TAHOE DONNER LODGE

PRELIMINARY DRAINAGE REPORT
DECEMBER 2, 2022

AUERBACH ENGINEERING CORPORATION

P.O. BOX 5399 • 645 WEST LAKE BLVD. • TAHOE CITY • CALIFORNIA 96145
VOICE (530) 581-1116 • FAX (530) 581-3162 • WWW.AUERBACHENGINEERING.COM

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1.0 Introduction

This Preliminary Drainage Report (Report) is intended for submission with the civil improvement plans to the Town of Truckee for the Tahoe Donner Lodge Project (Project) located at 11603 Snowpeak Way, Truckee, CA.

This Report addresses pre- and post-project stormwater runoff and stormwater quality planning for the project. The Town of Truckee and Lahontan RWQCB planning comments are specifically addressed herein. The project location is shown in Figure 1: Project Location Map.

2.0 Background Information

Auerbach Engineering Corporation (AEC) reviewed the following documents associated with the site:

- Salix Consulting, Inc. (October 2022). Aquatic Resources Delineation for the Tahoe Donner Downhill Lodge Project
- NV5. (November 8, 2021). Geotechnical Engineering Report Tahoe Donner Association Downhill Ski Lodge
- Lahontan Regional Water Quality Control Board. Board Order No. 6-00-45 Updated Waste Discharge Requirements for Tahoe Donner Ski Area (Basin Plan)

3.0 Existing Conditions

The existing Tahoe Donner Lodge is located at the base of the Tahoe Donner Ski area, approximately 1,000 feet southwest of the intersection of Slalom Way and Snowpeak Way in Truckee, CA. The Project site is on a parcel currently owned and operated by the Tahoe Donner Association, Nevada County Assessor's Parcel Number 046-250-009. The adjacent ski and parking areas are on separate adjacent parcels owned by the association.

The site is in the Prosser Creek watershed, which is part of the greater Truckee River watershed. Surface water flows northerly into two drainages. Drainage from the west side of the Tahoe Donner ski hill flows into Alder Creek. Flow from the east side of the Tahoe Donner ski hill is intercepted by a channel flowing north past the lodge area eventually flowing into Alder Creek approximately 800 feet to the north of the project site. Alder Creek flows northwesterly for approximately 7.5 miles before entering Prosser Creek Reservoir. The reservoir outlets into Prosser Creek and flows for 2 miles before entering the Truckee River and eventually terminating at Pyramid Lake in Nevada.

The site is already heavily developed, including an existing 15,128 square foot (floor space) lodge building, deck, paved driveway, and existing drainage facilities constructed when the original lodge was built. The existing impervious area is 32,460 square feet (roof, deck, stairs, and pavements) and 50,670 square feet of landscaped area.

Existing vegetation includes scrub vegetation, ruderal areas with sparse vegetation, a lawn, and riparian scrub corridors with native vegetation.

United States Department of Agriculture soil survey information for the project area indicates the soils are within Hydrologic Soil Group C. Hydrologic Soil Group C soils have a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. This is informational only as the Hydrologic Soil Group is not used in the hydrology. Refer to Appendix A: USDA Natural Resources Conservation Service Soil Survey

The project site is in Flood Hazard Zone X per the FIRM Map for Nevada County, California and Incorporated Areas, Effective Date: February 3, 2010. The FIRM defines Zone X as "Areas outside of 500-year floodplain. Area of minimal flood hazard." The FIRM is included in Appendix B: Flood Insurance Rate Map.

Average annual precipitation in Tahoe Donner is approximately 42 inches per year (Elev. 6,806') based on PRISM monthly normal as provided in Appendix C: Drainage Calculations. Most of this precipitation occurs between November and May and is in the form of snowfall, which is included in the annual precipitation numbers as equivalent water content. Though snow predominates the precipitation regime, storm drainage facilities will be designed using rainfall runoff estimates.

Runoff from the ski slope to the southwest of the lodge, Watershed B as shown in Figure 2: Existing and Proposed Offsite Watersheds, is collected and conveyed through a constructed drainage swale to culverts and the channel located immediately east of the lodge along the edge of the driveway as shown in Appendix E: Salix Figure 6a. This swale effectively isolates the lodge from offsite runoff. This condition is maintained in the post-project condition, with no changes to the uphill watershed or the discharge point. This is reflected in the analysis and design for the lodge site improvements and the analysis in this report for both offsite watersheds and onsite project catchments.

The existing lodge site does not contain any stormwater treatment BMPs or Low Impact Development. Existing impervious surfaces drain directly offsite as shown on Figure 3: Existing Conditions Onsite Drainage Map.

3.1 Aquatic Resources and Basin Plan

An Aquatic Resources Delineation prepared by Salix, Inc. does not identify any aquatic resources located to the south (uphill) of the existing structure. The existing constructed drainage swale to the south of the building prevents potential run-on from flowing toward the existing deck area and does not contain any aquatic resources or evidence of bed and bank. This existing drainage swale will be relocated and constructed to the south of the proposed deck area and serve the same function as discussed in the proposed conditions. The drainage swale/channel located east of the lodge site has been mapped as an aquatic resource and is not impacted by the proposed conditions. See attached, Appendix D: Civil Improvement Plans for delineation of Aquatic Resources, existing conditions, and proposed improvements. The mapped aquatic resources are shown in Appendix E: Salix Figure 6a.

4.0 Proposed Conditions

The Project consists of a new lodge structure to replace the existing lodge at the base of the Tahoe Donner ski area. The total footprint of the new structure is 9,336 square feet. The entire project is

34,691 square feet of impervious area for the new building, deck, and paved driveway. This is only a 7% increase over the pre-project impervious condition.

A paved circular driveway is proposed for access/drop-off in front of the new lodge building. Parking for the project is satisfied by an existing lot at the intersection of Slalom Way and Snowpeak Way. Two new ADA stalls are proposed outside of the new lodge entrance. Installation of drainage appurtenances to collect, convey, and treat the stormwater associated with the project area are part of the proposed improvements.

5.0 Design Criteria and Assumptions

Section 5 describes the methodology, design criteria, and assumptions used in this preliminary design report.

5.1 Town of Truckee

Proposed system drainage flows and facilities are calculated and designed in accordance with the following standards and ordinance.

- Title 11 Stormwater Quality Ordinance
- Public Improvement and Engineering Standards
- Article III Site Planning and General Development Standards

The Stormwater Quality Ordinance requires that projects that increase impervious surface area over the pre-project condition, the post-project runoff shall not exceed the estimated pre-project flow rate for the 2-year, 24-hour design storm.

Town of Truckee Standards require on site retention of runoff from the 20-year, 1-hour storm per the Basin Plan (0.7-inch storm depth) and the quantity or rate of runoff for such a storm should not increase above the pre-development condition. Stormwater conveyance systems must be sized to convey a 10-year storm without system surcharge and a 100-year event without damage.

The project incorporates permanent BMPs for infiltration of new and replaced impervious surface since the post-project new impervious area is not more than 50% of the existing impervious surface. The post-project is only a 7% increase in impervious area.

The various conditions can be summarized in the following basic criteria:

- Post project peak runoff will be equal to or less than pre-project conditions as analyzed using 10- and 100-year design storm events due to the retention of the 85th-percentile, 24-hour storm (1.1-inch)
- Site runoff from all new impervious areas will be treated on site for water quality
- Existing watershed boundaries will be generally maintained with site layout and grading
- Excessive diversion from one watershed to another does not occur
- Stormwater storage volume equivalent for the 85th-percentile, 24-hour storm (1.1-inch) over all new impervious surfaces will be provided onsite

- This criterion also satisfies the Lahontan RWQCB requirement for the 20-year, 1-hour storm event (0.7-inch)
- The pre- versus post-project 2-year, 24-hour design storm attenuation is achieved through the retention of the 85th-percentile, 24-hour storm

5.2 Hydrologic and Hydraulic Methodology

Peak flow calculations are performed using the rational method as adopted by the Town of Truckee.

The modified rational method utilizes the Hydraflow Hydrographs Extension for Autodesk Civil 3D. Data input includes the following:

- Rainfall intensity-duration-frequency per Town of Truckee Standard Drawings SD #59-60 included in Appendix C: Drainage Calculations, inches/hour
- Watershed area, acres
- C-value per Town of Truckee Standard Drawing SD #58 included in Appendix C: Drainage Calculations
  - 0.07 for offsite watersheds for moderately steep vegetated slopes
  - Onsite watersheds use a weighted C-value
- Time of concentration using the SCS TR-55 methodology
  - Pre- and post-project onsite watersheds assume a base 5-minute time of concentration
- Triangular hydrographs using a 1:1 rising and falling limb

Hydraulic calculations use the normal depth and Manning's N-value methodology.

5.3 Lahontan

The LRWQCB plan for the Lahontan Region (Basin Plan) contains a prohibition on discharges to the Truckee River, Little Truckee River, and its tributaries, including the rivers, tributaries and 100-year flood plains. Grading disturbance within a 100-year flood plan is prohibited unless an exemption to the Basin Plan prohibition is provided. Board Order No. 6-00-45 Updated Waste Discharge Requirements for Tahoe Donner Ski Area requires the 20-year, 1-hour storm event (0.7-inch) from impervious surfaces be retained and treated onsite.

6.0 Results

This section discusses and summarizes the results for pre- and post-project for the offsite watersheds, onsite catchments, and water quality plan.

6.1 Offsite Watersheds

The two large offsite Watersheds A and B are presented in Figure 2: Existing and Proposed Offsite Watersheds and summarized in Table 1. Runoff calculations are included in Appendix C.

Offsite watershed areas are determined based on existing contour LiDAR information for pre-project and post-project. AEC does not consider the proposed onsite improvements as affecting the hydrology of the offsite Watersheds A and B as onsite drainage patterns are the same for pre- and

post-project conditions. Rational Method results for the offsite Watersheds A and B are presented in Table 1: Existing and Proposed Offsite Watersheds.

Table 1: Existing and Proposed Offsite Watersheds Characteristics and Results

Watershed	Area (acres)	Flow Type	Flow Length (feet)	Slope (%)	10-Year Event (cfs)	100-Year Event (cfs)
A	803.5	Overland/Collector	9,388	11.8	73.1	103.9
B	93.1	Overland/Collector	4,140	4.8	9.9	14.0

The Hydraflow Rational Method output for the offsite watersheds are included in Appendix C: Drainage Calculations.

6.2 Onsite Watersheds

Onsite watersheds are determined from a combination of local, site topographic survey prepared by AEC and the same LiDAR as used for the offsite watersheds.

Onsite pre- and post-project catchments are shown in Figure 3: Existing Conditions Onsite Drainage Map and Figure 4: Proposed Conditions Onsite Drainage Map, respectively. In general, the pre- and post-project drainage patterns are similar and discharge to the same locations. Table 2 summarizes the pre- and post-project peak runoff and volume for the 10- and 100-year events.

Table 2: Existing and Proposed Onsite Watershed Characteristic and Results

Watershed[1]	Area (acres)	Weighted C-Value	10-Year Event (cfs)	100-Year Event (cfs)	10-Year Event Volume (ft^3)	100-Year Event Volume (ft^3)
EO-1	0.84	0.58	1.4	1.9	411	583
PO-1	1.01	0.53	1.5	2.1	451	641
EO-2	1.07	0.46	1.4	2.0	415	589
PO-2	0.92	0.53	1.4	1.9	411	584

[1] EO=Existing Onsite; PO=Proposed Onsite

Pre-project and post-project onsite modified Rational Method hydrographs are provided in Appendix C.

As shown, the unmitigated peak runoff would increase under post-developed conditions based on the Rational Method.

However, increases from pre-project to post-project runoff rates and volumes will be decreased by the Town of Truckee requirement to treat and infiltrate the 85th percentile, 24-hour (1.1-inch) storm. The Town of Truckee *Low Impact Development Calculator - Sizing Calculator for BMPs* for the 85th percentile, 24-hour (1.1-inch) storm results in storage in excess of the 10- or 100-year return period storm runoff volumes for post-project onsite conditions.

6.3 Post-Construction Storm Water Quality Results

Designated stormwater treatment facilities designed using Town of Truckee Low Impact Design criteria utilize infiltration trenches and chambers to retain the 85th percentile, 24-hour storm (1.1-inch). There are five drainage management areas (DMA) that drain to four treatment facilities.

DMA 1 includes a portion of the existing road replacement and a portion of the northernmost roof section. Runoff is conveyed through downspouts and sheet flow to a drain inlet which routes stormwater to Treatment 1.

DMA 2 includes a northeastern section of the existing road and driveway replacements. Runoff from this DMA is conveyed via sheet flow downstream to Alder Creek. Existing runoff conditions shall remain the same for DMA 2 considering no new impervious was added to this DMA and it is merely existing pavement replacement.

DMA 3 includes the middle section of roof and section of the paved turnaround. Runoff is conveyed through downspouts and sheet flow to a trench drain which routes stormwater to Treatment 3.

DMA 4 includes the southern roof section and southern driveway section. Runoff is conveyed through downspouts and sheet flow to a trench drain which routes stormwater to Treatment 4.

DMA 5 includes the deck section. Runoff is conveyed through sheet flow to Treatment 5 infiltration trench.

All provided treatments retain both the onsite 10-year and 100-year storm event volumes. Overflow from DMA and permanent Best Management Practices (BMPs) will drain overland to the same drainage locations as the pre-project conditions. Overflow for Treatments 1 and 3 are designed to bubble up through the trench drain and sheet flow to downstream concentration point (CP-1). Treatment 4 is not anticipated to result from a 100-year storm event and overflow is designed to route runoff through a culvert that daylights to a wetland swale on the east side of the site, ultimately conveying runoff to downstream concentration point (CP-2).

Refer to Figure 4: Proposed Conditions Onsite Drainage Map, Figure 5: Stormwater Quality Plan, and Appendix C for post-project catchments, DMAs, and the associated Stormwater Quality Plan (SWQP) calculations, respectively.

7.0 Stormwater Quality Plan

This section includes the requirements of the Town of Truckee for Title 11-Stormwater Quality. Aerial extents and location of post-construction BMPs are included in Appendix D: Civil Improvement Plans. Appendix C includes the post-storm water quality calculations as discussed in Section 6.3.

7.1 Responsibility for Maintenance

The Tahoe Donner Association is responsible for maintaining the drainage system including downspouts, trench drains, drain inlets, and storm drains that direct water to stormwater treatment facilities.

7.2 Maintenance Requirements

The post-construction stormwater BMPs proposed throughout the project site include infiltration trenches and infiltration chambers. Upon project completion, a separate post-construction BMP

operation and maintenance plan will be provided to the Tahoe Donner Association. The following are minimum maintenance requirements for these BMPs.

7.2.1 Infiltration Trenches

- Inspect after every major storm for the first few months to ensure proper functioning.
- Inspect facility semi-annually and after extreme events for signs of wetness or damage to structures, signs of petroleum hydrocarbon contamination, standing water, trash and debris, sediment accumulation, slope stability, standing water, and material buildup.
- Check facility semi-annually and after extreme events for standing water following 3 days of dry weather to ensure proper drain time
- Trenches with filter fabric should be inspected annually for sediment deposits by removing a small section of the top layer. If inspection indicates that the trench is partially or completely clogged, it should be restored to its design conditions
- Repair undercut and eroded areas at inflow and outflow locations as needed
- Remove trash, debris, grass clippings, trees, and other large vegetation from the trench perimeter and dispose of properly semi-annually or as needed
- Mow and trim vegetation to prevent establishment of woody vegetation, and for aesthetic and vector reasons semi-annually or as needed.
- Remove grass clippings, leaves, and accumulated sediment from the surface of the trench. Replace first layer of aggregate and filter fabric if clogging appears to be at the surface annually.
- Clean trench when loss of infiltrative capacity is observed annually. If drawdown time is observed to have significantly over the design drawdown time, removal of sediment may be necessary. This is an expensive maintenance activity and the need for it can be minimized through prevention of upstream erosion.
- Upon failure, total rehabilitation of the trench should be conducted to maintain storage capacity within 2/3 of the design treatment volume and 72-hour exfiltration rate limit.
- Upon failure, trench walls should be excavated to expose clean soil
- Upon failure, all the stone aggregate and filter fabric or media must be removed. Accumulated sediment should be stripped from the trench bottom. At this point the bottom may be scarified or tilled to help introduce infiltration. New fabric and clean stone aggregate should be refilled.

7.2.2 Infiltration Chambers

- Isolator rows should be inspected bi-annually until an understanding of the site characteristics is developed.
- If upon visual inspection it is found that sediment has accumulated to an average depth exceeding 3”, cleanout is required.

7.3 Erosion and Sediment Control Plan

Temporary water quality impacts associated with the Project will be mitigated to less-than-significant levels through the installation and operation of construction BMPs before and during construction. The following is a summary of the proposed temporary water quality protection BMPs.

This project will be subject to the development of a SWPPP. An initial temporary erosion and control plan is included in the civil drawings in Appendix D: Civil Improvement Plans.

7.3.1 Temporary Construction BMPs

A range of construction BMPs will be utilized on the project to prevent water quality degradation and to promote the detention and treatment objectives as follows:

- Fiber Rolls: consist of straw, flax, wood excelsior, or coconut fibers bound in a tight tubular roll and should consist of native mixtures. These rolls are placed around construction areas as shown on the improvement plans.
- Tree Protection Fencing: exiting plants and trees in areas subject to land disturbing activities are beneficial because the vegetation serves as an effective form of erosion control. A 4 foot brightly colored synthetic mesh fence will be placed around trees that are in the proximity of the construction area. The trees that will require fencing protection encompassing the driplines of the trees have been delineated on the construction drawings.
- Dust Control: Best Available Control Technology (BACTs) will be implemented to stabilize exposed surfaces and minimize activities that suspend or track dust particles. For example, all disturbed areas shall be adequately re-stabilized. Construction activity management techniques will also be included.
- Erosion Control Fencing: will be used along the perimeter of the construction area to prevent erosion beyond the Project limits during construction.

8.0 Summary

The results and findings are summarized below and include the responses to Town of Truckee and Lahontan RWQCB comments.

8.1 Proposed Conditions Aquatic Resources and Basin Plan

Grading associated with the proposed lodge deck requires reconstruction of the drainage swale south of the building and adjacent to the existing lodge deck. There are no aquatic resources associated with that drainage swale. It is a shallow constructed swale that captures minor drainage from a small area between the existing chair lift and lodge deck. The proposed drainage pattern and catchment area of the reconstructed drainage swale mirrors the existing condition, preserving the runoff pattern to the east drainage channel and mapped aquatic resources as shown in the following.

- Figure 3: Existing Conditions Onsite Drainage Map
- Figure 4: Proposed Conditions Onsite Drainage Map
- Civil improvement plans (Appendix D)
- Salix Figure 6a Aquatic Resources (Appendix E)

Drainage from the proposed deck is treated to the Town of Truckee Low-Impact Development standard before draining to the reconstructed south drainage swale.

The eastern drainage channel has been mapped as an aquatic resource and delineated for the estimated 100-year floodplain. The top width of the 100-year event is approximately the same width as the Salix mapped aquatic resource as illustrated in the 100-Yr East Drainage Channel (Mapped Aquatic Resource) calculation in Appendix C: Drainage Calculations and Salix Figure 6a in Appendix E.

Grading for the proposed project does not encroach on or disturb the aquatic resources or the 100-year flood limit for the eastern drainage channel. Neither the offsite or onsite pre- and post-project conditions affect the runoff to the mapped aquatic resource or the 100-year floodplain. There are no hydrologic changes to the source of water associated with the aquatic resource.

Post-project conditions meet the Basin Plan requirements for treatment of the 20-year, 1-hour storm event (0.7-inch) is met as the site is designed to treat the Town of Truckee Low-Impact Development 85th-percentile, 24-hour storm event (1.1-inch).

An Aquatic Resources Delineation and a Biological Resources Assessment by Salix has been completed and is shown in Appendix E.

8.2 Town of Truckee

This preliminary drainage report addresses the Town of Truckee requirements and shows existing and proposed drainage catchments and drainage patterns.

The only drainage feature that is altered by the project is the southern drainage swale adjacent to the lodge deck as shown on the civil improvement plans and discussed in this drainage report.

An erosion control plan is included on Sheet C1.2 of the civil improvement plans included in Appendix D. The project will also be subject to a full SWPPP.

A storm water quality plan is contained in Section 7.0.

The project incorporates permanent BMPs for infiltration of new and replaced impervious surface since the post-project new impervious area is not more than 50% of the existing impervious surface. Permanent BMPs are designed to the Town of Truckee Low-Impact Development 85th-percentile, 24-hour storm event (1.1-inch) and accommodates the Basin Plan requirements for treatment of the 20-year, 1-hour storm event (0.7-inch).

All onsite conveyances will accommodate peak flows for the 10-year storm event and will also convey flows from the 100-year event. In the case of the 100-year storm, flow is anticipated to be adequately retained and if not retained, designated overflow locations have been provided.

All pre-existing drainage patterns remain unchanged and do not adversely affect downstream properties. Treatment facilities provided meet Lahontan Basin Plan and Town of Truckee requirements.

