



**ARCONIC**  
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## **MASTER PLAN – SPECIAL USE PERMIT**

Prepared by:



**MAY 15, 2018**

# **ARCONIC MASTER PLAN**

## **SPECIAL USE PERMIT APPLICATION**

**Prepared for:**

Schlosser Forge Company

1 Eric Circle

Verdi, Nevada 89439

**Prepared by:**

Rubicon Design Group, LLC

1610 Montclair Avenue , Suite B

Reno, Nevada 89509

(775) 425-4800

**May 15, 2018**



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Preliminary Landscape Plan  
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**Attachments:**

Preliminary Title Report  
Preliminary Soils Research Report

## Introduction

This application includes the following requests:

- A **Special Use Permit** to allow for the establishment of a Heavy Industrial use within the Industrial zone.

## Project Location

Arconic currently operates a plant at the subject property located at 1 Eric Circle in Verdi (APN # 038-060-36). Specifically, project site consists of 21.38± acres and is located on the north side of Old Highway 40, south of the Truckee River and east of downtown Verdi. Figure 1 (below) depicts the project location.

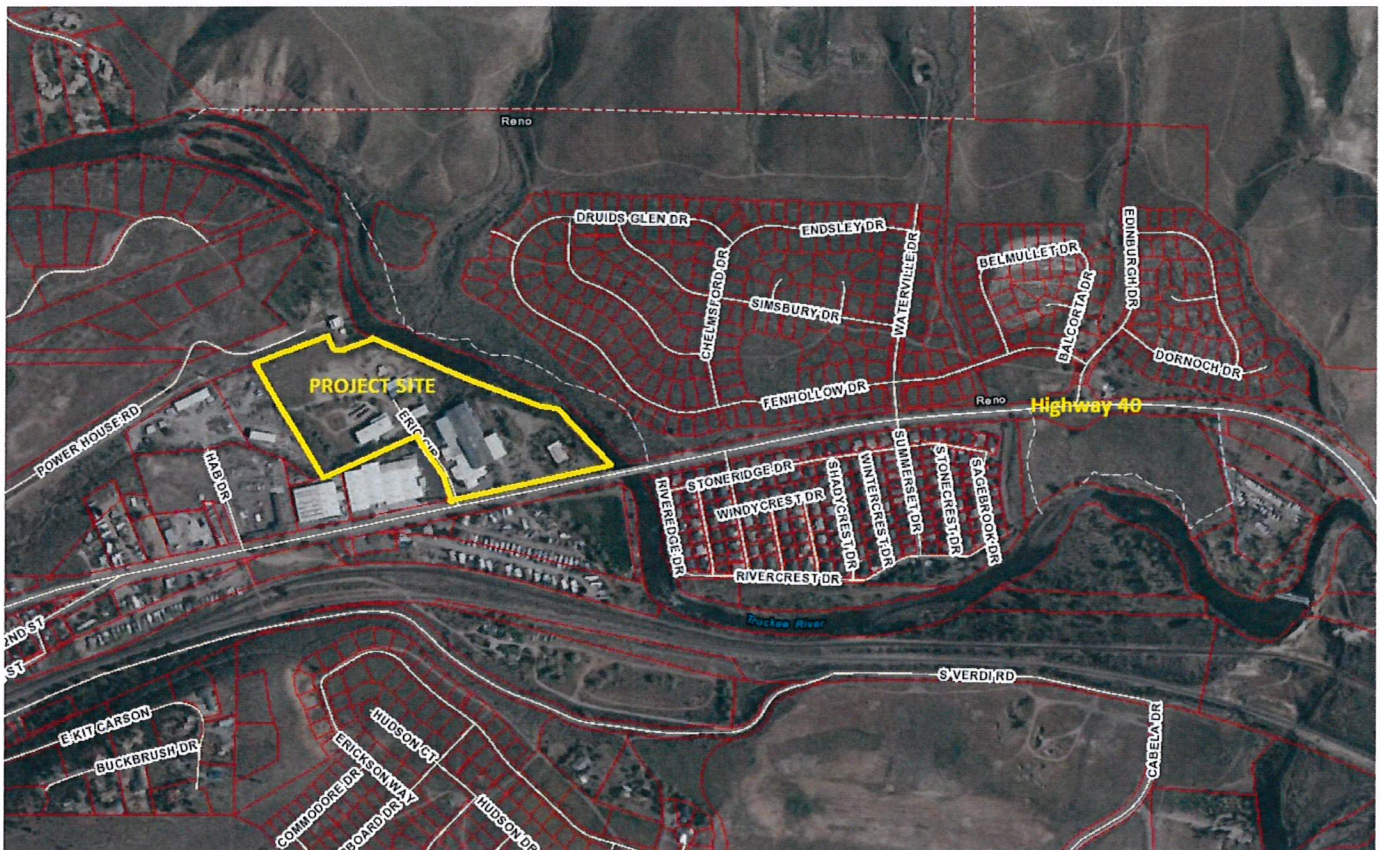


Figure 1 – Vicinity Map

### Existing Conditions

The Arconic property is located within the Verdi Area Plan where it is designated Industrial. Consistent with the Industrial Master Plan designation, the site also includes Industrial zoning. Figure 2 (below) depicts the Master Plan designations of the site and surrounding area while Figure 3 (following page) depicts the adopted zoning.

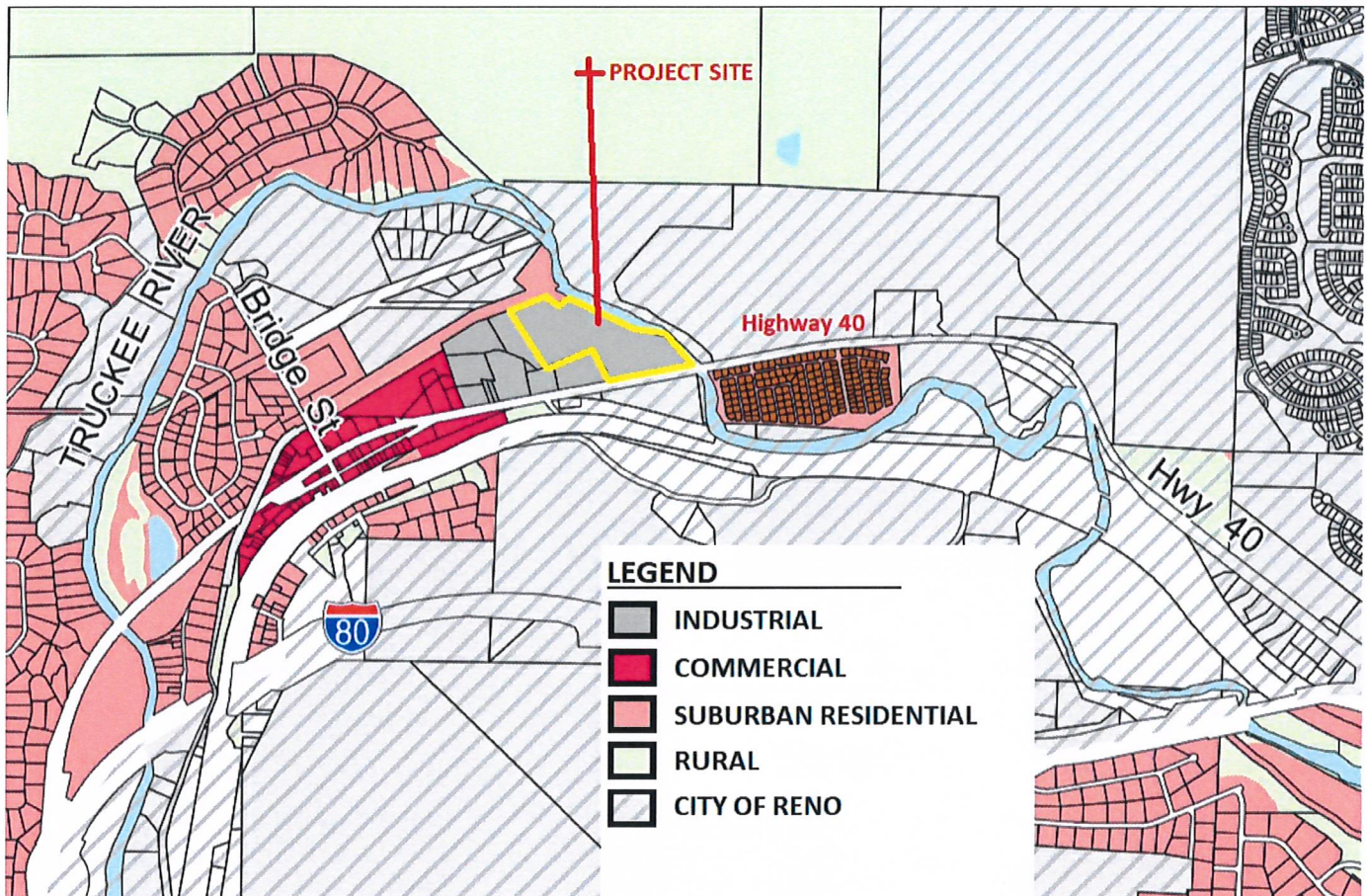


Figure 2 – Master Plan Land Use

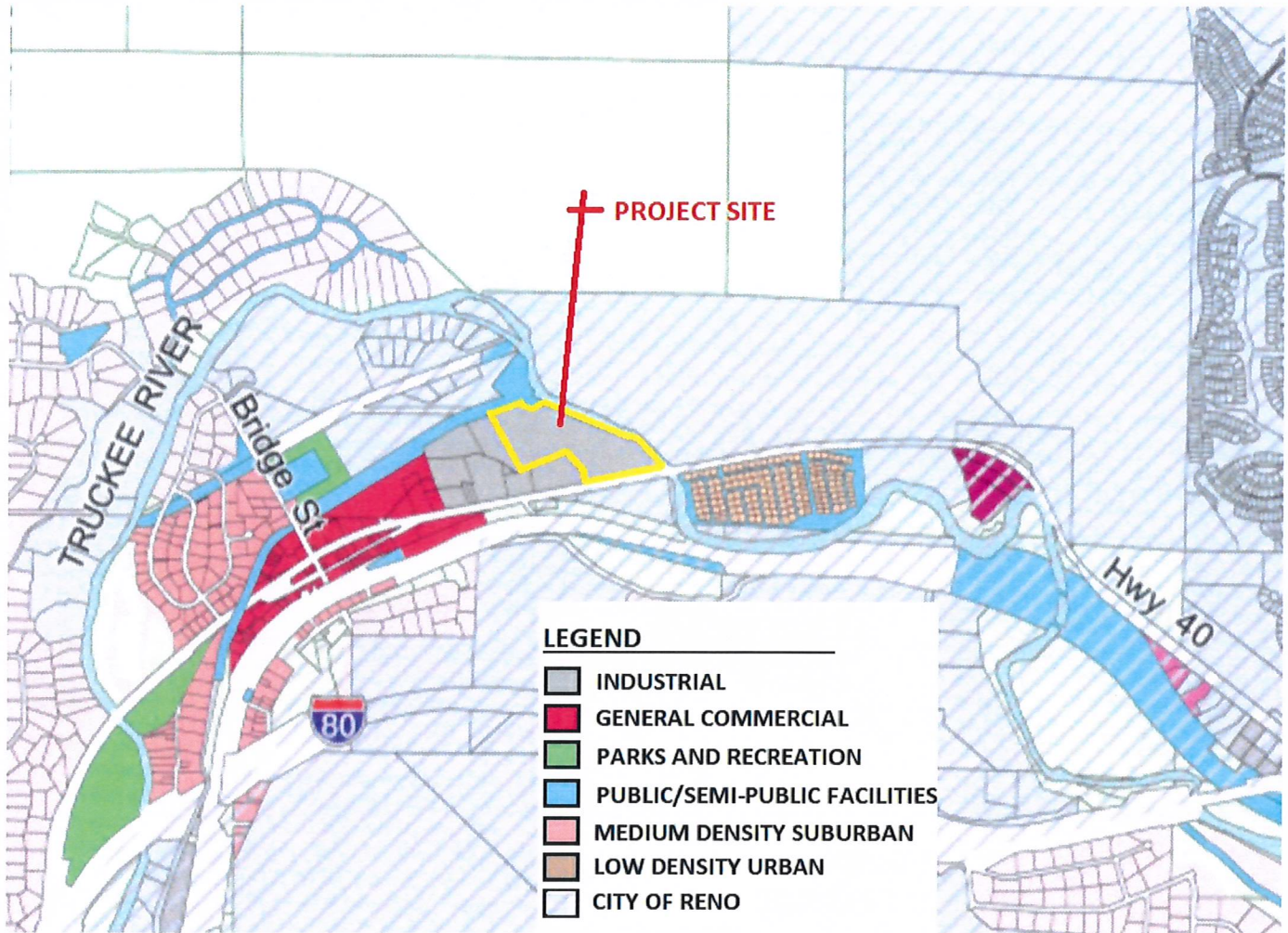
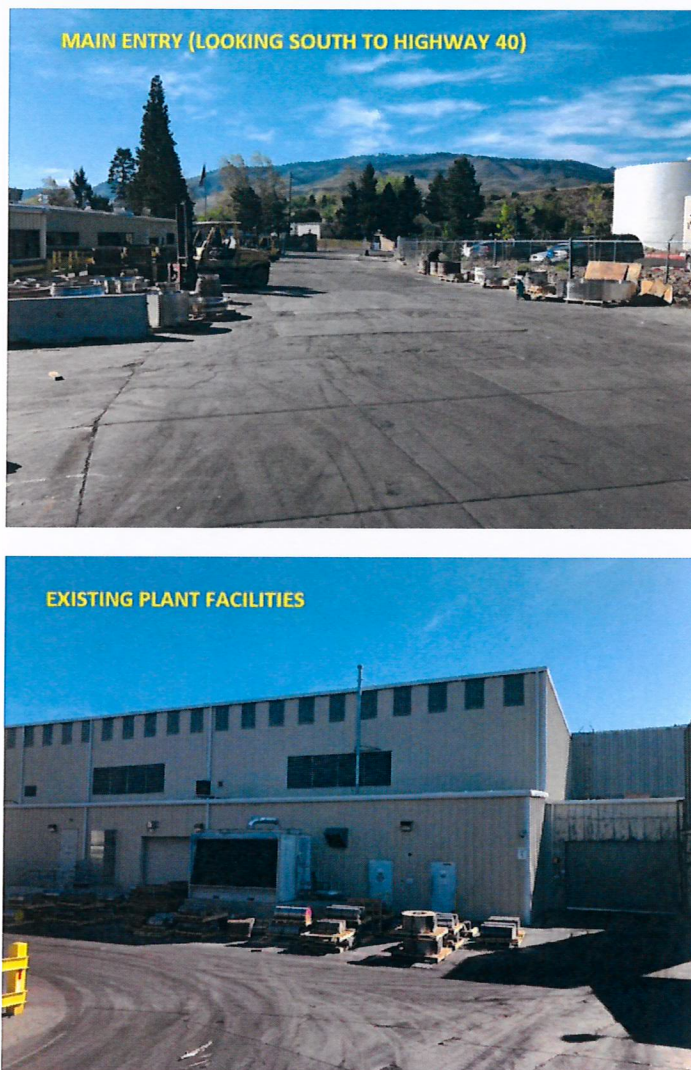


Figure 3 - Zoning

Access to the project site is via Eric Circle which connects with Old Highway 40 at the southwest portion of the site. Eric Circle is a private roadway easement which essentially functions as a driveway for the existing Arconic operations and the industrial use directly west of the site. A diversion channel from the NV Energy power plant located west of the site crosses the central portion of the Arconic property. This is a man-made diversion and is not a significant hydrologic resource, as defined by Washoe County.

The subject site has been in operation as an industrial use since 1967 and includes over 94,000 square feet of existing industrial buildings. Schlosser Forge Company (operating as Arconic) acquired the property in 2013 and currently operates permitted industrial activities at the site. Figure 4 (below) along with 5 and 6 (following pages) depict the existing onsite conditions.



