## Special Use Permit TMWA Lemmon Valley Tank 1 Rebuild

Submitted to Washoe County September 8, 2023

#### **Prepared for**

Truckee Meadows Water Authority 1355 Capital Blvd Reno, NV 89520





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# **Section 1**

### 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.

Project Information	S	Staff Assigned Case No.:				
Project Name: TMWA Lemmon Valley Tank 1 Rebuild						
Project A Special Use Permit to allow a utility service (water tank) in the GR zoning district and to modify Description: the landscape standards per Washoe County Development Code Section 110.412.40. The existing water tank is proposed to be replaced with a new water tank to serve existing customers.						
Project Address: 0 Lemmon Dri	ve					
Project Area (acres or square fe	et): ±13,700 square f	eet				
Project Location (with point of re	eference to major cross	s streets AND area locator):				
The project site is located off Lemmon I	Drive approximately 700-fe	et southeast of the intersection of Lemmo	n Drive and Deodar Way.			
Assessor's Parcel No.(s):	Parcel Acreage:	Assessor's Parcel No.(s):	Parcel Acreage:			
080-730-08	±1.0 acre					
Indicate any previous Wash Case No.(s).	oe County approval	s associated with this applica	tion:			
Applicant Inf	formation (attach	additional sheets if neces	sary)			
Property Owner:		Professional Consultant:				
Name: Truckee Meadows Wate	er Authority	Name: Wood Rodgers, Inc				
Address: 1355 Capital Blvd		Address: 1361 Corporate Blvd				
Reno, NV	Zip: 89502	Reno, NV	Zip: 89502			
Phone:	Fax:	Phone: 775-823-9770 Fax:				
Email:		Email:ehasty@woodrodgers.com				
Cell:	Other:	Cell: Other:				
Contact Person:		Contact Person: Eric Hasty				
Applicant/Developer:		Other Persons to be Contacted:				
Name: Truckee Meadows Wate	r Authority	Name: Wood Rodgers, Inc				
Address: 1355 Capital Blvd		Address:				
Reno, NV	Zip: 89502		Zip:			
Phone: 775-834-8164	Fax:	Phone: 775-823-5258 Fax:				
Email: TSpeer@tmwa.com		Email: shuggins@woodrodgers.com				
Cell: 775-870-0636	Other:	Cell:	Other:			
Contact Person: Thomas Spee	r	Contact Person: Stacie Huggins				
	For Office Use Only					
Date Received:	Initial:	Planning Area:				
County Commission District:		Master Plan Designation(s):				
CAB(s):		Regulatory Zoning(s):				

#### Special Use Permit Application Supplemental Information

(All required information may be separately attached)

1. What is the project being requested?

The existing water tank is proposed to be replaced with a new water tank to serve existing customers. Proposed improvements include demolition of the existing tanks, site grading, detention pond, and new fencing. Specific details are outlined in the project description attached to this application.

2. Provide a site plan with all existing and proposed structures (e.g. new structures, roadway improvements, utilities, sanitation, water supply, drainage, parking, signs, etc.)

A site plan has been provided with this request. The site plan shows the new 500,000 gallon tank will generally be within the footprint of the existing tank. Additional site improvements include connection to existing underground water line, a retaining wall, detention basin, a new fence, and revegetation of undeveloped surfaces.

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

The project will be done in one phase and includes demolition of the exiting tank, grading, and construction of the proposed tank.

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

There is an existing tank on site. The site will continue to be accessed from the existing service road off of Estates Road and will continue to be maintained by TMWA once the project is complete.

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

The project will continue to provide water service to the surrounding neighborhoods and the Lemmon Valley community. The existing tank has been determined to be at the end of its useful life and the new tank will improve service to existing customers.

6. What are the anticipated negative impacts or affect your project will have on adjacent properties? How will you mitigate these impacts?

Since there is an existing tank there are no anticipated negative affects to the adjacent properties. TMWA is currently constructing a Pressure Reducing Station that will temporarily provide water service during decommission of the old tank and construction of the proposed tank. Further details can be found in the attached project description.

7. Provide specific information on landscaping, parking, type of signs and lighting, and all other code requirements pertinent to the type of use being purposed. Show and indicate these requirements on submitted drawings with the application.

A project description has been submitted with this application and provides greater detail on the project and how it meets all applicable code requirements.

7

8. 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.)

|--|

9. Utilities:

a. Sewer Service	NA
b. Electrical Service	NA
c. Telephone Service	NA
d. LPG or Natural Gas Service	NA
e. Solid Waste Disposal Service	NA
f. Cable Television Service	NA
g. Water Service	ТМWА

For most uses, 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	

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

10. Community Services (provided and nearest facility):

a. Fire Station	NA
b. Health Care Facility	NA
c. Elementary School	NA
d. Middle School	NA
e. High School	NA
f. Parks	NA
g. Library	NA
h. Citifare Bus Stop	NA

# **Section 2**



#### **Project Description**

<b>Executive Su</b>	ummary
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District #:	5 – Jeanne Herman			
Applicant:	Truckee Meadows Water Authority			
APN Number:	080-730-08			
Request:	A Special Use Permit to allow a utility service (water tank) in the GR zoning			
	district and to modify the landscape standards per Washoe County			
	Development Code Section 110.412.40			
Location:	The project site is located off Lemmon Drive approximately ±700-feet southeast of the intersection of Lemmon Drive and Deodar Way.			

#### Background

The proposed project is located on a ±1.0-acre parcel, APN 080-730-08, which has an existing water tank. The property is currently zoned General Rural (GR), has a master plan designation of Rural (R) and is located within the North Valleys Area Plan. The existing water tank was constructed in the 1970's and is owned and maintained by the Truckee Meadows Water Authority (TMWA). The tank is currently accessed via an unpaved utility road off Estates Road. The access road, which was improved by TMWA years ago, is located through an easement on the properties located at 1200 and 1400 Estates Road.







#### **Neighborhood Meeting**

As required the applicant hosted a Neighborhood Meeting to discuss the project prior to this application. Post cards were mailed to forty-four (44) property owners within 1,300 feet of the project site. The virtual

meeting was held on Monday August 14, 2023 from 5:30-6:30 pm via Zoom. An overview of the project including preliminary site plans, site photos, and maps of the project and project details were presented. One member of the public attended and expressed no concerns or had any questions regarding the project. The pre-application meeting materials including a recording of the presentation was uploaded to the Washoe County HUB website.

#### Project Request

TMWA plans to replace the existing water tank, which has been determined to be at the end of its useful life, with a new tank in the same location. The new tank will connect to existing underground water utilities and will continue to provide service to the existing TMWA customers in the Lemmon Valley area. The new tank will be slightly larger, 500,000 gallons compared to the existing 440,000-gallon tank but is proposed to be in the same location. The new tank has been designed to meet the Nevada Administrative Code (NAC) and American Water Works Association (AWWA) standards for welded carbon steel tanks for water storage (D100). The project requires additional grading to accommodate the larger footprint of the new tank, a service road around the entire tank, and a detention pond for capturing on-site flows that will be created from the project.

The existing tank and fence will be deconstructed and removed as part of this process. Grading for the new tank and detention pond will also include the installation of a retaining wall located northeast of the proposed tank and will help to minimize the required grading area. The development area of the new tank will be secured with an 8-foot tall chain-link and barbed wire fence around the perimeter, in accordance with the Department of Homeland Security. The amount of grading for the site improvements does not exceed the threshold that triggers an SUP.

The tank is proposed to be painted with a non-reflective neutral paint color similar to the existing tank that will help it blend with the natural surroundings. Although the new tank is slightly larger in diameter and height, it is anticipated that the new tank will not be much more visible than the existing tank as the retaining wall will allow the tank to sit further back into the hillside.