Figure 1: Project Location Map

VICINITY MAP

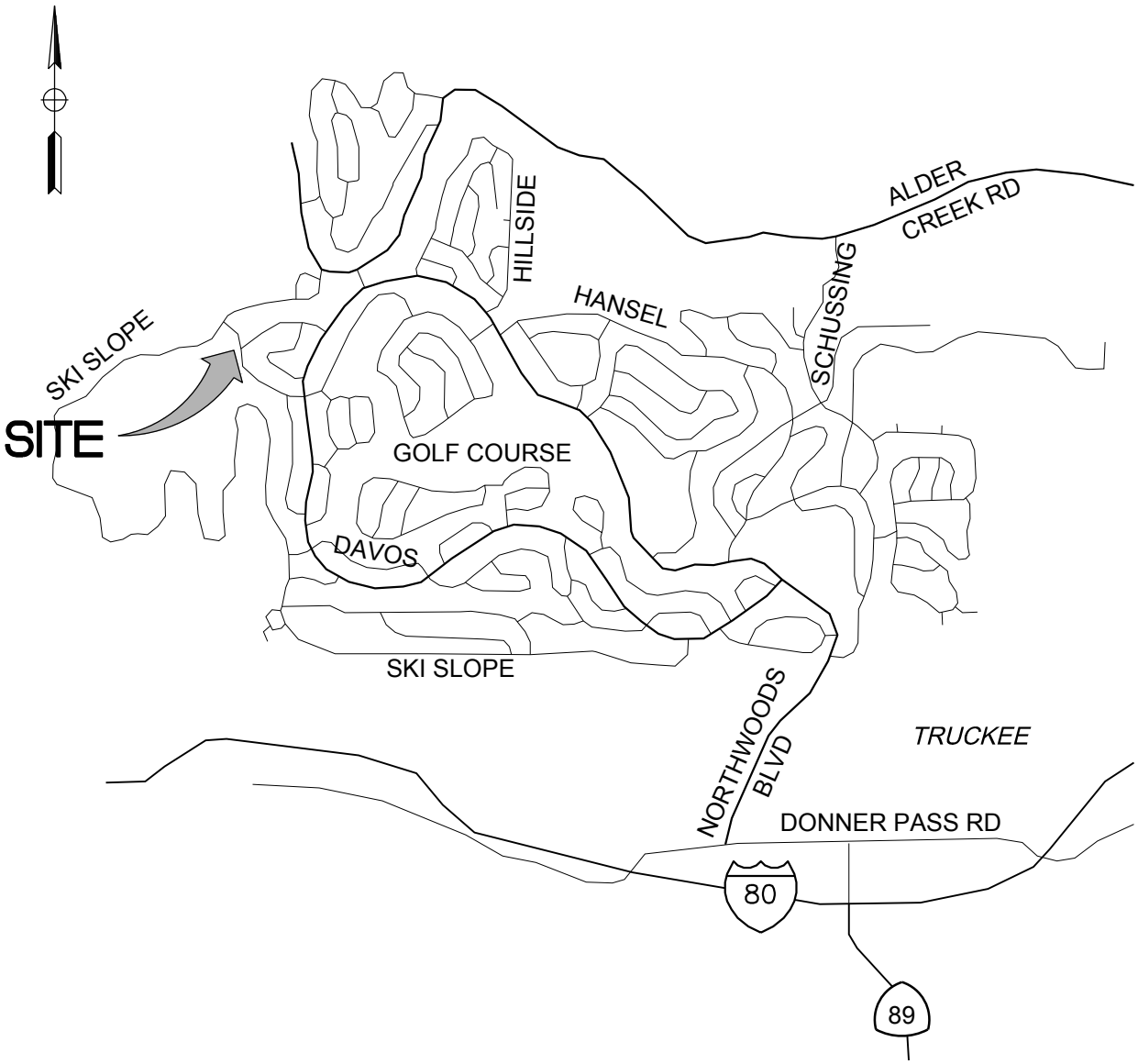

FIGURE 1
VICINITY MAP
TAHOE DONNER LODGE
TAHOE DONNER ASSOCIATION, INC.
450.32 NOVEMBER 2022

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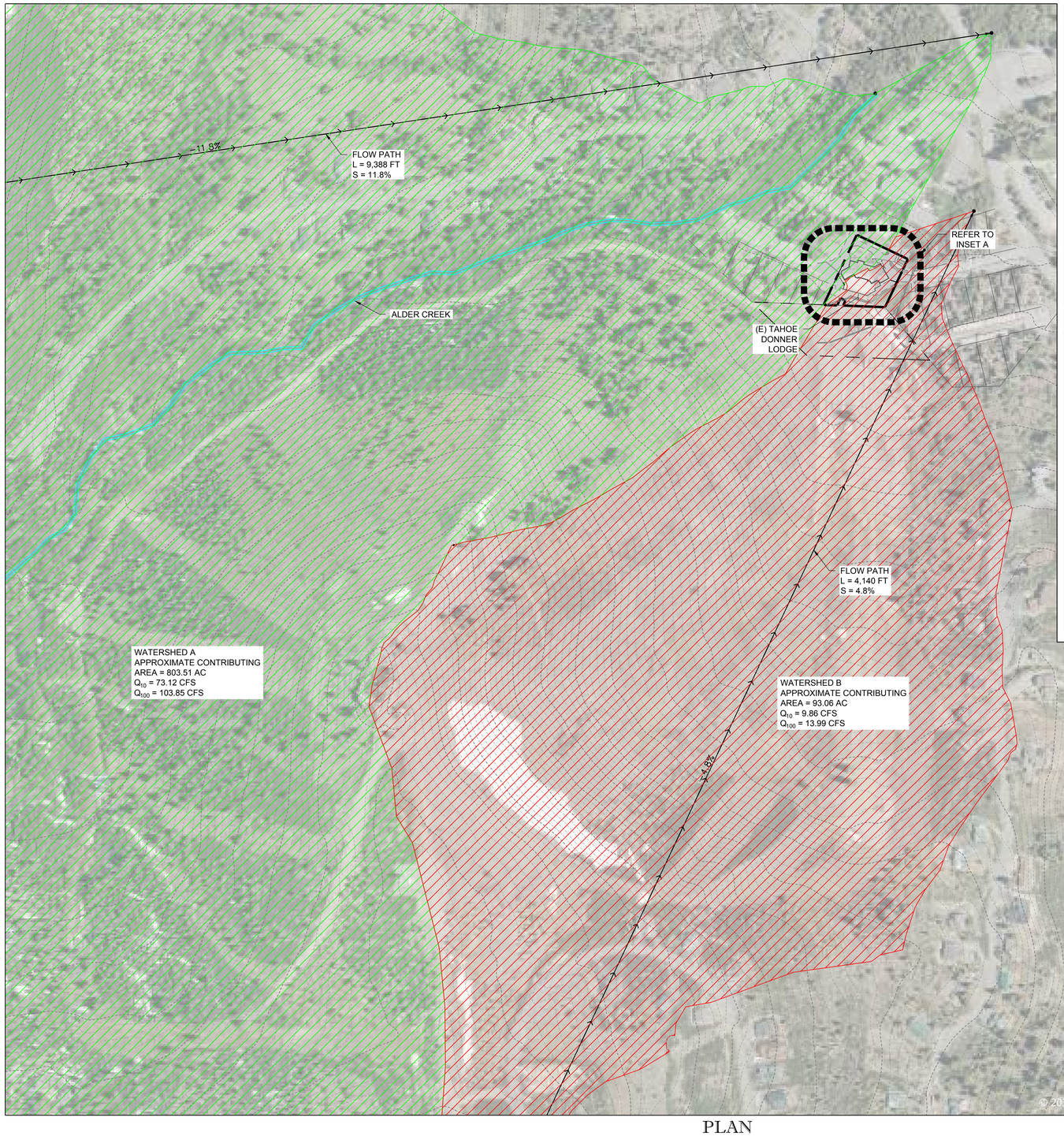
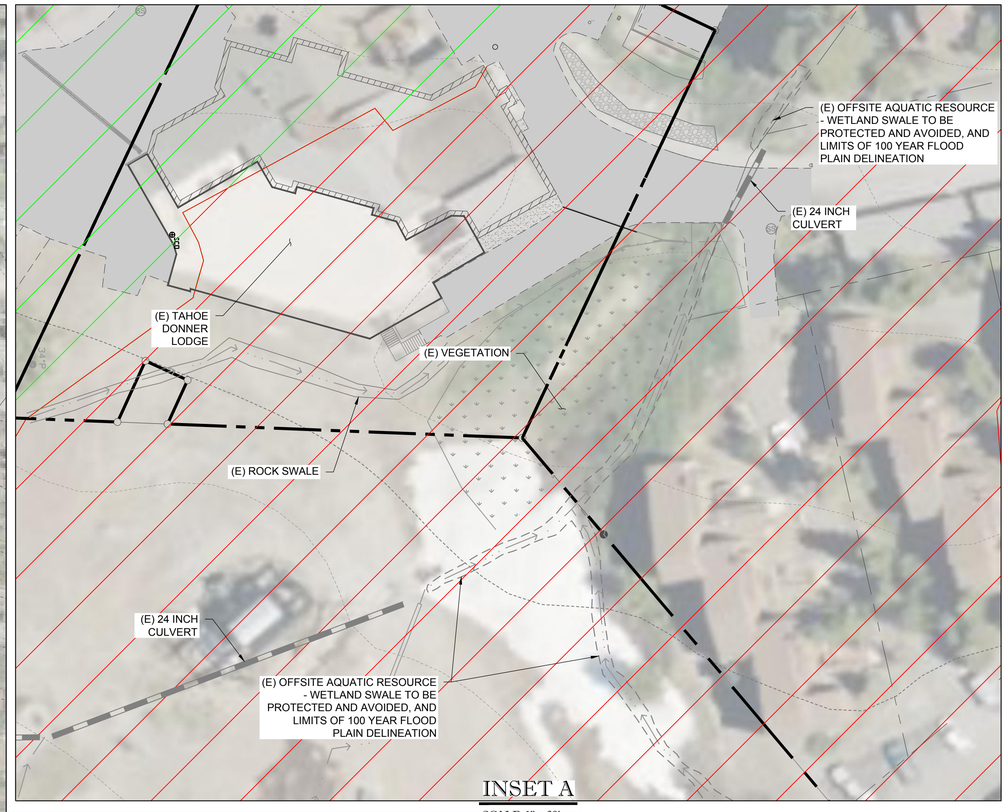
Figure 2: Existing and Proposed Offsite Watersheds



PLAN

SCALE: 1" = 200'



INSET A

SCALE: 1" = 30'

LEGEND

- APPROXIMATE FLOW PATH
- EXISTING CHANNEL FLOW LINE
- EXISTING WATERSHED A
- EXISTING WATERSHED B
- EXISTING CREEK
- EXISTING CULVERT

FIGURE 2
EXISTING AND PROPOSED OFFSITE WATERSHEDS
TAHOE DONNER LODGE
TAHOE DONNER ASSOCIATION, INC.
450.32 NOVEMBER 2022

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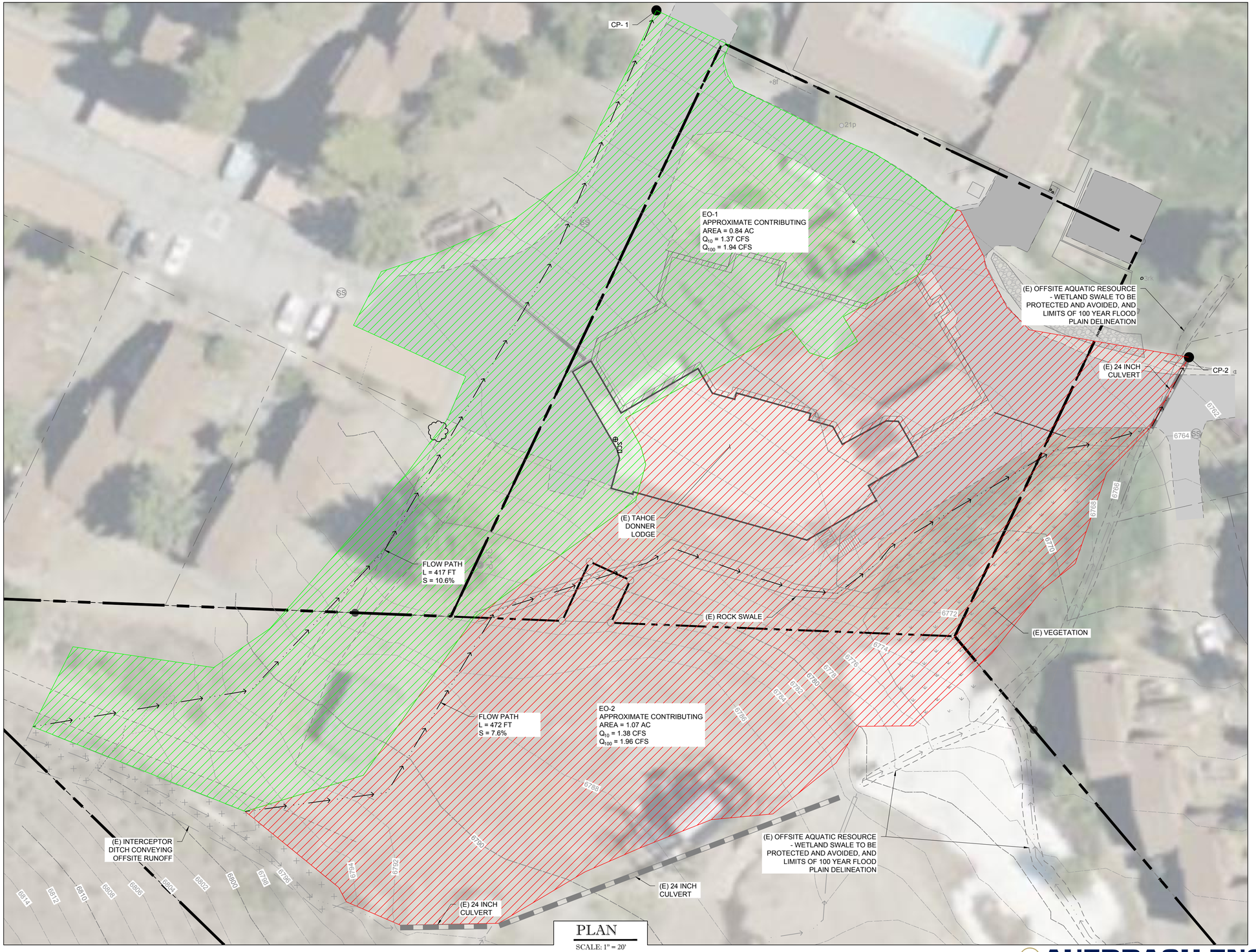
Figure 3: Existing Conditions Onsite Drainage Map



PLAN

SCALE: 1" = 20'

LEGEND

- FLOW PATH
- EXISTING CHANNEL FLOW LINE
- EXISTING ONSITE SUB-WATERSHED (EO-1)
- EXISTING ONSITE SUB-WATERSHED (EO-2)
- CONCENTRATION POINT
- EXISTING CREEK
- EXISTING CULVERT

FIGURE 3
EXISTING CONDITIONS ONSITE DRAINAGE MAP
TAHOE DONNER LODGE
TAHOE DONNER ASSOCIATION, INC.
450.32 NOVEMBER 2022

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Figure 4: Proposed Conditions Onsite Drainage Map

PLAN

SCALE: 1" = 20'

LEGEND

- FLOW PATH
- EXISTING CHANNEL FLOW LINE
- PROPOSED ONSITE SUB-WATERSHED (PO-1)
- PROPOSED ONSITE SUB-WATERSHED (PO-2)
- CONCENTRATION POINT
- EXISTING CREEK
- EXISTING CULVERT

FIGURE 4
PROPOSED CONDITIONS ONSITE DRAINAGE MAP
TAHOE DONNER LODGE
TAHOE DONNER ASSOCIATION, INC.
450.32 NOVEMBER 2022

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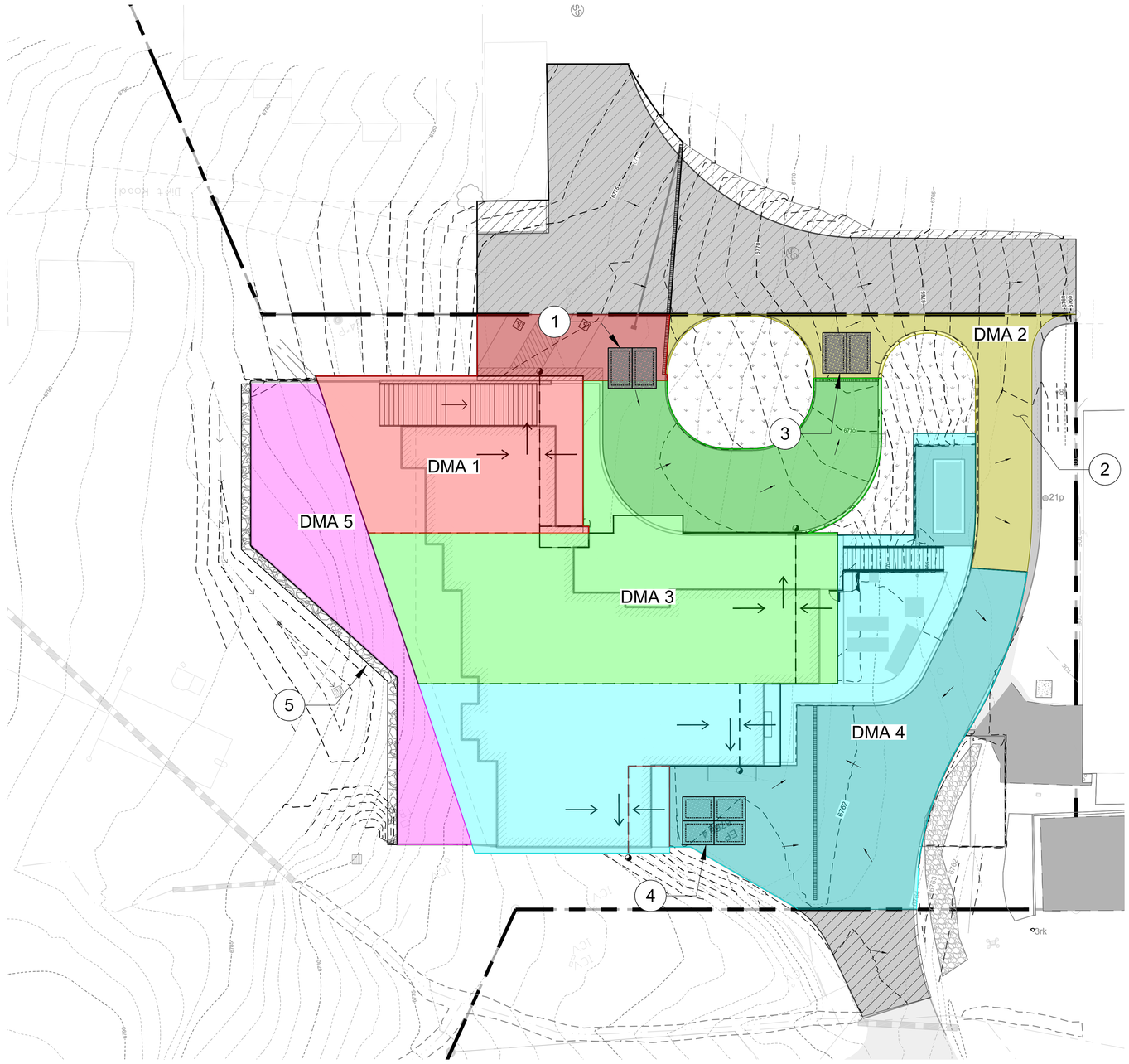
Figure 5: Stormwater Quality Plan



LEGEND

- DMA #1
- DMA #2
- DMA #3
- DMA #4
- DMA #5
- LANDSCAPE
- PRE-EXISTING OFFSITE RUNOFF

BMP PLAN KEYNOTES

1. DMA 1 (ROOF 1 & ASPHALT DRIVEWAY)
   STORMTECH MC-3500
   DIMENSIONS: 12.92' L X 15.33' W X 72"D
2. DMA 2 (ASPHALT DRIVEWAY)
   NO TREATMENT PROPOSED. PAVEMENT REPLACEMENT AND RUNOFF VOLUME MATCHES EXISTING.
3. DMA 3 (ROOF 2 & ASPHALT TURNAROUND)
   STORMTECH MC-3500
   DIMENSIONS: 12.92' L X 15.33' W X 115" D
4. DMA 4 (ROOF 3 & ASPHALT DRIVEWAY)
   STORMTECH MC-3500
   DIMENSIONS: 20.08' L X 15.33' W X 84" D
5. DMA 5 (DECK)
   INFILTRATION TRENCH 1
   DIMENSIONS: 167.5' L X 3' W X 15" D

GRAPHIC SCALE
20 0 10 20
1 INCH = 20 FEET

FIGURE 5
STORMWATER QUALITY PLAN
TAHOE DONNER LODGE
TAHOE DONNER ASSOCIATION, INC.
450.32 NOVEMBER 2022

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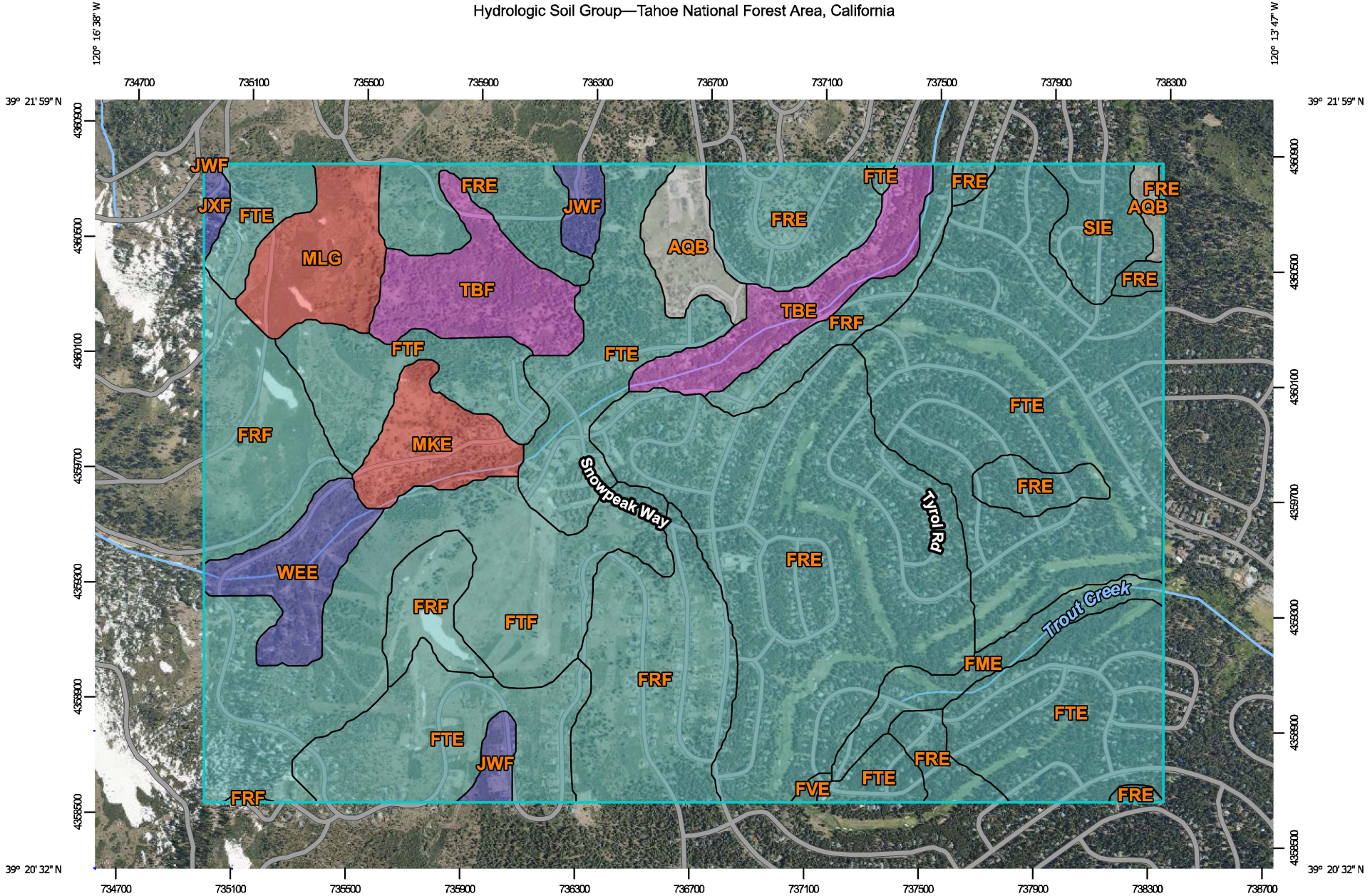
Appendices