**Figure 4 – Existing Conditions**



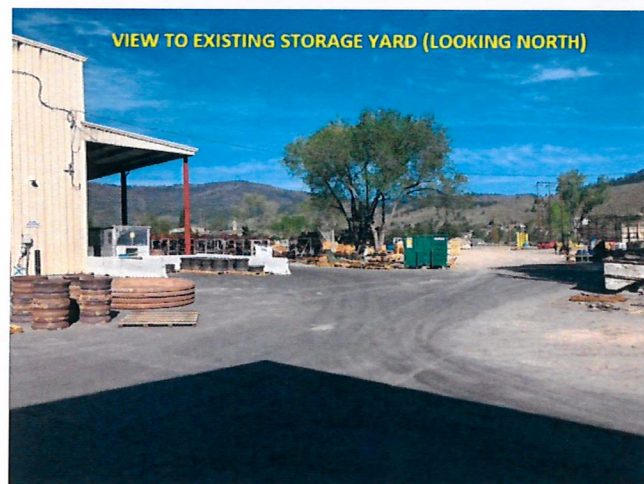
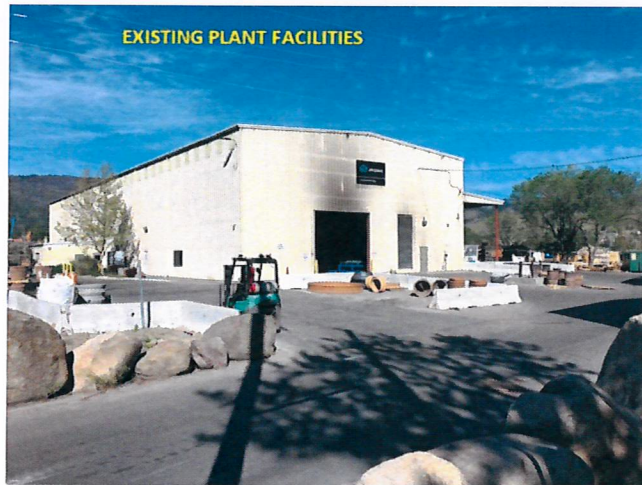
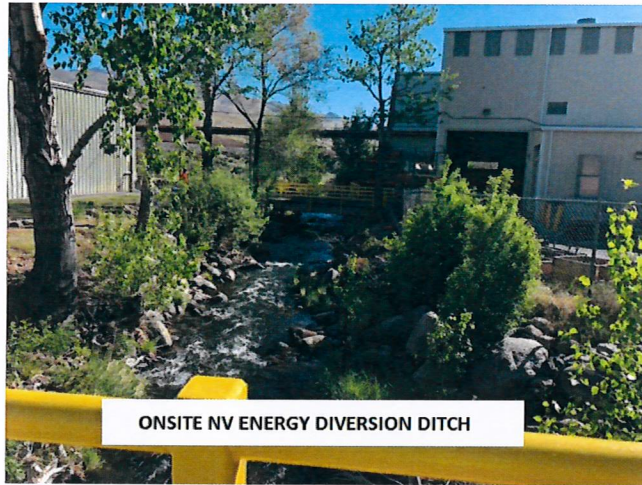
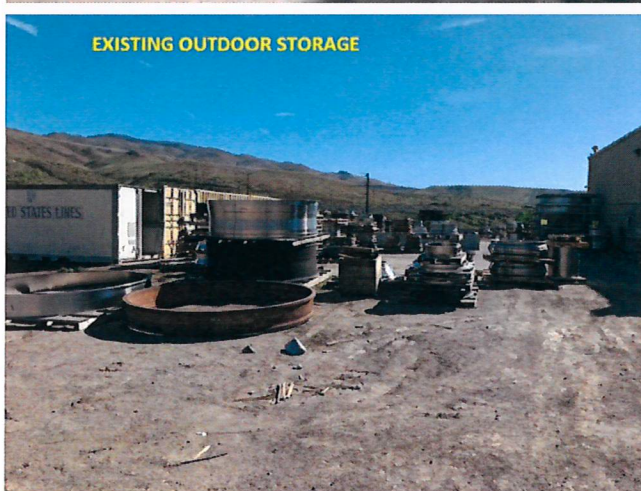
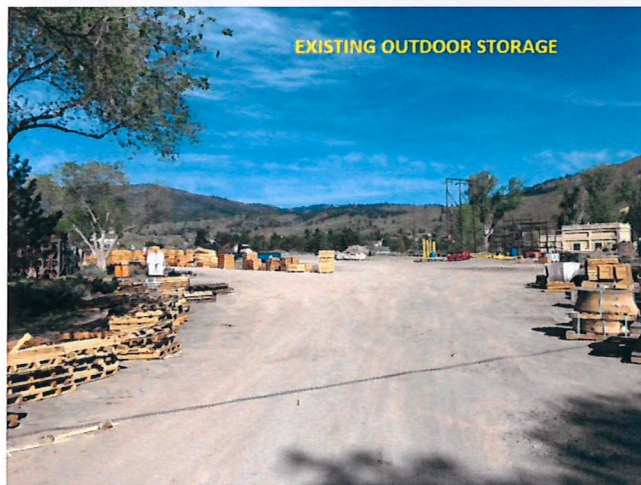
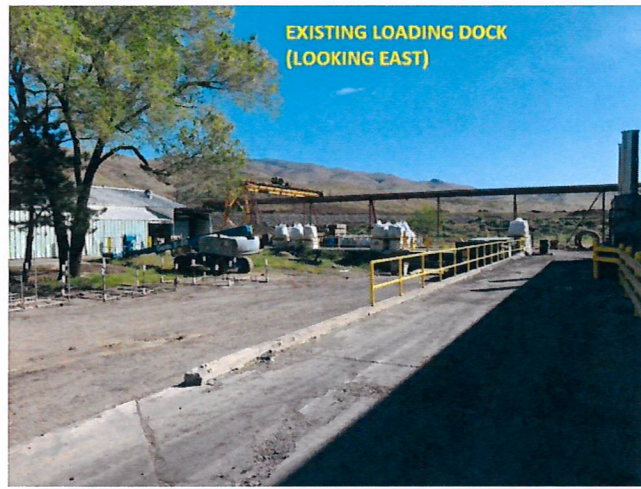


Figure 5 – Existing Conditions



**Figure 6 – Existing Conditions**

## **Project Description**

As previously noted, Arconic has been operating at the Verdi site since 2013. Industrial use has occurred at the site since the 1960's. As such, much of the site was developed prior to the adoption of the current Washoe County Development Code. Thus, current operations are considered to be a permitted "grandfathered" use.

The Arconic operations are considered to be a heavy industrial use per Washoe County definition. Heavy industrial use requires the approval of a Special Use Permit (SUP) within the Industrial zone, per Table 110.302.05.4. Arconic is planning to expand current operations which triggers the need for a SUP for the new facilities. As part of this, a long-range master plan is being proposed which eliminates the potential for piecemealing development of the site and provides for a comprehensive plan that can be reviewed under a single SUP.

Arconic's Verdi facility produces alloys used in the aviation industry. Raw materials (Ni, Ti based alloys) are pre-heated in gas fired furnaces with an operating range of 1,000 to 2,200 degrees Fahrenheit. The material is then transferred with fork lifts to a 3,200-ton hydraulic press where the material undergoes a forging operation to flatten the billet and create a ring using a punch and pierce method. The product is then air cooled prior to being transferred to conditioning where any defects are removed. The next operation is ring rolling; the product returns to the forge building and is placed into the forge furnaces to be pre-heated. After pre-heat the product is transferred to the ring mill where the outer and inner diameter are manipulated to final sizes. Once cooled, the product is transferred to the heat treatment department where it will undergo a process to obtain final mechanical properties. This could be a combination of an age cycle and/or solution and quench cycle. The age and solution are both performed in gas fired furnaces. The quench cycle is either forced air cool, water, or polymer quench. The final operation is a CNC machining operation to meet the customer's Condition of Supply (COS) drawings.

The previous paragraph is a summary of the current operations at the Verdi plant. The master plan being proposed with this SUP consists of four phases. Each of these phases is described below:

- **Phase 1**

Phase 1 of the master plan includes various components that are slated to begin immediately following SUP approval. The first will be a new heat treatment building expansion. This facility will be located just north of the existing heat treatment building in the central portion of the site.

At the new heat treatment building, product will undergo the age or solution and quench cycle to obtain the desired mechanical properties as specified by a customer. The gas fired furnaces that will be installed have an operating range of 930 to 2,150 degrees Fahrenheit with a uniformity of  $\pm 10$  degrees. Maximum load in the furnaces is 14,000 pounds with a working volume of 186-inches by 144-inches by 60-inches. The quench process will be an oil-based quench with the oil temperature being controlled at 160 degrees Fahrenheit with a maximum temperature rise of 40 degrees Fahrenheit. The oil temperature will be controlled by a cooling tower/heat exchanger system.

A second component of Phase 1 will include covered tooling storage. This is a location where the tooling for the press and ring rolling operations can be stored under cover to protect against environmental factors. A staging area for product will be developed to provide a location for product to be held both prior to and after the heat treatment operations.

- **Phase 2**

Phase 2 will include a machine shop expansion adjacent to the existing machine shop at the eastern portion of the site. The building will house multiple CNC machines to complete final machining operations. These machines will be capable of machining the full range of products offered by Arconic.

Along with the machine shop, a post-forge inspection building will be constructed adjacent. The post forge inspection will contain blue (or white) light inspection equipment to conduct inspection of product prior to the heat treatment operation. This equipment will be housed in a clean, temperature-controlled environment.

- **Phase 3**

Phase 3 of the master plan will include a further expansion of the heat treatment facility. Located adjacent to the Phase 1 expansion, the Phase 3 expansion will essentially be identical to the Phase 1 facility described previously with the exception that the oil quench may be replaced by polymer or water.

- **Phase 4**

The final phase of the master plan will include an additional machine shop expansion. Like Phase 2, the machine shop will house equipment needed to complete final machining of product produced at Arconic. Additionally, Phase 4 will include a shipping and storage building to house finished product prior to dispatch from the Arconic plant.

Figure 7 (following page) provides an overall site plan that depicts the various master plan phases included with this SUP request. The buildings on the plan are labeled with either an “E” for existing or “P” for proposed and collate with the improvements previously described within the individual phases.

The existing onsite operations and buildings such as the primary offices, parking areas, access, etc. will remain unchanged. Therefore, the site plan included in Figure 7 focusses primarily on the areas of new development/expansion. New improvements such as paving, etc. are called out along with areas that currently exist. Full-size versions of this plan are included in the attached map pocket. Also attached are preliminary civil improvement plans that provide detailed site information and specifics.

As depicted in Figures 4 through 6, buildings within the Arconic site are industrial in character. Elevations for the new heat treatment facility included in Phase 1 are depicted in Figures 8 and 9. New buildings within Phases 2, 3, and 4 will be similar in architectural style and will be designed to complement both existing and newly developed structures. A condition to this effect can be added to the SUP to address future buildings.

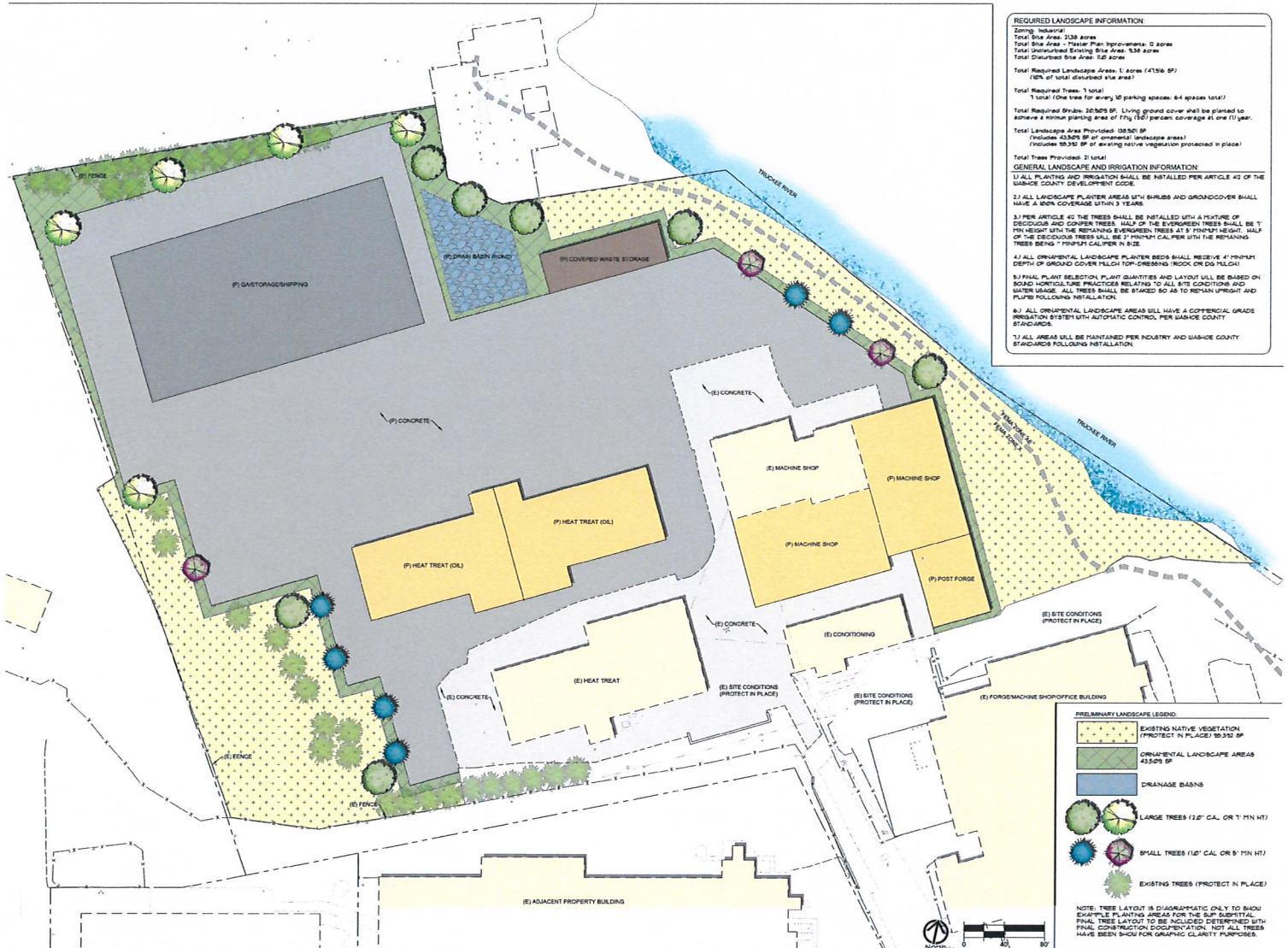
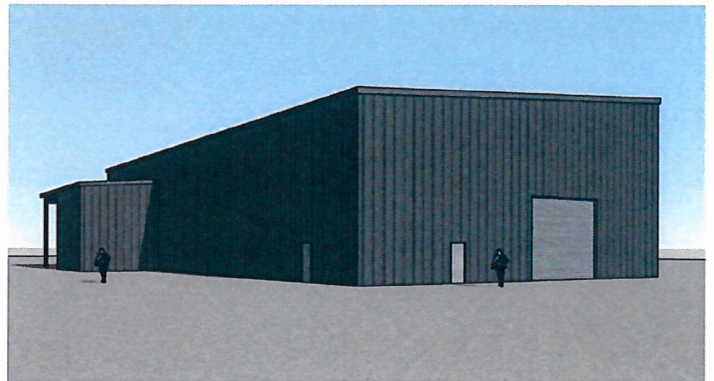
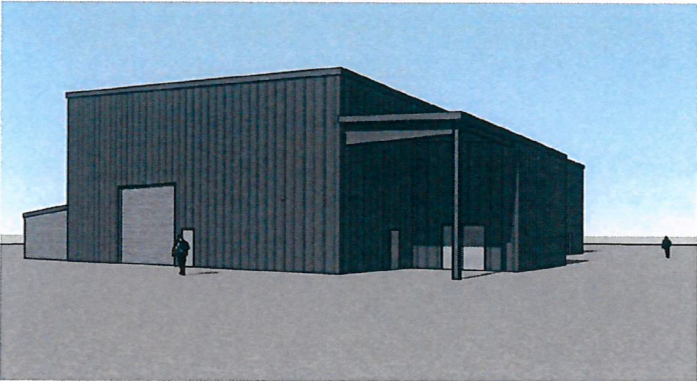
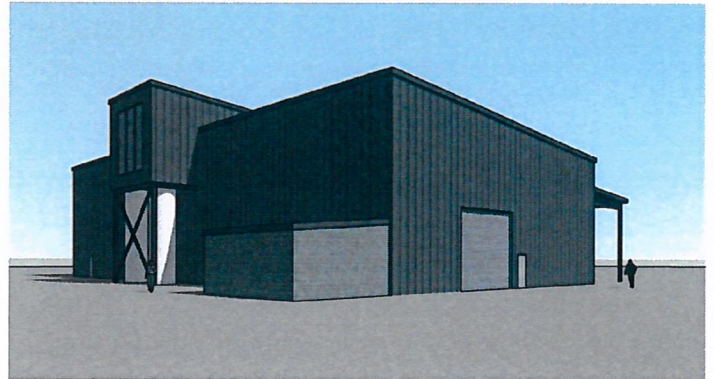
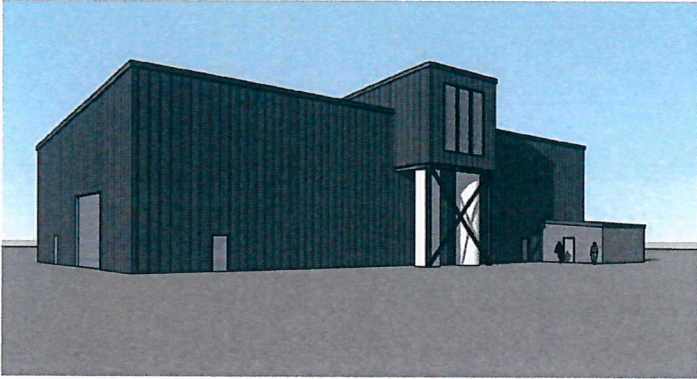


