOLLARD
Acoustical Consultants

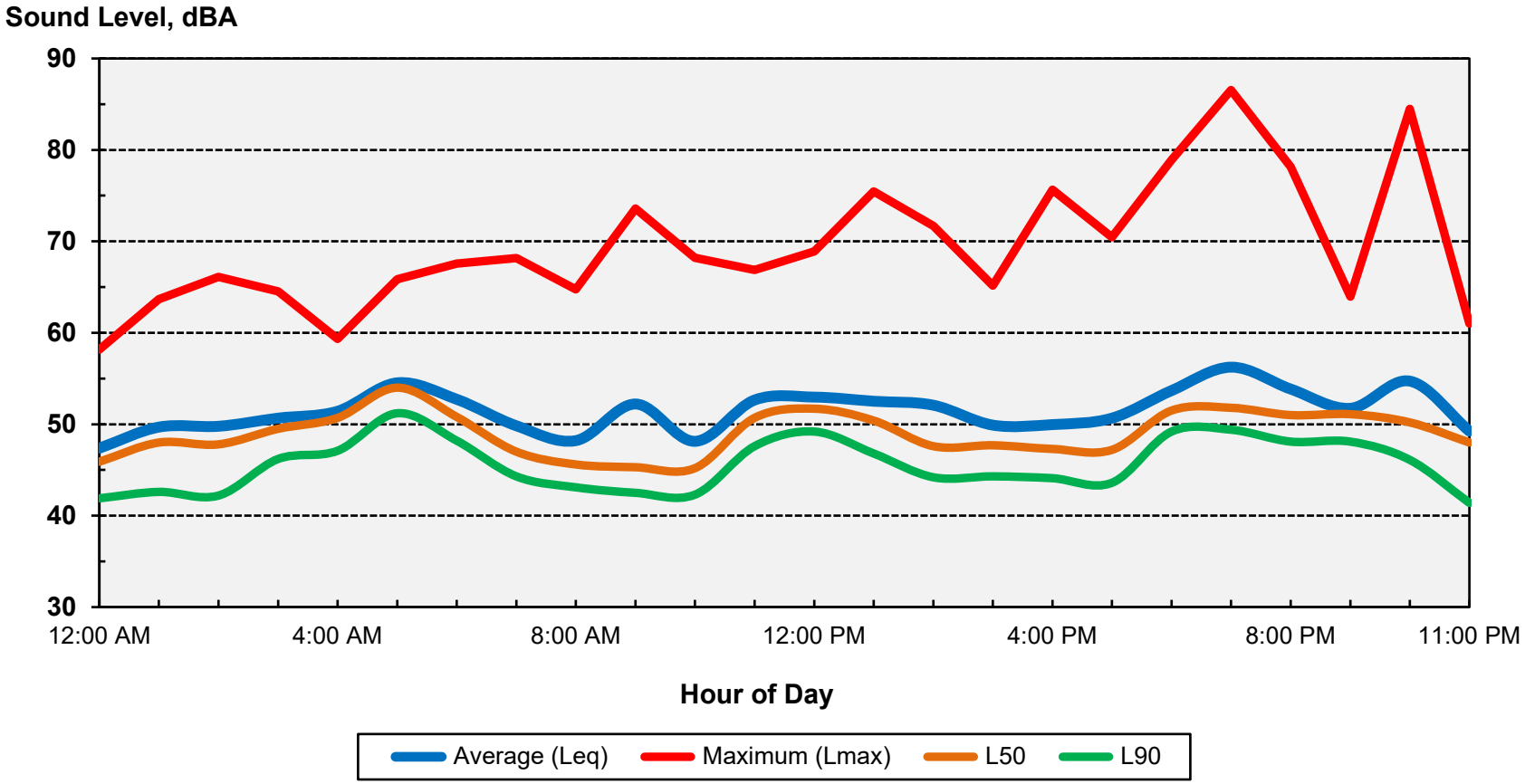
Appendix C-7
Village at Grays Crossing
Ambient Noise Monitoring Results - Site 3
Tuesday, May 02, 2017