Appendix A: USDA Natural Resources Conservation Service Soil Survey

Hydrologic Soil Group—Tahoe National Forest Area, California



MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Soil Rating Lines

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Soil Rating Points

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Tahoe National Forest Area, California
Survey Area Data: Version 17, Sep 7, 2022

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 8, 2019—Jun 21, 2019

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
AQB	Aquolls and Cryolls, 0 to 5 percent slopes		34.7	1.9%
FME	Fugawee sandy loam, 2 to 30 percent slopes	C	33.1	1.8%
FRE	Fugawee-Rock outcrop-Tahoma complex, 2 to 30 percent slopes	C	418.6	22.7%
FRF	Fugawee-Rock outcrop-Tahoma complex, 30 to 50 percent slopes	C	244.3	13.3%
FTE	Fugawee-Tahoma complex, 2 to 30 percent slopes	C	567.3	30.8%
FTF	Fugawee-Tahoma complex, 30 to 50 percent slopes	C	244.4	13.3%
FVE	Fugawee-Tahoma-Aquolls complex, 2 to 30 percent slopes	C	1.9	0.1%
JWF	Jorge-Waca-Tahoma complex, 30 to 50 percent slopes	B	19.7	1.1%
JXF	Jorge-Waca-Cryumbrepts, wet complex, 30 to 50 percent slopes	B	5.2	0.3%
MKE	Meiss-Waca complex, 2 to 30 percent slopes	D	40.3	2.2%
MLG	Meiss-Waca-Cryumbrepts, wet complex, 30 to 75 percent slopes	D	52.7	2.9%
SIE	Sierraville-Trojan-Kyburz complex, 2 to 30 percent slopes	C	30.2	1.6%
TBE	Tallac-Cryumbrepts, wet complex, 2 to 30 percent slopes	A	49.2	2.7%
TBF	Tallac-Cryumbrepts, wet complex, 30 to 50 percent slopes	A	58.3	3.2%
WEE	Waca-Meiss-Cryumbrepts, wet complex, 2 to 30 percent slopes	B	42.9	2.3%
Totals for Area of Interest			**1,842.8**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

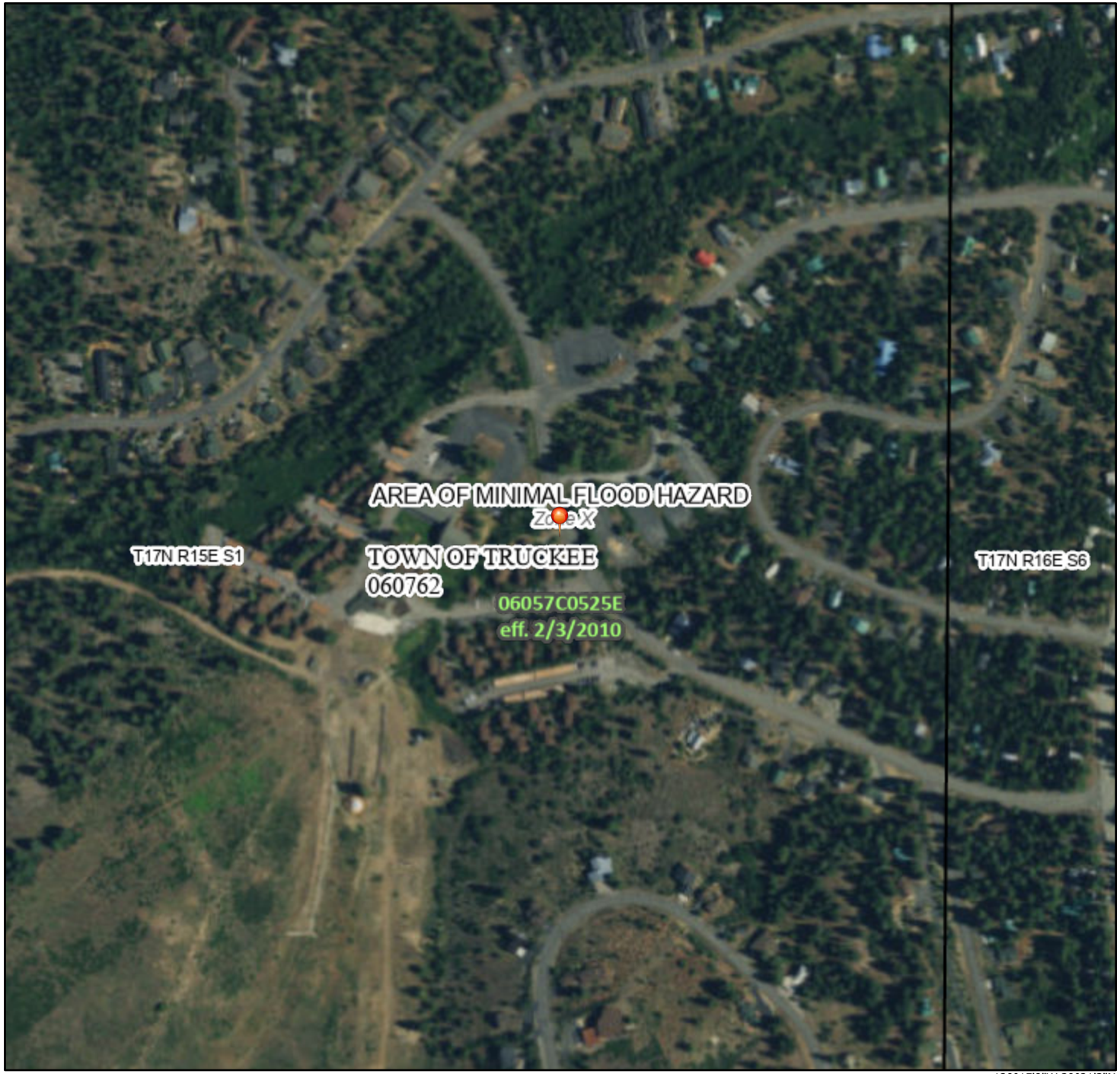
Tie-break Rule: Higher

Appendix B: Flood Insurance Rate Map

National Flood Hazard Layer FIRMette

FEMA

120°15'46"W 39°21'31"N



120°15'8"W 39°21'3"N

Feet 1:6,000

0 250 500 1,000 1,500 2,000

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation
- Coastal Transect
- 513 Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 11/2/2022 at 7:27 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

Appendix C: Drainage Calculations

PRISM Time Series Data
Location: Lat: 39.3528 Lon: -120.2588 Elev: 6447ft
Climate variable: ppt
Spatial resolution: 4km
Monthly 1991-2020 Normals
Dataset: Norm91m
PRISM day definition: 24 hours ending at 1200 UTC on the day shown
Grid Cell Interpolation: Off
Time series generated: 2022-Oct-20
Details: http://www.prism.oregonstate.edu/documents/PRISM_datasets.pdf

Date	ppt (inches)
January	7.51
February	6.78
March	6.17
April	3.14
May	2.29
June	0.89
July	0.21
August	0.46
September	0.74
October	2.52
November	4.03
December	7.44
Annual	42.18

TABLE FOR ESTIMATING "C" IN RATIONAL FORMULA

UNIMPROVED AREAS

CONDITION	EXTREME	HIGH	MODERATE	LOW
Slope	.36 – .28 Above 30%	.28 – .15 30% – 10%	.15 – .10 10% – 5%	.10 – .05 5% – 0
Surface permeability	.20 – .15 Bare rock or very thin soil	.15 – .07 Impervious clays shallow soils	.07 – .04 Deep pervious loam, sandy loam	.03 Deep sand, volcanic ash
Vegetation	.20 – .15 None or very sparse	.15 – .07 Less than 20% covered with substantial growth	.07 – .04 About 50% covered with heavy growth	.03 90% covered with heavy growth, deep hummus layer
Surface	.20 – .15 Smooth soil, slick rock drainage flow continuos	.15 – .07 Roughened soil or rocks	.07 – .04 Drainage flow interrupted many ponds, lakes & marshes	.03 Drainage flow arrested many ponds, lakes & marshes

IMPROVED AREAS

Surface	C
Roof surfaces	.95
A.C. or P.C.C. pavement, patios, driveways, streets, sidewalks	.90
Landscaped areas	.25
Gravel walks, roadways	.30

EXAMPLE: Unimproved

20% slope	.22
Well drained soil	.05
Fair cover	.07
No ponds	.08
	C= .42

EXAMPLE: Improved

100 acre tract
15 ac. @.95
50 ac. A.C.pave. @.90
35 ac. landscaped. @.25

$$C=\frac{(15 \times .95)+(50 \times .90)+(35 \times .25)}{100 \text{ acres}} = 0.68 \quad C = 0.68$$

REGISTERED PROFESSIONAL ENGINEER DANIEL P. WILKINS No. C050267 Exp. 12-31-04 CIVIL STATE OF CALIFORNIA

TOWN OF TRUCKEE
ENGINEERING DEPARTMENT
VALUES FOR ESTIMATING COEFFICIENT OF RUNOFF "C"
LOCAL ROAD SYSTEM STANDARDS

NOT TO SCALE	APPROVED BY:	STANDARD DRAWING
MAY, 2003	TOWN ENGINEER	SD#58

NEVADA COUNTY DESIGN STORM (INTENSITY)

10 YEAR STORM DURATION IN MINUTES FOR NEVADA COUNTY

Mean Annual Precipitation Inches	5	10	15	30	60 1hr	120 2Hr	180 3Hr	360 6Hr	720 12Hr	1440 24Hr
	Intensity in inches per hour									
20	1.57	1.15	.96	.70	.51	.38	.31	.23	.17	.12
22	1.68	1.23	1.03	.75	.55	.40	.34	.25	.18	.13
24	1.80	1.31	1.10	.80	.59	.43	.36	.26	.19	.14
26	1.91	1.40	1.17	.85	.62	.46	.38	.28	.20	.15
28	2.02	1.48	1.23	.90	.66	.48	.40	.30	.22	.16
30	2.14	1.57	1.30	.95	.70	.51	.43	.31	.23	.17
32	2.25	1.65	1.37	1.01	.74	.54	.45	.33	.24	.18
34	2.37	1.73	1.44	1.06	.77	.57	.47	.35	.25	.19
36	2.48	1.82	1.51	1.11	.81	.59	.49	.36	.27	.19
38	2.59	1.90	1.58	1.16	.85	.62	.52	.38	.28	.20
40	2.71	1.98	1.65	1.21	.89	.65	.54	.40	.29	.21
42	2.82	2.07	1.72	1.26	.92	.68	.56	.41	.30	.22
44	2.94	2.15	1.79	1.31	.96	.70	.59	.43	.31	.23
46	3.05	2.23	1.86	1.36	1.00	.73	.61	.45	.33	.24
48	3.17	2.32	1.93	1.41	1.03	.76	.63	.46	.34	.25
50	3.28	2.40	2.00	1.46	1.07	.78	.65	.48	.35	.26
52	3.39	2.48	2.07	1.52	1.11	.81	.68	.50	.36	.27
54	3.51	2.57	2.14	1.57	1.15	.84	.70	.51	.37	.27
56	3.62	2.65	2.21	1.62	1.18	.87	.72	.53	.39	.28
58	3.74	2.73	2.28	1.67	1.22	.89	.74	.55	.40	.29
60	3.85	2.82	2.35	1.72	1.26	.92	.77	.56	.41	.30
62	3.96	2.90	2.42	1.77	1.30	.95	.79	.58	.42	.31
64	4.08	2.98	2.49	1.82	1.33	.98	.81	.60	.44	.32
66	4.19	3.07	2.56	1.87	1.37	1.00	.84	.61	.45	.33
68	4.31	3.15	2.63	1.92	1.41	1.03	.86	.63	.46	.34
70	4.42	3.24	2.70	1.97	1.44	1.06	.88	.65	.47	.35
72	4.53	3.32	2.77	2.02	1.48	1.08	.90	.66	.48	.35
74	4.65	3.40	2.84	2.08	1.52	1.11	.93	.68	.50	.36
76	4.76	3.49	2.90	2.13	1.56	1.14	.95	.70	.51	.37
78	4.88	3.57	2.97	2.18	1.59	1.17	.97	.71	.52	.38
80	4.99	3.65	3.04	2.23	1.63	1.19	.99	.73	.53	.39

REGISTERED PROFESSIONAL ENGINEER
DANIEL P. WILKINS
No. C058207
Exp. 12-31-04
CIVIL
STATE OF CALIFORNIA

TOWN OF TRUCKEE

TOWN OF TRUCKEE
ENGINEERING DEPARTMENT
10 YEAR STORM DURATION
IN MINUTES FOR NEVADA COUNTY
LOCAL ROAD SYSTEM STANDARDS

NOT TO SCALE
MAY, 2003

APPROVED BY:
Daniel P. Wilkins
TOWN ENGINEER

STANDARD DRAWING
SD#60

NEVADA COUNTY DESIGN STORM (INTENSITY)

100 YEAR STORM DURATION IN MINUTES FOR NEVADA COUNTY

Mean Annual Precipitation Inches	5	10	15	30	60 1hr	120 2hr	180 3hr	360 6hr	720 12hr	1440 24hr
	Intensity in inches per hour									
20	2.22	1.63	1.36	.99	.73	.53	.44	.32	.24	.17
22	2.39	1.75	1.46	1.07	.78	.57	.48	.35	.25	.19
24	2.55	1.86	1.55	1.14	.83	.61	.51	.37	.27	.20
26	2.71	1.98	1.65	1.21	.89	.65	.54	.40	.29	.21
28	2.87	2.10	1.75	1.28	.94	.69	.57	.42	.31	.22
30	3.03	2.22	1.85	1.35	.99	.73	.60	.44	.32	.24
32	3.19	2.34	1.95	1.43	1.04	.76	.64	.47	.34	.25
34	3.36	2.46	2.05	1.50	1.10	.80	.67	.49	.36	.26
36	3.52	2.58	2.15	1.57	1.15	.84	.70	.51	.38	.28
38	3.68	2.69	2.24	1.64	1.20	.88	.73	.54	.39	.29
40	3.84	2.81	2.34	1.72	1.26	.92	.77	.56	.41	.30
42	4.00	2.93	2.44	1.79	1.31	.96	.80	.58	.43	.31
44	4.17	3.05	2.54	1.86	1.36	1.00	.83	.61	.45	.33
46	4.33	3.17	2.64	1.93	1.41	1.04	.86	.63	.46	.34
48	4.49	3.29	2.74	2.00	1.47	1.07	.89	.66	.48	.35
50	4.65	3.40	2.84	2.08	1.52	1.11	.93	.68	.50	.36
52	4.81	3.52	2.94	2.15	1.57	1.15	.96	.70	.51	.38
54	4.97	3.64	3.03	2.22	1.63	1.19	.99	.73	.53	.39
56	5.14	3.76	3.13	2.29	1.68	1.23	1.02	.75	.55	.40
58	5.30	3.88	3.23	2.37	1.73	1.27	1.06	.77	.57	.41
60	5.46	4.00	3.33	2.44	1.78	1.31	1.09	.80	.58	.43
62	5.62	4.12	3.43	2.51	1.84	1.35	1.12	.82	.60	.44
64	5.78	4.23	3.53	2.58	1.89	1.38	1.15	.84	.62	.45
66	5.94	4.35	3.63	2.65	1.94	1.42	1.19	.87	.64	.46
68	6.11	4.47	3.72	2.73	2.00	1.46	1.22	.89	.65	.48
70	6.27	4.59	3.82	2.80	2.05	1.50	1.25	.91	.67	.49
72	6.43	4.71	3.92	2.87	2.10	1.54	1.28	.94	.69	.50
74	6.59	4.83	4.02	2.94	2.15	1.58	1.31	.96	.70	.52
76	6.75	4.94	4.12	3.02	2.21	1.62	1.35	.99	.72	.53
78	6.92	5.06	4.22	3.09	2.26	1.65	1.38	1.01	.74	.54
80	7.08	5.18	4.32	3.16	2.31	1.69	1.41	1.03	.76	.55

REGISTERED PROFESSIONAL ENGINEER DANIEL P. WILKINS No C061037 Exp 12-31-04 CIVIL

TOWN OF TRUCKEE

TOWN OF TRUCKEE
ENGINEERING DEPARTMENT
100 YEAR STORM DURATION
IN MINUTES FOR NEVADA COUNTY
LOCAL ROAD SYSTEM STANDARDS

NOT TO SCALE
MAY, 2003

APPROVED BY:
TOWN ENGINEER

STANDARD DRAWING
SD#59

NEVADA COUNTY DESIGN STORM (DEPTH)

10 YEAR STORM DURATION IN MINUTES FOR NEVADA COUNTY

Mean Annual Precipitation Inches	5	10	15	30	60 1hr	120 2Hr	180 3Hr	360 6Hr	720 12Hr	1440 24Hr
	Design Storm Depth in inches									
20	.13	.19	.24	.35	.51	.75	.94	1.37	2.01	2.94
22	.14	.21	.26	.38	.55	.81	1.01	1.47	2.16	3.16
24	.15	.22	.27	.40	.59	.86	1.07	1.57	2.30	3.37
26	.16	.23	.29	.43	.62	.91	1.14	1.67	2.45	3.59
28	.17	.25	.31	.45	.66	.97	1.21	1.77	2.60	3.80
30	.18	.26	.33	.48	.70	1.02	1.28	1.87	2.74	4.01
32	.19	.27	.34	.50	.74	1.08	1.35	1.97	2.89	4.23
34	.20	.29	.36	.53	.77	1.13	1.42	2.07	3.03	4.44
36	.21	.30	.38	.55	.81	1.19	1.48	2.17	3.18	4.66
38	.22	.32	.40	.58	.85	1.24	1.55	2.27	3.33	4.87
40	.23	.33	.41	.60	.89	1.30	1.62	2.37	3.47	5.08
42	.24	.34	.43	.63	.92	1.35	1.69	2.47	3.62	5.30
44	.24	.36	.45	.66	.96	1.41	1.76	2.57	3.77	5.51
46	.25	.37	.47	.68	1.00	1.46	1.82	2.67	3.91	5.73
48	.26	.39	.48	.71	1.03	1.51	1.89	2.77	4.06	5.94
50	.27	.40	.50	.73	1.07	1.57	1.96	2.87	4.20	6.16
52	.28	.41	.52	.76	1.11	1.62	2.03	2.97	4.35	6.37
54	.29	.43	.53	.78	1.15	1.68	2.10	3.07	4.50	6.58
56	.30	.44	.55	.81	1.18	1.73	2.17	3.17	4.64	6.80
58	.31	.46	.57	.83	1.22	1.79	2.23	3.27	4.79	7.01
60	.32	.47	.59	.86	1.26	1.84	2.30	3.37	4.94	7.23
62	.33	.48	.60	.88	1.30	1.90	2.37	3.47	5.08	7.44
64	.34	.50	.62	.91	1.33	1.95	2.44	3.57	5.23	7.65
66	.35	.51	.64	.94	1.37	2.01	2.51	3.67	5.37	7.87
68	.36	.53	.66	.96	1.41	2.06	2.58	3.77	5.52	8.08
70	.37	.54	.67	.99	1.44	2.12	2.64	3.87	5.67	8.30
72	.38	.55	.69	1.01	1.48	2.17	2.71	3.97	5.81	8.51
74	.39	.57	.71	1.04	1.52	2.22	2.78	4.07	5.96	8.72
76	.40	.58	.73	1.06	1.56	2.28	2.85	4.17	6.11	8.94
78	.41	.59	.74	1.09	1.59	2.33	2.92	4.27	6.25	9.15
80	.42	.61	.76	1.11	1.63	2.39	2.98	4.37	6.40	9.37

REGISTERED PROFESSIONAL ENGINEER
DANIEL P. WILKINS
No. C050367
Exp. 12-31-04
CIVIL
STATE OF CALIFORNIA

TOWN OF TRUCKEE

TOWN OF TRUCKEE
ENGINEERING DEPARTMENT
10 YEAR STORM DURATION
IN MINUTES FOR NEVADA COUNTY
LOCAL ROAD SYSTEM STANDARDS

NOT TO SCALE
MAY, 2003

APPROVED BY:
TOWN ENGINEER

STANDARD DRAWING
SD#62

NEVADA COUNTY DESIGN STORM (DEPTH)