Figure 7 – Preliminary Site Plan



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ARCONIC phase one Heat Treat

1 ERB DR, VERO, FL 34084

PERSPECTIVES

NO SCALE

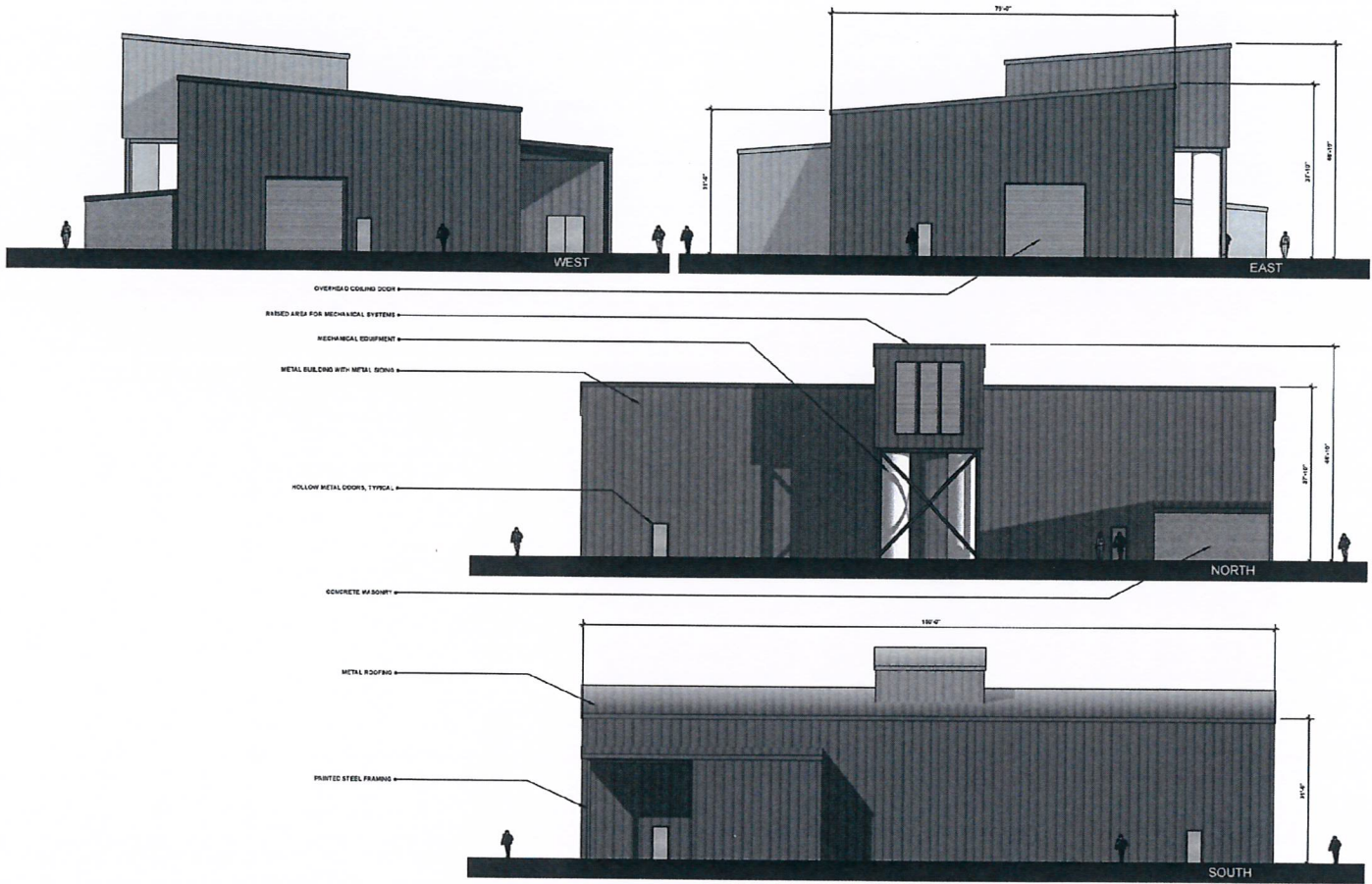
2

MAY 10, 2018

Figure 8 – Heat Treatment Expansion Elevations



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NOTE: COLORS ARE TENTATIVE AND YET TO BE DETERMINED

ARCONIC phase one Heat Treat

TRICIRCLE, VIRGO AVENUE

ELEVATIONS

SCALE: 1/8" = 1' - 0"

3

FEB 19, 2018

Figure 9 – Heat Treatment Expansion Elevations

As discussed previously, the heat treatment expansion is considered a “heavy industrial” use per the Washoe County Development Code. Additionally, the oil used during the oil quench process is considered a hazardous material which also triggers a heavy industrial classification. Thus, the SUP included with this application will cover the heat treatment expansion and future phases of development at the Arconic site, as previously described. The existing Arconic operations at the Verdi site are operating under current permits issued by Washoe County, the State of Nevada, and Federal government and will not be altered by this SUP request.

The uses being added to the site are consistent with those already occurring. Additionally, industrial use is located immediately west of the site and is complementary to the Arconic operations. Overall impacts will be relatively minor in terms of traffic, etc. Parking for employees and visitors already exists along the southern boundary of the site and is sufficient to accommodate the growth within the proposed master plan. As depicted in Figure 7, new landscaping improvements will be added within the new master plan area providing full compliance with code for new operation areas. Lastly, the new improvements will not greatly increase traffic volumes in and out of the plant. Trip generation is not expected to alter significantly and does not trigger the need for a traffic impact report as AM and PM peak hour trips are well below the 80-trip threshold.

The proposed industrial uses are complementary to existing industrial operations to the west. Residential uses to the south (trailer park) will not be visually impacted by the proposed additions within the Arconic facility. Existing buildings and operations will screen the new development from view of Old Highway 40 and uses to the south. The Truckee River forms the northern and eastern boundaries of the site. This also creates a significant natural buffer between Arconic and planned residential uses within the City of Reno to the north/west. Furthermore, future residential uses are situated significantly higher (20 to 40 feet) than the Arconic property. As a result, views from future homes will not be obstructed by new development within the Arconic parcel. New landscaping around the northern and western perimeter will provide for further screening of new industrial uses within the Arconic site.

The new master plan proposed with this SUP predominantly located at the northern portion of the site. Currently, this area is largely undeveloped and utilized for outdoor storage and staging (refer to previous Figures 4 through 6). As depicted in Figure 7, the master plan calls for new paving and improvements to be developed concurrently with the new buildings. This, coupled with new landscaping around the perimeter of the site, will serve to greatly enhance the aesthetics of the site, reduce dust, and provide for a much higher level of organization. This will also ensure full compliance with current Washoe County Development Code requirements.

No new signage is proposed with this SUP. An exception to this is internal directional, safety, and building identification signage consistent with the current Arconic operations and as required by the State of Nevada and federal regulations. Lighting will be provided on buildings for safety and security purposes. All new lighting will include cut-off fixtures to ensure that spill-over and glare do not occur upon adjoining properties.



Infrastructure needed to serve the project is available at the project site and will be extended as necessary to serve the new uses. Arconic is currently served by the Verdi Water Company and will likely connect to the Truckee Meadows Water Authority system with future improvements planned in the area. The project is served by municipal sanitary sewer.

Although highly toxic and/or dangerous chemicals are not used for the processes occurring at Arconic, the oils used for the quenching process are classified as a Class IIIB liquid. These are liquids having a closed cup flash point at or above 200 degrees Fahrenheit. A detailed material safety data sheet is included within the appendices of this report for review and comment by the Truckee Meadows Fire Protection District and Nevada Department of Environmental Protection.

The attached map pocket includes preliminary civil improvement plans, a landscape plan, phasing plan, and building elevations for the Phase 1 heat treatment facility. Additionally, a preliminary soils research report is included as an attachment to this document.

In conclusion, the Arconic master plan SUP provides for a long-term planned approach to development and ensures that piecemealing of expansions does not occur. As described in this report and detailed on the included plans, screening will be provided to ensure compatibility with adjoining uses and consistency with Development Code standards. The uses being proposed are consistent with the existing Industrial zoning and are an extension of industrial uses that have operated onsite for well over 40 years. Arconic has proven its ability to operate onsite without generating negative impacts since 2013 and this SUP will provide Washoe County with a mechanism to implement additional conditions, as necessary.

### **Special Use Permit Findings**

In order to approve a Special Use Permit, the following findings must be made. Responses are provided in **bold**.

1. Consistency. The granting of the special use permit is consistent with the policies and maps of the Comprehensive Plan Elements and the Area Plan in which the property is located.

**This SUP and the uses proposed are consistent with the existing Industrial Master Plan and zoning designations adopted by Washoe County and are simply an extension of permitted activities that are currently operating onsite.**

2. Adequate Public Facilities. Adequate utilities, roadway improvements, sanitation, water supply, drainage, and other necessary facilities must exist or will be provided.

**The project site is already served by existing municipal infrastructure and services. The proposed expansion(s) will not result in the need for significant improvements. Any improvements needed to serve future uses within the Arconic site will be at the expense of the developer.**

3. Site Suitability. The site must be physically suitable for the proposed use and for the intensity of development.

**The area included within the master plan is well suited for the expansion of existing uses occurring onsite. The property is flat and located outside of the FEMA flood zone.**

4. Issuance Not Detrimental. Issuance of the permit may not be significantly detrimental to the public health, safety or welfare; have a detrimental impact on adjacent properties; or be detrimental to the character of the surrounding area.

**The proposed master plan uses are consistent with the existing Industrial zoning as well as existing industrial uses occurring within the area and onsite. By providing a master plan approach to the site, Washoe County and surrounding properties are provided with long-term assurances on how the property will be developed and what uses will be occurring. This ensures that piecemeal development does not occur.**

**New site and landscaping improvements will significantly add to the aesthetics of the property and the area as a whole. Negative impacts to surrounding properties are not anticipated. The expansion(s) is an extension of existing uses that have occurred onsite for many years, without incident. This SUP will not create significant impacts in terms of traffic, noise, etc. In fact, from view of Highway 40, the Arconic facility will essentially appear as it does today (existing buildings screen areas within the SUP master plan).**

# APPENDICES

## Washoe County Development Application

Your entire application is a public record. If you have a concern about releasing personal information, please contact Planning and Building staff at 775.328.6100.

<b>Project Information</b>		Staff Assigned Case No.: _____	
Project Name: <b>Arconic Master Plan</b>			
Project Description: A SUP to allow for the establishment of a heavy industrial use(s) within the Industrial zone. Refer to attached report for a highly detailed project description.			
Project Address: 1 Eric Circle, Verdi, NV 89439			
Project Area (acres or square feet): 21.38 acres			
Project Location (with point of reference to major cross streets <b>AND</b> area locator): <b>North side of Old Highway 40, east of Verdi</b>			
Assessor's Parcel No.(s):	Parcel Acreage:	Assessor's Parcel No.(s):	Parcel Acreage:
038-060-36	21.38 acres		
Section(s)/Township/Range: Section 8, T19N, R18E			
<b>Indicate any previous Washoe County approvals associated with this application:</b>			
Case No.(s).			
<b>Applicant Information (attach additional sheets if necessary)</b>			
<b>Property Owner:</b>		<b>Professional Consultant:</b>	
Name: Schlosser Forge Company		Name: Rubicon Design Group, LLC	
Address: 1711 Arrow Route		Address: 1610 Montclair Ave., Suite B	
Rancho Cucamonga, CA	Zip: 91730	Reno, NV	Zip: 89509
Phone: 775-770-1406	Fax:	Phone: 775-425-4800	Fax:
Email: lynzie.diehl@arconic.com		Email: mrailey@rubicondesigngroup.com	
Cell: 775-770-1406	Other:	Cell: 775-250-3455	Other:
Contact Person: Lynzie Diehl		Contact Person: Mike Railey	
<b>Applicant/Developer:</b>		<b>Other Persons to be Contacted:</b>	
Name: Same as Above		Name:	
Address:		Address:	
	Zip:		Zip:
Phone:	Fax:	Phone:	Fax:
Email:		Email:	
Cell:	Other:	Cell:	Other:
Contact Person:		Contact Person:	
<b>For Office Use Only</b>			
Date Received:	Initial:	Planning Area:	
County Commission District:		Master Plan Designation(s):	
CAB(s):		Regulatory Zoning(s):	

# Property Owner Affidavit

**Applicant Name:** ARCONIC

The receipt of this application at the time of submittal does not guarantee the application complies with all requirements of the Washoe County Development Code, the Washoe County Master Plan or the applicable area plan, the applicable regulatory zoning, or that the application is deemed complete and will be processed.

STATE OF NEVADA     )  
                                  )  
COUNTY OF WASHOE    )

I, MARK QUATTRIN  
(please print name)

being duly sworn, depose and say that I am the owner\* of the property or properties involved in this application as listed below and that the foregoing statements and answers herein contained and the information herewith submitted are in all respects complete, true, and correct to the best of my knowledge and belief. I understand that no assurance or guarantee can be given by members of Planning and Building.

**(A separate Affidavit must be provided by each property owner named in the title report.)**

Assessor Parcel Number(s): 038-060-36

Printed Name MARK QUATTRIN

Signed [Signature]

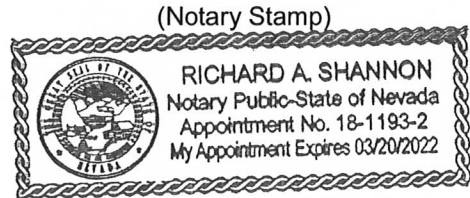
Address 1 ERIC CIR.

VERDI, NV 89439

Subscribed and sworn to before me this  
15<sup>th</sup> day of MAY, 2018.

[Signature]  
Notary Public in and for said county and state

My commission expires: MAY 3, MARCH 20, 2022



\*Owner refers to the following: (Please mark appropriate box.)

- Owner
- Corporate Officer/Partner (Provide copy of record document indicating authority to sign.)
- Power of Attorney (Provide copy of Power of Attorney.)
- Owner Agent (Provide notarized letter from property owner giving legal authority to agent.)
- Property Agent (Provide copy of record document indicating authority to sign.)
- Letter from Government Agency with Stewardship

SPECIAL POWER OF ATTORNEY

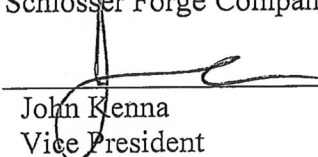
KNOW ALL MEN BY THESE PRESENTS that Schlosser Forge Company, ("Schlosser Forge") a California corporation, does hereby grant unto the Plant Manager of Schlosser Forge, Verdi, Nevada facility (the "Facility") this Power of Attorney, authorizing said Plant Manager, as attorney-in-fact, to execute, on behalf of the Facility such environmental permit applications, reports and other information requested by the appropriate Federal, State, Municipal and governmental environmental regulatory agencies as he/she in his/her capacity as Plant Manager of the Facility deems necessary or appropriate to the conduct of the business of Schlosser Forge.

The rights, powers and authority of said attorney-in-fact granted herein shall commence on the date hereof and shall remain in full force and effect until revoked.

Furthermore, to the extent that any other "Special Power of Attorney" documents have been executed prior to this date granting authority to an individual by name or by title to execute the documents described in this Special Power of Attorney, such prior authorizations are hereby revoked.

In Witness Whereof, this Power of Attorney has been executed on the 11<sup>th</sup> day of February 2015.

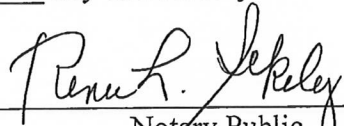
Schlosser Forge Company

By:   
John Kenna  
Vice President

COMMONWEALTH OF PENNSYLVANIA )  
 ) ss:  
COUNTY OF ALLEGHENY )

Before me, a Notary Public in and for the Commonwealth and County aforesaid, on this day personally appeared John Kenna known to me to be the Vice President of Schlosser Forge Company, and signed, acknowledged and delivered the foregoing Special Power of Attorney.

Witness my hand and official seal this 11<sup>th</sup> day of February 2015.

  
Notary Public

COMMONWEALTH OF PENNSYLVANIA  
Notarial Seal  
Renee L. Sekely, Notary Public  
City of Pittsburgh, Allegheny County  
My Commission Expires Nov. 19, 2016  
MEMBER, PENNSYLVANIA ASSOCIATION OF NOTARIES

## Special Use Permit Application Supplemental Information

(All required information may be separately attached)

Chapter 110 of the Washoe County Code is commonly known as the Development Code. Specific references to special use permits may be found in Article 810, Special Use Permits.

1. What is the type of project being requested?

The SUP request included will allow for a comprehensive phased master plan for the existing Arconic industrial operations in Verdi. The SUP is needed to allow for the establishment of a heavy industrial use within the Industrial zone. The proposed heat treatment and oil quenching operations are considered a heavy industrial use by Washoe County.

Refer to the attached report for a detailed project description.