Tank Dimensions Comparison Table						
Existing Tank Proposed Tan						
Capacity (Gallons)	440,000	500,000				
Diameter (feet)	56	60				
Height (feet)	25.9	28.7				

Water service to the surrounding neighborhood is not anticipated to be disrupted during this process. TMWA is currently constructing a Pressure Reducing Station (PRS) near Lemmon Drive (PWP# WA-2023-408). This new main will provide water to the surrounding neighborhoods while the existing tank is decommissioned and rebuilt. After construction of the new tank, the PRS will be used as a back-up during low-pressure or fire events and improve service to the existing TMWA customers in the Lemmon Valley Area.

TMWA will maintain all facilities within the tank site, including the tank, pavement, fencing, and drainage basin. This will also include the re-establishment of the revegetated areas to be in conformance with WCDC Section 110.412.40.

#### **Requested Modification of Landscape Standards**

Since this is an expanded development, landscape standards should only apply to the developable lot area associated with the proposed expansion, in accordance with Washoe County Development Code (WCDC) Section 110.412.05. The area of existing developed lot is ±10,000 square feet, the new improvements will expand this area to ±13,700 of developed lot. Since the development of the property is considered a civic use, 20 percent of the expanded developed area will be required to be landscaped (WCMC Section 110.412.40). This requires ±740 square feet of formal landscape, an area which is very minimal. Furthermore, the site is in a rural/low-density area surrounded by lowland vegetation and sagebrush. Formal landscaping including ground cover, non-native plants, shrubs, and trees will make the site more visible to the surrounding residents. Therefore, as part of this request, the applicant is requesting to waive all formal landscape requirements in lieu of providing revegetation on the disturbed areas. Once grading and construction is complete the disturbed areas that are not developed will be revegetated with a native seed mix to conform with the surrounding vegetation and provide slope stabilization. The total area proposed to be revegetated is ±1,500 square feet, or 41 percent of the expanded development area. This is more than two times the minimum ±740 square feet of formal landscape required by code and complies with WCDC Section 110.412.40(a)(1).

The proposed revegetation, along with the neutral paint color of the new tank, will help the tank blend with the surrounding hillside and provide a much more cohesive aesthetic that is in-line with the goals and policies of the Lemmon Valley Suburban Character Management Area.

### Findings

#### Special Use Permit Findings

## (a) Consistency. The proposed use is consistent with the action programs, policies, standards and maps of the Master Plan and the applicable area plan;

**Response:** The proposed project is in conformance with Washoe County Master Plan and the North Valleys Area Plan, specifically the Lemmon Valley Suburban Character Management Area. There are no programs, policies, or standards of the Master Plan or North Valleys Area Plan that prohibit approval of utility services. Therefore, the proposed project is consistent with the General Rural designation on the property.

#### (b) Improvements. Adequate utilities, roadway improvements, sanitation, water supply, drainage, and other necessary facilities have been provided, the proposed improvements are properly related to existing and proposed roadways, and an adequate public facilities determination has been made in accordance with Division Seven;

**Response:** Water service to the surrounding neighborhood is not anticipated to be disrupted during this process. TMWA is currently constructing a Pressure Reducing Station (PRS) under Lemmon Drive (PWP# WA-2023-408). This new main will provide water to the surrounding neighborhoods while the existing tank is decommissioned and rebuilt. After construction of the new tank, the PRS will be used as a back-up during low-pressure or fire events and improve service to the existing TMWA customers in the Lemmon Valley Area.

## (c) Site Suitability. The site is physically suitable for the type of development and for the intensity of development;

**Response:** The project site is already developed with a water tank. TMWA plans to replace the existing water tank, which has been determined to be at the end of its useful life, with a new tank in the same location. The new tank will connect to existing underground water utilities and will continue to provide service to the existing TMWA customers in the Lemmon Valley area. The new tank will be slightly larger, 500,000 gallons compared to the existing 440,000-gallon tank but is proposed to be in the same location and utilize the same access road.

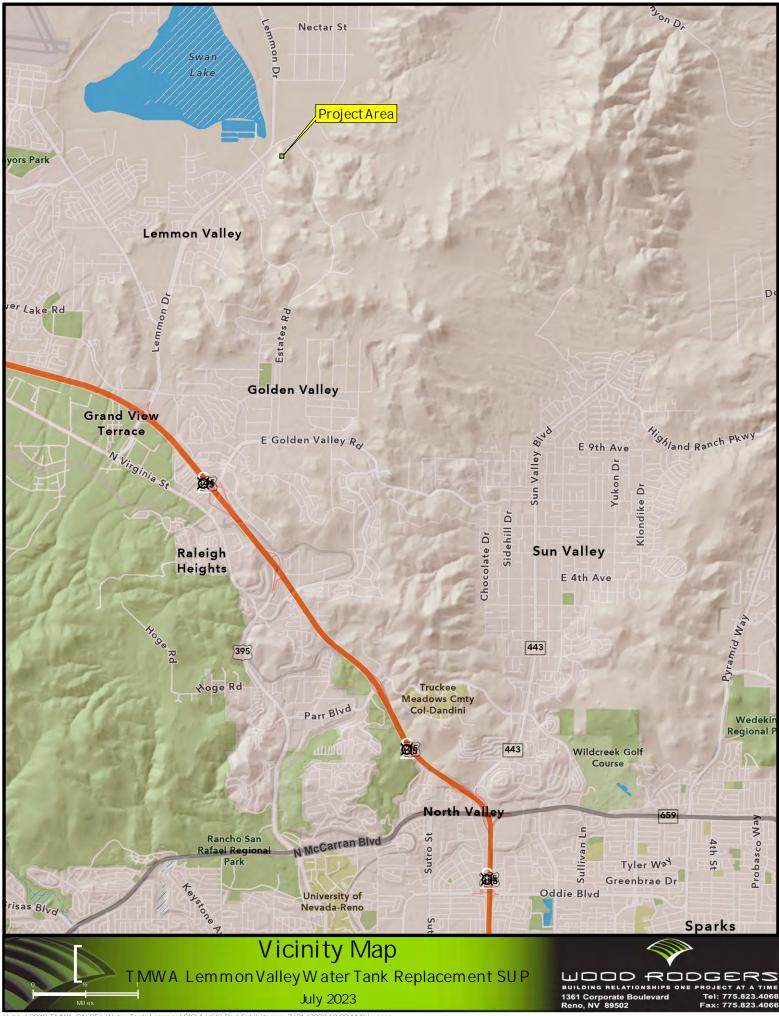
# (d) Issuance Not Detrimental. Issuance of the permit will not be significantly detrimental to the public health, safety or welfare; injurious to the property or improvements of adjacent properties; or detrimental to the character of the surrounding area; and

**Response:** Issuance of the permit will not be detrimental to the public health, safety, or welfare of the surrounding area. Service will not be disrupted to existing customers during this process and service to existing customers will be improved upon completion. Consideration has been given to the neighboring properties through the overall site design, including placement of the building, fencing, and access.