Ldn: 57 dB

BOLLARD
Acoustical Consultants

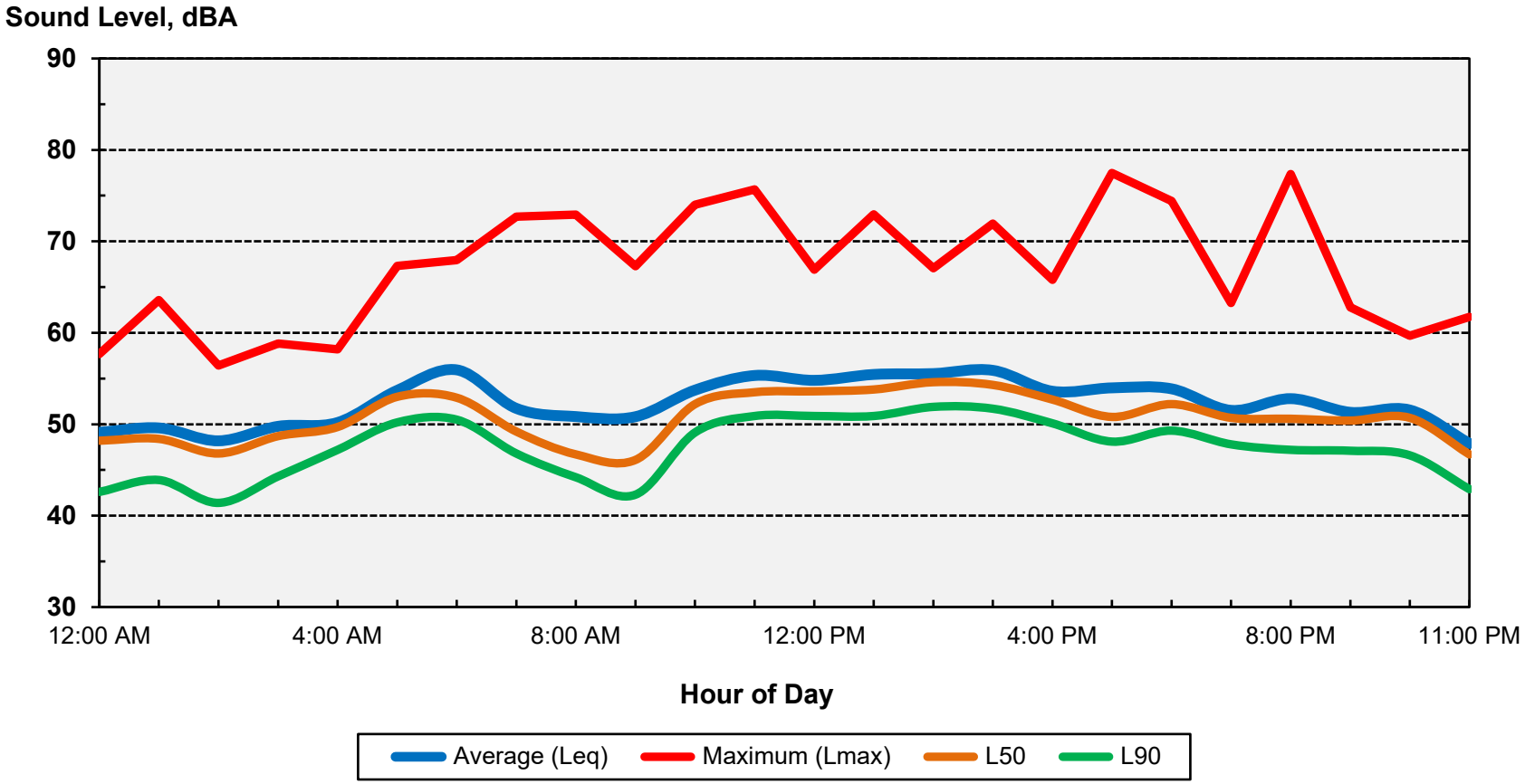
Appendix C-8
Village at Grays Crossing
Ambient Noise Monitoring Results - Site 3
Wednesday, May 03, 2017