2. What currently developed portions of the property or existing structures are going to be used with this permit?

The southern and central portions of the property are developed with long-standing industrial uses currently operated by Arconic. This SUP will cover the northern portion of the property and will allow for expansion of existing onsite operations.

Refer to the attached report for a detailed description.

3. What improvements (e.g. new structures, roadway improvements, utilities, sanitation, water supply, drainage, parking, signs, etc.) will have to be constructed or installed and what is the projected time frame for the completion of each?

The project will include new structures, paving, landscaping, etc. on northern portions of the property. The site is already served by municipal utilities and services that can easily be extended to serve the expansion.

Refer to attached report and plans for additional details.

4. What is the intended phasing schedule for the construction and completion of the project?

Phasing for the project is explained in detail within the attached report.

5. What physical characteristics of your location and/or premises are especially suited to deal with the impacts and the intensity of your proposed use?

The project site is flat and well suited for the type of industrial development proposed. Analysis of the site characteristics and potential impacts is reviewed in detail within the attached report.



6. What are the anticipated beneficial aspects or effects your project will have on adjacent properties and the community?

The proposed master plan will bring the new operations into full compliance with existing Development Code requirements. New paving and landscaping will greatly enhance aesthetics, reduce dust, and provide for effective screening.

Refer to attached report for a highly detailed analysis.

7. What will you do to minimize the anticipated negative impacts or effect your project will have on adjacent properties?

The new expansion area will not be visible from residential uses to the south. Landscaping around the perimeter of the site will screen Arconic from future residential uses to the north and west. Additionally, the Truckee River forms a large natural buffer between the site and residential uses. Future residential uses are also located at a much higher grade than the Arconic site.

Refer to attached report for a detailed impact analysis.

8. Please describe operational parameters and/or voluntary conditions of approval to be imposed on the project special use permit to address community impacts:

Operational parameters will match that of the existing permitted Arconic operations. 24-hour use will occur. However, the majority of night time activity occurs within enclosed buildings. Thus impacts related to onsite operations are properly mitigated.

9. How many improved parking spaces, both on-site and off-site, are available or will be provided? (Please indicate on site plan.)

Parking for the facility is already in place and operational. Refer to attached plans for additional details.

10. What types of landscaping (e.g. shrubs, trees, fencing, painting scheme, etc.) are proposed? (Please indicate location on site plan.)

A preliminary landscape plan is attached and provides specifics on proposed plantings, quantities, etc.

11. What type of signs and lighting will be provided? On a separate sheet, show a depiction (height, width, construction materials, colors, illumination methods, lighting intensity, base landscaping, etc.) of each sign and the typical lighting standards. (Please indicate location of signs and lights on site plan.)

Signs will be internal to the project site and will provide for directional, building identification, and safety purposes. Lighting will be provided for safety and security purposes and will be shielded to ensure that spill-over and glare do not occur upon adjoining properties.

12. Are there any restrictive covenants, recorded conditions, or deed restrictions (CC&Rs) that apply to the area subject to the special use permit request? (If so, please attach a copy.)

<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
------------------------------	--

13. Utilities:

a. Sewer Service	Municipal Sewer (City of Reno)
b. Electrical Service	NV Energy
c. Telephone Service	AT&T or Charter Communications
d. LPG or Natural Gas Service	NV Energy
e. Solid Waste Disposal Service	Waste Management
f. Cable Television Service	AT&T or Charter Communications
g. Water Service	Verdi Water Company

For most uses, the Washoe County Code, Chapter 110, Article 422, Water and Sewer Resource Requirements, requires the dedication of water rights to Washoe County. Please indicate the type and quantity of water rights you have available should dedication be required:

h. Permit #		acre-feet per year	
i. Certificate #		acre-feet per year	
j. Surface Claim #		acre-feet per year	
k. Other #		acre-feet per year	

l. Title of those rights (as filed with the State Engineer in the Division of Water Resources of the Department of Conservation and Natural Resources):

The property is already served by Verdi Water Company. Water rights can be dedicated, as necessary, to serve future expansions.

14. Community Services (provided and nearest facility):

a. Fire Station	TMFPD Verdi Volunteer Station or Mogul Station (full station)
b. Health Care Facility	Saint Mary's Regional Med. Ctr., or Renown Regional Med. Ctr.
c. Elementary School	Verdi Elementary
d. Middle School	Billinghurst Middle School
e. High School	McQueen High School
f. Parks	Truckee River Greenbelt, Crystal Peak Park, Verdi School Park
g. Library	Washoe County Library - Verdi Branch
h. Citifare Bus Stop	N/A

**W. S. DODGE OIL Co., Inc.**

Health Hazard	1
Fire Hazard	1
Reactivity	0
Personal Protection	B

HMIS RATING

**MATERIAL SAFETY DATA SHEET**

NFPA RATING

**SECTION I - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION**TRADE NAME: **Quench Oil #811**MSDS NUMBER: **A**

GENERIC NAME: Petroleum lubricant

DATE ISSUED: 9-13-99

MANUFACTURER: W. S. Dodge Oil Co., Inc.

MANUFACTURER PHONE: 323-583-3478

ADDRESS: 3710 Fruitland Ave.

MANUFACTURER FAX: 323-583-0950

CITY, STATE, ZIP: Maywood, CA 90270-2110

EMERGENCY ONLY (Chemtrec): 800-424-9300

**SECTION II - COMPOSITION/INFORMATION ON INGREDIENTS**

CHEMICAL NAME	CAS NUMBER	%	TLV	PEL
Mineral oil (Petroleum Hydrocarbon)	64741-97-5	variable	5 mg/m <sup>3</sup> *	5 mg/m <sup>3</sup>

\*NOTE: TLV/PEL apply when in a mist form.

**SECTION III - HAZARDS IDENTIFICATION**

EMERGENCY OVERVIEW: Petroleum derived mineral oil of generally low toxicity.

HMIS RATING: **Health: 1      Fire: 1      Reactivity: 0      Personal Prot.: B****POTENTIAL HEALTH EFFECTS:****ROUTES OF ENTRY:** Inhalation (mist), skin, eyes, ingestion**INHALATION:** Inhalation of mists can cause upper respiratory irritation. Inhalation of vapors is not normally a problem due to the low volatility of this product.**SKIN CONTACT:** May cause mild irritation. Repeated, prolonged skin contact may cause dermatitis. Also, the use of abrasive soaps or solvents to clean skin can promote dermatitis.**EYE CONTACT:** Mild irritant.**INGESTION:** Irritating to the GI tract. May cause nausea, vomiting and diarrhea.**MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:** Chronic respiratory or skin diseases.**CARCINOGENICITY:** This product is not classified by NTP, IARC or OSHA.

Quench Oil #811

MSDS A

**SECTION IV - FIRST AID MEASURES**

**INHALATION:** Remove to fresh air. If coughing and irritation develop, call a physician.

**EYE CONTACT:** Flush with large amounts of water until irritation subsides. See a physician if irritation persists.

**SKIN CONTACT:** Wash with mild soap and warm water after each exposure. Remove grossly contaminated clothing and launder before re-use. If irritation or redness develops, see a physician.

**INGESTION:** If swallowed, CALL A PHYSICIAN IMMEDIATELY. Due to danger of aspiration, do not induce vomiting.

**NOTE TO PHYSICIAN:** In general, emesis is unnecessary in high viscosity, low volatility products, i.e., most oils and greases.

**SECTION V - FIREFIGHTING MEASURES**

**NFPA RATING:** Health: 1 Fire: 1 Reactivity: 0 Other: 0

**FLASHPOINT AND METHOD:** >350°F, 177°C (COC) LEL: ND UEL: ND

**EXTINGUISHING METHOD:** CO<sub>2</sub>, Dry chemical, foam, water spray

**NFPA FIREFIGHTING PROCEDURES:** Use water spray, dry chemical, foam or carbon dioxide. Water or foam may cause frothing. Use water to keep fire exposed containers cool. Water spray may be used to flush spills away from exposures.

**FIRE OR EXPLOSION HAZARDS:** Combustible material when exposed to sufficient heat and ignition. Isolate from oxidizers, heat, sparks, electrical equipment and open flame. Because of the potential for dense smoke to be created in a fire situation, fire fighters should wear an approved self-contained breathing apparatus.

**SECTION VI - ACCIDENTAL RELEASE MEASURES**

**SPILL OR LEAK PROCEDURES:** Prevent entry to sewer or waterway. Mop up small spills with absorbent and discard in a tightly covered approved waste container. For large spills, dike area to prevent spread. Reclaim liquid by pumping into salvage tanks and clean up remainder with absorbent. Unless grossly contaminated, reclaimed material can be recycled.

**SECTION VII - HANDLING AND STORAGE**

**STORAGE TEMPERATURE:** Store in well ventilated areas at temperatures below 49°C (120°F).

**SPECIAL SENSITIVITY:** Do not store near oxidizers or sources of heat, sparks or flame.

**HANDLING PRECAUTIONS:** Maintain containers upright with caps and bungs tightly secured. To maintain product usefulness, keep tops of barrels free of water at all times. Do not store where container can be subject to rain or water.

Quench Oil #811

MSDS A

**SECTION VIII - EXPOSURE CONTROLS/PERSONAL PROTECTION**

**EYE PROTECTION:** Wear safety goggles if splashing or spraying is expected.

**SKIN PROTECTION:** Wear coated gloves impervious to oils, wash clothing before reuse. Wear shoes with soles which are impervious to oils.

**RESPIRATORY PROTECTION:** Not normally required. However, when exposures over the PEL/TLV are encountered and engineering or other controls are not adequate to reduce airborne concentrations to below the PEL/TLV, use a half mask respirator with cartridges approved for use with organic vapors.

**HYGIENIC PRACTICES:** Wash thoroughly before meals, breaks, and at the end of work period. Remove contaminated clothing and launder before reuse. Do not use abrasive soaps or solvents.

**SECTION IX - PHYSICAL AND CHEMICAL PROPERTIES**

**PHYSICAL FORM:** Oily liquid

**BOILING POINT:** > 374°F

**EVAPORATION RATE (water = 1):** < .01

**Vapor Density (air = 1):** < .1

**SOLUBILITY IN WATER:** Negligible

**SPECIFIC GRAVITY:** .84 to .90

**SECTION X - REACTIVITY**

**STABILITY:** Product is stable under normal conditions.

**HAZARDOUS POLYMERIZATION:** Cannot occur.

**INCOMPATIBILITIES:** Strong oxidizing agents, KOH, NaOH, NaAlH<sub>2</sub>, LiAlH<sub>2</sub>, Chromic Acid.

**DECOMPOSITION PRODUCTS:** Carbon Monoxide, Carbon Dioxide from burning. When heated to decomposition, fumes can react with oxidizing materials forming NO<sub>x</sub>, SO<sub>x</sub>, H<sub>2</sub>S.

**CONDITIONS TO AVOID:** Exposure to strong oxidizers, heat, flame, sources of spark or ignition.

**SECTION XI - TOXICOLOGICAL/ECOLOGICAL INFORMATION**

**ECOLOGICAL HAZARDS:** Not determined.

**SECTION XII - DISPOSAL CONSIDERATIONS**

**WASTE DISPOSAL METHOD:** Recycle when appropriate. If heavily contaminated or judged unsuitable for recycling, place waste in suitable approved container. Seal and properly label the waste container. Send the container to an approved Transportation, Storage and Disposal (TSD) facility via an approved waste hauler. Be sure manifests have been completed and an adequate "Paper trail" has been established.

Quench Oil #811

MSDS A

**SECTION XIII - TRANSPORTATION INFORMATION**

**DOT SHIPPING NAME:** Not Regulated

**DOT LABEL:** None

**DOT HAZARD CLASS:** None

**UN/NA NUMBER:** None

**PACKAGING GROUP:** None

**FLAMMABILITY CLASS:** N/A

**SECTION XIV - REGULATORY INFORMATION**

**OSHA STATUS:** This product is considered hazardous under OSHA criteria (see Section II).

**TSCA STATUS:** Components of this product are included in the TSCA Chemical Inventory.

**CERCLA REPORTABLE QUANTITY:** N/A

**SARA TITLE III:**

**SECTION 302 EXTREMELY HAZARDOUS:** This product contains no extremely hazardous substances as defined and listed in section #302

**SECTION 311/312 HAZARD CATEGORIES:** Reportable as a hazardous substance. Check with your Local Emergency Planning Committee for reportable quantities.

**SECTION 313 TOXIC CHEMICALS:** This product is not reportable under Section #313.

**SECTION XV - APPROVALS**

**REASON FOR ISSUE:** General update, change in phone numbers

**PREPARED BY:** Anne Marie Downs

**TITLE:** Vice President

**APPROVAL DATE:** 9-13-99

**SUPERSEDES:** All previous versions

**SECTION XVI - DISCLAIMER**

AS OF THE DATE OF THIS DOCUMENT, THE FOREGOING INFORMATION IS BELIEVED TO BE ACCURATE AND IS PROVIDED IN GOOD FAITH TO COMPLY WITH APPLICABLE FEDERAL AND STATE LAWS. HOWEVER, NO WARRANTY OR REPRESENTATION OF LAW OR FACT, WITH RESPECT TO SUCH INFORMATION, IS INTENDED OR GIVEN.

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# Arconic

## Material Classification and Quantities

Occupancy: I would classify this building as an F1 due to the use of the oil quench.

The occupancy is not an H occupancy because the quantity of Class IIIB Combustible Liquids is unlimited for storage and in use.

11-Apr-18

Commercial Name	Physical Form	Flash Point	Autoignition Temp.	Boiling Point	Melting Point	UFC Classification	Flammable Liquid	Combustible Liquid	Flammable Gas	Oxidizer	Other health hazard	Sensitizer	Irritant	Spill and Secondary Containment	Handling	Total Quantity	Quantity used and in Process	Use: Closed System	Use: Open System	Storage	Use: Closed System	Use: Open System	Exempt Quantities Allowed in Control Area; Limited amounts of Aerosol in a General use Warehouse	SARA, EPA or OSHA Hazardous Waste	
1 Quench Oil #811	Liquid	>350 degrees F 177 degrees C	?	>374 degrees F	N/A	N/A		Class IIIB	N/A	N/A		Do not store near oxidizers or sources of heat, sparks, or flame	Yes	Required		?	?		Use: Open System	17,921 gal	Use: Open System	13,200 gal, unlimited if building is fully sprinklered	Use: Open System	3,300 gal, unlimited if building is fully sprinklered	
2																									
3																									
4																									
5																									
6																									
7																									
8																									
9																									
10																									

[F] COMBUSTIBLE LIQUID. A liquid having a closed cup flash point at or above 100°F (38°C). Combustible liquids shall be subdivided as follows:

Class II. Liquids having a closed cup flash point at or above 100°F (38°C) and below 140°F (60°C).

Class IIIA. Liquids having a closed cup flash point at or above 140°F (60°C) and below 200°F (93°C).

Class IIIB. Liquids having a closed cup flash point at or above 200°F (93°C).

Account Detail

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Washoe County Parcel Information		
Parcel ID	Status	Last Update
03806036	Active	5/15/2018 2:06:41 AM
<b>Current Owner:</b> SCHLOSSER FORGE COMPANY  11711 ARROW ROUTE RANCHO CUCAMONGA, CA 91730		<b>SITUS:</b> 1 ERIC CIR WCTY NV
<b>Taxing District</b> 4011		<b>Geo CD:</b>
Legal Description		
Section 8 SubdivisionName _UNSPECIFIED Township 19 Range 18		

Tax Bill (Click on desired tax year for due dates and further details)					
Tax Year	Net Tax	Total Paid	Penalty/Fees	Interest	Balance Due
<a href="#">2017</a>	\$48,133.25	\$49,817.95	\$0.00	\$0.00	\$0.00
<a href="#">2016</a>	\$46,913.51	\$46,913.51	\$0.00	\$0.00	\$0.00
<a href="#">2015</a>	\$47,455.66	\$47,455.66	\$0.00	\$0.00	\$0.00
<a href="#">2014</a>	\$48,681.44	\$48,681.44	\$0.00	\$0.00	\$0.00
<a href="#">2013</a>	\$48,653.18	\$49,139.71	\$0.00	\$0.00	\$0.00
Total					\$0.00

Important Payment Information
<ul style="list-style-type: none"> <li><b>ALERTS:</b> If your real property taxes are delinquent, the search results displayed may not reflect the correct amount owing. Please contact our office for the current amount due.</li> <li>For your convenience, online payment is available on this site. E-check payments are accepted without a fee. However, a service fee does apply for online credit card payments. See Payment Information for details.</li> </ul>

**Pay Online**

No payment due for this account.