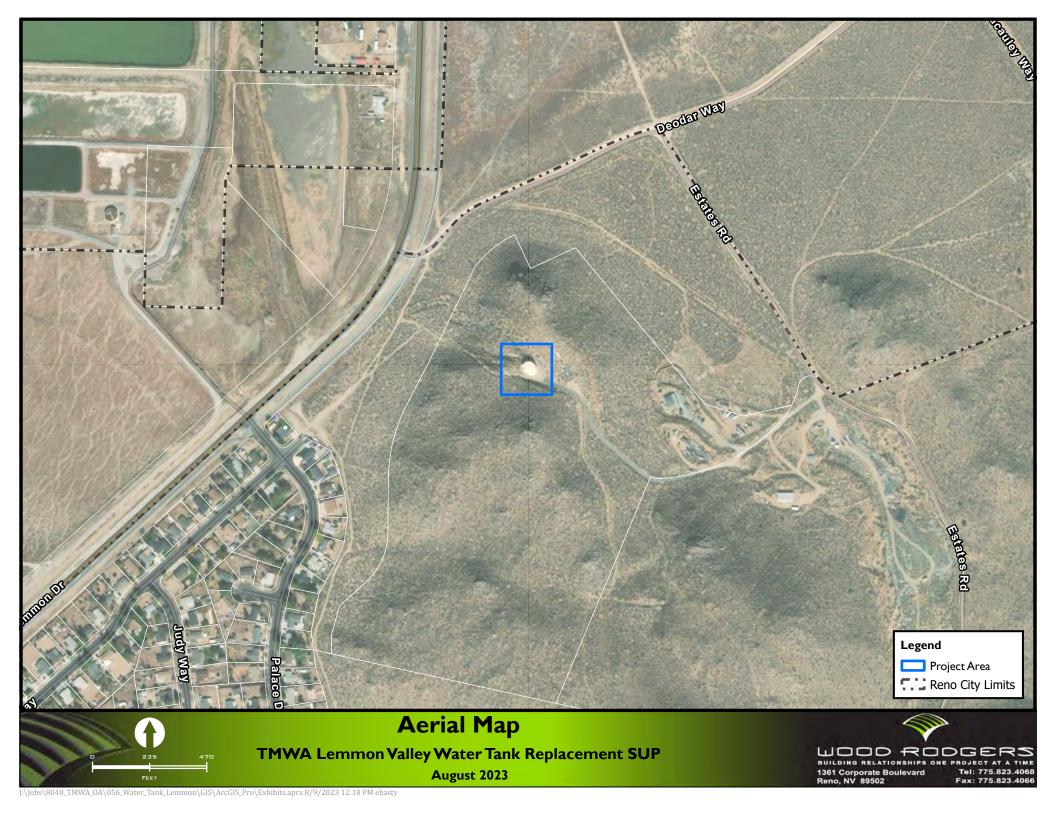
(e) Effect on a Military Installation. Issuance of the permit will not have a detrimental effect on the location, purpose or mission of the military installation.

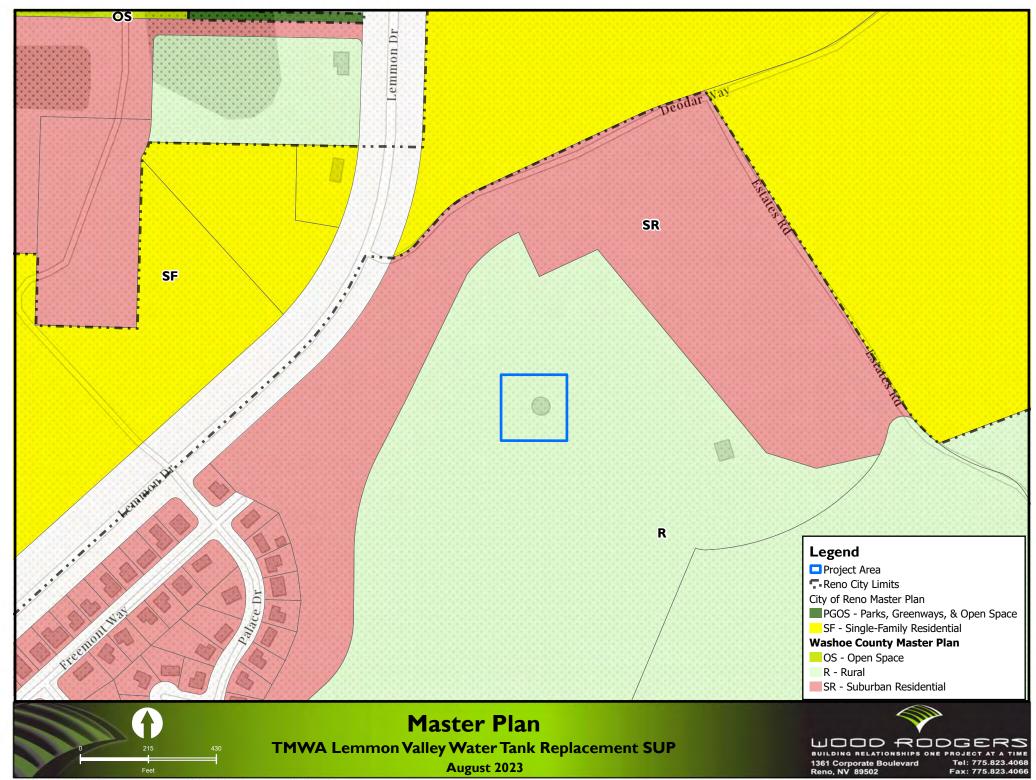
**Response:** Not applicable as there are no military installations within the project area.