100 YEAR STORM DURATION IN MINUTES FOR NEVADA COUNTY

Mean Annual Precipitation Inches	5	10	15	30	60 1hr	120 2hr	180 3hr	360 6hr	720 12hr	1440 24hr
	Design Storm depth in inches									
20	.19	.27	.34	.50	.73	1.06	1.33	1.95	2.85	4.17
22	.20	.29	.36	.53	.78	1.14	1.43	2.09	3.06	4.48
24	.21	.31	.39	.57	.83	1.22	1.52	2.23	3.27	4.78
26	.23	.33	.41	.60	.89	1.30	1.62	2.37	3.47	5.09
28	.24	.35	.44	.64	.94	1.37	1.72	2.51	3.68	5.39
30	.25	.37	.46	.68	.99	1.45	1.81	2.66	3.89	5.69
32	.27	.39	.49	.71	1.04	1.53	1.91	2.80	4.10	6.00
34	.28	.41	.51	.75	1.10	1.61	2.01	2.94	4.30	6.30
36	.29	.43	.54	.79	1.15	1.68	2.10	3.08	4.51	6.60
38	.31	.45	.56	.82	1.20	1.76	2.20	3.22	4.72	6.91
40	.32	.47	.59	.86	1.26	1.84	2.30	3.36	4.93	7.21
42	.33	.49	.61	.89	1.31	1.92	2.39	3.51	5.13	7.51
44	.35	.51	.64	.93	1.36	1.99	2.49	3.65	5.34	7.82
46	.36	.53	.66	.97	1.41	2.07	2.59	3.79	5.55	8.12
48	.37	.55	.68	1.00	1.47	2.15	2.68	3.93	5.76	8.43
50	.39	.57	.71	1.04	1.52	2.23	2.78	4.07	5.96	8.73
52	.40	.59	.73	1.07	1.57	2.30	2.88	4.21	6.17	9.03
54	.41	.61	.76	1.11	1.63	2.38	2.98	4.36	6.38	9.34
56	.43	.63	.78	1.15	1.68	2.46	3.07	4.50	6.58	9.64
58	.44	.65	.81	1.18	1.73	2.54	3.17	4.64	6.79	9.94
60	.45	.67	.83	1.22	1.78	2.61	3.27	4.78	7.00	10.25
62	.47	.69	.86	1.25	1.84	2.69	3.36	4.92	7.21	10.55
64	.48	.71	.88	1.29	1.89	2.77	3.46	5.06	7.41	10.86
66	.50	.73	.91	1.33	1.94	2.84	3.56	5.21	7.62	11.16
68	.51	.75	.93	1.36	2.00	2.92	3.65	5.35	7.83	11.46
70	.52	.76	.96	1.40	2.05	3.00	3.75	5.49	8.04	11.77
72	.54	.78	.98	1.44	2.10	3.08	3.85	5.63	8.24	12.07
74	.55	.80	1.01	1.47	2.15	3.15	3.94	5.77	8.45	12.37
76	.56	.82	1.03	1.51	2.21	3.23	4.04	5.91	8.66	12.68
78	.58	.84	1.05	1.54	2.26	3.31	4.14	6.06	8.87	12.98
80	.59	.86	1.08	1.58	2.31	3.39	4.23	6.20	9.07	13.28

REGISTERED PROFESSIONAL ENGINEER
DANIEL P. WILKINS
No. C031261
Exp 12-31-01
CIVIL
STATE OF CALIFORNIA

TOWN OF TRUCKEE

TOWN OF TRUCKEE
ENGINEERING DEPARTMENT
100 YEAR STORM DURATION
IN MINUTES FOR NEVADA COUNTY
LOCAL ROAD SYSTEM STANDARDS

NOT TO SCALE
MAY, 2003

APPROVED BY:
Daniel P. Wilkins
TOWN ENGINEER

STANDARD DRAWING
SD#61

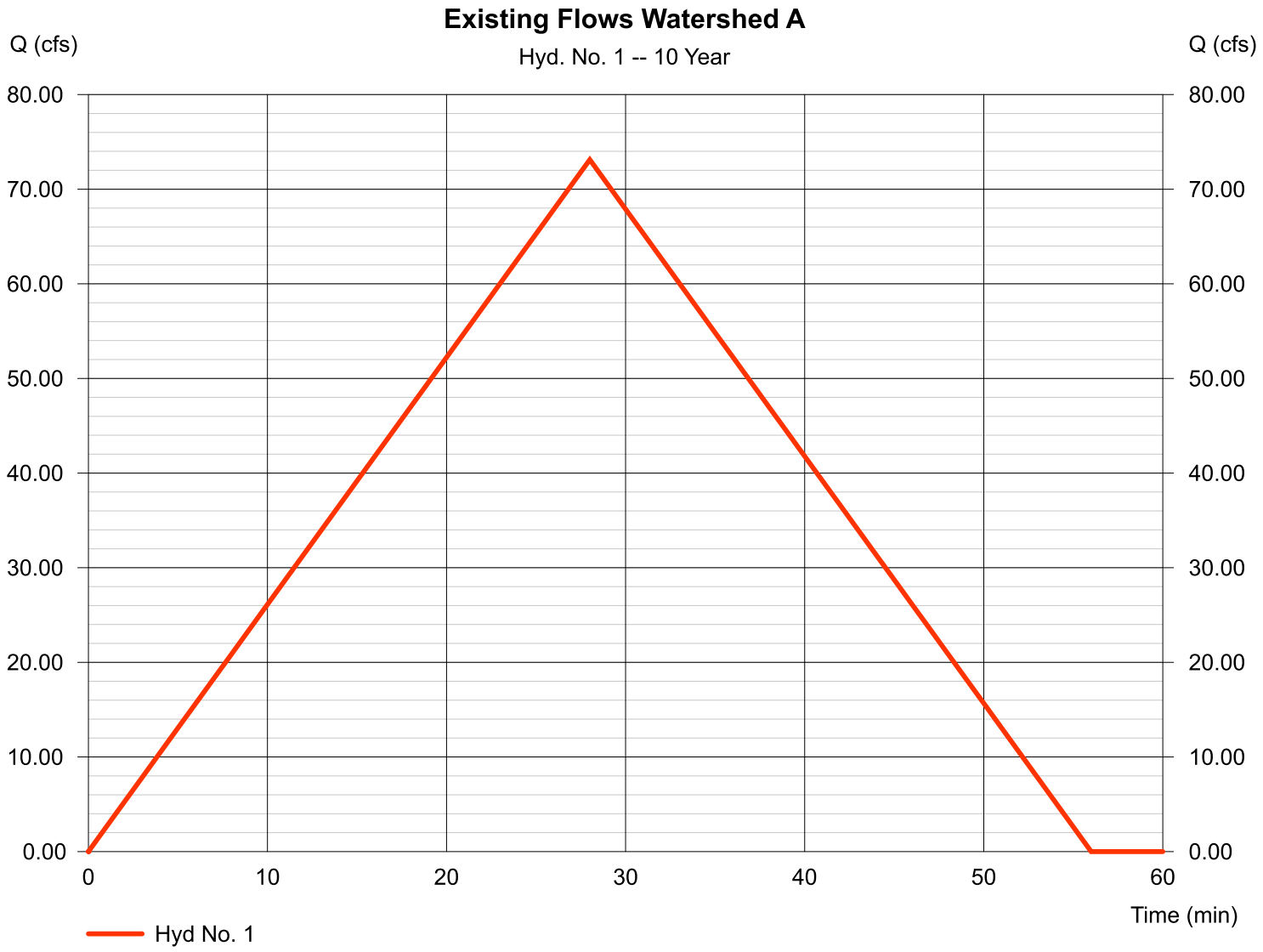
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Thursday, 11 / 17 / 2022

Hyd. No. 1

Existing Flows Watershed A

Hydrograph type	=	Rational	Peak discharge	=	73.12 cfs
Storm frequency	=	10 yrs	Time to peak	=	28 min
Time interval	=	1 min	Hyd. volume	=	122,839 cuft
Drainage area	=	803.510 ac	Runoff coeff.	=	0.07
Intensity	=	1.300 in/hr	Tc by TR55	=	28.00 min
IDF Curve	=	Intensities.IDF	Asc/Rec limb fact	=	1/1



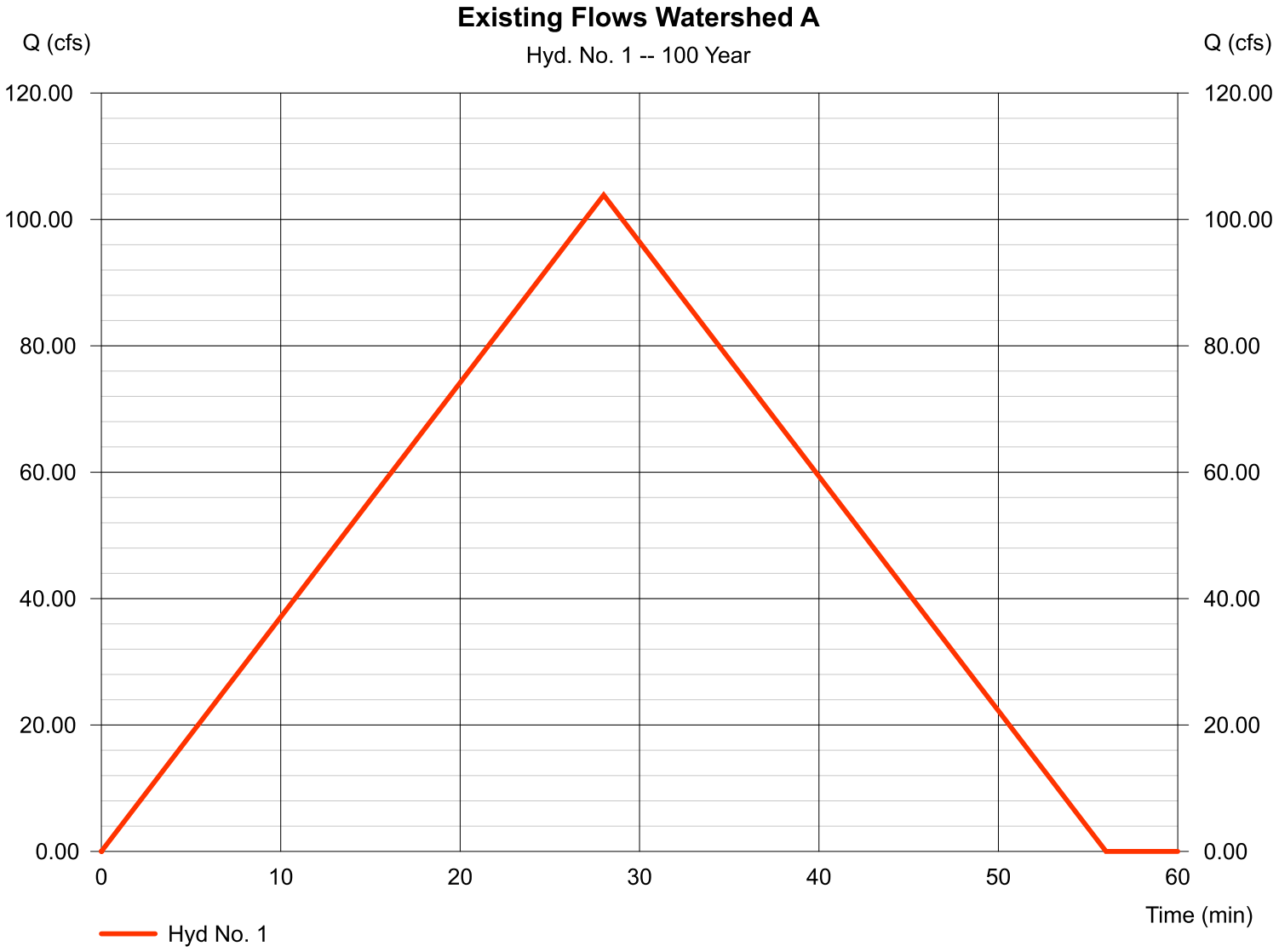
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Thursday, 11 / 17 / 2022

Hyd. No. 1

Existing Flows Watershed A

Hydrograph type	=	Rational	Peak discharge	=	103.85 cfs
Storm frequency	=	100 yrs	Time to peak	=	28 min
Time interval	=	1 min	Hyd. volume	=	174,475 cuft
Drainage area	=	803.510 ac	Runoff coeff.	=	0.07
Intensity	=	1.846 in/hr	Tc by TR55	=	28.00 min
IDF Curve	=	Intensities.IDF	Asc/Rec limb fact	=	1/1



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Thursday, 11 / 17 / 2022

Hyd. No. 1

Existing Flows Watershed B

Hydrograph type	=	Rational	Peak discharge	=	9.860 cfs
Storm frequency	=	10 yrs	Time to peak	=	20 min
Time interval	=	1 min	Hyd. volume	=	11,831 cuft
Drainage area	=	93.060 ac	Runoff coeff.	=	0.07
Intensity	=	1.514 in/hr	Tc by TR55	=	20.00 min
IDF Curve	=	Intensities.IDF	Asc/Rec limb fact	=	1/1

Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Thursday, 11 / 17 / 2022

Hyd. No. 1

Existing Flows Watershed B

Hydrograph type	=	Rational	Peak discharge	=	13.99 cfs
Storm frequency	=	100 yrs	Time to peak	=	20 min
Time interval	=	1 min	Hyd. volume	=	16,791 cuft
Drainage area	=	93.060 ac	Runoff coeff.	=	0.07
Intensity	=	2.148 in/hr	Tc by TR55	=	20.00 min
IDF Curve	=	Intensities.IDF	Asc/Rec limb fact	=	1/1

Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Thursday, Nov 17 2022

10-Yr 24 Inch Culvert

Circular

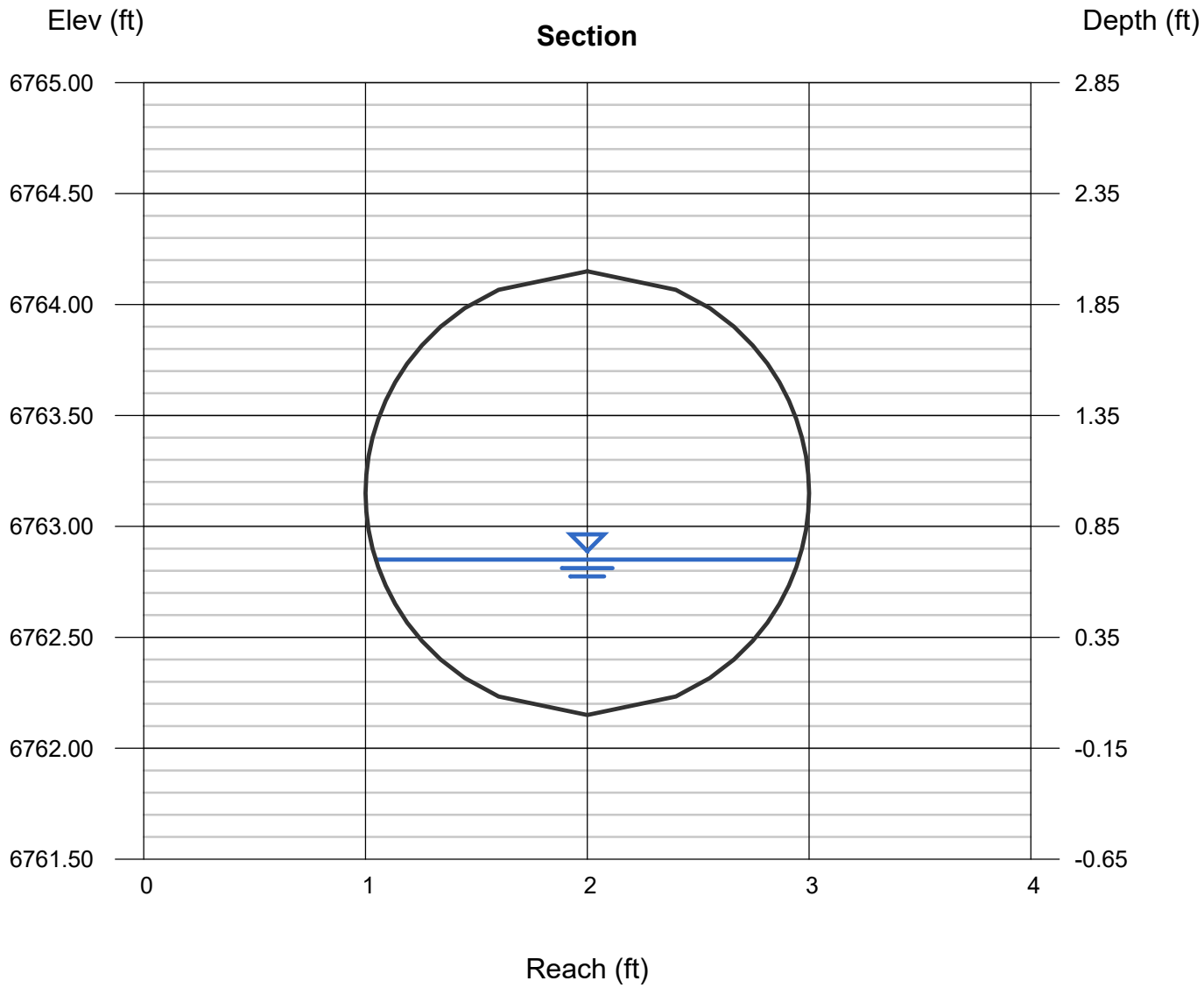
Diameter (ft)	= 2.00
Invert Elev (ft)	= 6762.15
Slope (%)	= 8.76
N-Value	= 0.023

Calculations

Compute by:	Known Q
Known Q (cfs)	= 9.86

Highlighted

Depth (ft)	= 0.70
Q (cfs)	= 9.860
Area (sqft)	= 0.99
Velocity (ft/s)	= 9.99
Wetted Perim (ft)	= 2.54
Crit Depth, Yc (ft)	= 1.12
Top Width (ft)	= 1.91
EGL (ft)	= 2.25



Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Thursday, Nov 17 2022

100-Yr 24 Inch Culvert

Circular

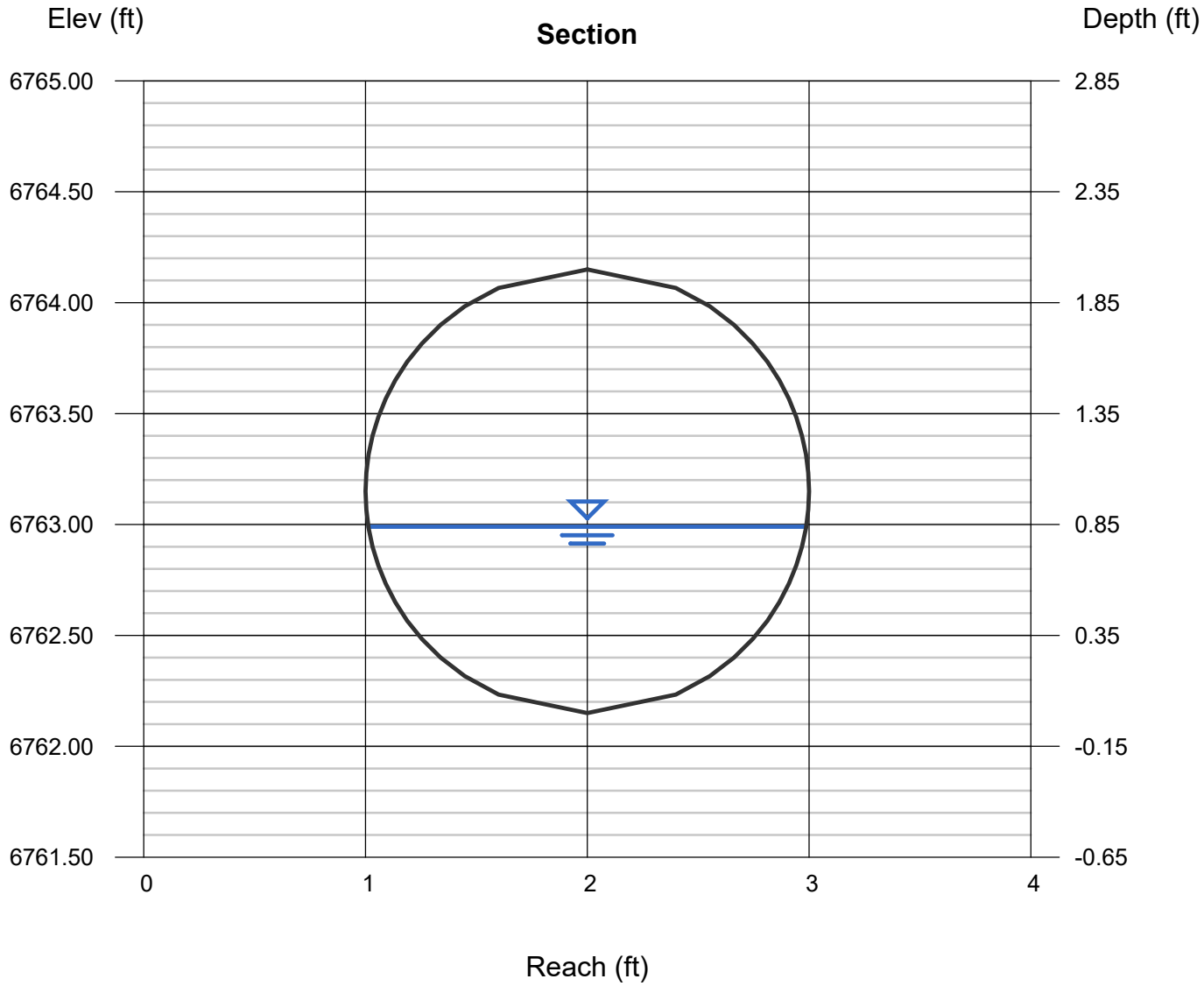
Diameter (ft)	= 2.00
Invert Elev (ft)	= 6762.15
Slope (%)	= 8.76
N-Value	= 0.023

Calculations

Compute by:	Known Q
Known Q (cfs)	= 13.99

Highlighted

Depth (ft)	= 0.84
Q (cfs)	= 13.99
Area (sqft)	= 1.26
Velocity (ft/s)	= 11.09
Wetted Perim (ft)	= 2.83
Crit Depth, Yc (ft)	= 1.35
Top Width (ft)	= 1.98
EGL (ft)	= 2.75



Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Thursday, Dec 1 2022

10-Yr East Drainage Channel (Mapped Aquatic Resource)

Triangular

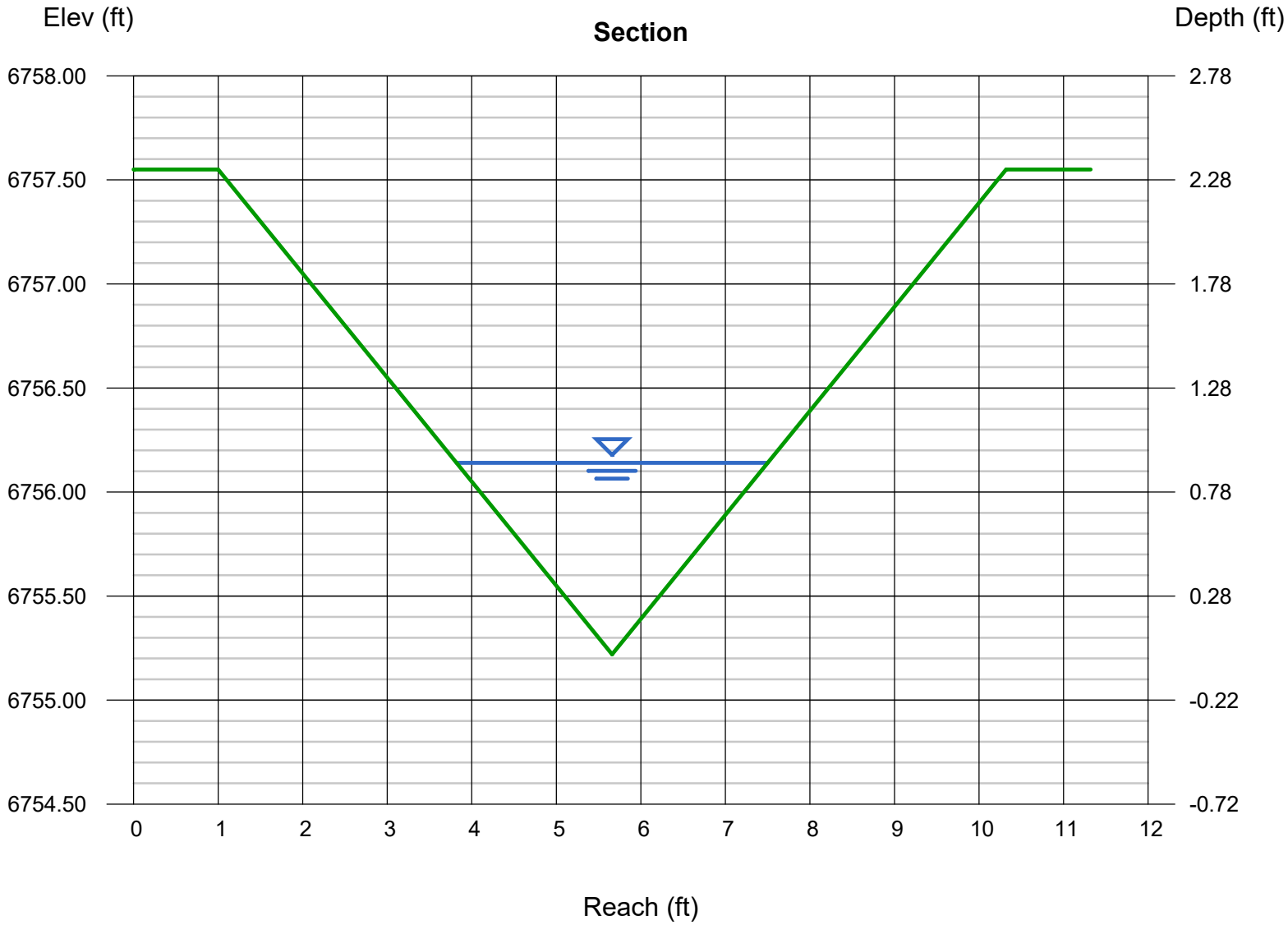
Side Slopes (z:1)	= 2.00, 2.00
Total Depth (ft)	= 2.33
Invert Elev (ft)	= 6755.22
Slope (%)	= 13.00
N-Value	= 0.050

Calculations

Compute by:	Known Q
Known Q (cfs)	= 9.86

Highlighted

Depth (ft)	= 0.92
Q (cfs)	= 9.860
Area (sqft)	= 1.69
Velocity (ft/s)	= 5.82
Wetted Perim (ft)	= 4.11
Crit Depth, Yc (ft)	= 1.09
Top Width (ft)	= 3.68
EGL (ft)	= 1.45



Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Thursday, Dec 1 2022

100-Yr East Drainage Channel (Mapped Aquatic Resource)

Triangular

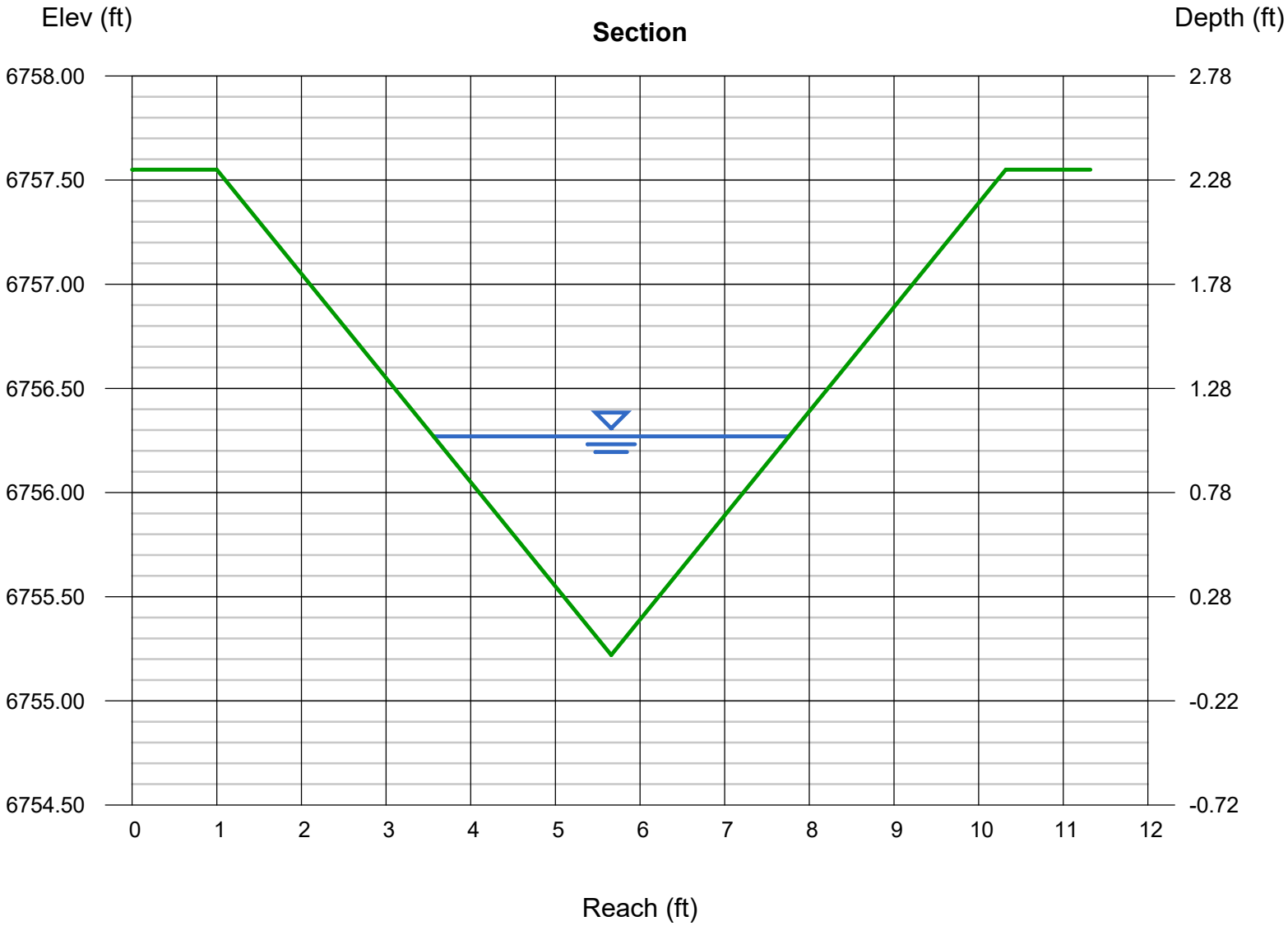
Side Slopes (z:1)	= 2.00, 2.00
Total Depth (ft)	= 2.33
Invert Elev (ft)	= 6755.22
Slope (%)	= 13.00
N-Value	= 0.050

Calculations

Compute by:	Known Q
Known Q (cfs)	= 13.99

Highlighted

Depth (ft)	= 1.05
Q (cfs)	= 13.99
Area (sqft)	= 2.20
Velocity (ft/s)	= 6.34
Wetted Perim (ft)	= 4.70
Crit Depth, Yc (ft)	= 1.25
Top Width (ft)	= 4.20
EGL (ft)	= 1.68



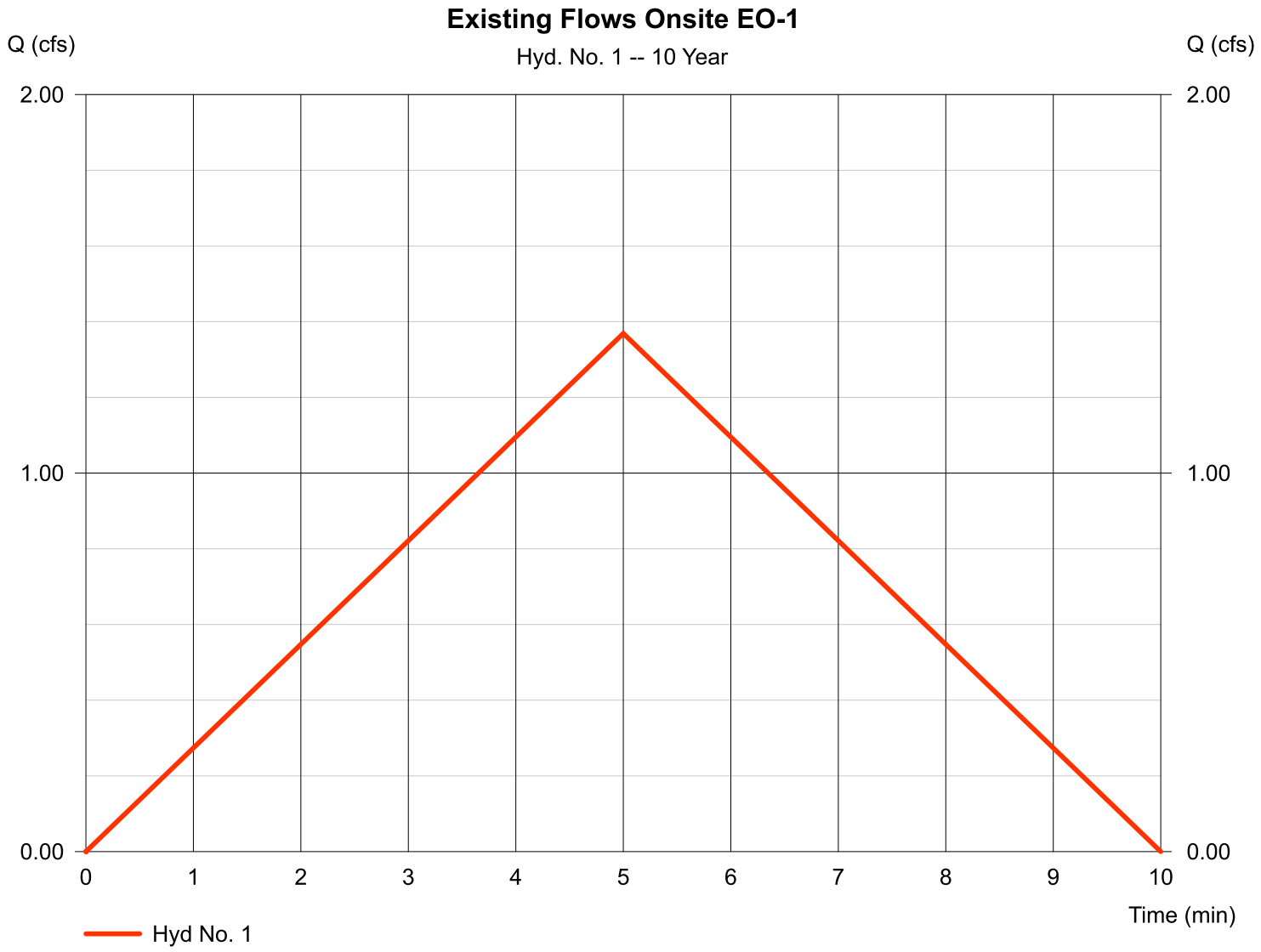
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Thursday, 11 / 17 / 2022

Hyd. No. 1

Existing Flows Onsite EO-1

Hydrograph type	=	Rational	Peak discharge	=	1.369 cfs
Storm frequency	=	10 yrs	Time to peak	=	5 min
Time interval	=	1 min	Hyd. volume	=	411 cuft
Drainage area	=	0.840 ac	Runoff coeff.	=	0.58
Intensity	=	2.810 in/hr	Tc by User	=	5.00 min
IDF Curve	=	Intensities.IDF	Asc/Rec limb fact	=	1/1



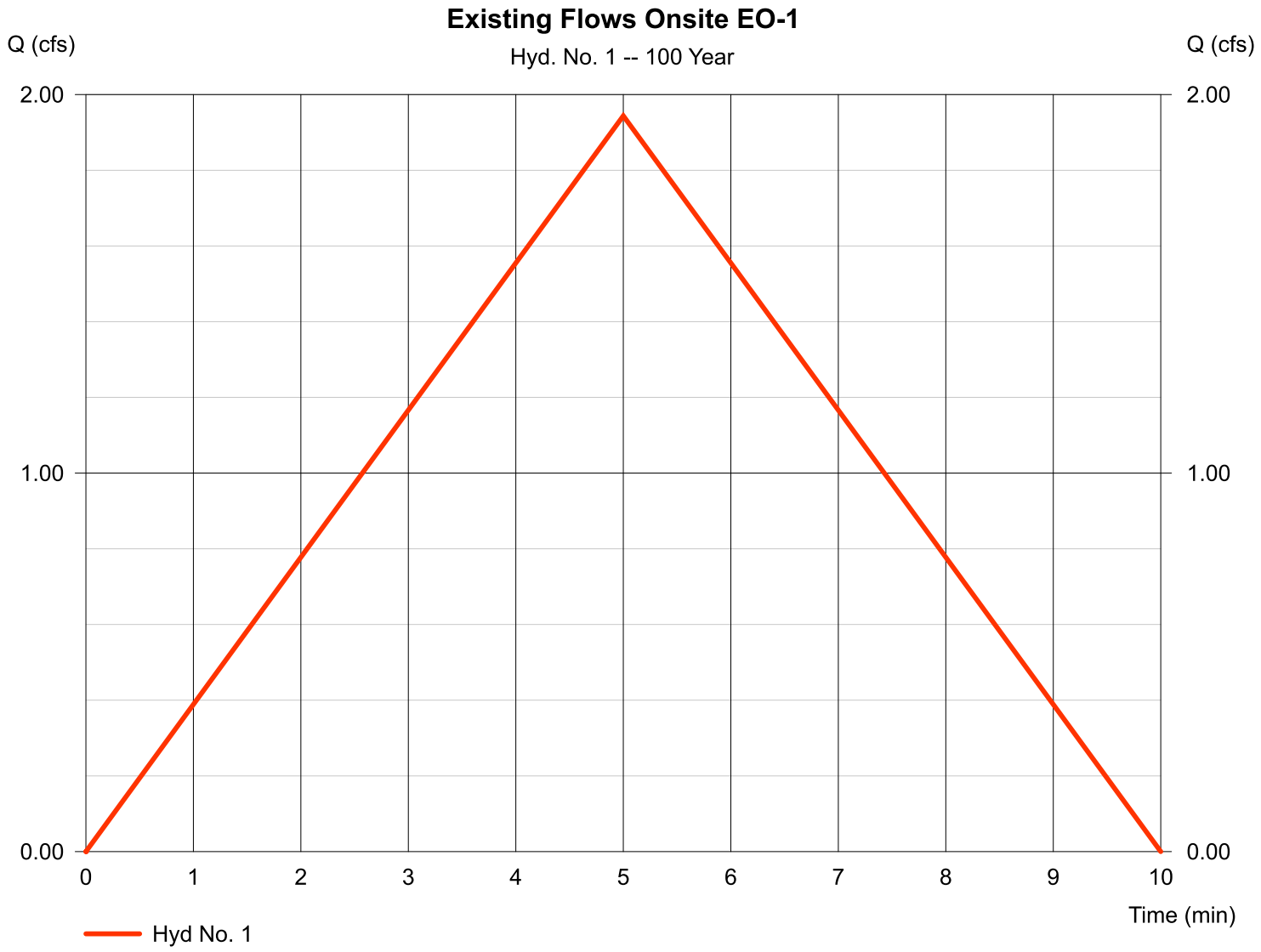
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Thursday, 11 / 17 / 2022

Hyd. No. 1

Existing Flows Onsite EO-1

Hydrograph type	=	Rational	Peak discharge	=	1.944 cfs
Storm frequency	=	100 yrs	Time to peak	=	5 min
Time interval	=	1 min	Hyd. volume	=	583 cuft
Drainage area	=	0.840 ac	Runoff coeff.	=	0.58
Intensity	=	3.990 in/hr	Tc by User	=	5.00 min
IDF Curve	=	Intensities.IDF	Asc/Rec limb fact	=	1/1



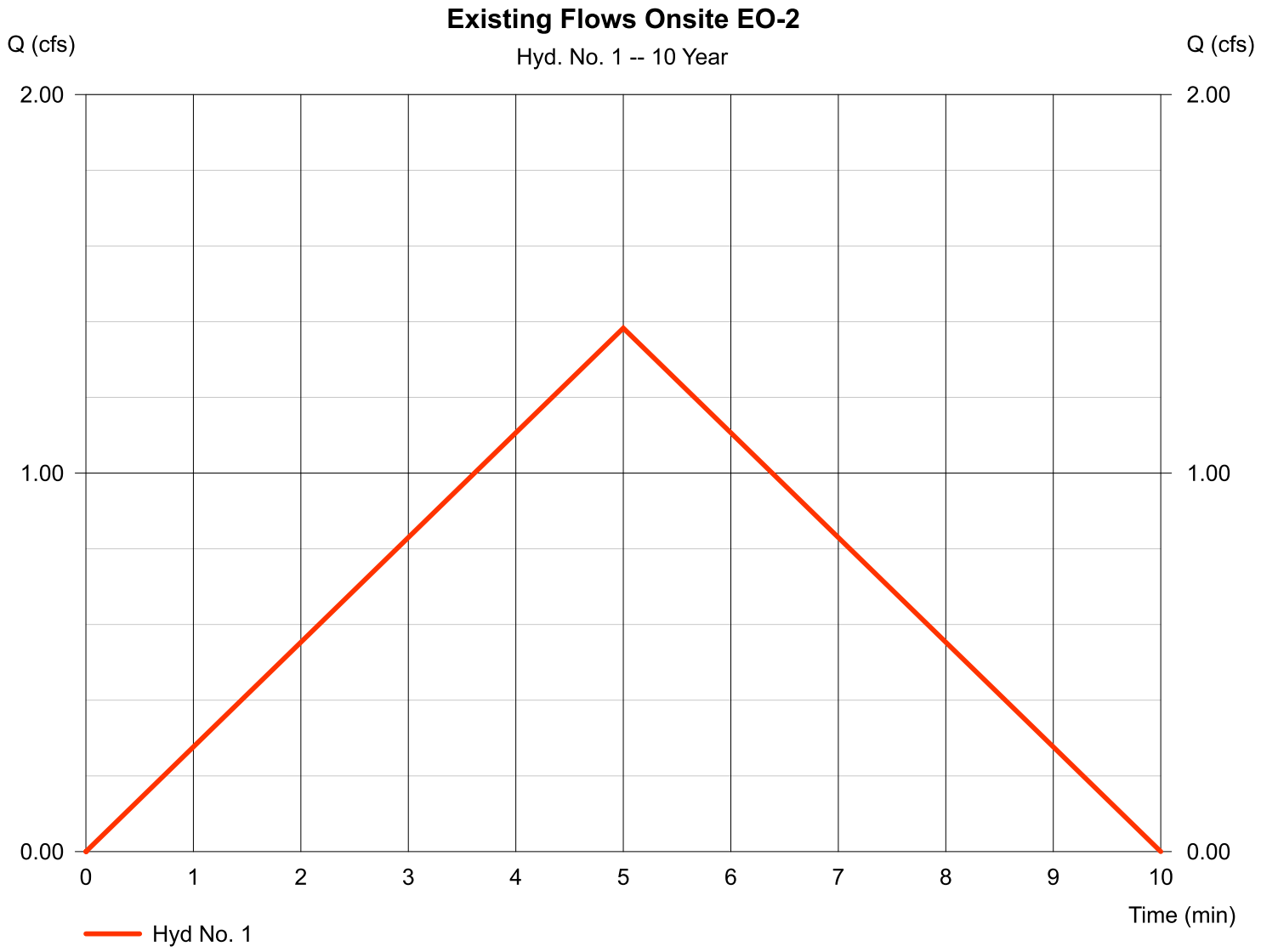
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Thursday, 11 / 17 / 2022

Hyd. No. 1

Existing Flows Onsite EO-2

Hydrograph type	=	Rational	Peak discharge	=	1.383 cfs
Storm frequency	=	10 yrs	Time to peak	=	5 min
Time interval	=	1 min	Hyd. volume	=	415 cuft
Drainage area	=	1.070 ac	Runoff coeff.	=	0.46
Intensity	=	2.810 in/hr	Tc by User	=	5.00 min
IDF Curve	=	Intensities.IDF	Asc/Rec limb fact	=	1/1