**\$0.00**

**Pay By Check**

Please make checks payable to:  
WASHOE COUNTY TREASURER

**Mailing Address:**  
P.O. Box 30039  
Reno, NV 89520-3039

**Overnight Address:**  
1001 E. Ninth St., Ste D140  
Reno, NV 89512-2845

**Payment Information**

**Special Assessment District**

**Installment Date Information**

**Assessment Information**

# Preliminary Hydrology Report

for

## Arconic Master Planned Expansion

Verdi, Nevada

Prepared for:

Arconic Fastening Systems  
Schlosser Forge Company  
1 Eric Circle  
Washoe County, NV 89439  
(775) 770-1423

Prepared by:

Allen Gray, P.E.  
Gray & Associates  
3680 Grant Dr.  
Reno, NV 89509  
(775) 329-2911



BAF 6-30-19

May 7, 2018

A067-18003



## INTRODUCTION

This report presents hydrologic and hydraulic calculations for the Arconic Schlosser Forge industrial project. The Schlosser Forge site is located in the southeastern 1/4 of Section 8, T.19N, R.18E, M.D.M. in Verdi, Nevada. The overall property consists of a 21.377-acre parcel (APN 038-060-36) on Eric Circle off of old US Highway 40 (State Route 425). The purpose of this study is to compute the 5-year and 100-year peak runoff for the site in its existing condition and improved condition and to provide supporting computations for the calculated peak runoff.

## SITE DESCRIPTION

The Arconic Schlosser Forge site is located on a developed industrial parcel on Eric Circle, an existing road in Verdi, Nevada (See Vicinity Map, Appendix A). The parcel is zoned General Industrial and bound on the west by Industrial properties, on the north by an Industrial/Utility Company, on the east by the Truckee River, and on the south by US 40 and the River Belle Mobile Home Park. Land located further north across the Truckee River is currently under residential development by DR Horton (West Meadows Estates). All of the adjoining parcels have been fully developed with the exception of West Meadows Estates which is currently under construction.

The Arconic parcel is currently accessed from US 40 via Eric Circle. Topography of the parcel ranges from flat to mildly sloping. The site drains easterly across the parcel to the Truckee River. The site is nearly bisected by the NV Energy return ditch (from Verdi Power Plant) flowing west to east into the Truckee River.

The subject parcel is 21.377 acres in area and is divided by the above mentioned NVE return ditch. All of the proposed growth contemplated by the Arconic Master Plan is to be located north of the NVE ditch. The southerly 9 acres of the site (south of the ditch) is fully developed and will not be included in the master planned growth relative to land development. Therefore, this report will be limited to the northerly portion of the site (approximately 12 acres north of the ditch). Groundcover in this area is split between developed land (approximately 30%) and undeveloped land (approximately 70%). The developed area consists primarily of concrete pavement, asphalt pavement and Metal Buildings along with well-developed shrubs, trees and mature landscaping. The undeveloped portions of the property consist of sparse, low growing native desert weeds and grasses. Groundcover is similar on the adjacent parcels.

Existing slopes on the property generally do not exceed 5%, and the site is not categorized as a Hillside Development.

The currently proposed project will involve the phased construction of a master planned expansion for site operations beginning with the phase 1 Industrial Heat Treat Building and associated covered storage for treated metal parts. Future improvements will include a Machine Shop addition, a shipping and receiving pad, Tool Storage and a “Post Forge” area with associated pavement, utilities and staging areas (See Master Plan).

### **FLOOD ZONE**

The property is impacted by both the Truckee River Floodway and 100-year flood zone “A” with elevations determined as depicted on Flood Insurance Rate Map 32031C3013G effective 3-16-2009. The slope of the land generally falls from west to east. The Truckee River eventually collects runoff from the subject site. No improvements are planned in or near the flood zones.

### **PROJECT DESCRIPTION**

The current master plan for the site is presented in the Master Plan portion of the Special Use Permit Application. The first phase of construction will be the Heat Treat Building which will consist of a combined Oil Treatment Building and associated covered storage for the temporary placement of forged materials. The site will be partially paved and will include access improvements, staging areas, landscaping and include drainage improvements. Public streets and utility infrastructure exists adjacent to (and within) the site. All runoff associated with the new building improvements will be routed to a detention basin located within the improvement limits. Unpaved disturbed areas will be revegetated and stabilized with a dryland mix. Construction of the Phase One site improvements, driveway and utilities will disturb roughly 2 acres, while the entire master planned improvements will disturb approximately 11 of the 12 acres on the site.

Perimeter ditches will be constructed where appropriate and lined with rock riprap in accordance with Washoe County Health District, Vector Control Division requirements. Rock check dams are recommended to control the transport of sediment in the ditches. The site is not intended to

be revegetated prior to site work and building construction activities as those activities are anticipated to proceed soon after completion of grading activities.

The proposed detention pond has been sized to allow runoff from both the 5-year and 100-year return frequency storms to be reduced to existing peak rates prior to discharge from the site.

## METHODOLOGY

Peak rate of runoff is computed using the Rational Method. The Rational Method determines peak runoff by expressing the ground cover, site gradient, and soil type as a ratio relative to a completely impervious site. Rainfall intensity is derived from the NOAA Atlas 14 for 24-hour duration storms (See Appendix B). The Rational Method uses the following equations to compute peak runoff:

$$Q = CiA$$

Where,

- Q = Peak Runoff (cfs)
- C = Runoff Coefficient (unitless)
- i = Rainfall Intensity (in/hr)
- A = Area of Drainage Basin (ac)

Runoff coefficients for a variety of surface conditions are defined by the Truckee Meadows Regional Drainage Manual ("T-M Drainage")

Rainfall intensity is a function of rainfall duration and was computed using NOAA's Point Precipitation Frequency Estimates function available on the NOAA website. NOAA's system allows for pinpoint precipitation estimates by allowing the user to input the exact coordinates of the project site. The highest rainfall intensity occurs when the rainfall duration is equal to the time of concentration for runoff.

In hydrograph theory, time of concentration is defined as the time from the end of excessive rainfall to the end of direct runoff. In practical calculations, time of concentration is the flow time from the most hydraulically remote point in a drainage basin to the point of discharge.

Concentration time is therefore a combination of two related factors: initial overland flow time and concentrated flow time. The initial time is based on the distance travelled over the ground surface prior to concentrating into organized channels (sheet flow). The minimum time of concentration is defined by T-M Drainage as 10 minutes.

The initial overland flow time is computed using the following equation:

$$t_i = \left[ \frac{1.8(1.1 - R)L_0^{\frac{1}{2}}}{S^{\frac{1}{3}}} \right]$$

Where,  $t_i$  = Initial overland flow time (min)  
 $R$  = 5- year Runoff Coefficient (unitless)  
 $L_0$  = Length of overland runoff (ft); 500 ft maximum  
 $S$  = Overland slope (%)

Time of concentrated flow is computed using the following equation:

$$t_n = \frac{L_n}{v_n \left(60 \frac{\text{min}}{\text{in}}\right)}$$

Where,  $t_n$  = Concentrated flow time for segment n (min)  
 $L_n$  = Length of concentrated flow segment n (unitless)  
 $v_n$  = Velocity of concentrated flow in segment n (ft)

Time of concentration ( $t_c$ ) is therefore computed using the following equation:

$$t_c = t_i + \sum_{n=1}^n t_n$$

According to Truckee-Meadows Drainage Manual, the peak rate of runoff may not be increased as a result of development. Development of the project site will result in an increase in impervious surfaces and an increase in the efficiency with which runoff is allowed to travel through the site. These increases combine to cause an increase in peak runoff. To reduce peak runoff to existing rates, a stormwater detention basin system has been proposed.

A stormwater detention basin is an area in which runoff is allowed to temporarily accumulate while it is allowed to escape at a prescribed rate. The Arconic site will employ a series of detention ponds for the various phases of improvements. The outlets will be used to control runoff from storms to match pre-development conditions.

Drainage ditches will be modeled using Manning's equation for open channel flow:

$$Q = \left(\frac{1.49}{n}\right) (A) \left[\left(\frac{A}{P}\right)^{\left(\frac{2}{3}\right)}\right] \left(S^{\left(\frac{1}{2}\right)}\right)$$

Where,

- Q = Flow in open channel (cfs)
- n = Manning's roughness coefficient (unitless)
- A = Cross-sectional area of flow (ft<sup>2</sup>)
- P = Wetted perimeter of channel (ft)
- S = Longitudinal slope of open channel (ft/ft)

In accordance with Washoe County Health District Vector Control, all commercial drainage channels, regardless of runoff velocity, shall be lined with rock riprap. The size of the riprap in the channel defines the Manning's roughness coefficient for that channel. Per T-M Drainage, the roughness coefficient of riprap may be determined using the following equation:

$$n = (K)(d_{90})^{\left(\frac{1}{6}\right)}$$

Where,

- n = Manning's roughness coefficient (unitless)
- K = 0.34 for velocity calculations and 0.38 for channel sizing calculations
- d<sub>90</sub> = Diameter of the riprap for which 90% of riprap is smaller (ft)

As can be seen above, there are two values of the K coefficient. The smaller value of K will result in a lower Manning's roughness coefficient and ultimately higher velocities. The smaller value is used to compute velocities for sizing riprap. This will result in a conservatively larger size of riprap. Conversely, the higher K value will result in a larger Manning's roughness



coefficient, and therefore lower velocities. Lower velocities correspond to greater depth of flow in open channels. Using the larger value of K to determine Manning's roughness coefficient will result in a conservatively larger channel cross-section.

Per T-M Drainage, riprap is sized using the following equation:

$$d_{50} = \left\{ \frac{[(0.05) \left( V \left( \frac{1}{2} \right) \right) (S^{0.34})]}{[(S_s - 1)^{1.332}]} \right\}$$

Where,  $d_{50}$  = Diameter of the riprap for which 50% of riprap is smaller (ft)

$V$  = Velocity of runoff (fps)

$S$  = Longitudinal slope of open channel (ft/ft)

$S_s$  = Specific gravity of rock (unitless); Minimum value of  $S_s$  is 2.50

The size of riprap to be used is determine iteratively. A Manning's roughness coefficient is assumed, and the velocity of runoff is determined using Manning's equation. That velocity is used to estimate the minimum  $d_{50}$  of riprap to be used. The computed  $d_{50}$  is compared to available riprap gradations to determine the class of riprap to be specified. Once the class of riprap is selected, the  $d_{90}$  of gradation of the selected class of riprap. That  $d_{90}$  is used to compute the Manning's roughness coefficient using the smaller K value. This process is repeated until the selected riprap class stabilized. Once the final riprap class is selected, the larger K value is used to compute the Manning's roughness coefficient that is to be used to determine the appropriate channel section necessary to safely convey the computed runoff.

Catch basin capacities are computed using the methodology in the US Army Corps of Engineers HEC-22 document; Urban Drainage Design Manual.

## EXISTING RUNOFF ANALYSIS

In its current state, it appears that the existing site drains predominantly from west to east and ultimately discharges into the Truckee River. Runoff originating on the site appears to drain in an overland manner to a broad stretch of lands adjacent to the Truckee River. A small portion of

the subject site runoff concentrates and is captured in a truck well that currently has a blocked outlet, which will be remedied during the expansion process.

The portion of the site which currently drains in an unconcentrated manner to the broad expanse of Truckee River banks consists entirely of the northwestern undeveloped portion of the property. Runoff patterns in this portion of the site will be unchanged with development after having been routed through a detention pond.

A small portion of the project site drains into the above-mentioned truck well and appears to accumulate until overflowing to the undeveloped land to the east where it eventually enters the NVE return ditch and lands adjacent to the Truckee River.

No offsite areas drain onto the project site. All runoff from the adjacent property to the west is intercepted and routed into the NVE ditch immediately upon entrance onto the project site via the TMWA ditch along the western boundary of the site. All runoff originating offsite will have no impact on the overall hydrology of the development.

Table 1 represents the hydrologic characteristics of the existing site.

**Table 1. Existing Conditions: Peak Runoff**

Subarea	Area (ac)	C <sub>5</sub>	C <sub>100</sub>	t <sub>c</sub> (min)	i <sub>5</sub> (in/hr)	i <sub>100</sub> (in/hr)	Q <sub>5</sub> (cfs)	Q <sub>100</sub> (cfs)
<b>Arconic Expansion Site</b>	12	0.34	0.34	23	1.43	3.5	5.83	14.28

All calculations were performed by hand and can be found in Appendix C.

## PROPOSED RUNOFF ANALYSIS

Development of the Arconic Master Planned improvements will involve the construction of paved vehicular access to seven possible new buildings, paved and unpaved equipment storage areas, an unpaved staging area, drainage swales, several stormwater detention facilities, and a shipping dock. The construction of the improvements will alter the runoff originating on the site by providing swales and curbs through which the drainage will be routed into the proposed stormwater detention ponds. The detention ponds will be sized to contain all on-site runoff reaching it and discharge runoff at a rate that will match the rate of runoff that currently leaves the site.

The proposed ditches will be lined with riprap and will have capacity to carry runoff from the 100-year storm.

Table 2 represents the hydrologic characteristics of the developed site after stormwater detention.

**Table 2. Developed Conditions: Peak Runoff Leaving Site**

Subarea	Area (ac)	C <sub>5</sub>	C <sub>100</sub>	t <sub>c</sub> (min)	i <sub>5</sub> (in/hr)	i <sub>100</sub> (in/hr)	Q <sub>5</sub> (cfs)	Q <sub>100</sub> (cfs)
Arconic Expansion Site	12	0.63	0.63	23	1.43	3.5	10.84	26.54
Detention Pond*	12	0.63	0.63	47	0.78	1.91	5.8	14.4

All calculations were performed by hand and can be found in Appendix C.

By comparing Table 1 and Table 2, it can be seen that peak developed runoff leaving the site and draining to the discharge points are either equal to the pre-development rate of runoff or less than the pre-development rate of runoff.

Peak runoff reaching the detention ponds has been increased as a result of development. This is entirely due to an increase in the amount of impervious ground cover in the form of driveways, parking areas, and roofs. The detention ponds have been adequately sized to control runoff from

both the 5-year and the 100-year recurrence interval storms. Table 3 breaks down the storage and flow statistics for the detention ponds.

**Table 3. Detention Pond**

<b>Design Storm</b>	<b>Inflow (cfs)</b>	<b>Ponding Depth (ft)</b>	<b>Storage Volume (cf)</b>	<b>Outflow (cfs)</b>
<b>5-Year</b>	9.07	1.98	18,000	4.4
<b>100-Year</b>	14.5	3.15	41,000	12.3

Cutoff ditches will be sized using the methods described in “Methodology” above. All ditches will use Class 150 riprap, which has a  $d_{50}$  of 6-inch diameter stones.

Catch basins capacities are computed using the methods defined in HEC-22, treating the catch basin drainage areas separately from the overall site. When considered separately, the drainage basins for the catch basins have very short concentration times, resulting in much higher peak rates of runoff.

The catch basins will have sufficient capacity to collect runoff from the 5-year storm where 100-year flows can safely overflow within the system.

## **CONCLUSION**

The Arconic project will result in the development of 11 acres of undeveloped land into mostly paved and developed improvements within the 12-acre subject site, including new buildings, storage areas, private driveways and utility infrastructure. Development of the project will result in an increase in impervious ground cover. The increase in impervious ground cover will cause an increase in peak runoff generated by the project. To reduce peak runoff back to existing levels, a detention pond system will be constructed. The detention ponds have been sized to reduce peak runoff from both the 5-year and the 100-year return frequency storms.

All disturbed ground surfaces which are not paved will be re-vegetated using a dry land native seed mix. By re-vegetating disturbed slopes and by lining cutoff ditches with rip-rap, erosion and sedimentation can be minimized.

Washoe County Code requires that the 5-year and 100-year peak runoff leaving a developed site not exceed the peak runoff leaving the site in its undeveloped state. County policy advocates for the treatment of runoff to remove pollutants from 90% of storms prior to discharge from the site. The proposed improvements are expected to meet both of these standards.

Consequently, there will be no change in hydrologic impact on downstream receiving waters as a result of development of the Arconic Master Planned Expansion project.