# **Section 3**

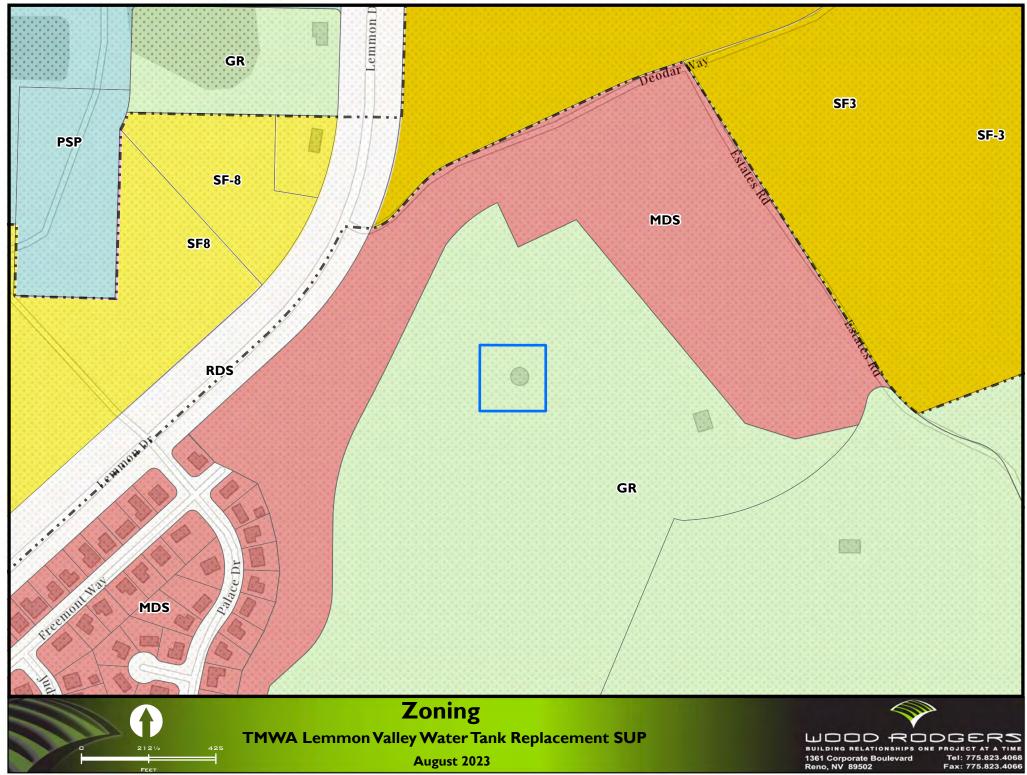


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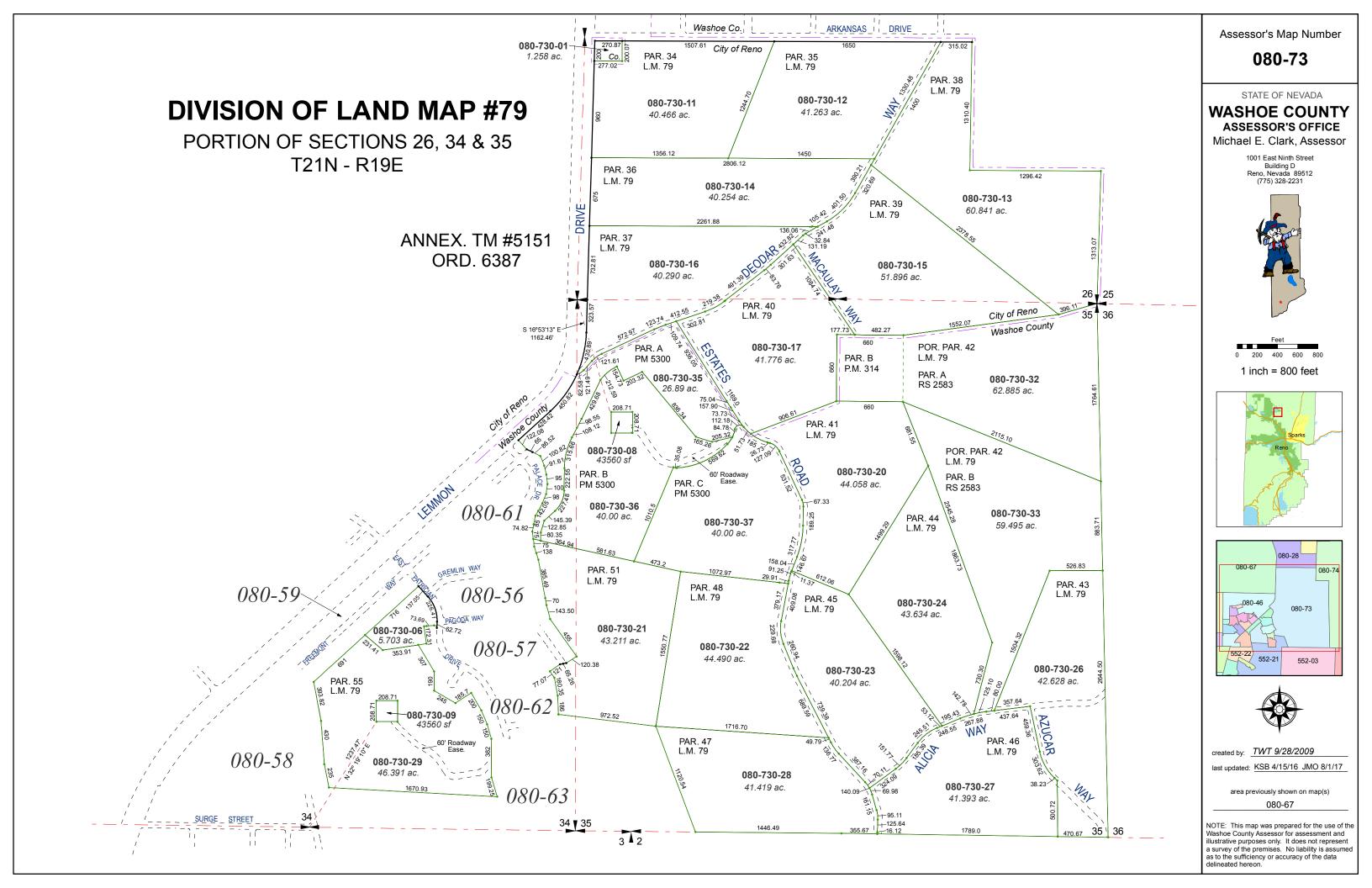




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# **Section 4**

GEOTECHNICAL INVESTIGATION TMWA LEMMON VALLEY WATER TANK REPLACEMENT LEMMON VALLEY, NEVADA











PREPARED FOR:

### **TRUCKEE MEADOWS WATER AUTHORITY**

APRIL 2023 FILE:3152



300 Sierra Manor Drive, Suite 1 Reno, NV 89511

April 3, 2023 File: 3152

Thomas Speer, PE Design Engineer **Truckee Meadows Water Authority** 1355 Capital Blvd. Reno, NV 89502 <u>TSpeer@tmwa.com</u> I <u>www.tmwa.com</u>

#### RE: Geotechnical Investigation TMWA Lemmon Valley Water Tank Replacement Lemmon Valley, Washoe County, Nevada

Dear Mr. Speer:

Construction Materials Engineers Inc. (CME) is pleased to submit our geotechnical investigation report for the proposed TMWA Lemmon Valley Water Tank replacement project to be constructed on Washoe County Assessor Parcel Number (APN) 080-730-08, in Lemmon Valley, Washoe County, Nevada.

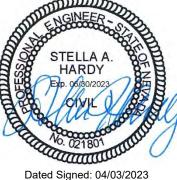
The following report includes the results of our subsurface investigation, laboratory testing, and presents our recommendations for the design and construction of the project. We wish to thank you for the opportunity to provide our services and look forward to working on future endeavors together.

Please feel free to call us should you have any questions or require additional information.

Sincerely,

#### CONSTRUCTION MATERIALS ENGINEERS, INC.





inf for

Carólyn Jónes, El Engineering Intern <u>cjones@cmenv.com</u> Office: 775-851-8205

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#### **APPENDIX A**

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Plate B-1 – Grain Size Analysis Plate B-2 – Plasticity Index Soil Chemistry Test Results

#### **APPENDIX C**

2018 IBC Seismic Design Parameters



### **GEOTECHNICAL INVESTIGATION** TMWA Lemmon Valley Water Tank Replacement Lemmon Valley, Washoe County, Nevada

#### 1.0 INTRODUCTION

This report presents results of our literature review, field reconnaissance, subsurface exploration, laboratory testing, and recommendations for design and construction of the proposed TMWA Lemmon Valley Water Tank Replacement, in Lemmon Valley, Washoe County, Nevada. The general project vicinity is shown on Figure 1.

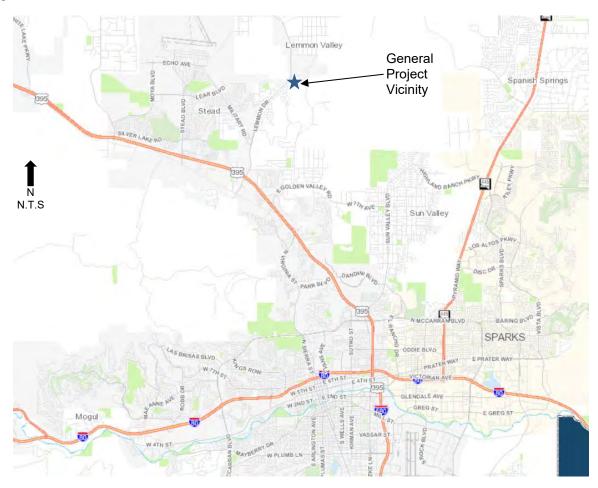


Figure 1: General project Vicinity (Reference Base Map: Washoe County GIS)

Results from our office and field studies, form the basis for all conclusions and recommendations contained herein.



#### 2.0 SITE CONDITIONS AND PROJECT DESCRIPTION

#### 2.1 SITE CONDITIONS



Figure 2: Limits of Subject Site

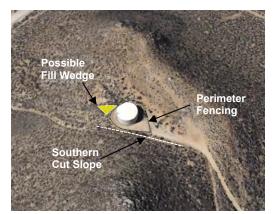


Figure 3: Oblique View Showing Suspected Fill Wedge Location

The existing Lemmon Valley Water Tank sits atop a granitic bedrock knob located southwest of Lemmon Drive on Washoe County APN 080-730-08 as shown on Figure 2. The existing water tank is located within a fenced perimeter centrally located on the 1-acre TMWA owned parcel.

Site access is via a narrow unpaved dirt road which is accessed from a private driveway west of Estates Road. The subject site is bounded in all directions by privately owned land (APN 080-730-36).

The existing tank was constructed circa 1970. Based on a review of historical aerial imagery, the tank is bottomed completely on a cut pad. During grading of the pad, a small wedge of fill was pushed along the western extents of the graded pad as shown on Figure 3.