Ldn: 58 dB

BOLLARD
Acoustical Consultants

Appendix C-9
Village at Grays Crossing
Ambient Noise Monitoring Results - Site 3
Thursday, May 04, 2017



Ldn: 58 dB

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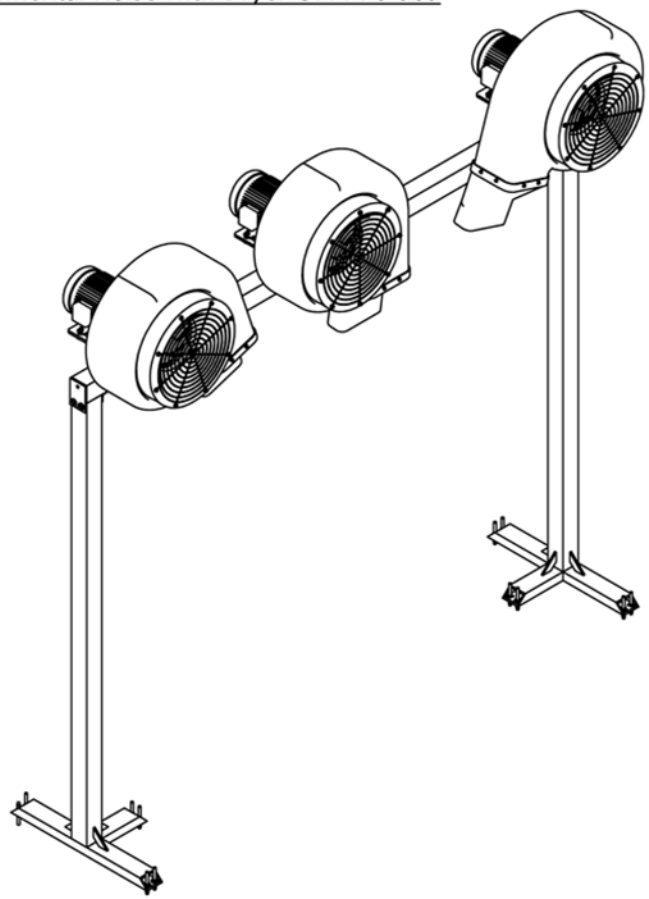
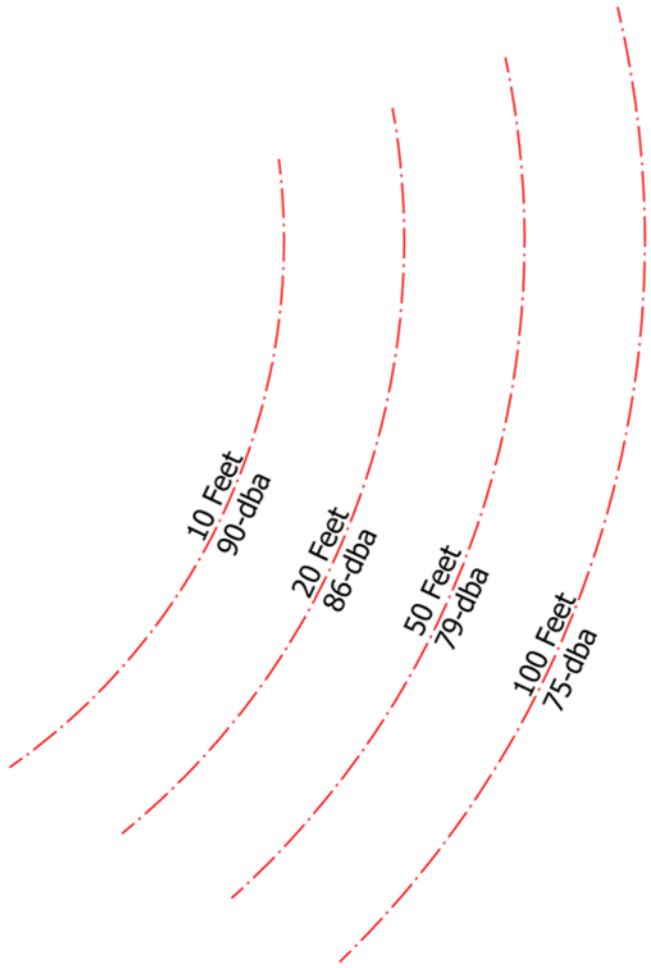
Enviromental Noise with Dryer OFF: 70 dba