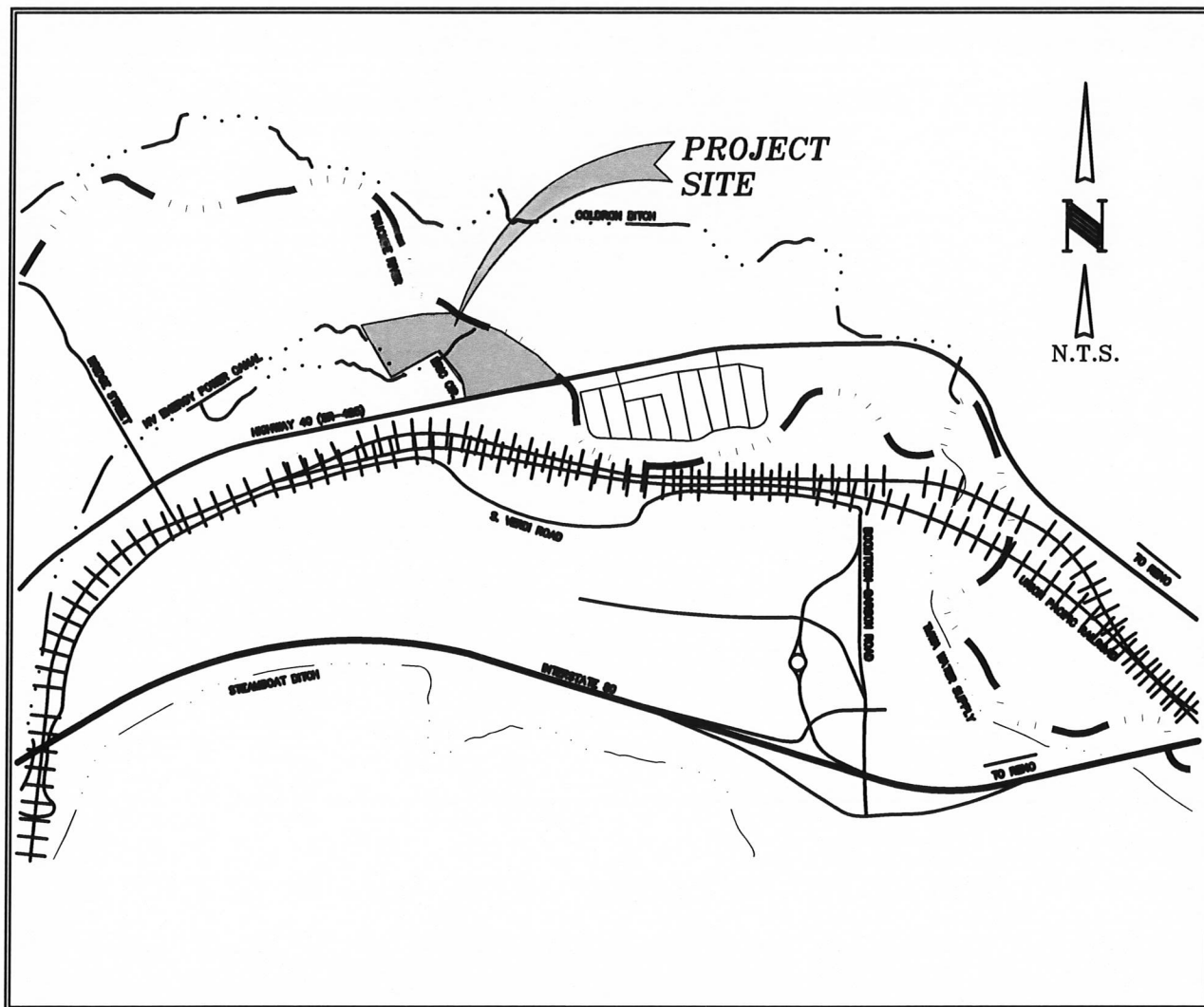
# APPENDIX A

## VICINITY MAP

VERDI

WASHOE COUNTY

NEVADA



VICINITY MAP

SECTION 8, T.19N., R.18E., MDM

N.T.S.

**ARCONIC**  
SUP & MASTER PLAN  
VICINITY MAP

SCALE: N.T.S.

DRAWN BY: AG

DATE: 5-8-18

JOB NO.: 18003



**Gray & Associates** INC.

CIVIL ENGINEERS • PLANNERS • SURVEYORS

3680 Grant Drive, Suite B, Reno, Nevada 89509  
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# APPENDIX B

## I-D-F CURVES





NOAA Atlas 14, Volume 1, Version 5  
 Location name: Verdi, Nevada, USA\*  
 Latitude: 39.5219°, Longitude: -119.9767°  
 Elevation: 4807.7 ft\*\*  
 \* source: ESRI Maps  
 \*\* source: USGS



**POINT PRECIPITATION FREQUENCY ESTIMATES**

Sanja Perica, Sarah Dietz, Sarah Heim, Lillian Hiner, Kazungu Maitaria, Deborah Martin, Sandra Pavlovic, Ishani Roy, Carl Trypaluk, Dale Unruh, Fenglin Yan, Michael Yekta, Tan Zhao, Geoffrey Bonnin, Daniel Brewer, Li-Chuan Chen, Tye Parzybok, John Yarchoan

NOAA, National Weather Service, Silver Spring, Maryland

[PF tabular](#) | [PF graphical](#) | [Maps & aeriels](#)

**PF tabular**

<b>PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches/hour)<sup>1</sup></b>										
Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	1.38 (1.18-1.58)	1.72 (1.48-2.00)	2.28 (1.96-2.68)	2.81 (2.40-3.31)	3.71 (3.10-4.42)	4.55 (3.70-5.48)	5.56 (4.37-6.82)	6.80 (5.15-8.51)	8.86 (6.32-11.4)	10.8 (7.36-14.2)
10-min	1.06 (0.900-1.21)	1.31 (1.12-1.52)	1.73 (1.49-2.03)	2.14 (1.83-2.52)	2.82 (2.36-3.36)	3.46 (2.81-4.18)	4.23 (3.33-5.18)	5.18 (3.92-6.47)	6.74 (4.81-8.69)	8.20 (5.60-10.8)
15-min	0.872 (0.740-1.00)	1.08 (0.928-1.26)	1.43 (1.23-1.68)	1.77 (1.51-2.08)	2.33 (1.95-2.78)	2.86 (2.32-3.45)	3.50 (2.75-4.29)	4.28 (3.24-5.35)	5.57 (3.98-7.18)	6.78 (4.63-8.94)
30-min	0.588 (0.500-0.674)	0.728 (0.624-0.846)	0.964 (0.828-1.13)	1.19 (1.02-1.40)	1.57 (1.31-1.87)	1.93 (1.56-2.32)	2.36 (1.85-2.89)	2.88 (2.18-3.60)	3.75 (2.68-4.83)	4.56 (3.12-6.02)
60-min	0.363 (0.309-0.417)	0.451 (0.386-0.524)	0.596 (0.512-0.700)	0.737 (0.630-0.868)	0.972 (0.811-1.16)	1.19 (0.967-1.44)	1.46 (1.15-1.79)	1.79 (1.35-2.23)	2.32 (1.66-2.99)	2.83 (1.93-3.73)
2-hr	0.244 (0.217-0.276)	0.302 (0.270-0.343)	0.382 (0.339-0.436)	0.454 (0.398-0.518)	0.563 (0.482-0.647)	0.664 (0.555-0.770)	0.780 (0.637-0.918)	0.934 (0.738-1.12)	1.21 (0.916-1.51)	1.47 (1.08-1.88)
3-hr	0.199 (0.180-0.223)	0.247 (0.225-0.278)	0.306 (0.276-0.343)	0.354 (0.317-0.399)	0.423 (0.373-0.479)	0.485 (0.422-0.554)	0.558 (0.477-0.645)	0.662 (0.552-0.776)	0.838 (0.679-1.02)	1.01 (0.798-1.27)
6-hr	0.151 (0.137-0.168)	0.188 (0.170-0.209)	0.229 (0.206-0.255)	0.261 (0.234-0.291)	0.302 (0.268-0.339)	0.333 (0.292-0.376)	0.364 (0.316-0.415)	0.404 (0.346-0.466)	0.480 (0.402-0.560)	0.555 (0.459-0.655)
12-hr	0.106 (0.096-0.119)	0.133 (0.120-0.148)	0.166 (0.149-0.185)	0.191 (0.171-0.213)	0.225 (0.199-0.253)	0.252 (0.220-0.285)	0.278 (0.240-0.318)	0.305 (0.259-0.352)	0.340 (0.282-0.400)	0.369 (0.300-0.440)
24-hr	0.072 (0.065-0.081)	0.091 (0.082-0.102)	0.114 (0.103-0.128)	0.134 (0.119-0.150)	0.161 (0.143-0.180)	0.182 (0.161-0.205)	0.205 (0.179-0.231)	0.228 (0.198-0.259)	0.261 (0.222-0.298)	0.287 (0.241-0.331)
2-day	0.046 (0.040-0.052)	0.057 (0.051-0.066)	0.074 (0.065-0.085)	0.087 (0.077-0.100)	0.107 (0.093-0.123)	0.123 (0.106-0.141)	0.139 (0.119-0.162)	0.157 (0.133-0.184)	0.183 (0.151-0.217)	0.203 (0.166-0.244)
3-day	0.034 (0.030-0.039)	0.043 (0.038-0.049)	0.056 (0.049-0.064)	0.067 (0.059-0.077)	0.082 (0.072-0.095)	0.095 (0.082-0.110)	0.109 (0.093-0.127)	0.124 (0.104-0.145)	0.146 (0.120-0.172)	0.163 (0.132-0.196)
4-day	0.028 (0.025-0.032)	0.036 (0.031-0.041)	0.047 (0.041-0.054)	0.057 (0.049-0.065)	0.070 (0.061-0.081)	0.082 (0.070-0.094)	0.094 (0.080-0.109)	0.108 (0.090-0.126)	0.127 (0.104-0.150)	0.143 (0.115-0.171)
7-day	0.019 (0.017-0.022)	0.025 (0.021-0.029)	0.033 (0.028-0.039)	0.040 (0.034-0.047)	0.049 (0.042-0.058)	0.057 (0.048-0.067)	0.066 (0.055-0.078)	0.075 (0.062-0.089)	0.088 (0.071-0.106)	0.099 (0.079-0.120)
10-day	0.015 (0.013-0.018)	0.020 (0.017-0.023)	0.027 (0.023-0.031)	0.032 (0.028-0.037)	0.040 (0.034-0.046)	0.046 (0.039-0.053)	0.052 (0.044-0.061)	0.059 (0.049-0.070)	0.069 (0.056-0.082)	0.076 (0.062-0.092)
20-day	0.010 (0.009-0.012)	0.013 (0.011-0.015)	0.017 (0.015-0.020)	0.021 (0.018-0.024)	0.026 (0.022-0.030)	0.029 (0.025-0.034)	0.033 (0.028-0.039)	0.037 (0.031-0.044)	0.042 (0.035-0.051)	0.047 (0.038-0.056)
30-day	0.008 (0.007-0.010)	0.011 (0.009-0.012)	0.014 (0.012-0.016)	0.017 (0.015-0.020)	0.021 (0.018-0.024)	0.023 (0.020-0.027)	0.026 (0.023-0.031)	0.030 (0.025-0.035)	0.034 (0.028-0.040)	0.037 (0.031-0.045)
45-day	0.007 (0.006-0.008)	0.009 (0.008-0.010)	0.012 (0.010-0.013)	0.014 (0.012-0.016)	0.016 (0.014-0.019)	0.019 (0.016-0.021)	0.021 (0.018-0.024)	0.023 (0.020-0.027)	0.026 (0.022-0.030)	0.028 (0.024-0.033)
60-day	0.006 (0.005-0.007)	0.007 (0.006-0.008)	0.010 (0.009-0.011)	0.012 (0.010-0.013)	0.014 (0.012-0.016)	0.016 (0.013-0.018)	0.017 (0.015-0.020)	0.019 (0.016-0.022)	0.021 (0.018-0.024)	0.023 (0.019-0.026)

<sup>1</sup> Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS). Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.  
 Please refer to NOAA Atlas 14 document for more information.

[Back to Top](#)

# APPENDIX C

## SUPPORTING CALCULATIONS

# Arconic Hydrologic Calculations

Development Area = Norther's Portion of Site = 12 Acres

Coverage: EXISTING: Pavement, Buildings, etc = 30%  
 OPEN / native vegetation / undeveloped 70%

Length of Overland Runoff  $\approx$  300 ft  $L_o = 300'$

5 yr Runoff Coefficient =  $30\% (.68) = .204$   
 $+ 70\% (.20) = .14$   $R = .34$

Overland Slope = 1.5%  $S = 1.5$

$$\begin{aligned} \text{Initial overland flow: } t_i &= \left[ \frac{1.8(1.1-R)L_o^{1/2}}{S^{1/3}} \right] \\ &= \left[ \frac{1.8(1.1-.34)300^{1/2}}{1.5^{1/3}} \right] = \frac{1.8(.78)17.32}{1.118} \\ &= 21.24 \text{ min.} \end{aligned}$$

Time of Concentrated Flow:  $t_n = \frac{L_n}{V_n (60 \text{ min/in})}$

$$t_n = \frac{200}{1.5(60)} = 2.2 \text{ min}$$

$L_n$  = length of concentrated flow = 200'

$V_n$  = Velocity  $\approx$  1.5 fps assuming paved channel

$$\text{Time of Concentration: } t_c = t_i + \sum_{n=1}^n t_n = 21.24 + 2.2 = 23.4$$

PROJECT Arconic PRO. # 18003  
SUBJECT Hydrology DATE 5-9-18  
BY AG SHEET 1 OF 2



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EXISTING SITE Runoff:

$$Q = CIA$$

Area = 12 Acres

$$C = .34$$

$$i_5 = 1.43 \text{ in/hr}$$

$$i_{100} = 3.5 \text{ in/hr}$$

$$Q_5 = .34(1.43)12 = 5.83 \text{ cfs}$$

$$Q_{100} = .34(3.5)(12) = 14.28 \text{ cfs}$$

Developed Condition: 90% Coverage

$$C = .9(.68) + .1(.20) = 0.632$$

$$Q_5 = .632(1.43)12 = 10.84 \text{ cfs}$$

$$Q_{100} = .632(3.5)12 = 26.54 \text{ cfs}$$

$Q_i$  = initial peak inflow at  $D \Rightarrow Q_{i,100} = .632(1.91)(12) = 14.5 \text{ cfs}$

$D$  = Rainfall Duration (min) (Assume  $D = 2t_c$ ) = 46.8 Min

$S$  = Storage

$$\text{Inflow } S = [(Q_i)(D)(60^3/\text{min})]$$

$$S_{100} = [14.5(46.8)(60^3/\text{min})] = 40,716 \text{ ft}^3$$

Therefore: Provide Initial Detention Storage of 41,000  $\text{ft}^3$

@ 3' depth: Req'd Area = 13,667  $\approx 180 \times 75$

or 117  $\times$  117

PROJECT Arconic PRO.# 18003  
SUBJECT Hydrology DATE 5-9-18  
BY AG SHEET 2 OF 2



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# Preliminary Sanitary Sewer Report

for

## Arconic Master Planned Expansion

Verdi, Washoe County, Nevada

Prepared for:

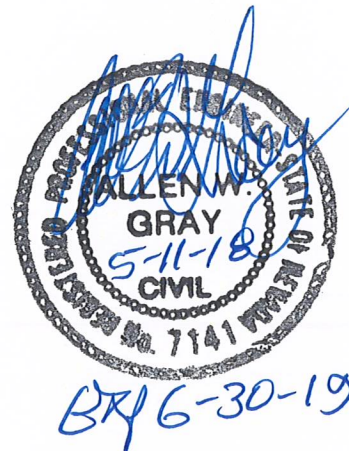
Arconic Fastening Systems  
Schlosser Forge Company  
1 Erik Circle  
Washoe County, NV 89439  
(775) 770-1423

Prepared by:

Gray & Associates, Inc.  
3680 Grant Drive  
Suite B  
Reno, NV 89509  
(775) 329-2911

May 7, 2018

A067-18003



## **SITE DESCRIPTION**

This report presents sanitary sewer calculations for the master planned improvements contemplated by Arconic Fastening Systems at their Schlosser Forge facility in Verdi, Nevada. Arconic is located in the southeastern 1/4 of Section 8, T.19N, R.18E., M.D.M. in Washoe County, Nevada. The existing site encompasses 21.38 acres and includes four existing industrial buildings and one office building. Domestic water is provided by the Verdi Mutual Water Company. The system consists of a well and distribution system to a small number of users. Industrial waste water is treated on-site and no industrial waste leaves the site. Domestic sewer is currently routed to the City of Reno Public Sewer System at the Verdi Interceptor.

## **FLOOD ZONE**

According to FEMA Flood Insurance Rate Map No. 32031C3013G, the site is partially impacted by a Flood Hazard Zone (elevation determined) and Truckee River Floodway.

## **PROJECT DESCRIPTION**

According to the proposed Arconic Master Plan, the site will eventually add seven industrial buildings on the northern portion of the site. All the proposed buildings will be used for industrial and/or operational staging activities, and very few employees will be working within the proposed buildings (approximately 12). Only one bathroom is proposed in each of the buildings. The nearest existing Sanitary Sewer Main is the City of Reno Verdi Interceptor, the point of connection of which is located on the southeast corner of the property.

Industrial waste water will continue to be treated on site, and will not be introduced into the public sanitary sewer system.

## **SEWER CAPACITY ESTIMATES**

The existing 42" sanitary sewer main (Verdi Interceptor) currently terminates within the Arconic property and no additional up stream users exist at this time. It is the intent of the City of Reno to extend the Verdi Interceptor westward, but the time frame of the future extension of this interceptor is not certain. The existing sewer main flows easterly from the Arconic site toward Reno and has been designated as the primary sewer main for the Verdi area.

The existing domestic wastewater disposal system on the Arconic site consists of a series of grinder pumps and a low head pressure system transporting wastewater to the public sewer located within the property limits. This existing system will be expanded and extended to the proposed restrooms and domestic water fixtures within the proposed master planned buildings.