Two cut slopes are visible at the site: one to the northeast and one on the south. The southern cut slope is  $12\pm$ ft in height and on the order of 1H:1V, with moderately to slightly weathered bedrock exposed at the face of the cut. The northeastern  $14\pm$ ft tall cut slope consists of intensely to moderately weathered bedrock which is cut back at a 2.5H:1V or flatter slope.

Currently the site is drained via sheet flow to swales which discharge on the western extents of the site and down the slope.



brush and seasonal weeds. Photographs of the site are presented below:

Photograph 1: Southern Cut Slope



Photograph 2: Top of the Northern Cut Slope



Vegetation at the site is generally sparse within the proposed improvement area and consists of desert

#### 2.2 PROJECT DESCRIPTION

The following is a list of our understanding for the project:

- Construction of a new 500,000-gallon steel water tank. The proposed water tank will be 60 to 65 feet in diameter, 25 feet tall, and constructed adjacent to or within the footprint of the existing Lemmon Valley tank (refer to Figure 4).
- The tank will be supported using either concrete ring-wall foundations with granular infill or concrete slab;
- Structural loads are anticipated to be on the order of 3.0 and 4.0 kips per square foot;
- The northeastern cut slope may be modified and the use of a segmented retaining wall with total
  exposed heights on the order of 4 to 7 feet will be required. The back slope will be 2.5H:1V or
  flatter. The proposed retaining wall may be constructed using either Redi Rock or Geowall (formally
  Keystone block). Due to the property line constraints, the wall type used will be determined based
  on the ability to be constructed using gravity methods (i.e., no geogrid) to limit encroachment into
  the hillside.
- Cuts and fills are anticipated to be on the order of 5 feet or less.
- A shallow detention basin is proposed on the west side of the existing TMWA property outside the limits of the fenced perimeter.

The preliminary site layout provided by TMWA is presented below:

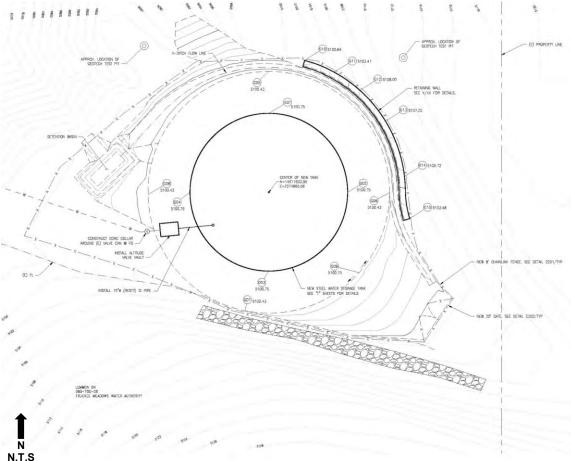


Figure 4: Lemmon Valley Water Tank Replacement Preliminary Site Layout

#### 3.0 SUBSURFACE EXPLORATION

#### 3.1 TEST PIT EXCAVATION



Photograph 3: Test Pit TP-1

CME performed subsurface exploration utilizing test pit excavations on December 8<sup>th</sup>, 2022. A total of two (2) test pit excavations were performed using a track mounted CAT 325 Excavator equipment with a 24-inch wide, 3-tooth bucket. Excavation refusal was encountered at a depth of 6 feet on weathered bedrock at the top of cut slope on the northside of the existing tank pad. Test Pit TP-2 was performed within the fill wedge (encountered to be approximately 9-feet thick) on the west side of the tank and reached a refusal depth of 11 feet.

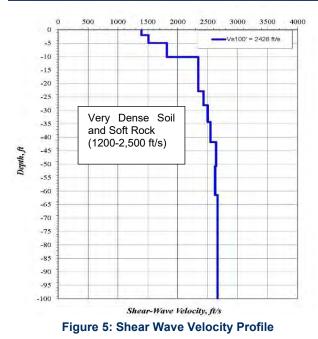
Soil samples were visually examined and classified during exploration in general accordance with ASTM D2488. Test pits were backfilled with the equipment available and were not compacted to the standards required for structural fill. During the

time of construction, the test pit backfill located within structural areas shall be removed and replaced to the requirements of structural fill as noted in this report.

Exploration locations (Plate A-1), test pit logs (Plate A-2), and soil and rock classification charts are included as Plates A-3 and A-4, attached as Appendix A.

#### 3.2 GEOPHYSICAL TESTING

#### 3.2.1 REFRACTION MICROTREMOR (REMI) SHEAR WAVE VELOCITY



One shear wave velocity measurement was performed using Refraction Microtremor (ReMi). The DAQlink 4 24-bit acquisition system (Seismic Source/Optim) utilizing a multichannel geophone cable with twelve (12) geophones, placed at an approximate spacings of 10 feet, was used to obtain surface wave data.

Vertical geophones with resonant frequencies of 10 Hz measure surface wave energy from broad band ambient site noise across the geophone array (i.e., ReMi setup location) for multiple 30-second iterations.

The resulting 1-dimensional shear wave velocity model for each site is included as Figure 5 (Shear Wave Velocity Profile).

The  $V_{S,100'}$  represents the average shear wave velocity profile based on travel time from the ground surface to a depth of 100 feet at the tested location.

Based on the ReMi, the  $V_{S,100}$  for the site is 2,428 feet per second (ft/s).

The approximate ReMi line location is presented on Plate A-1 (Exploration Location Map).

Shear-wave velocity profiles are generally classified by the ASCE 7-16 as stiff soil (600 to 1,200 ft/sec), very dense soil and soft rock (1,200 to 2,500 ft/sec), and rock (>2,500 ft/sec). Based on the shear wave velocity profile the site generally complies with a designation of very dense soil and soft rock.



#### 3.2.2 REFRACTION COMPRESSIONAL WAVE (P-WAVE)

One refraction array was performed at the location presented on Plate A-1. The measurements were performed using a 12 channel, 10 Hz geophone array, with 10 foot spacing. Measurements using the refraction compressional wave (P-wave) technique were performed in general accordance with ASTM D5777. Seismic compressional wave methods provide general shallow subsurface profile characterization. The two-dimensional profile is included as Figure 6 (Two-Dimensional P-wave Velocity Profile (N.T.S)).

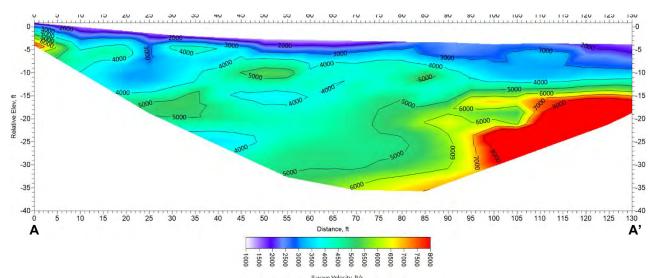


Figure 6: Refraction Line Two-Dimensional P-wave Velocity Profile (N.T.S)

P-wave velocities below 3,000 ft/sec are generally consistent with a soil to soft rock subsurface profile. Based on the profile above, a thin veneer soil on the order of 1 to 4 feet overly the granitic bedrock.

A majority of the bedrock within the upper 10 feet of the geologic profile exhibited velocities on the order of 3,000 ft/sec to 4,000 ft/sec. Based on a review of the 12<sup>th</sup> Edition of the Handbook of Ripping (Caterpillar, February 2000), granitic bedrock with velocities between 3,000 ft/sec and 4,000 ft/sec are rippable using a D8R Ripper of equivalent.