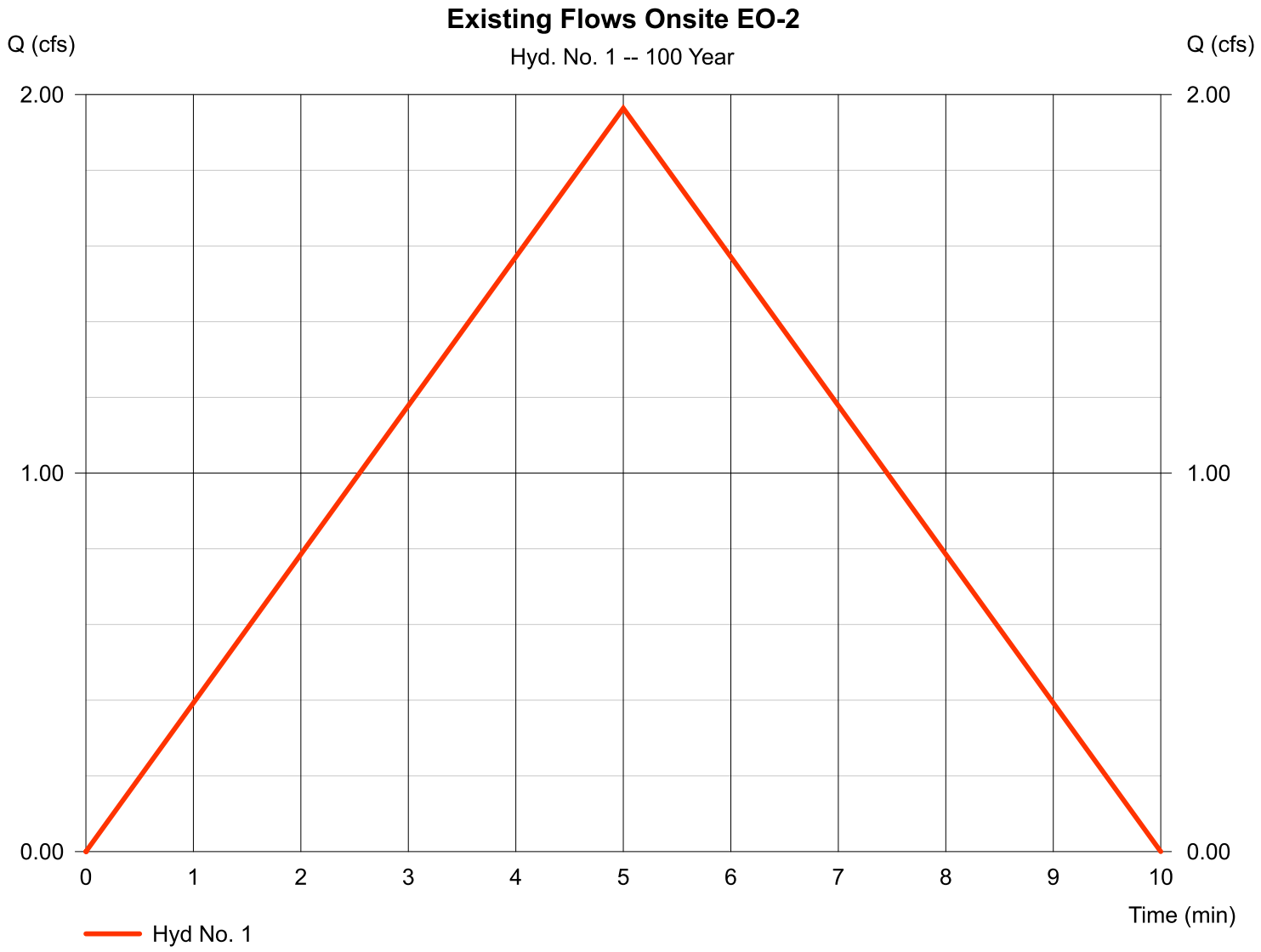
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Thursday, 11 / 17 / 2022

Hyd. No. 1

Existing Flows Onsite EO-2

Hydrograph type	=	Rational	Peak discharge	=	1.964 cfs
Storm frequency	=	100 yrs	Time to peak	=	5 min
Time interval	=	1 min	Hyd. volume	=	589 cuft
Drainage area	=	1.070 ac	Runoff coeff.	=	0.46
Intensity	=	3.990 in/hr	Tc by User	=	5.00 min
IDF Curve	=	Intensities.IDF	Asc/Rec limb fact	=	1/1



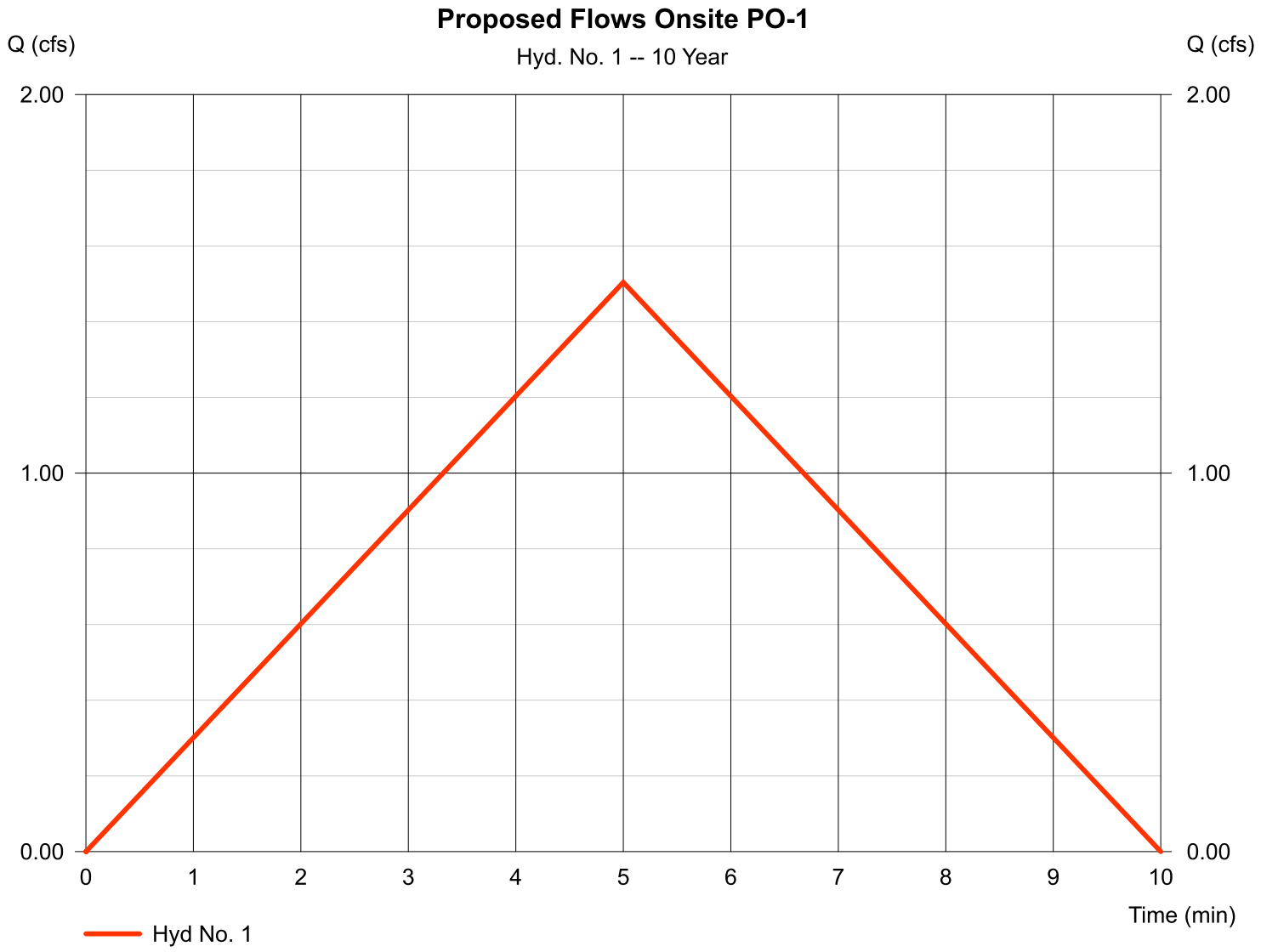
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Thursday, 11 / 17 / 2022

Hyd. No. 1

Proposed Flows Onsite PO-1

Hydrograph type	= Rational	Peak discharge	= 1.504 cfs
Storm frequency	= 10 yrs	Time to peak	= 5 min
Time interval	= 1 min	Hyd. volume	= 451 cuft
Drainage area	= 1.010 ac	Runoff coeff.	= 0.53
Intensity	= 2.810 in/hr	Tc by User	= 5.00 min
IDF Curve	= Intensities.IDF	Asc/Rec limb fact	= 1/1



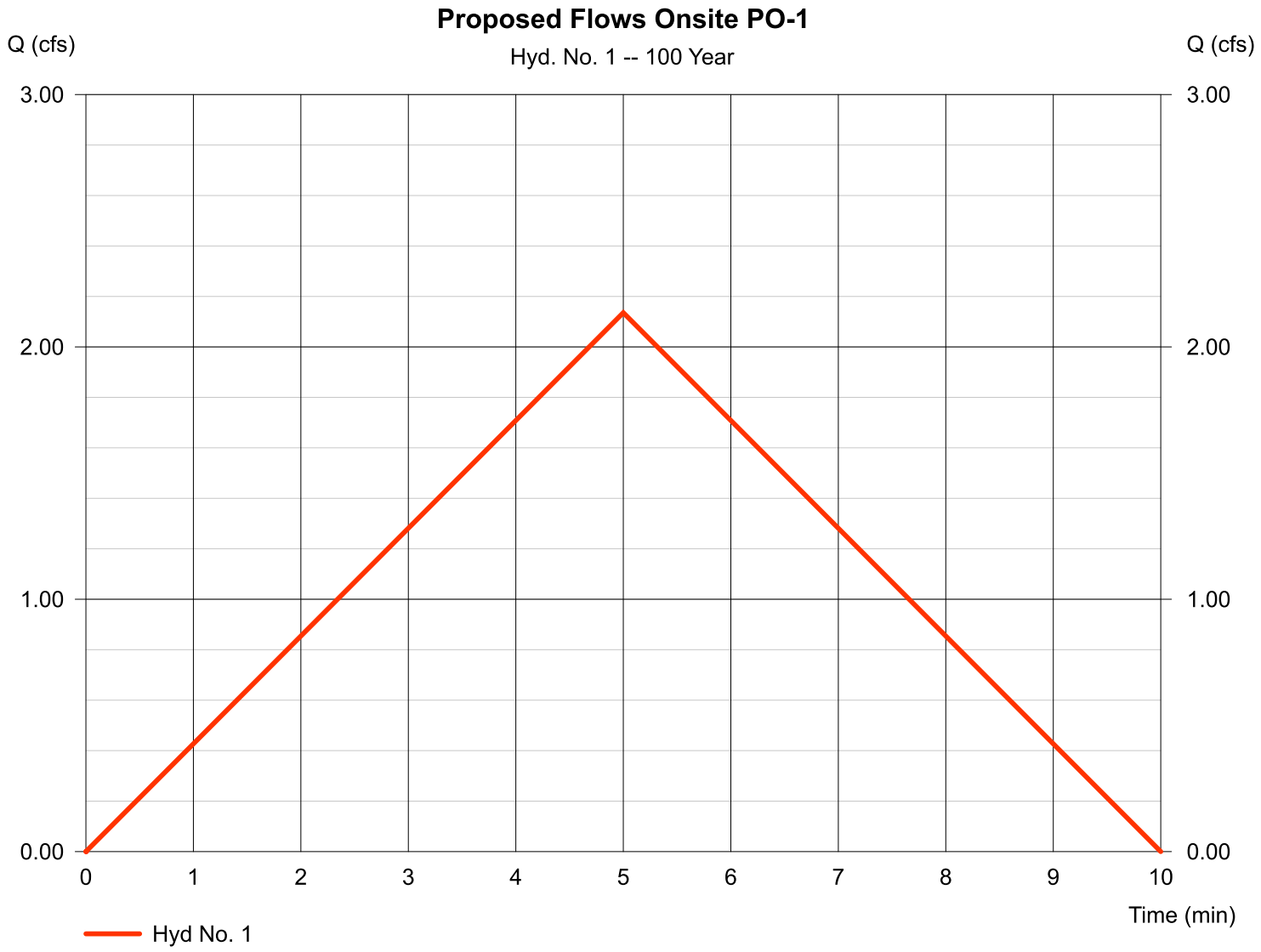
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Thursday, 11 / 17 / 2022

Hyd. No. 1

Proposed Flows Onsite PO-1

Hydrograph type	=	Rational	Peak discharge	=	2.136 cfs
Storm frequency	=	100 yrs	Time to peak	=	5 min
Time interval	=	1 min	Hyd. volume	=	641 cuft
Drainage area	=	1.010 ac	Runoff coeff.	=	0.53
Intensity	=	3.990 in/hr	Tc by User	=	5.00 min
IDF Curve	=	Intensities.IDF	Asc/Rec limb fact	=	1/1



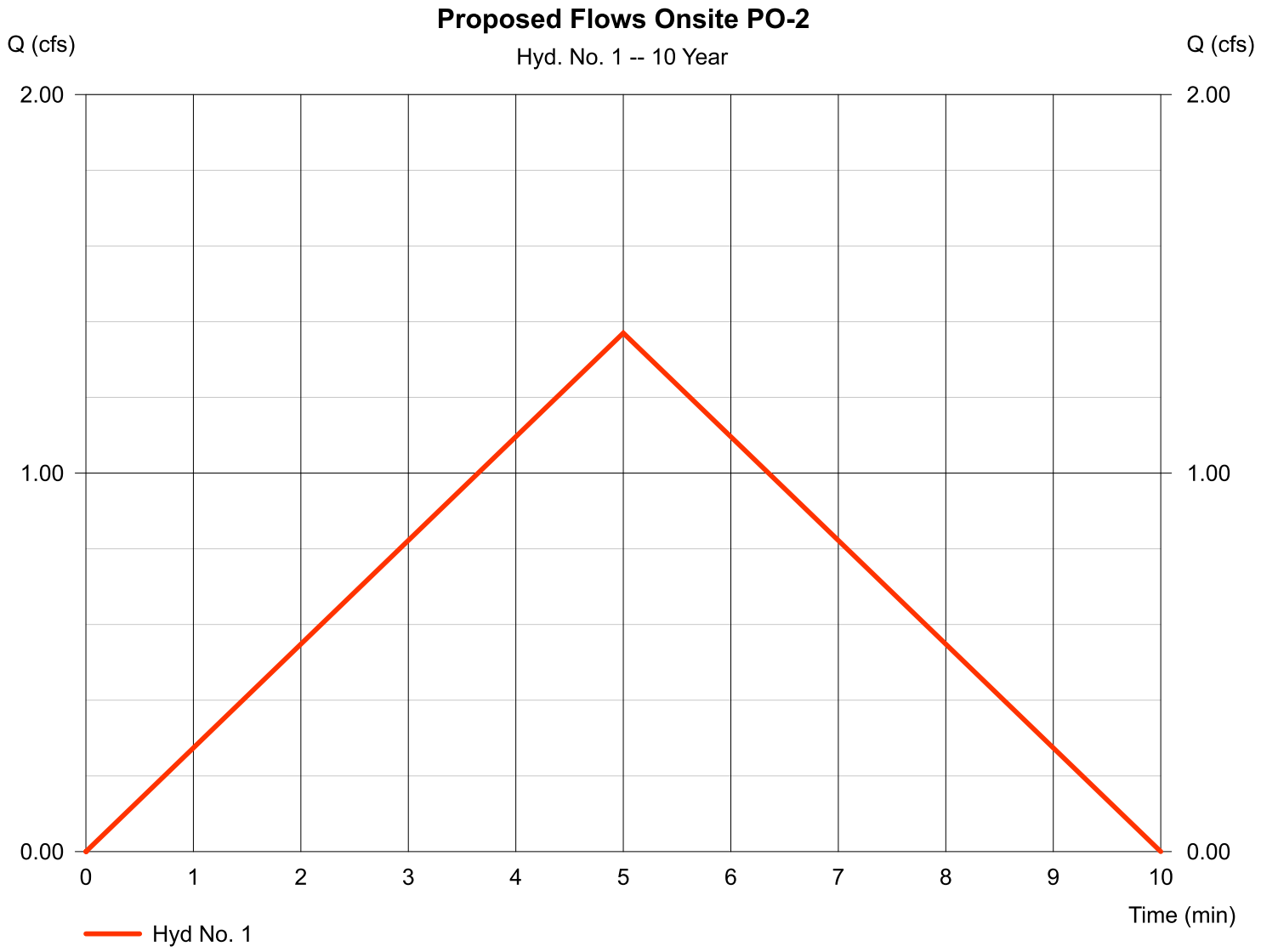
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Thursday, 11 / 17 / 2022

Hyd. No. 1

Proposed Flows Onsite PO-2

Hydrograph type	=	Rational	Peak discharge	=	1.370 cfs
Storm frequency	=	10 yrs	Time to peak	=	5 min
Time interval	=	1 min	Hyd. volume	=	411 cuft
Drainage area	=	0.920 ac	Runoff coeff.	=	0.53
Intensity	=	2.810 in/hr	Tc by User	=	5.00 min
IDF Curve	=	Intensities.IDF	Asc/Rec limb fact	=	1/1



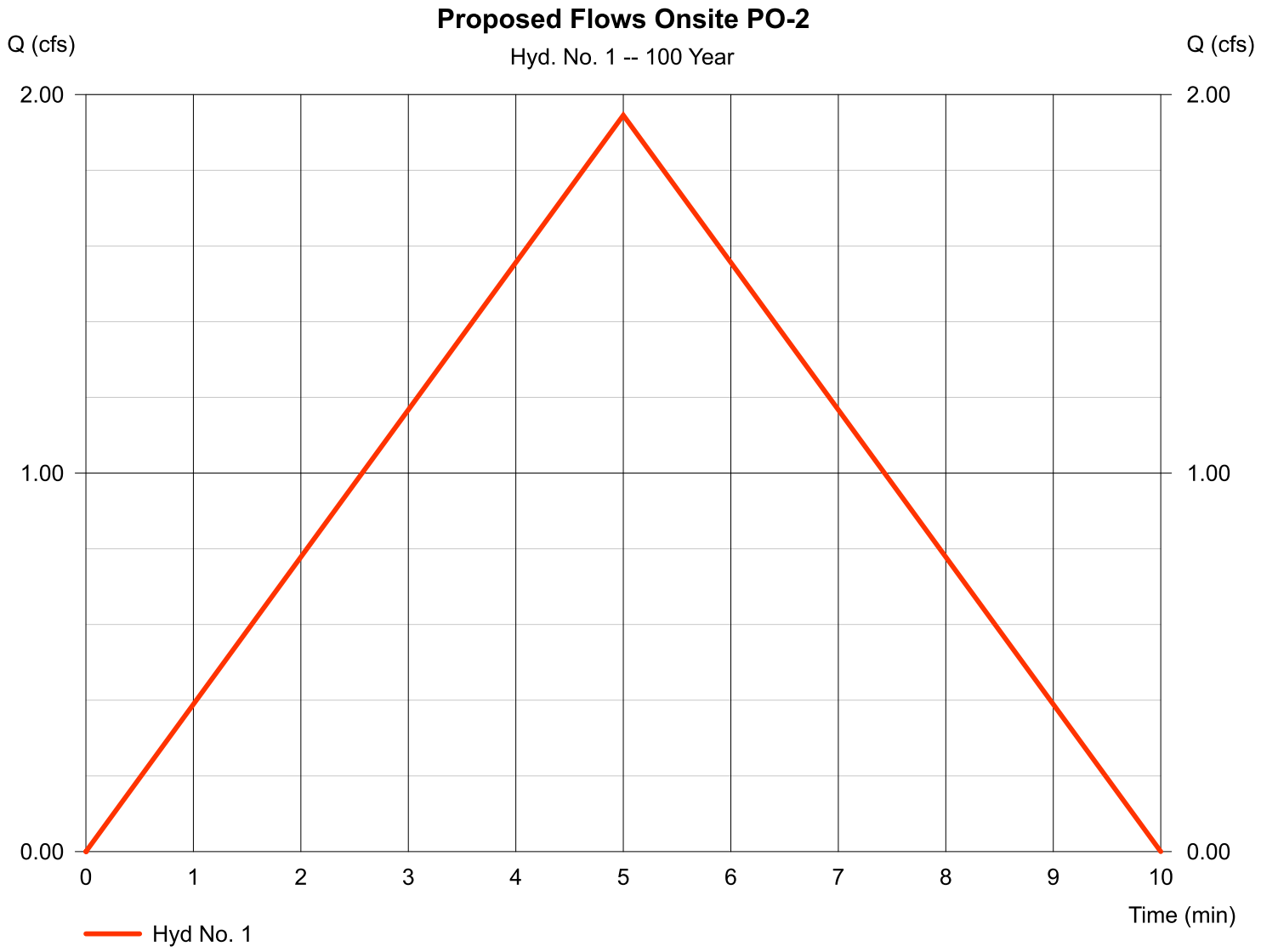
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023 Thursday, 11 / 17 / 2022

Hyd. No. 1

Proposed Flows Onsite PO-2

Hydrograph type	=	Rational	Peak discharge	=	1.945 cfs
Storm frequency	=	100 yrs	Time to peak	=	5 min
Time interval	=	1 min	Hyd. volume	=	584 cuft
Drainage area	=	0.920 ac	Runoff coeff.	=	0.53
Intensity	=	3.990 in/hr	Tc by User	=	5.00 min
IDF Curve	=	Intensities.IDF	Asc/Rec limb fact	=	1/1



AUERBACH ENGINEERING CORP ESTD 1998

Project Name: Tahoe Donner Lodge | Project No.: 450.32
Subject: Rational Method Drainage Calculations
Date: 11/17/2022 | By: Christina Negley | Checked by: Chris Anderson

Mean Annual Precipitation (in)[1]				42.18
10-Year, 5-Min Intensity (in/hr)[2]				2.82
100-Year, 5-Min Intensity (in/hr)[3]				4
Existing C				
EO-1				
	C	A (sf)	C*A	
Roof	0.95	4062	3859.2	
Deck, Stairs	0.95	1187	1127.81	
Pavements	0.90	12835	11551.25	
Pervious	0.25	18477	4619.35	
	Total A =	36562	Composite C =	0.58
EO-2				
	C	A (sf)	C*A	
Roof	0.95	4396	4176.4	
Deck, Stairs	0.95	4824	4583.01	
Pavements	0.90	5154	4638.84	
Pervious	0.25	32194	8048.52	
	Total A =	46569	Composite C =	0.46
Proposed C				
PO-1				
	C	A (sf)	C*A	
Roof	0.95	10769	10230.54	
Pavements	0.90	7275	6547.78	
Pervious	0.25	25822	6455.44	
	Total A =	43866	Composite C =	0.53
PO-2				
	C	A (sf)	C*A	
Roof	0.95	4765	4526.84	
Deck, Stairs	0.95	3579	3400.22	
Pavements	0.90	8303	7472.89	
Pervious	0.25	23620	5904.89	
	Total A =	40267	Composite C =	0.53

1. Per PRISM Monthly Normals, attached.
2. Per Town of Truckee Standard Drawing #60, attached.
3. Per Town of Truckee Standard Drawing #59, attached.