THIRD ANGLE PROJECTION	MACHINING TOLERANCES	DRAWN LVerdecia	8/26/2011	SONNY'S ENTERPRISES THE CARWASH FACTORY
BREAK ALL SHARP CORNERS. PART TO BE FREE OF BURRS.	FRACTION± 1/16"	APPROVED	8/1/2012	
UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN INCHES	.XX DECIMAL ± 0.030	CATEGORY BLOWER		DESCRIPTION BLOWER ASSEMBLY, ONE ARCH 45HP
MATERIAL	.XXX DECIMAL ± 0.005	THIS SHEET CONTAINS CONFIDENTIAL INFORMATION, IMAGES AND TRADE SECRETS OF SONNY'S ENTERPRISES, INC. ANY UNAUTHORIZED USE OR DISCLOSURE OF ANY PORTION THEREOF IS STRICTLY PROHIBITED. THIS WORK IS THE EXCLUSIVE PROPERTY OF SONNY'S ENTERPRISES, INC. ALL RIGHTS RESERVED.		PART NUMBER BL1-45HP-1
	ANGULARITY ± 2°			SHEET 2 OF 2
	FINISH 125			SIZE A
				SCALE N.T.S.

Appendix E
Polycarbonate Door Effectiveness

BayWatch
CAR WASH DOOR SOLUTIONS

Sound Level Measurements for BayWatch Polycarbonate Doors With Mark VII AquaJet XT

Car Wash w/ On-Board Dryer (30hp)

Feet From Door	Entry Door Open	Entry Door Closed
10’	93 db	80 db
20’	90 db	76 db
25’	88 db	74 db
30’	85 db	71 db
50’	80 db	66 db

BOLLARD
Acoustical Consultants

Appendix F
Vacuum Hose Noise Data

February 10th, 2016

Re: Vacutech Sound Study Projections for Bella Terra Car Wash in Huntington Beach, CA

To: Chase Russell – Owner of Bella Terra Car Wash 16061 Beach Blvd. Huntington Beach, CA

The chart below shows a cumulative average of that data taken from express car washes of this type and size. It is presented in an incremental form based on the worst case scenario of the vacuum hoses being off the hook, so to speak. Based on the collective average of the 45' reading to the 85' reading and is presented in the chart below:

Vacutech Noise Study Projections	
Average of all 19 hoses off and in use	
Average @ 45'	52.3 db
Average @ 55'	54.6 db
Average @ 65'	52.1 db
Average @ 75'	49.2 db
Average @ 85'	49.0 db

SOUND LEVEL METER USED: SIMPSON MODEL #40003 – MSHA APPROVED. MEETS OSHA AND WALSH-HEALY REQUIREMENTS FOR NOISE CONTROL. CONFORMS TO ANSI S1.4 1983, IEC 651 SPECS FOR METER TYPE.

NOTE: Typical outside vacuum system with 1.5" x 15' vacuum nozzles (4" wide by ¾" opening) in use with customer vacuuming.

LSC Transportation Consultants, Inc.
2690 Lake Forest Road, Suite C
P.O. Box 5875
Tahoe City, CA 96145
530-583-4053 ▲ FAX: 530-583-5966
info@lsctrans.com ▲ www.lsctrans.com

November 1, 2022

Scott Mathot
Town of Truckee
10183 Truckee Airport Road
Truckee, CA 96161

RE: Truckee Village at Gray's Crossing Car Wash Limited Transportation Analysis

Dear Mr. Mathot:

Per your request, LSC Transportation Consultants, Inc. is pleased to present our limited transportation analysis for the proposed car wash project located at 10012 Edwin Way in Truckee, California. This project consists of an automated car wash and 10 vacuum stations. This report is a qualitative analysis to determine if the proposed car wash would impact intersection level of service at Henness Road/Edwin Way or Prosser Dam Road/Edwin Way.