#### 4.0 LABORATORY TESTING

Soils testing performed in CME's laboratory was conducted in general accordance with ASTM standards and methodologies. Representative soil types were selected and analyzed to determine index properties and engineering properties. The following laboratory tests were completed as part of this investigation:

- In situ moisture content (ASTM D2216);
- Grain size distribution (ASTM D6913); and
- Atterberg Limits (ASTM D4318);

In addition, our firm contracted with an outside laboratory to complete the following analytical testing for the corrosion potential of the site soils:

- Resistivity (EPA 120.1)
- Paste pH (SM-846 9045D)
- Soluble Sulfates (ASTM C1580)
- Redox Potential (SM 2580B)
- Chloride (EPA 9056)
- Sulfide (AWWA C105)



#### 5.0 EXISTING CONDITIONS

#### 5.1 GEOLOGY

Based on a review of the *Reno NE Quadrangle, Geologic Map, Nevada Bureau of Mines and Geology, Urban Map 4Cg, 1:24,000* (Cordy, G.E. and Mansour, A., 1985), the project site is underlain by granodiorite which is described as light to dark-gray, fine to coarse-grained, highly fractured and faulted.

#### 5.2 GENERAL SUBSURFACE PROFILE

The subsurface conditions encountered are generally consistent with the mapped geology. However, as previously noted, the western most test pit was excavated into an existing fill wedge overlying weathered bedrock. A summary of the subsurface profile encountered is included as Table 1.

Table 1: Generalized Soil Profile						
Explora tion Pit ID	Profile Depth (ft)	Generalized Soil Profile	USCS Soil Classification	Reuse Classification	Total Depth of Exploration (ft)	Depth Groundwater Encountered (ft)
TP-1	0.0-6.0	Gr	Excavates similar to a silty clay sand with gravel and cobbles (SC-SM)	Structural Fill?	Refusal at 6.0	
	0.0-9.0	UF	Silty, clayey sand with gravel and cobbles (SC-SM)	Structural Fill	Terminated at	N.E.
TP-2	9.0-11.0	Gr	Excavates similar to a Silty clay sand with cobbles (SC-SM)	Structural Fill?	11.0	

Soil Profile Key:

UF – Undocumented Fill

**G**<sub>r</sub> – Granodiorite Bedrock

#### **Reuse Classification Definition:**

Limited: May be reused in non-structural areas.

Structural Fill: Meets the requirements of a granular soil and may be reused as structural fill provided it is screened to remove debris and oversized material. Queried (?) where additional evaluation is warranted during construction.

#### NOTES:

N.E. Not Encountered or observed.
 Refer to Plate A-2 for additional details.

#### 5.3 GROUNDWATER AND SOIL MOISTURE

Groundwater was not encountered during the current exploration to the maximum depth explored. Based on the anticipated depth of excavation required for the project, groundwater is not expected to impact construction.

However, seasonal seepage and/or runoff may be encountered depending on the season of construction and cumulative precipitation in the area. Temporary dewatering of open cut excavations affected by seasonal runoff may be required and shall be performed by the contractor. Construction planning shall include the assumption that groundwater fluctuations may occur due to precipitation, temperature, runoff, adjacent irrigation, or where conduits, such as utility trenches, are present. Regardless of the conditions encountered during the current exploration, CME recommends the contractor is prepared for dewatering during construction.



#### 6.0 SEISMICITY

#### 6.1 FAULTING

To determine the location of mapped earthquake faulting trending through or near the project site, a review of the following published information was completed:

- 1) USGS Website: Earthquake Hazards Program Quaternary Faults in Google Earth;
- 2) The USGS Interactive Fault Map U.S. Quaternary Faults (arcgis.com); and
- 3) University of Nevada Reno Interactive Quaternary Fault Map included as Figure 7 (Excerpt from the UNR Quaternary Interactive Fault Map). (<u>http://gisweb.unr.edu/QuaternaryFaults/</u>)

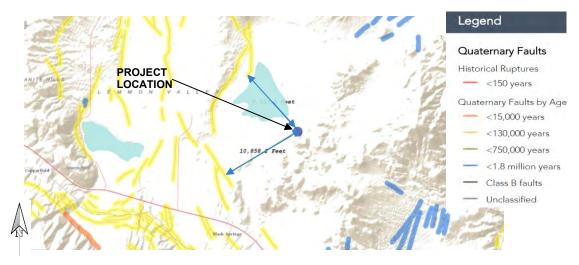


Figure 7: Excerpt from the UNR Quaternary Interactive Fault Map

10 ka		0 ka	750 ka	<1.8Ma
Holocene Active	Late Quaternary Active	Quaternary Active	Qı	laternary
ka = 1,000 years in the past; Ma = 1,000,000 years in the past				

Quaternary earthquake fault evaluation criterion has been formulated by a professional committee for the State of Nevada Seismic Safety Council, 2006, as outlined above. Faults that have shown movement more recently (e.g., Holocene Active) pose a more significant potential for surface rupture hazard.

No mapped faults are located traversing through the project site. The closest faults to the site are located nearly 2 miles southwest and northwest of the project location. This group of Quaternary Active faults are associated with the Freds Mountain fault zone.



#### 7.0 DISCUSSION

#### 7.1 GENERAL INFORMATION

Geotechnical recommendations for design and construction of the project are included as Sections 8.0 (Design Recommendations) and 9.0 (Construction Recommendations). The following definitions are applicable for recommendations in this report related to design and construction of the proposed project:

	Table 2: General Definitions for Report Recommendations		
Fine Grained Soil	Soil with more than 40 percent by weight passing the number 200 sieve, plasticity index less than 15 (PI<15) or expansion index less than 20 (EI<20).		
Clay Soil	For the purposes of this report, clay soil may be defined as any soil having more than 15 percent by weight passing the number 200 sieve and a plasticity index greater than or equal to 15 (Pl≥15).		
Granular Soil	<ul> <li>Existing onsite soil not meeting the requirement for a fine-grained or clay soil with:</li> <li>A maximum particle size of 4-inches or less,</li> <li>Less than 30 percent retained on the <sup>3</sup>/<sub>4</sub> inch sieve;</li> <li>Less than 35 percent passing the No. 200 sieve; and</li> <li>Plasticity index less than 15 (PI&lt;15) or expansion index less than 20 (EI&lt;20).</li> </ul>		
Structural Fill	<ul> <li>Soil generated from onsite grading may be reused as structural fill provided it meets the requirements of a granular soil and is free of organics or deleterious materials (refer to Section 9.2.2 Structural Fill).</li> <li>Structural fill is the supporting soil placed in densified lifts below foundations, concrete slabs-on-grade, pavements, or any structural element that derives support from the underlying sub-soils material.</li> </ul>		
Structural Areas	Includes all areas that will be used for the support of concrete slabs, flatwork, foundations, pavements, or other structures deriving support from the underlying soil.		
Undocumented Fill	Soil/material placed and/or compacted but not observed, monitored, tested, or documented by a licensed materials test engineering firm. This material may be suitable for re-use pending further verification with the use of laboratory testing.		
<ul> <li>The elevation directly below the aggregate base layer for both concrete on-grade and pavements;</li> <li>Bottom of excavation for foundations bottomed on native soil materia structural fill.</li> <li>The surface elevation below structural fill.</li> </ul>			
Relative Compaction	The dry density of soil in the field expressed as a percentage of the density of the soil after densification during placement. Relative compaction shall be in accordance with ASTM D1557.		
Standard Specifications	Work shall be performed in general conformance to the Orange Book Standard Specifications for Public Works Construction, 2012, Revision 8 (SSPWC); and/or Truckee Meadow Water Authority Standard Details and Specifications.		



#### 7.2 CONSTRUCTION CONSIDERATIONS

Based on the results of our field and laboratory studies, the project as described in this report may be constructed as currently proposed. Table 3 (General Geotechnical Considerations and Overview Summary) provides a general summary of the construction and design considerations as they pertain to the project. Geotechnical recommendations for design and construction of the project are included as Sections 8.0 (Design Recommendations) and 9.0 (Construction Recommendations).