Town of Truckee
Post-Construction Storm Water Quality Plan

Project Name	Tahoe Donner Downhill Lodge	
Brief Project Description (add separate sheet if needed)	Replacement of full building of the Downhill Ski Lodge.	
Owner/Developer	Full Name	
	Address	
	City, State, Zip Code	
	Phone Number	
	Email Address	
Project Location	Street Address	11603 Snowpeak Way
	City, State, Zip Code	Truckee, CA.
	Assessor's Parcel Number	046-250-009
	Building Permit Number	
	Elevation (ft. above mean sea level)	6,806
Prepared by:	Preparer's Name	Walter R. Auerbach, P.E.
	Address	645 W. Lake Blvd.
	City, State, ZIP	Tahoe City, CA 96145
	Telephone No.	530-241-3097
	Email Address	

The undersigned owner of the subject property, is responsible for ensuring that all storm water facilities are designed by an appropriately licensed and qualified professional, and for the full implementation of the provisions of this plan, including ongoing operations and maintenance (O&M), consistent with the requirements of the Town of Truckee and the State of California Phase II Small MS4 General Permit (Order No: 2013-0001-DWQ). If the undersigned transfers its interest in the property, its successors-in-interest shall bear the aforementioned responsibility to implement the SWQP.

The undersigned owner hereby grants access to all representatives of the Town of Truckee for the sole purpose of performing O&M inspections of the installed treatment system(s) and hydromodification control(s) if any.

A copy of the final signed and fully approved SWQP shall be available on the subject site for the duration of construction and then stored with the project approval documentation and improvement plans in perpetuity.

X:	
Signature	Date (MM/DD/YYYY)
Preparation Date:	
Approval Date:	

Section 1
General Project Information

Form 1-1 Project Categorization and Characteristics

[1]Does the project disturb more than 20 yds^3 of soil or 500 ft^2 of surface area? *If "Yes", complete all forms in Sections 1, 2, and complete Section 3 forms as needed.* *If "No", no additional information is required.*	Yes
[2]Does the project create and/or replace 1 acre or more of impervious surface? *If "Yes", complete Section 4 forms.* *If "No", no additional information is required.*	No
[3]Enter the total new and/or replaced impervious surface area (ft^2)	43,685
[4]Is the project site located to the East or West of Hwy 89? *(Enter "East" or "West" w/out quotes)*	WEST
[5]85th Percentile, 24 Hour Design Storm Depth (in):	1.1
[6]Unit Water Quality Volume (WQV) (in):	1.1

For each Drainage Management Area (DMA), enter the impervious and pervious area sizes (add pages if necessary)

Drainage Management Area ID	[7]New and/or Replaced Impervious Area	[8]Pervious Area
1	5074	
2	2393	
3	10400	
4	12761	
5	3283	
6		1653
7		1381
8		
9		
10		
11		
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Section 2
Site Design Measures

Form 2-1 Runoff Reduction Calculator for Site Design Measures (SDMs)
(The Municipal Storm Water Permit requires SDMs to be implemented to the extent technically feasible)

[1]DMA ID No.			1		2		3		4	
Site Design Measure	Runoff Reduction Parameters			Runoff Reduction (ft^3)		Runoff Reduction (ft^3)		Runoff Reduction (ft^3)		Runoff Reduction (ft^3)
[2] Adjacent/On-Site Stream Setbacks and Buffers (SDM-1)	A_{imp} (ft^2)	*impervious drainage area*		0		0		0		0
	V_{85} (in)	*runoff volume from 85th percentile, 24-hour storm*	1.0		1.0		1.0		1.0	
[3] Rooftop and Impervious Area Disconnection (SDM-2)	A_{imp} (ft^2)	*impervious drainage area*		0		0		0		0
	V_{85} (in)	*runoff volume from 85th percentile, 24-hour storm*	1.0		1.0		1.0		1.0	
[4] Vegetated Swales (SDM-3)	A_{imp} (ft^2)	*impervious drainage area*		0		0		0		0
	V_{85} (in)	*runoff volume from 85th percentile, 24-hour storm*	1.0		1.0		1.0		1.0	
[5] Infiltration Trenches (SDM-4)	L (ft)	*trench length*		0		0		0		0
	W (ft)	*trench width*								
	D (ft)	*trench depth*								
	n_{agg}	*porosity of aggregate (if used)*								
[6] Infiltration Facilities (Open Basins, and Subsurface Facilities) (SDM-4)	V (ft3)	*combined volume of all infiltration facilities (include supporting design documentation)*	603	603		0	887.2	887	1,100.0	1100
[7] Do all Site Design Measures meet the design requirements outlined in the Fact Sheets?					Yes	X	No			
[8] Total Volume Reduction (ft^3)			603		0		887		1100	
[9] Effective Treated Impervious Area (ft^2)			7313		0		10754		13333	
[10] Is all new and/or replaced impervious area treated by SDMs? If no, add SDMs, or use Forms 3-1 and 3-2 to design supplemental stormwater treatment.			YES				YES		YES	

Form 2-1 Runoff Reduction Calculator for Site Design Measures on Regulated Projects

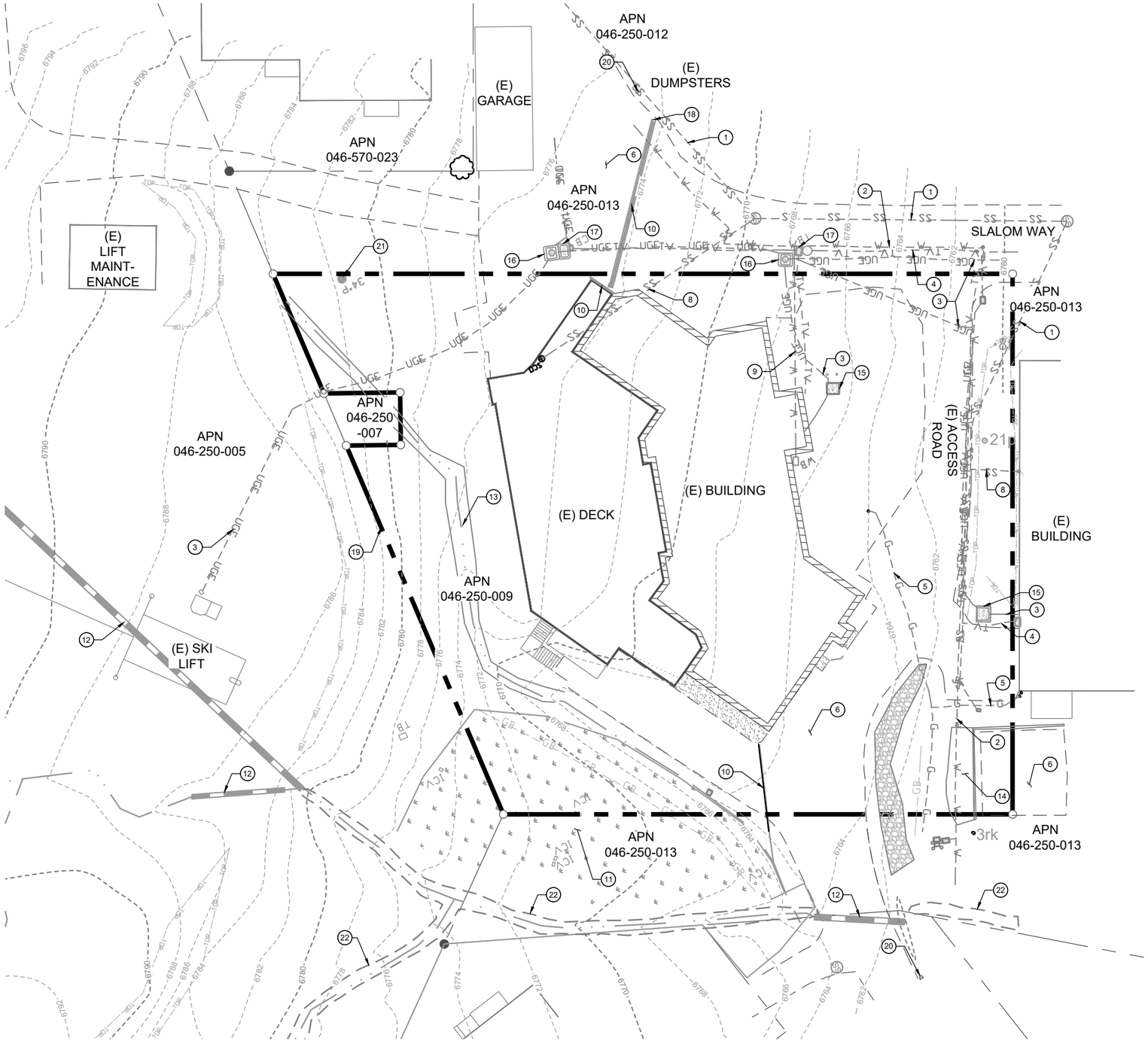
DMA ID No.	5		6		7		8		9		10		11		12	
Runoff Reduction Parameters		Runoff Reduction (ft^3)		Runoff Reduction (ft^3)		Runoff Reduction (ft^3)		Runoff Reduction (ft^3)		Runoff Reduction (ft^3)		Runoff Reduction (ft^3)		Runoff Reduction (ft^3)		Runoff Reduction (ft^3)
impervious drainage area		0		0		0		0		0		0		0		0
runoff volume from 85th percentile, 24-hour storm	1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0	
impervious drainage area		0		0		0		0		0		0		0		0
runoff volume from 85th percentile, 24-hour storm	1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0	
impervious drainage area		0		0		0		0		0		0		0		0
runoff volume from 85th percentile, 24-hour storm	1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0	
trench length	167.5	314		0		0		0		0		0		0		0
trench width	3.0															
trench depth	1.3															
porosity of aggregate (if used)	0.5															
combined volume of all infiltration facilities (include supporting design documentation)				0		0		0		0		0		0		0
Total Volume Reduction	314		0		0		0		0		0		0		0	
Effective Treated Impervious Area	3807		0		0		0		0		0		0		0	
Is all new and/or replaced impervious area treated by SDMs?	YES															

Appendix D: Civil Improvement Plans

LEGEND

EXISTING

- AC PAVING
- EDGE OF PAVEMENT
- PROPERTY LINE
- ADJACENT PROPERTY LINE
- SETBACK
- CENTERLINE OF DRIVE
- ROAD CENTERLINE
- SNOW STORAGE OR DRAINAGE EASEMENT
- MULTI-PURPOSE EASEMENT
- DRIVEWAY AND PUBLIC UTILITY EASEMENT
- OVERHEAD ELECTRIC
- UNDERGROUND UTILITY
- OVERHEAD UTILITY
- GAS LINE
- WATER LINE
- SEWER LINE
- STORM DRAIN CULVERT
- JOINT UTILITY POLE
- SANITARY SEWER MANHOLE
- ELECTRIC BOX
- TELEVISION BOX
- WATER METER
- WATER VALVE
- IRRIGATION VALVE
- SIGN
- TREE (SIZE VARIES)
- INDEX CONTOUR W/ ELEV
- INTERMEDIATE CONTOUR
- GRADE BREAK
- FLOWLINE
- ROCK OR BOULDER
- TREE (SIZE & TYPE VARIES)
- BENCHMARK
- VEGETATION



EXISTING SITE PLAN KEYNOTES

1. (E) SEWER LINE
2. (E) WATER LINE
3. (E) ELECTRICAL LINE
4. (E) COMMUNICATIONS LINE
5. (E) GAS LINE
6. (E) ASPHALT
7. NOT USED
8. (E) SEWER LATERAL
9. (E) WATER LATERAL
10. (E) SLOTTED DRAIN
11. (E) VEGETATION
12. (E) CULVERT
13. (E) DRAINAGE DITCH
14. (E) PLANTER BOX
15. (E) TRANSFORMER
16. (E) ELECTRIC VAULT
17. (E) COMMUNICATION BOX
18. (E) SLOTTED DRAIN OUTLET UNKNOWN
19. EXISTING LOT LINE TO BE REMOVED. PENDING FUTURE LLA APPLICATION APPROVAL.
    - (E) PARCELS 046-250-005, 046-250-007, AND 046-250-009 TO BE MERGED
20. (E) FIRE HYDRANT LOCATION(S)
21. (E) 34" PINE TO REMAIN
22. (E) OFF-SITE AQUATIC RESOURCE - WETLAND SWALE TO BE PROTECTED AND AVOIDED, AND LIMITS OF 100 YEAR FLOOD PLAIN DELINEATION (SEE DRAINAGE REPORT)

GRAPHIC SCALE

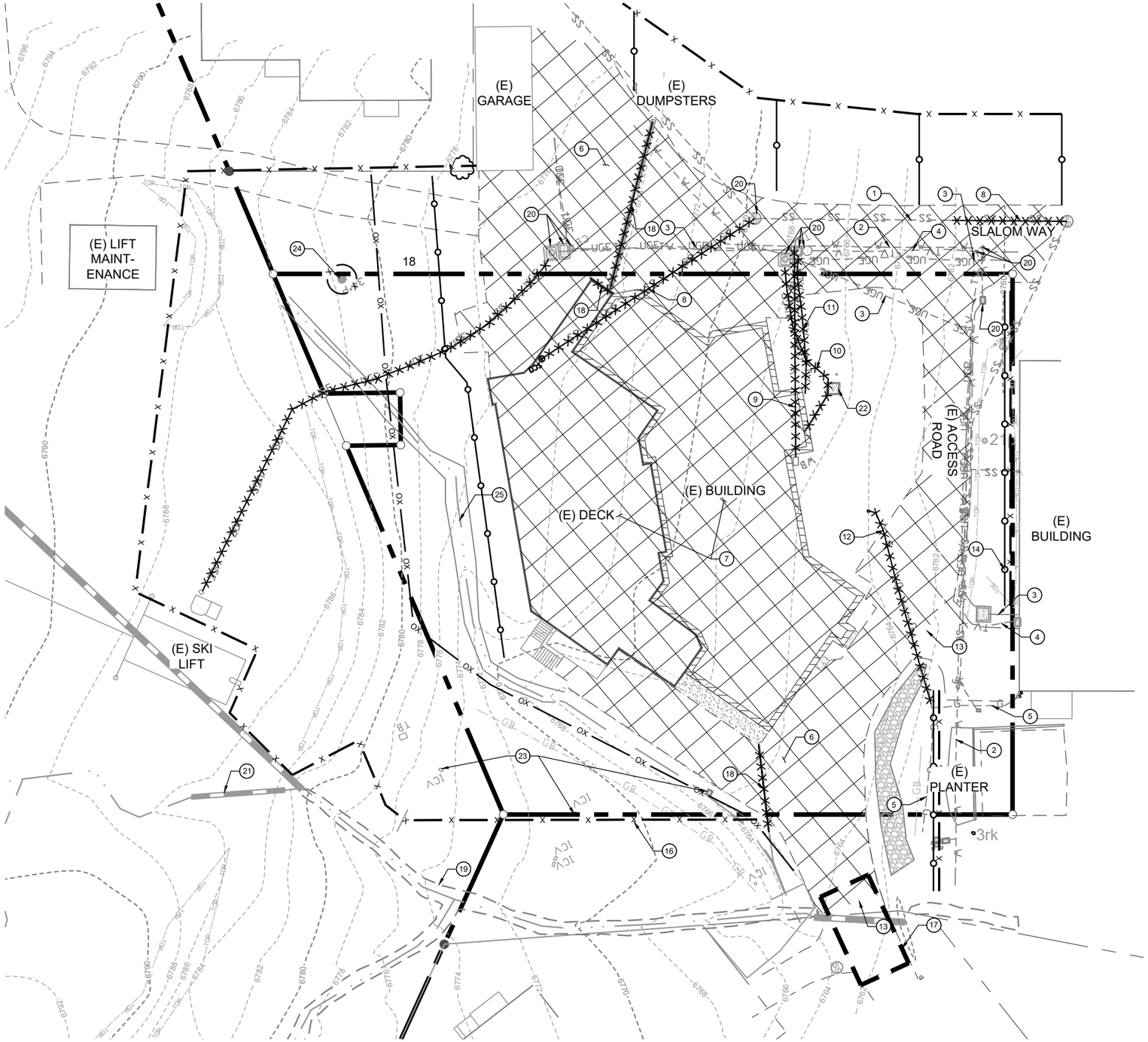
20 0 10 20

1 INCH = 20 FEET

C1 EXISTING SITE PLAN

DEMO & EROSION CONTROL

- ROLLED EROSION CONTROL PRODUCT
- EXISTING TO BE DEMOLISHED
- SAWCUT
- SILT FENCE W/ FIBER ROLL
- FIBER ROLL
- SILT FENCE
- TEMPORARY CONSTRUCTION FENCE
- CONSTRUCTION FENCE
- REMOVE (E) UTILITY
- ABANDON (E) UTILITY
- DRAIN INLET PROTECTION
- GRAVEL OR FIBER ROLL CHECK DAM
- INDIVIDUAL TREE PROTECTION
- TREE TO BE REMOVED
- CONSTRUCTION ENTRANCE
- STOCKPILE / STAGING AREA



DEMOLITION KEYNOTES

1. PROTECT IN PLACE (E) SEWER LINE
2. PROTECT IN PLACE (E) WATER LINE
3. PROTECT IN PLACE (E) ELECTRICAL LINE
4. PROTECT IN PLACE (E) COMMUNICATIONS LINE
5. PROTECT IN PLACE (E) GAS LINE
6. REMOVE (E) ASPHALT
7. REMOVE (E) BUILDING, FOUNDATIONS, AND DECK
8. REMOVE (E) SEWER
9. REMOVE (E) WATER LINE
10. REMOVE (E) ELECTRICAL LINE
11. REMOVE (E) COMMUNICATIONS LINE
12. REMOVE (E) GAS LINE
13. SAWCUT (E) PAVEMENT
14. PROVIDE FIBER ROLLS, (TYP)
15. NOT USED
16. PROVIDE CONSTRUCTION FENCE, (TYP)
17. CONSTRUCTION ENTRANCE
18. REMOVE (E) SLOTTED DRAIN
19. (E) OFF-SITE AQUATIC RESOURCE - WETLAND SWALE TO BE PROTECTED AND AVOIDED, AND LIMITS OF 100 YEAR FLOOD PLAIN DELINEATION (SEE DRAINAGE REPORT)
20. PROTECT (E) UTILITY APPURTENANCES AND RESET TO FINISHED GRADE
21. REMOVE AND SALVAGE (E) CULVERT
22. REMOVE AND SALVAGE (E) TRANSFORMER
23. REMOVE (E) IRRIGATION
24. (E) 34" PINE TO REMAIN
25. (E) DRAINAGE SWALE TO BE ABANDONED

GRAPHIC SCALE
20 0 10 20
1 INCH = 20 FEET

C2 DEMOLITION AND TEMP EROSION CONTROL PLAN

TAHOE DONNER DOWNHILL LODGE
NOVEMBER 16, 2022

AUERBACH ENGINEERING CORP ESTD 1998
bull stockwell allen ARCHITECTURE + PLANNING + INTERIORS

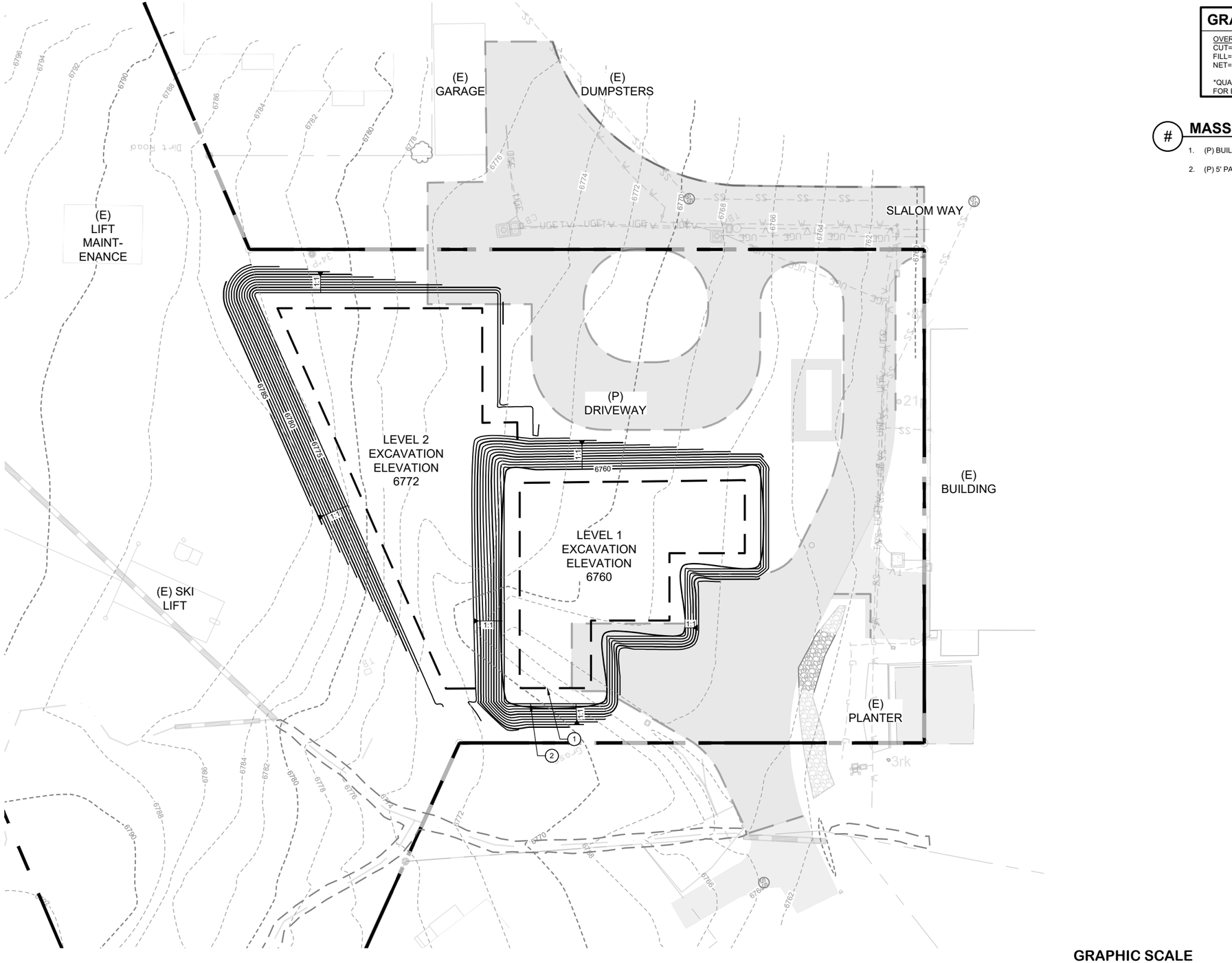
GRADING QUANTITIES

OVERALL CUT/FILL QUANTITIES:*
CUT= ± 4574 CY
FILL= ± 28 CY
NET= ± 4546 CY OF CUT

*QUANTITIES ARE APPROXIMATE AND SHALL NOT BE USED FOR ESTIMATING OR BIDDING PURPOSES.