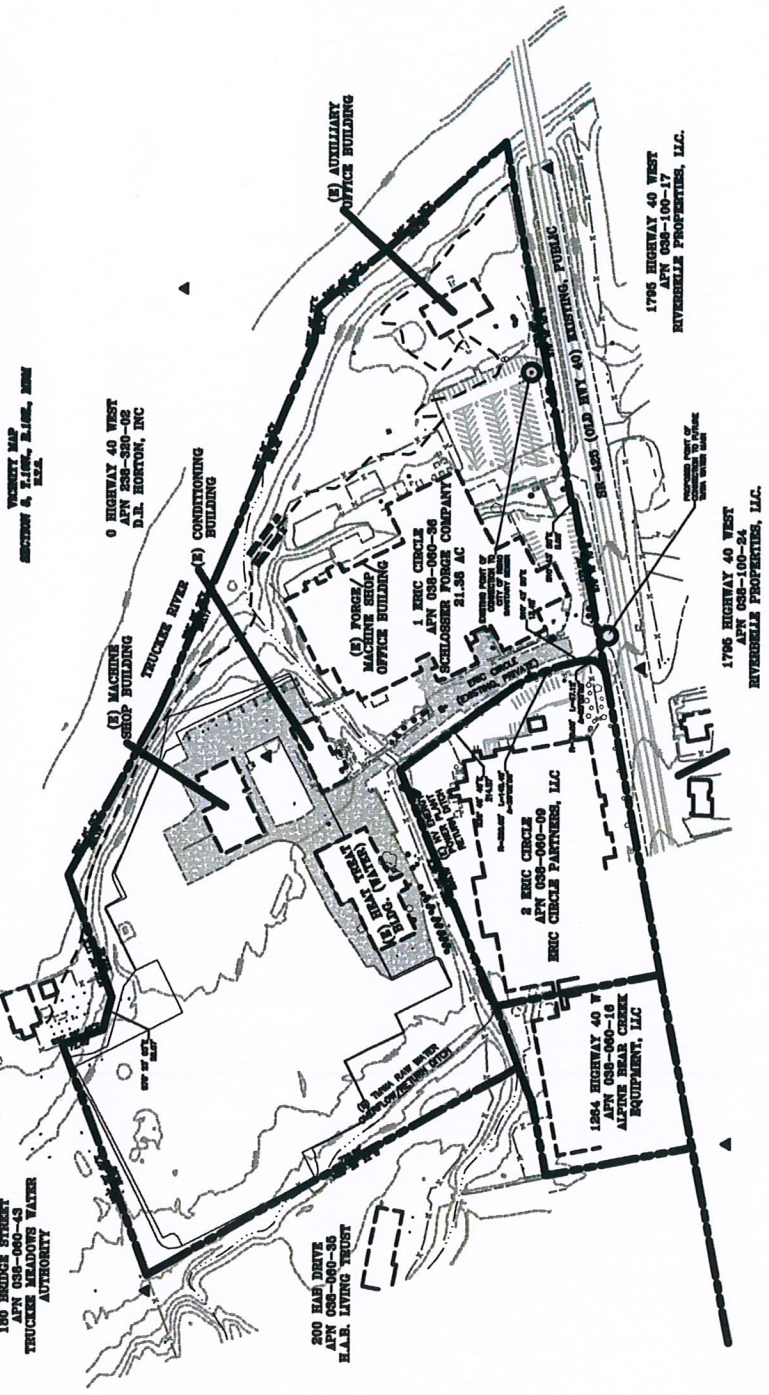
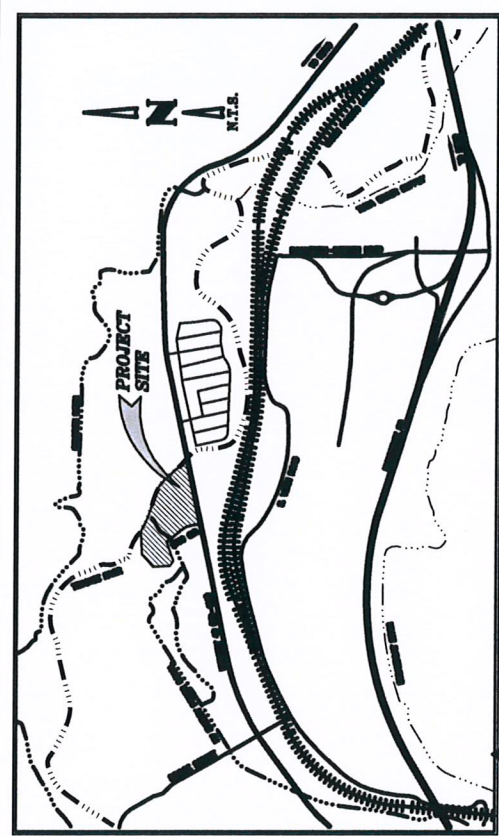
The Washoe County code prescribes an average design sewer flow of 457 gallons per day per acre for industrial land. The City of Reno is the purveyor of the Verdi Interceptor into which effluent from this project will discharge, and their code states a peak design sewer flow of 3,000 gallons per day per acre.

The entire Arconic site (21.38 Acres) would therefore generate a peak flow of 64,140 gallons per day (21.38 x 3000 gal/day). The actual flows will likely be much smaller given the fact that all process water is treated on site. The master planned expansion can be counted as part of the standard sewer generation for the entire site, which is presently only half developed.

Therefore, at ultimate buildout, the Arconic site would be expected to generate 64,140 gallons per day peak flow at standard effluent generation rates. The capacity of the Verdi Interceptor is approximately 16 million gallons per day (16 MGD), indicating that the existing system is adequately sized to accept effluent from this project.

## **CONCLUSION**

The full capacity of the existing 42" sanitary sewer main (Verdi Interceptor) is approximately 16 MGD and was designed to serve future upstream users when it is ultimately extended to west Verdi. The domestic waste generated on the Arconic site (64,140 peak gallons/day) is minimal in comparison with the capacity of the Verdi Interceptor. Therefore the proposed sanitary sewer flows from Arconic can be easily accommodated by the existing Verdi Interceptor.

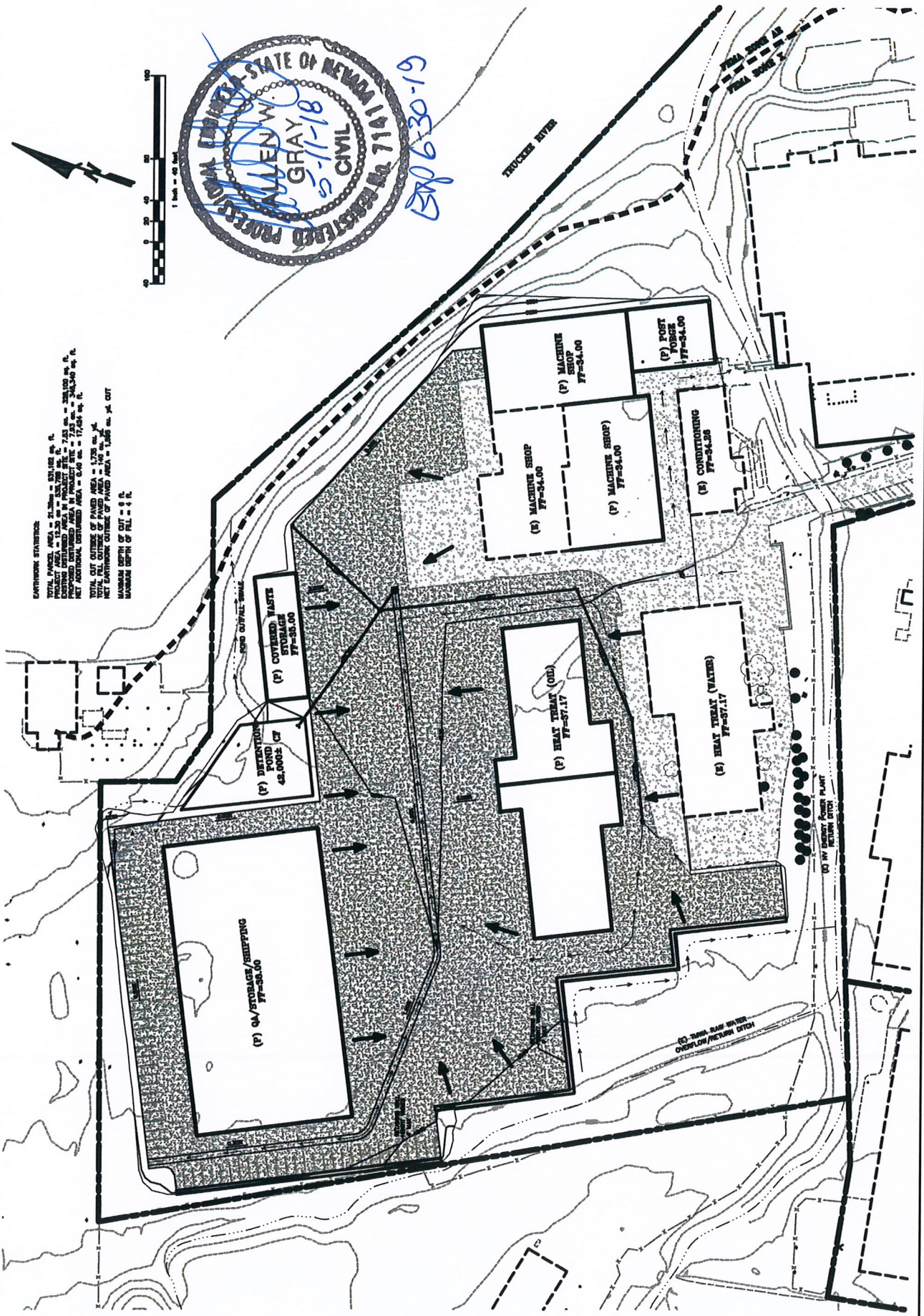




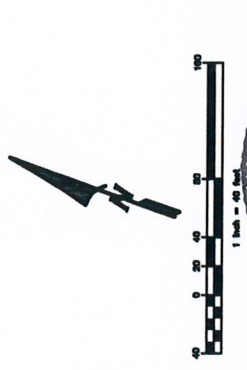


**ARCONIC**  
**SUP AND MASTER PLAN**  
**PRELIMINARY GRADING PLAN**  
 BURNING CREEK - PHASE 1

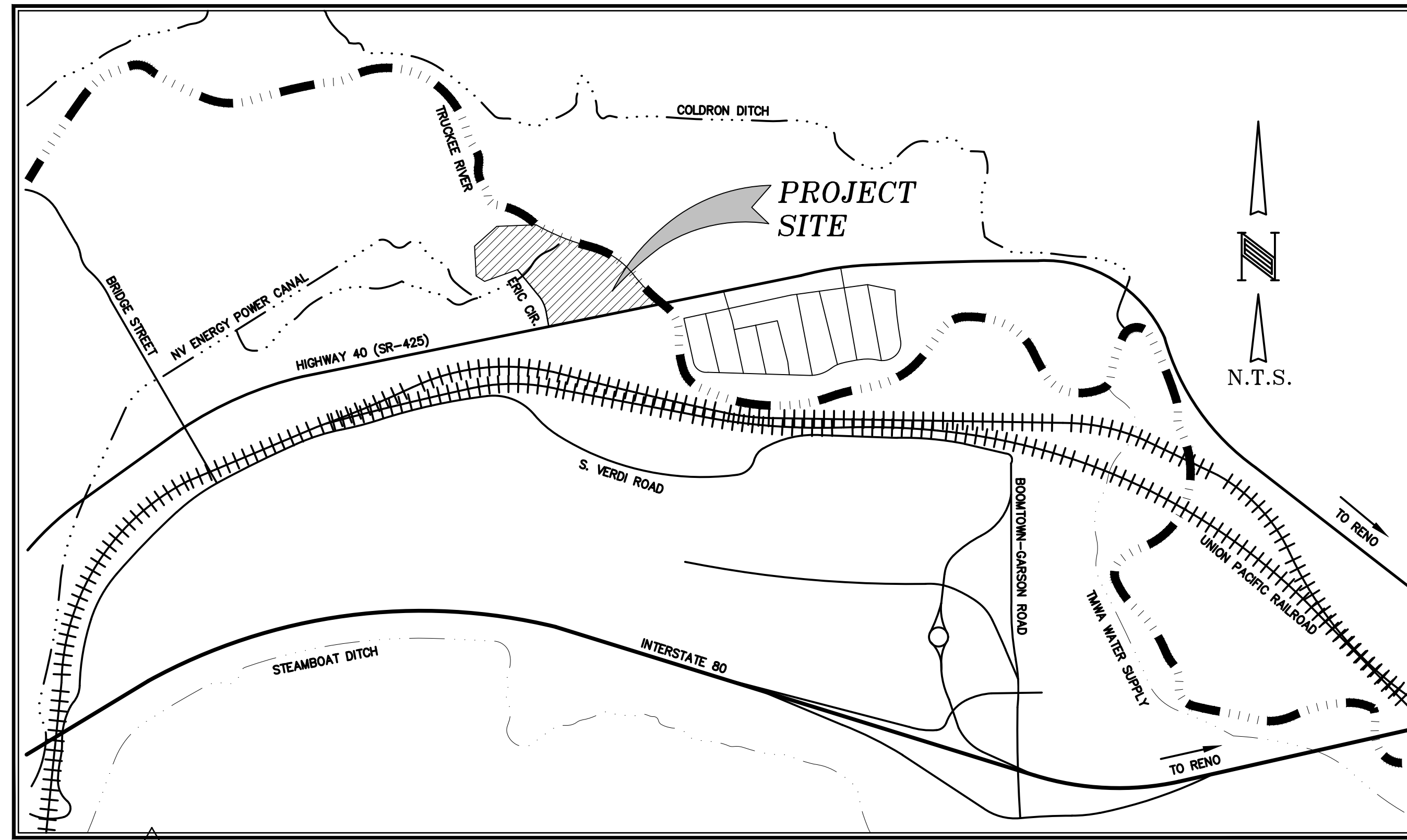
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DATE PRINTED	
DATE OF JOB	
DATE OF PLAN	
DATE OF ISSUE	
DATE OF REVISION	
DATE OF APPROVAL	