Table 3: General Geotechnical Considerations and Overview Summary			
Subject	Geotechnical Consideration		
Groundwater/ Seasonal Runoff	Groundwater was not encountered or observed during the current and previous subsurface exploration.		
Earthwork/	• Based on the geophysical results (refer to Section 3.2) and the bedrock conditions encountered within Test Pit TP-1, trimming of the northern slope to accommodate the future tank may be performed using a large (45 tons) sized excavator and bucket equipped with twin tiger teeth or other suitable attachment designed for maximum rock penetration. Zones of resistant bedrock may require use of pneumatic hammer to loosen larger unfractured bedrock fragments.		
Excavations	<ul> <li>Resistant zones of bedrock similar to the material exposed on the southern cut slope may make confined excavations difficult and slow.</li> </ul>		
	<ul> <li>Weathered bedrock spoils may be suitable for reuse as structural fill for unpaved roadway improvements or retained backfill provided the friable fragments of bedrock have been completely broken down and oversized rock fragments have been removed. The use of bedrock spoils below the tank footprint are prohibited.</li> </ul>		
Undocumented Fill	A wedge of undocumented fill was encountered near the western extents of the development area as noted on Figure 3 (Oblique View Showing Suspected Fill Wedge Location). Based on our understanding of the proposed improvements, the future tank will be located all on cut outside of the limits of the undocumented fill wedge.		
Detention Basin Stormwater	A shallow basin on the order of 1 to 2 feet deep is proposed on the southwest side of the site. The basin will be used as an energy dissipater to slow down storm runoff and permit sediments to settle out prior to discharge down the slope. The basin will be excavated into the weathered bedrock. From a geotechnical perspective, this basin may be constructed as proposed, provided it is not designed for infiltration and appropriate erosion control such as rip rap is installed, regularly inspected, and maintained.		
	The weathered granodiorite is susceptible to erosion due to the granular characteristics; where drainage paths are permitted overland, erosion prevention will need to be considered.		
General Information	This report shall be reviewed by the design team and contractor in its entirety.		

#### 8.0 DESIGN RECOMMENDATIONS

#### 8.1 SEISMIC DESIGN PARAMETERS

Seismic design parameters are based on the provisions listed under the 2018 IBC. Based on mapped geology, and our understanding of the subsurface conditions at the site, a Site Class C can be used for the project design. Table 4 (Seismic Design Parameters (2018 IBC)) provides a summary of seismic design parameters for a Site Classification of C. A copy of the Seismic Hazards Report is provided in Appendix C.

Table 4: Seismic Design Parameters (2018 IBC)			
Approximate Latitude of Site 39.6472°			
Approximate Longitude of Site -119.826		-119.8269°	
Site Class Selected for this Site C		С	
Risk Category IV		IV	
Туре	Description	Value	
Ss	Spectral Response Acceleration at Short Period (0.2 sec.)	1.456	
S <sub>1</sub>	Spectral Response Acceleration at 1-second Period	0.495	
Fa	Site amplification factor at Short Period (0.2 sec.)	1.200	
Fv	Site amplification factor at 1-second Period	1.500	
S <sub>DS</sub>	Design Spectral Response Acceleration at Short Period (0.2 sec.) 1.165		
S <sub>D1</sub>	Design Spectral Response Acceleration at 1-second Period 0.495		
S <sub>MS</sub>	Site-modified spectral acceleration value at Short Period (0.2 sec.) 1.747		
S <sub>M1</sub>	Site-modified spectral acceleration value at 1-second Period         0.742		
TL	Long-period transition period in seconds	6	
PGA	PGA         MCE <sub>G</sub> peak ground acceleration         0.619		
PGA <sub>M</sub>	Site modified peak ground acceleration 0.743		
2. See	ASCE 7-16 Section 11.4.4, F <sub>a</sub> shall not be less than 1.2. e requirements for Site Specific Ground Motions in Section 11.4.8 of ASCE 7. ference https://seismicmaps.org/		



#### 8.2 FOUNDATION DESIGN

The proposed water tank will be supported using a concrete ring wall foundation with granular infill. Based on the assumed structural loading, proposed structure type, and soil conditions encountered during the subsurface exploration, foundation design parameters presented in Table 5 (Allowable Bearing Pressure) are recommended for project design.

Table 5: Allowable Bearing Pressure				
Allowable Bearing Pressures (psf)				
Footings bottomed at least 2 feet <sup>(3)</sup> below the proposed finished grade elevation on weathered granitic bedrock 4,500				
Allowable Friction Coefficient:				
Foi	For foundations bottomed on weathered granitic bedrock 0.48			
Allowable Passive Soil Pressure (psf/ft)				
Bac	Backfill soils consisting of compacted structural fill 300			
NOTES:				
1.	(psf)-Pounds per square foot			
2.	The allowable bearing pressure may be increased by one-third for total loa forces (2018 IBC). The allowable bearing pressure is a net value; therefore below grade and backfill may be neglected when computing dead loads.	, the weight of the foundation which extends		

- minimum FOS of 3.0 against bearing failure. 3. Based on a minimum foundation width of  $1\frac{1}{2}$  feet.
- 4. For frost protection, footings shall be bottomed at least 2 feet below adjacent exterior grade.
- 5. The passive earth pressure shall be used as a triangular distribution. The frictional resistance and passive earth pressure provided in the table are "allowable" and may be used in combination without reduction as a factor of safety of 1.5 is included.
- 6. Assumes stem-wall backfill is compacted to at least 90 percent relative compaction (ASTM D1557).
- 7. The material within the frost zone should be neglected when designing for passive pressure. Where sloping backfill will be used near foundations, the design engineer shall contact the geotechnical engineer for additional recommendations.
- 8. The bottom of all foundation excavations shall be free of ponded or standing water, frost, and loose or sloughing materials.

#### 8.2.1 SETTLEMENT

Based on the subsurface conditions encountered during the subsurface exploration, an immediate (short term) settlement response is expected. The following estimated settlement is based on the assumption the tank structure foundations are founded on cut.

Immediate Settlement Response	Immediate total settlement is estimated to be on the order of 1-inch or less is anticipated to occur during construction after total structural loading has been applied.	
Differential Settlement	Provided recommendations in this report are followed, differential settlement for foundations with similar loads is anticipated to be about $\frac{1}{2}$ of the total settlement provided the foundations are all bottomed on similar material (e.g., all on suitable native material or properly compacted structural fill).	



#### 8.3 **RETAINING WALL LATERAL EARTH PRESSURES**

Static lateral earth pressures on retaining walls are dependent on the relative rigidity, allowable movement of the retaining structure, strength properties of the backfill soil, and drainage conditions behind the retaining wall. The lateral earth pressure is strongly dependent on the lateral deformations which occur in the soil.

A restrained retaining wall (i.e., displacement not permitted) will experience higher lateral earth pressures than a retaining wall that is free to move (cantilever conditions). The restrained retaining wall lateral earth pressure is based on the at-rest soil coefficient (K<sub>o</sub>), and lateral earth pressure values for the retaining wall that is free to rotate with the ability to deflect at the top (wall movement greater than 0.001H for cohesionless soils and greater than 0.01H for cohesive soils) are based on active soil coefficient ( $K_a$ ).

The proposed northern retaining wall will be used to retain a bedrock slope (i.e., cut slope). The bedrock material is generally consistent with a moderately to strongly cemented granular soil. Based on our understanding the proposed wall types, an active earth pressure condition will be applicable for design and construction for this project. Lateral active earth pressure values for both cut and fill slopes are presented in Table 6 (Lateral Earth Pressures).