This analysis focuses on a 'Future Buildout of the Town's General Plan' traffic scenario during the Town's design period of peak summer conditions. Traffic volumes along Henness Road and Prosser Dam Road near Edwin Way were estimated based on Town's TransCAD Traffic Model and existing counts. The growth in traffic volumes was then distributed along Edwin Way or past Edwin along Henness Road and Prosser Dam Road. Based on the Gray's Crossing Specific Plan (January 2004), most of the commercial growth will occur along Edwin Way and the proposed car wash would be included within the planned growth. Additional growth in residential lots is expected to generate traffic along Posser Dam Road and Henness Road past Edwin Way.

Standard trip generation rates from the Institute of Transportation Engineers (ITE) *Trip Generation Manual, 11th Edition* (2021) were used estimate the number of new trips associated with the car wash. The estimated PM peak hour trip generation would range from 45 to roughly 120 trips depending on how the car wash uses are classified. Using the 'worst case' scenario of 120 trips, 50 percent were assumed to be entering in the peak hour and 90 percent were assumed to access the site from the south via Henness Road.

Using the estimated traffic volumes and the worst-case scenario trip generation, level of service (LOS) calculations were conducted based on standard *Highway Capacity Manual 7th Edition (HCM)* methodology. All resulting intersection LOS were acceptable with LOS B or better for the worst movement on both Henness Road/Edwin Way and Prosser Dam Road/Edwin Way

Therefore, in conclusion, LSC expects that there would be no LOS issues at either Henness Road/Edwin Way and Prosser Dam Road/Edwin Way with the addition of the proposed car wash.

Respectfully Submitted,

LSC TRANSPORTATION CONSULTANTS, INC.

By Leslie Suen

Leslie Suen, PE, Associate Engineer
LSC Transportation Consultants, Inc.

PLANNING • ENGINEERING • SURVEYING

May 5, 2023

Via: email to ydahn@townoftruckee.com

Re: ***Emissions Comparison – Village at Grays Crossing Gas Station/Convenience Store Vs. Car Wash***

The following memorandum is provided for a vehicular emissions comparison of a eight (8) fueling position gas station with convenience store which was included in the adopted village at Gray's Crossing Specific Plan and analyzed in the Environmental Impact Report (EIR) versus the currently proposed full-service car wash.
The EIR determined 2,604 Average Daily trips for the proposed gas station and convenience store utilizing ITE Manual Land Use Code 843. (See attached Table 6.2-A).

Utilizing the Adopted Town of Truckee Air Quality Mitigation Calculations, the proposed gas station and convenience store would potentially generate 9,114 weekly trips and 39,190.2 weekly miles traveled which would total 3,575 g = (.00394 tons) emissions. See calculation table below:

Comparatively, a proposed car wash per LSC's memorandum dated November 1, 2022 identifies standard trip generation rates from the Institute of Transportation (ITE) Trip Generation Manual, 11th edition (2021) with a PM peak hour of roughly 45 to 120 trips and assumes 50%, or 60 trips entering the site during the peak hour. Additionally, the applicant assumes an average operating day to include approximately 300 car washes and average daily trips. Utilizing the Adopted Town of Truckee Air Quality Mitigation Calculations, the proposed car wash would potentially generate 2,100 weekly trips and 9,030 weekly miles traveled which would total 824 g = (.0009083 tons) emissions, or only about 23.0% of the emissions from a gas station / convenience store. See calculation table below:

	TRIP EMISSIONS	
	Car Wash	Gas Station
Daily Cars	300	1302
Total per Week	2100	9114
Miles per trip	4.3	4.3
Daily Miles	1290	5599
Weekly Miles	9030	39190
Miles per year	469560	2037890
Kilograms / Ton	907	907
Kilogram/Gram	0.001	0.001
Grams Emissions/Mile	0.091206	0.091206
Grams of Weekly Emissions	824	3574
Tons of Weekly Emissions	0.0009	0.0039
Yearly Grams of Emissons	42827	185868
Yearly Emissions - Tons	0.047218	0.204926