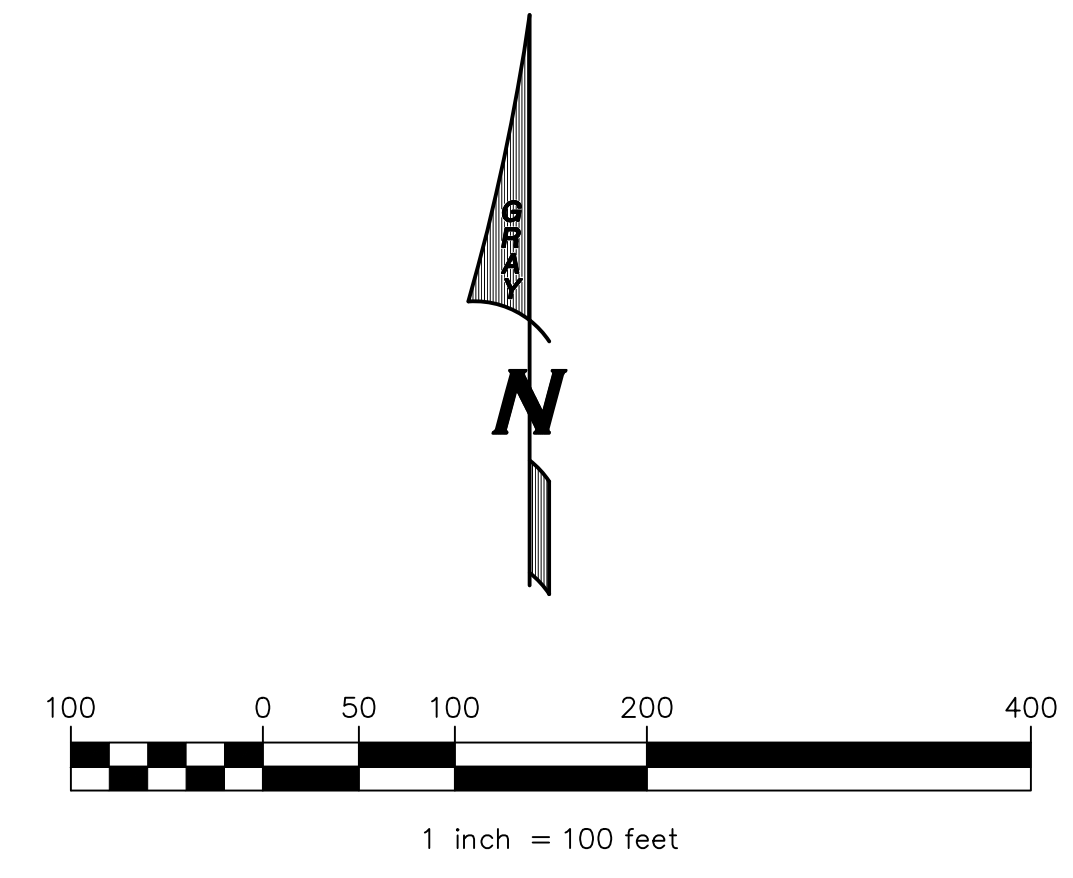
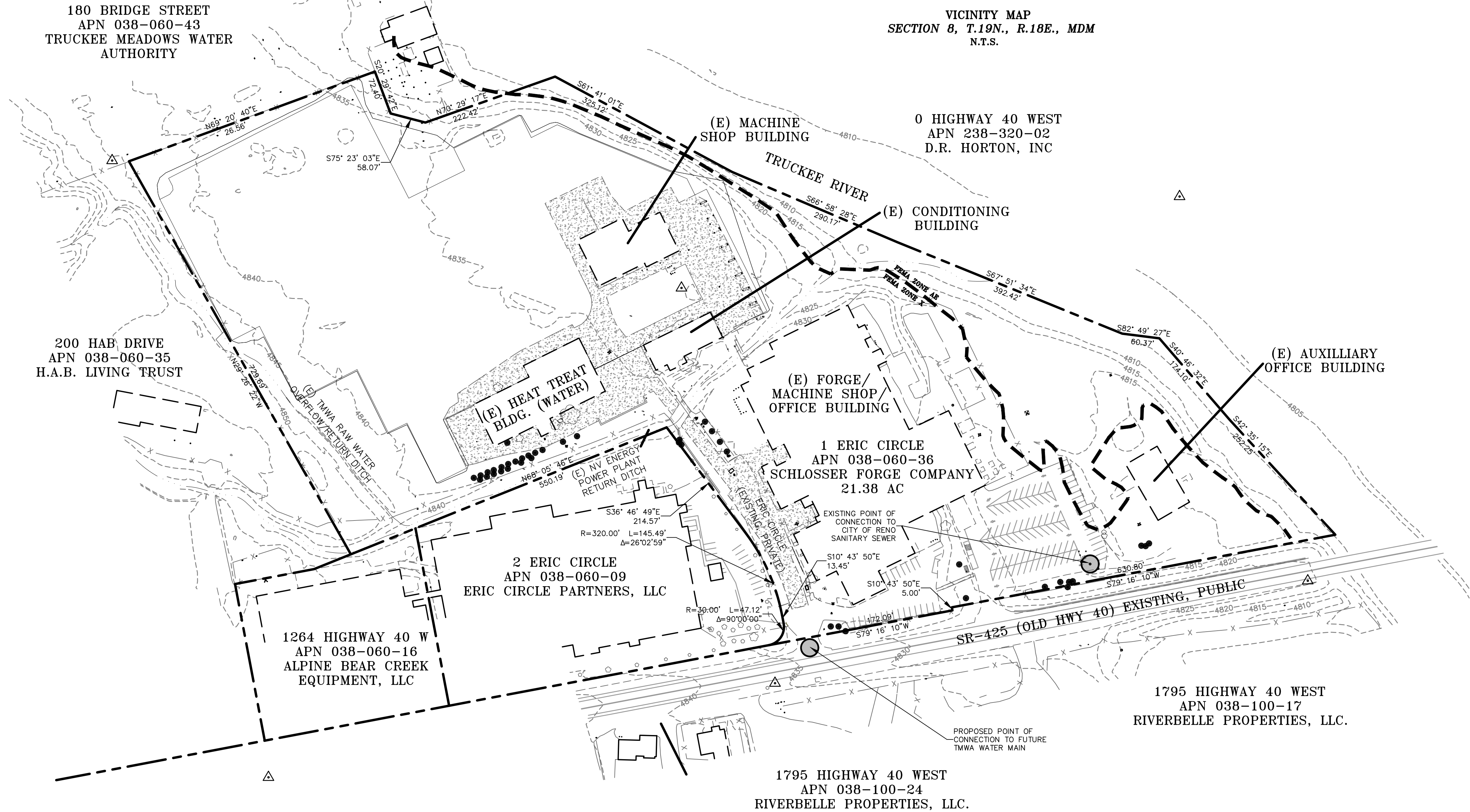
**EXISTING ELEVATIONS**  
 TOTAL PAVED AREA = 21,394 sq. ft.  
 TOTAL UNPAVED AREA = 28,100 sq. ft.  
 PROPOSED DISTURBED AREA IN PROJECT SITE = 7,263 sq. ft.  
 NET AERIAL DISTURBED AREA = 17,409 sq. ft.  
 TOTAL CUT OUTSIDE OF PAVED AREA = 1,729 cu. yd.  
 NET EARTHWORK OUTSIDE OF PAVED AREA = 7,263 cu. yd. CUT  
 MAXIMUM DEPTH OF CUT = 8 ft.  
 MAXIMUM DEPTH OF FILL = 4 ft.



STATE OF NEVADA  
 REGISTERED PROFESSIONAL ENGINEER  
**MAUREEN W. GRAY**  
 License No. 17111  
 5-11-18  
 EXP 6-30-19



VICINITY MAP  
SECTION 8, T.19N., R.18E., MDM  
N.T.S.

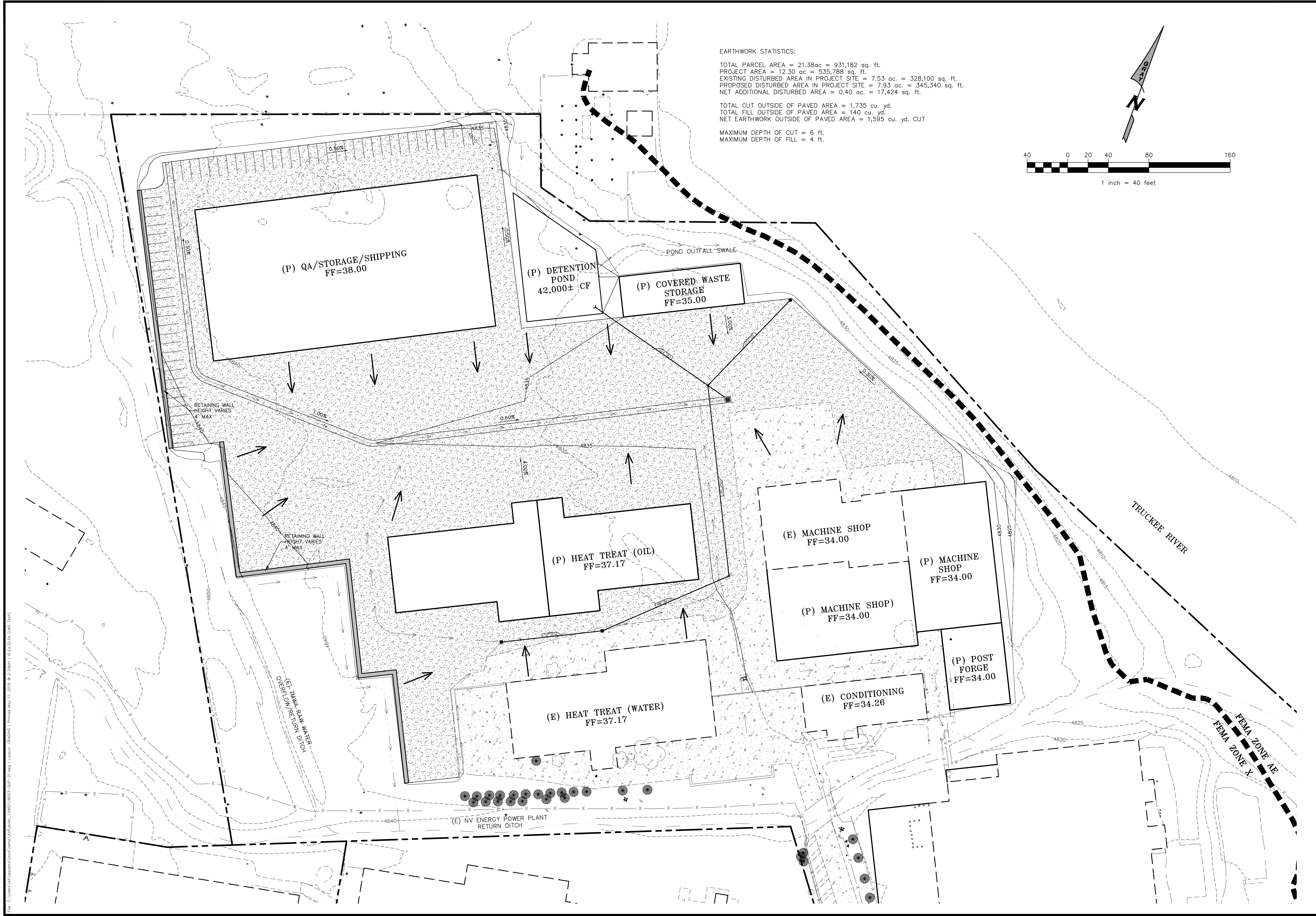


ARCONIC  
SUP AND MASTER PLAN  
EXISTING SITE  
WASHOE COUNTY - NEVADA

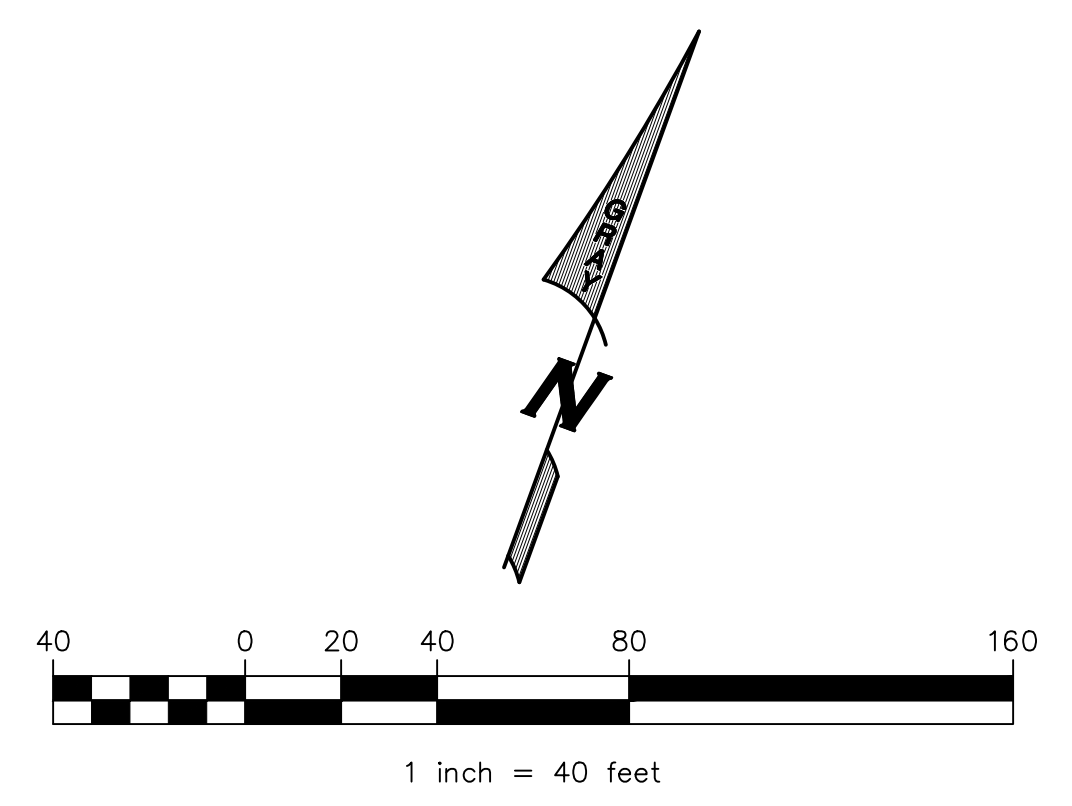
DATE	REVISIONS	BY

CLIENT No.: A087  
JOB No.: 18003  
DRAWN BY: ECT  
CHECKED BY:  
DATE: 5-14-18

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EARTHWORK STATISTICS:  
 TOTAL PARCEL AREA = 21.38ac = 931,182 sq. ft.  
 PROJECT AREA = 12.30 ac = 535,788 sq. ft.  
 EXISTING DISTURBED AREA IN PROJECT SITE = 7.53 ac = 328,100 sq. ft.  
 PROPOSED DISTURBED AREA IN PROJECT SITE = 7.93 ac = 345,340 sq. ft.  
 NET ADDITIONAL DISTURBED AREA = 0.40 ac = 17,424 sq. ft.  
 TOTAL CUT OUTSIDE OF PAVED AREA = 1,735 cu. yd.  
 TOTAL FILL OUTSIDE OF PAVED AREA = 140 cu. yd.  
 NET EARTHWORK OUTSIDE OF PAVED AREA = 1,595 cu. yd. CUT  
 MAXIMUM DEPTH OF CUT = 6 ft.  
 MAXIMUM DEPTH OF FILL = 4 ft.



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PROFESSIONAL ENGINEER - STATE OF NEVADA  
 ALLEN W. GRAY  
 CIVIL  
 No. 7141  
 EXP: 6/30/19

ARCONIC  
 SUP AND MASTER PLAN  
 PRELIMINARY GRADING PLAN  
 WASHOE COUNTY - NEVADA

DATE	REVISIONS	BY

CLIENT No.: A087  
 JOB No.: 18003  
 DRAWN BY: ECT  
 CHECKED BY:  
 DATE: 5-14-18

SHEET No.  
**C2**  
 OF TWO

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**REQUIRED LANDSCAPE INFORMATION:**

Zoning: Industrial  
 Total Site Area: 2138 acres  
 Total Site Area - Master Plan Improvements: 12 acres  
 Total Undisturbed Existing Site Area: 9.38 acres  
 Total Disturbed Site Area: 112 acres

Total Required Landscape Areas: 11 acres (47,916 SF)  
 (10% of total disturbed site area)

Total Required Trees: 7 total  
 7 total (One tree for every 10 parking spaces: 64 spaces total)

Total Required Shrubs: 20,929 SF. Living ground cover shall be planted to achieve a minimum planting area of fifty (50) percent coverage at one (1) year.

Total Landscape Area Provided: 138,921 SF  
 (Includes 43,509 SF of ornamental landscape areas)  
 (Includes 95,392 SF of existing native vegetation protected in place)

Total Trees Provided: 21 total

**GENERAL LANDSCAPE AND IRRIGATION INFORMATION:**

- 1) ALL PLANTING AND IRRIGATION SHALL BE INSTALLED PER ARTICLE 412 OF THE WASHOE COUNTY DEVELOPMENT CODE.
- 2) ALL LANDSCAPE PLANTER AREAS WITH SHRUBS AND GROUND COVER SHALL HAVE A 100% COVERAGE WITHIN 3 YEARS.
- 3) PER ARTICLE 412 THE TREES SHALL BE INSTALLED WITH A MIXTURE OF DECIDUOUS AND CONIFER TREES. HALF OF THE EVERGREEN TREES SHALL BE 1' MIN HEIGHT WITH THE REMAINING EVERGREEN TREES AT 5' MINIMUM HEIGHT. HALF OF THE DECIDUOUS TREES WILL BE 2' MINIMUM CALIFER WITH THE REMAINING TREES BEING 1' MINIMUM CALIFER IN SIZE.
- 4) ALL ORNAMENTAL LANDSCAPE PLANTER BEDS SHALL RECEIVE 4" MINIMUM DEPTH OF GROUND COVER MULCH TOP-DRESSING (ROCK OR DG MULCH).
- 5) FINAL PLANT SELECTION, PLANT QUANTITIES AND LAYOUT WILL BE BASED ON SOUND HORTICULTURE PRACTICES RELATING TO ALL SITE CONDITIONS AND WATER USAGE. ALL TREES SHALL BE STAKED SO AS TO REMAIN UPRIGHT AND PLUMB FOLLOWING INSTALLATION.
- 6) ALL ORNAMENTAL LANDSCAPE AREAS WILL HAVE A COMMERCIAL GRADE IRRIGATION SYSTEM WITH AUTOMATIC CONTROL PER WASHOE COUNTY STANDARDS.
- 7) ALL AREAS WILL BE MAINTAINED PER INDUSTRY AND WASHOE COUNTY STANDARDS FOLLOWING INSTALLATION.



**GRAY & ASSOCIATES**  
 3680 Grant Drive, Suite B  
 Reno, NV 89509

**ARCONIC ALCOA**  
 SUP PRELIMINARY LANDSCAPE PLAN

DRAFTED: G&J  
 REVIEWED: G&J  
 J & A JOB NUMBER:  
 17-107-01  
 PLAN SET:  
 SUP PRELIMINARY PLAN



PLAN DATE: 05/15/18  
 REVISIONS:

#	DATE

SCALE: 1:40  
 SHEET:

**PRELIMINARY LANDSCAPE LEGEND:**

- EXISTING NATIVE VEGETATION (PROTECT IN PLACE) 95,392 SF
- ORNAMENTAL LANDSCAPE AREAS 43,509 SF
- DRAINAGE BASINS
- LARGE TREES (2.0' CAL OR 1' MIN HT)
- SMALL TREES (1.0' CAL OR 5' MIN HT)
- EXISTING TREES (PROTECT IN PLACE)

NOTE: TREE LAYOUT IS DIAGRAMMATIC ONLY TO SHOW EXAMPLE PLANTING AREAS FOR THE SUP SUBMITTAL. FINAL TREE LAYOUT TO BE INCLUDED DETERMINED WITH FINAL CONSTRUCTION DOCUMENTATION. NOT ALL TREES HAVE BEEN SHOWN FOR GRAPHIC CLARITY PURPOSES.