MASS GRADING KEYNOTES

1. (P) BUILDING FOUNDATION ENVELOPE
2. (P) 5' PAD OVERBUILD



GRAPHIC SCALE
20 0 10 20
1 INCH = 20 FEET

C3 BUILDING PAD MASS GRADING PLAN

TAHOE DONNER DOWNHILL LODGE
NOVEMBER 16, 2022

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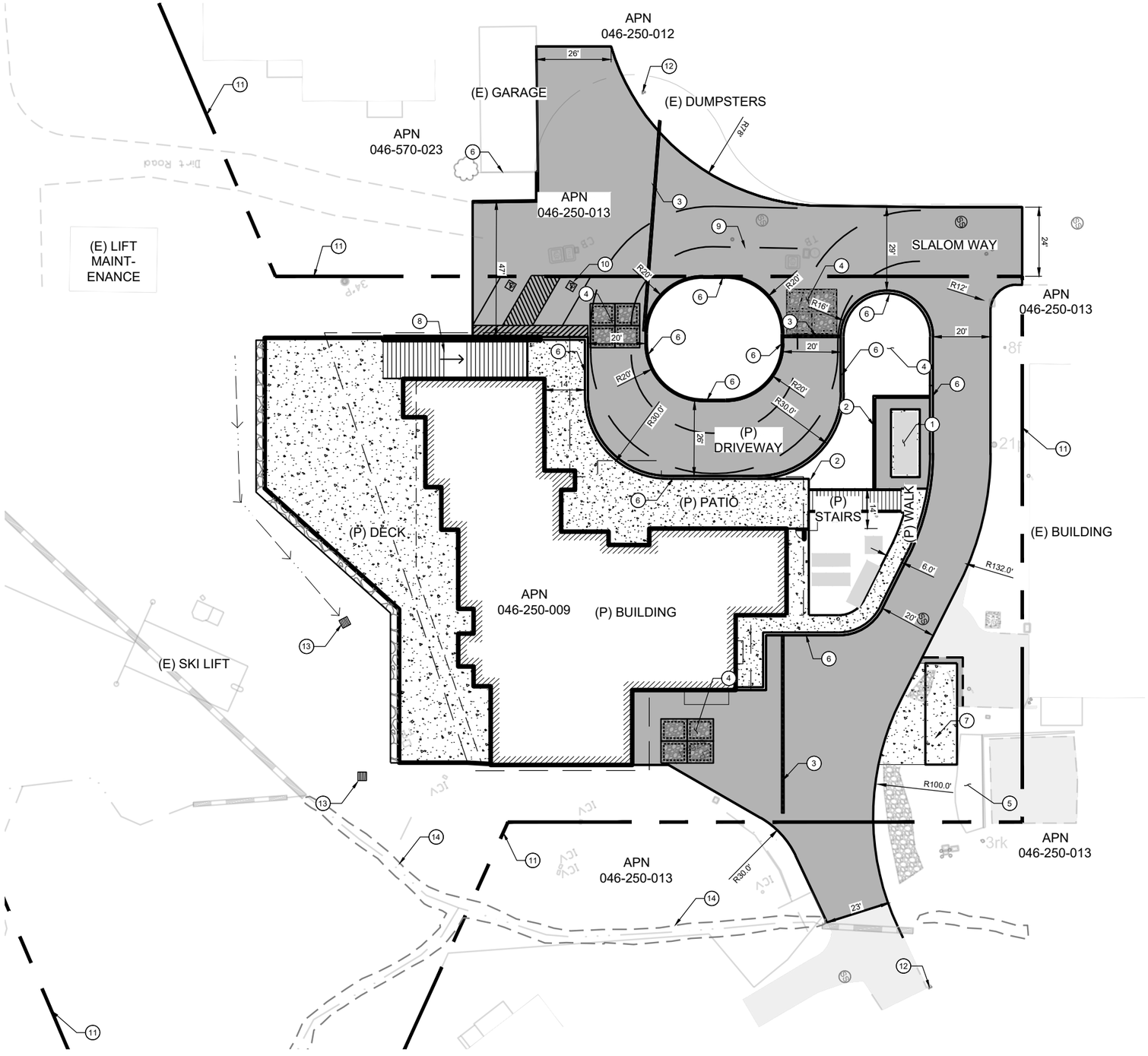
LEGEND

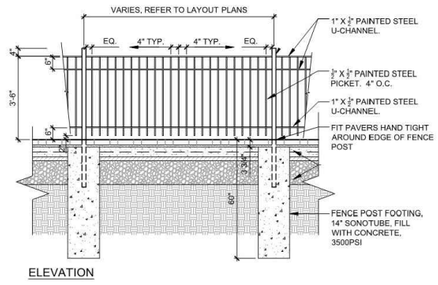
PROPOSED

- AC PAVING
- PAVERS
- INFILTRATION TRENCH
- ROCK SLOPE PROTECTION
- CONCRETE PAD
- EDGE OF PAVEMENT
- EDGE OF SHOULDER/ CURB
- SANITARY SEWER
- WATERLINE
- NATURAL GAS LINE
- CABLE TV
- JOINT TRENCH
- UNDERGROUND ELEC
- STORM DRAIN
- TRENCH DRAIN
- GRADING LIMITS - FILL
- GRADING LIMITS - CUT
- GRADE BREAK
- SCO — SEWER CLEANOUT
- W — WATER METER
- WATER VALVE
- GAS REGULATOR ASSEMBLY
- SD — STORM DRAIN MANHOLE
- 6245 — INDEX CONTOUR W/ ELEV
- INTERMEDIATE CONTOUR



SITE PLAN KEYNOTES

1. (P) GENERATOR
2. (P) RETAINING WALL (5' MAX HEIGHT, SEE GRADING PLAN) WITH RAILING, SEE DETAIL BELOW.
3. (P) TRENCH DRAIN
4. (P) INFILTRATION CHAMBER(S), SEE GRADING PLAN
5. (E) PLANTER
6. (P) CURB
7. (P) TRASH ENCLOSURE, SEE ARCHITECTURAL PLAN
8. (P) STAIRWAY LEVEL 2 TO LEVEL 3
9. FIRE TRUCK TURNING MOVEMENT
10. ADA PARKING
11. PENDING FUTURE LLA APPLICATION APPROVAL.
    - (E) PARCELS 046-250-005, 046-250-007, AND 046-250-009 TO BE MERGED
12. (E) FIRE HYDRANT LOCATION(S)
13. (P) DROP INLET, SEE GRADING PLAN
14. (E) OFF-SITE AQUATIC RESOURCE - WETLAND SWALE TO BE PROTECTED AND AVOIDED, AND LIMITS OF 100 YEAR FLOOD PLAIN DELINEATION (SEE DRAINAGE REPORT)



RETAINING WALL w/ RAILING DETAIL

GRAPHIC SCALE

20 0 10 20

1 INCH = 20 FEET

C4 CIVIL SITE PLAN

TAHOE DONNER DOWNHILL LODGE

NOVEMBER 16, 2022

AUERBACH ENGINEERING CORP ESTD 1998

bull stockwell allen ARCHITECTURE + PLANNING + INTERIORS

LEGEND

PROPOSED

- 6245 — INDEX CONTOUR W/ ELEV.
- 6246 — INTERMEDIATE CONTOUR W/ ELEV.
- OR — STORM DRAIN INLET

GRADING QUANTITIES

OVERALL CUT/FILL QUANTITIES:*
CUT= ± 795 CY
FILL= ± 1444 CY
NET= ± 649 CY OF FILL

*QUANTITIES ARE APPROXIMATE AND SHALL NOT BE USED FOR ESTIMATING OR BIDDING PURPOSES.

GRADING AND DRAINAGE KEYNOTES

1. (E) CULVERT TO REMAIN, PROTECT IN PLACE
2. (E) OFF-SITE AQUATIC RESOURCE - WETLAND SWALE TO BE PROTECTED AND AVOIDED, AND LIMITS OF 100 YEAR FLOOD PLAIN DELINEATION (SEE DRAINAGE REPORT)
3. (P) STORM DRAIN PIPING, TYP
4. (P) TRENCH DRAIN
5. (P) INFILTRATION CHAMBER, FOR SIZING INFO REFER TO DRAINAGE REPORT
6. (P) INFILTRATION TRENCH
7. DAYLIGHT TO LANDSCAPE AREA
8. DAYLIGHT UNDERSLAB DRAINAGE TO PROPOSED DRAINAGE (TO BE DETERMINED)
9. ROOF LINE, TYPICAL
10. (P) STAIRWAY LEVEL 2 TO LEVEL 3
11. LIMIT OF DISTURBANCE (APPROX. ~ 1.3 ACRES)
12. (P) VEGETATIVE DRAINAGE SWALE
13. DAYLIGHT STORM DRAIN PIPE TO (E) SWALE
14. (E) SWALE TO REMAIN, PROTECT IN PLACE

GRAPHIC SCALE
20 0 10 20
1 INCH = 20 FEET

C5 GRADING AND DRAINAGE PLAN

TAHOE DONNER DOWNHILL LODGE
NOVEMBER 16, 2022

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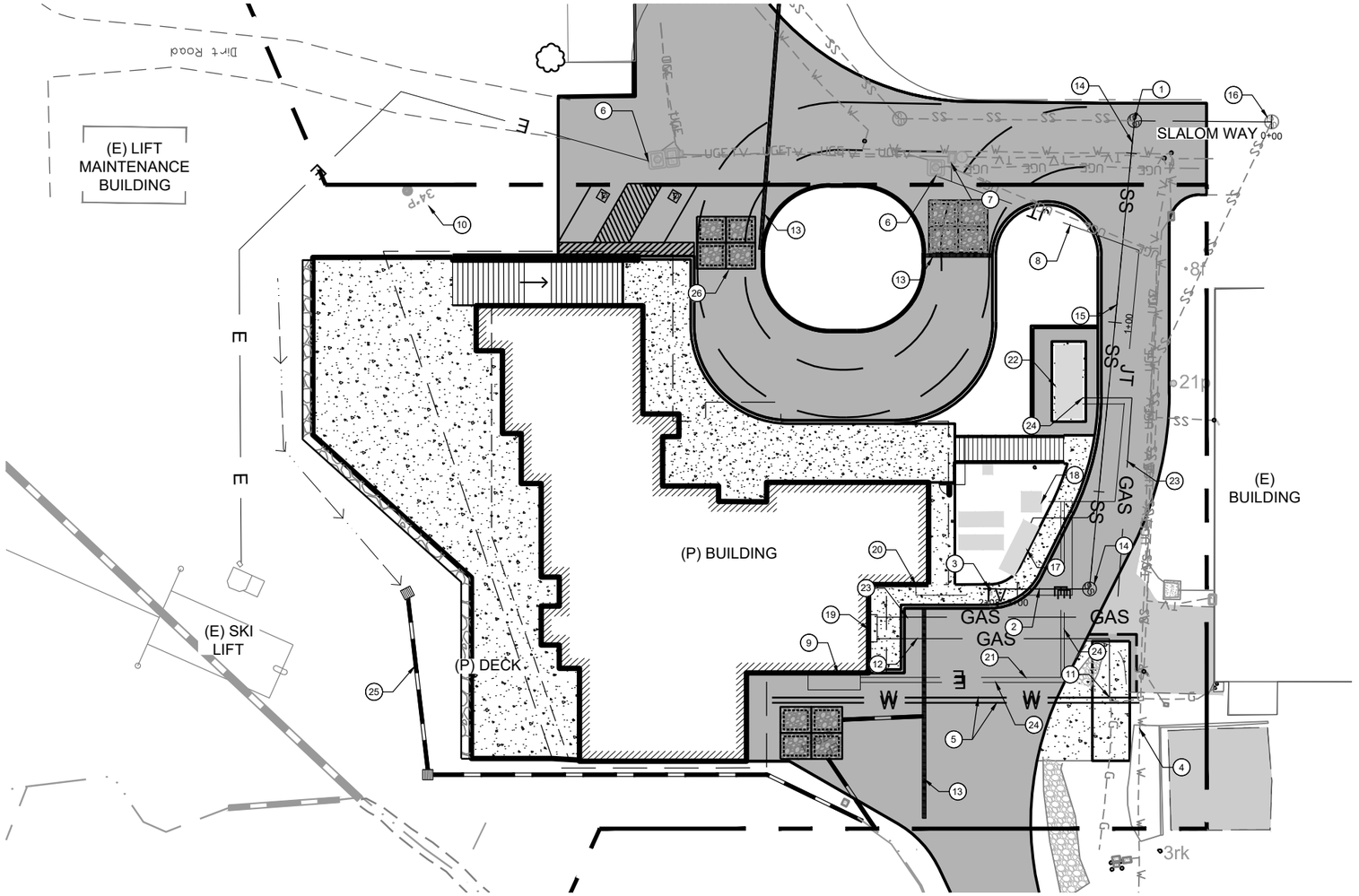

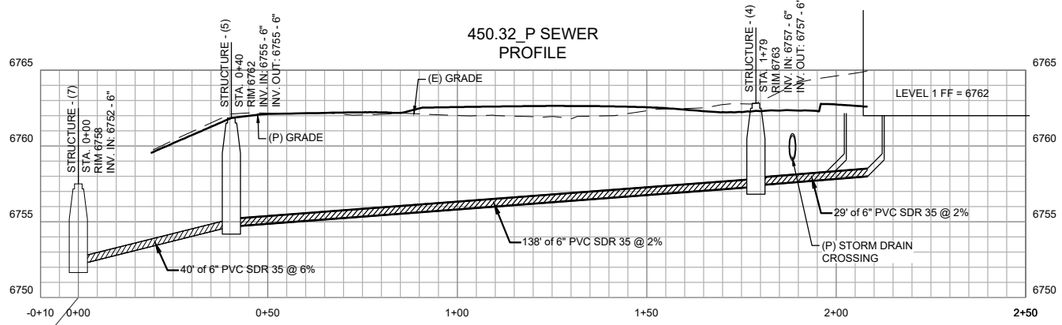

SEWER PROFILE

SCALE (H): 1" = 40'
SCALE (V): 1" = 10'

UTILITY KEYNOTES

1. CONNECT TO (E) SEWER WITH MANHOLE OVER (E) SEWER
2. (P) SEWER SERVICE TO BUILDING
3. (P) SEWER CLEANOUT
4. CONNECT TO (E) WATER
5. (P) DOMESTIC WATER AND FIRE SERVICE TO BUILDING
6. CONNECT TO (E) ELECTRIC
7. CONNECT TO (E) COMMUNICATIONS
8. (P) JOINT TRENCH ELECTRIC AND COMMUNICATIONS
9. (P) ELECTRIC PANELS
10. (P) ELECTRIC SERVICE TO SKI LIFT AVOID DRIPLINE OF 34" PINE TREE
11. CONNECT TO (E) GAS
12. (P) GAS SERVICE TO BUILDING
13. (P) TRENCH DRAIN
14. (P) SEWER MANHOLE
15. (P) SEWER LATERAL
16. (E) SEWER MANHOLE APPROXIMATE IE = 6752.16
17. (P) 2000 GAL SEWER INTERCEPTOR
18. (P) ELECTRIC TRANSFORMER
19. (P) GAS METERS WITH SHED
20. (P) CATV SERVICE TO BUILDING
21. (P) ELECTRIC SERVICE TO BUILDING
22. (P) GENERATOR
23. (P) GAS SERVICE TO GENERATOR
24. (P) ELECTRIC SERVICE FROM GENERATOR TO BUILDING
25. (P) STORM DRAINAGE, TYP, SEE GRADING AND DRAINAGE PLAN
26. INFILTRATION CHAMBERS, TYP, SEE GRADING & DRAINAGE PLAN

GRAPHIC SCALE
20 0 10 20
1 INCH = 20 FEET

C6 UTILITY PLAN

TAHOE DONNER DOWNHILL LODGE
NOVEMBER 16, 2022

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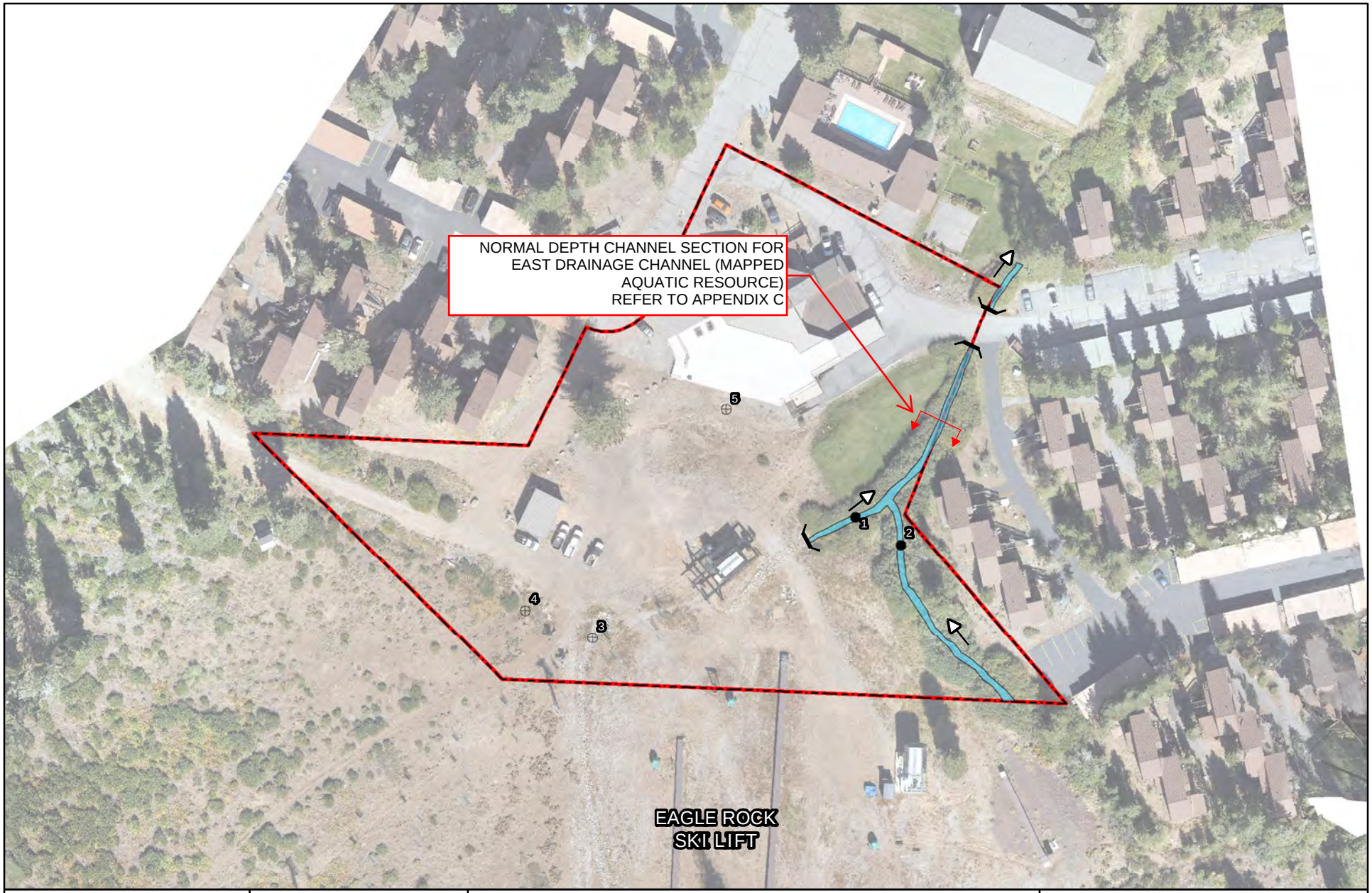
Appendix E: Salix Figure 6a



Salix consulting, inc.

N

0 50 100

Feet

Study Area (±2.8 acres)

Wetland Swale (±0.04 acre)

Upland Data Point

Wetland Data Point

Imagery: 9-30-22 Salix Consulting, Inc.

Figure 6a

AQUATIC RESOURCES

Tahoe Donner Downhill Lodge

Truckee, CA