Percentage Comparison	23.0%

Idling time does generate additional emissions and is expected to be greater with a car wash, but during peak hours at a gas station/convenience store, idling cars are also commonplace while waiting for a pump to open up and on occasion where a passenger goes into the convenience store, while the driver waits in a parking stall at idle. Comparatively, it is assumed that the average consumer takes 45 seconds to select a wash and use a credit card to purchase a car wash and the average car wash takes about 90 seconds (1 minute – 30 seconds) to go through the "wash tunnel". If we first look at the max. peak hour of the car wash, we expect 45 cars, or 1 car every 90 seconds entering the site. As the first cars enter and select/purchase a wash, and begin the wash, the normal idling time would equate to approximately 2 minutes 15 seconds. Once the "wash tunnel" is at max. capacity, selection/purchase time is irrelevant as customers are waiting for their time to approach/enter the tunnel and can use that time for selection/purchase. During this peak hour of 45 customers, the access isle would continue to slowly back up beginning with a 2 minutes 15 second idling time and once the access isle is full (up to 13 cars), idle times could be up to 30 minutes assuming last car in line and 1 min.- 30 seconds through the "wash tunnel". Assuming an average during this peak hour of 16 minutes the peak hour would result in the equivalent of 172 miles driven. The remaining 255 cars of the average day would likely see idling times of 2 minutes - 15 seconds which would equate to the equivalent of 137 miles for a total average day idling equivalent of 308 miles. The cumulative result is an average day of 300 cars with their trip to the car wash and associated idling time would equate to 1,598 miles traveled and a weekly total of 11,186 miles.

As per the Adopted Town of Truckee Air Quality Mitigation Calculations, the proposed car wash would potentially generate 2,100 weekly trips totaling 9,030 weekly miles traveled together with 2,156 equivalent miles of idling which would equate to 1,020 g = (.0011 ton) emissions, or about 28.6% of a gas station / convenience store. See calculation table below:

	EQUIVALENT IDLING EMISSIONS			
	Normal	Average Peak	Total	
# of cars	255	45	300	
Average Idle Time (Min)	2.25	16		
Average Idle Time (Hours)	0.038	0.267	0.304	
Miles per trip	4.3	4.3		
Idle gas use (gph)	0.65	0.65		
Average Fuel Efficiency (mpg)	22	22		COMBINED
Miles per hour	14.3	14.3		Total (Idle + Trip)
Equivalent Miles Driven	137	172	308	1598
Weekly Equivalent Miles	957	1201	2158	11188
Miles per year	49775	62462	112237	581797
Kilograms / Ton	907	907	1814	907
Kilogram/Gram	0.001	0.001	0.002	0.001
Grams Emissions/Mile	0.091206	0.091206	0.182412	0.091206
Grams of Weekly Emissions	87	110	197	1020
Tons of Weekly Emissions	0.0001	0.0001	0.0002	0.0011251
Yearly Grams of Emissions	4540	5697	10237	53063
Yearly Emissions - Tons	0.00501	0.00628	0.01129	0.05850

To Summarize, a full-service car wash has some additional attributed idling time as compared to a gas station/convenience store; however, the volume of overall emissions/air quality impact is approximately 14.3% of a gas station which is significantly below what was evaluated with the previous EIR. Items not taken into account include customers that turn off their car during the wash cycle or waiting to move forward while approaching the wash tunnel, newer cars that automatically shut off while the brake is depressed at stop and electric/ev vehicles that wash their car just as regularly as non-ev vehicles.

Table 6.2-A

Gray's Crossing Weekday Trip Generation - Increased Development Alternative

Land Use	ITE Land Use Code	Number of Units	Units	Unadjusted Trip Generation Rates				Total Project Generated Vehicle Trips				Percent Pass-By Trips	Percent Trips Remaining Internal to the Site	Project Generated External New Vehicle Trips				Reduction In Internal Trips Due To Pedestrian Access	Project Generated Internal Vehicle Trips			
				Average Daily	PM Peak-Hour In	PM Peak-Hour Out	PM Peak-Hour Total	Average Daily	PM Peak-Hour In	PM Peak-Hour Out	PM Peak-Hour Total			Average Daily	PM Peak-Hour In	PM Peak-Hour Out	PM Peak-Hour Total		Average Daily	PM Peak-Hour In	PM Peak-Hour Out	PM Peak-Hour Total
Summer Weekday																						
Planning Area 1																						
Single-Family Detached	210	120	DU	6.49	0.39	0.26	0.65	779	47	31	78	0%	15%	662	40	26	66	0%	117	7	5	12
Cottage	210	80	DU	6.49	0.39	0.26	0.65	519	31	21	52	0%	15%	441	26	18	44	0%	78	5	3	8
Church	560	17.5	KSF	9.11	0.36	0.30	0.66	159	6	5	11	0%	14%	137	5	4	9	0%	22	1	1	2
							Subtotal	1,457	84	57	141			1,240	71	48	119	Subtotal	217	13	9	22
Planning Area 2																						
Single-Family Detached	210	137	DU	6.49	0.39	0.26	0.65	889	53	36	89	0%	15%	756	45	31	76	10%	120	7	5	12
Planning Area 3																						
Single-Family Detached	210	58	DU	6.49	0.39	0.26	0.65	376	23	15	38	0%	15%	320	20	13	32	10%	51	3	2	5
Planning Area 4																						
Single-Family Detached	210	32	DU	6.49	0.39	0.26	0.65	208	12	8	20	0%	15%	177	10	7	17	10%	28	2	1	3
Planning Area 5																						
Golf Course	430	18	Hole	35.74	1.21	1.53	2.74	643	22	28	50	0%	75%	161	6	7	13	0%	482	17	21	38
Fitness Center	493	5.0	KSF	42.59	2.62	1.68	4.30	213	13	8	21	0%	75%	53	3	2	5	0%	160	10	6	16
							Subtotal	856	35	36	71			214	9	9	18	Subtotal	670	29	28	54
Planning Area 6																						
Single-Family Detached	210	42	DU	6.49	0.39	0.26	0.65	273	16	11	27	0%	15%	232	14	9	23	10%	37	2	1	4
Planning Area 7																						
Single-Family Detached	210	29	DU	6.49	0.39	0.26	0.65	188	11	8	19	0%	15%	160	9	7	16	10%	25	1	1	3
Planning Area 8																						
Apartment	220	112	DU	6.63	0.42	0.20	0.62	743	47	22	69	0%	15%	632	40	19	59	10%	100	6	3	9
Lofts	220	23	DU	6.63	0.42	0.20	0.62	152	10	5	15	0%	15%	129	9	4	13	10%	21	1	1	2
Specialty Retail	814	34.8	KSF	40.67	1.11	1.48	2.59	1,415	39	52	91	0%	14%	1,217	34	45	78	0%	198	5	7	13
Office	710	4.1	KSF	11.01	0.25	1.24	1.49	45	1	5	6	0%	14%	39	1	4	5	0%	6	0	1	1
Gas Station with Convenience Store	843	16	FP	162.78	6.69	6.69	13.38	2,604	107	107	214	35%	14%	1,456	60	60	120	0%	365	15	15	30
Lodge	330	120	Room	3.45	0.18	0.24	0.42	414	22	29	51	0%	15%	352	19	25	43	0%	62	3	4	8
Church	560	15.0	KSF	9.11	0.36	0.30	0.66	137	5	5	10	0%	14%	118	4	4	9	0%	19	1	1	1
Community Center	495	7.2	KSF	22.88	0.60	1.15	1.75	165	4	8	12	0%	75%	41	1	2	3	0%	124	3	6	9
							Subtotal	5,675	235	233	468			3,984	168	163	330	Subtotal	895	34	38	73
Planning Area 9																						
Multi-Family	230	120	DU	5.24	0.29	0.18	0.47	629	35	22	57	0%	15%	535	30	19	48	10%	85	5	3	8
							Total	10,551	504	426	930			7,618	376	306	679	Total	2,128	96	88	184

Note: DU = dwelling unit, KSF = 1,000 square feet of floor area, Hole = golf hole, FP = fueling positions
Shading indicates areas where changes were made.