Table 6: Lateral Earth Pressures				
E	Earth Pressure Condition	Backfill Slope	Active Earth Pressure Coefficient (K <sub>a</sub> )	Equivalent Fluid Density (psf/ft)
ut pe	Active (D)	Level	0.23	32
Active (Pa)	Active (Fa)	2.5H:1V	0.27	38
Fill Slope and Stem-wall Vctive (Pa)	Level	0.28	35	
	Active (P <sub>a</sub> )	3H:1V	0.33	41
NOTES	Pounds per square foot p	per foot of depth	pot of depth 6. <u>Cut Slopes:</u> Assuming maximum unit weight of 14 pcf and a soil friction angle of at least 39 degree	
2.			the Retained backfill w of-wall drainage a	vill consist of a thin wedge of back- and densified structural fill with a
•			man me retained height abutted	

- 3 Does not include surcharge loading.
- 4. Assumes no dynamic loading.
- For active earth pressure, wall must rotate about 5. base away from the retained soil to mobilize. Lateral movements of about 0.001 H, where H is wall height will be required for design of active earth pressure condition.
- against weathered bedrock. The value provided does not include cohesion.
- Fill Slopes or Stem-wall Design: Assuming maximum 7 unit weight of 125 pcf and a soil friction angle of at least 34 degrees. Retained backfill shall consist of densified structural fill extending laterally a distance equal to the height of the retaining wall.

Subterranean structures and short retaining walls, including foundations, shall be designed to resist the lateral earth pressure exerted by the retained soil plus any additional lateral force that will be applied to the wall due to surcharge loads placed at or near the wall.



#### 8.4 PERMANENT SLOPES

In general, the site grading modifications are anticipated to consist of partial trimming of the existing cut slope with no modification to the existing fill slopes. The following provides general guidance for new slope construction.

Permanent Cut Slopes	The existing permanent cut slope northeastern of the existing water tank is on the order of 2.5H:1V. It is understood that the proposed site grading will include a small area of trimming. The base of the new graded area of the cut slope will be retained by a segmented retaining wall. The top of slope will generally be left in place and untouched. At the time of our subsurface investigation, no visible erosional concerns were noted. Care should be taken during grading to limit the potential for concentrated flows from undercutting the base or eroding the top of slope. Establishment of vegetation for erosion control purposes along the bedrock surface may be difficult, CME recommends an erosion control specialist be consulted where revegetation is proposed. Maintenance planning shall include considerations should include annual or semiannual inspections to address erosion concerns over the lifetime of the project.
Permanent Fill Slopes	In general, permanent fill slopes less than 20 feet total height will be stable at a 2H:1V or flatter. For planning purposes, permanent fill slopes on the order of 3H:1V or flatter are better suited for applications where the use of vegetation is the proposed method of erosion control and for maintenance purposes.
Erosion Prevention	To prevent erosion of the slope face, site grading shall be performed such that water collected from the tank pad is not permitted to drain directly over the slope face. Vegetation or hydroseeding applications may be suitable for cut and fill slopes with permanent slope angles on the order of 3H:1V or flatter. Riprap or other mechanical means may be required for 2.5H:1V slopes. For slopes steeper than 2H:1V, an erosion control specialist should be consulted.

### 9.0 CONSTRUCTION RECOMMENDATIONS

### 9.1 SITE PREPARATION

### 9.1.1 CLEARING AND GRUBBING

The ground surface is generally devoid of vegetation in the proposed improvement area. If present, surface vegetation, duff, and topsoil shall be stripped and grubbed prior to initiating fill placement or construction activities. Surface vegetation shall be disposed of outside the construction limits of the site.

### 9.1.2 SUBGRADE PREPARATION

Subgrade material is anticipated to consist of decomposed bedrock complying with the designation of a granular soil, or moderately to slightly weathered bedrock<sup>1</sup>. Clay and/or fine-grained soil is not anticipated to be encountered during construction.

All areas to receive structural fill, aggregate base, or structural loading shall be prepared in general accordance with the following recommendations:

Weathered Bedrock	Scarification of moderately to slightly weathered bedrock (i.e., non-soil conforming material) is not required. Excavations in weathered bedrock may result in an irregular surface. It is recommended that the contractor attempt to remove these undulations, where possible, to create a flat surface.							
edrock	Residual soils and decomposed bedrock shall be scarified, moisture conditioned, and densified to at least 90 percent relative compaction (ASTM D1557). Moisture conditioning and scarification depth will be dependent on the soil type:							
Residual Soil and Decomposed Bedrock	<ul> <li>Granular soils shall be scarified to a minimum depth of 6 inches and moisture conditioned, if required, prior to densification. It is recommended that these soils have moisture contents of plus or minus 2 percent of optimum moisture (ASTM D1557) prior to densification. Moisture contents above 3 percent of optimum moisture will be acceptable if the soil horizon maintains its stability when subjected to construction equipment loads and density can be achieved in subsequent structural fill lifts.</li> </ul>							
] pr	Densification of the soil will be dependent on soil type:							
Soil aı	<ul> <li>Granular soils are not considered cohesive and the particles generally require shaking or vibratory action (i.e., smooth drum roller) for densification.</li> </ul>							
Residual	• To determine if oversaturated subgrade materials have a potential for pumping, proof- rolling with heavy rubber-tired construction equipment such as a fully loaded water truck is recommended. Pumping or soft areas shall be over excavated and replaced with densified structural fill.							

### 9.1.3 WATER TANK FOUNDATION GRADE PREPARATION

Foundation grade preparation shall be performed in accordance with Section 9.1.2. The water tank foundations will be bottomed on bedrock and may be poured neat. If bedrock protrusions are present, protrusion shall be overcut and the resulting void filled with concrete.

<sup>&</sup>lt;sup>1</sup> Bedrock material which is generally solid and tightly bound, moderately hard, not friable, with little to no residual soil development.

### 9.2 MASS GRADING

### 9.2.1 REUSE OF EXISTING SITE SOILS

In general, a majority of the soil and weathered bedrock encountered will meet the definition of a granular soil provided bedrock fragments are broken down sufficiently (i.e., no friable or decomposing chunks permitted) and oversized (>4-inches) fragments are removed. Material not meeting the requirements of a granular soil may be placed as nonstructural fill. Guideline requirements for reuse of existing onsite material are summarized below:

Nonstructural Fill Oversized particles (i.e., >4- inches nominal diameter) and friable/decomposing bedrock fragments which may break down over time	Materials not meeting the requirements of a granular soil shall not be reused in structural areas (refer to 7.1 General Information). Nonstructural fill may be stockpiled onsite and reused in landscape or non-structural areas. Alternatively, this material may be hauled off site and disposed of in an approved location. Care shall be taken not to mix non-structural fill with the onsite granular fill material. Nonstructural fill shall be free of construction debris and/or hazardous materials; and shall not be incorporated into structural fill, or permitted to be located within the 1H:1V (horizontal: vertical) zone influence of structural areas.
Structural Fill Granular soil or imported structural fill	Soil meeting the requirements of a granular soil (refer to Section 7.1 General Information) free of deleterious and oversized materials, shall be stockpiled onsite for reuse in structural areas.

Stockpile areas shall be protected from erosion and runoff. Temporary erosion control measures shall be implemented during project construction.



### 9.2.2 STRUCTURAL FILL

Material generated onsite that is proposed for reuse as structural fill shall meet the requirements of a granular soil as defined in Section 7.1 (General Information). Structural fill shall be free of vegetation, organic matter, and other deleterious material. Imported structural fill, if required, shall comply with the specifications presented in Table 7 (Guideline Specification for Imported Structural Fill).

Table 7: Guideline Specification for Imported Structural Fill							
Sieve Size		Percent by Dry Weight Passing					
4-inches		100					
³¼ inch		70 – 100					
No. 40		15 – 65					
Percent Passing No. 200	Maximum Liquid Limit		Maximum Plastic Index				
5 – 15	4	5 14					
16 – 35	4	0	10				
R-Value (Traffic Areas Only)	Water Soluble Sulfate (SO <sub>4</sub> ) in Soil (%) by Mass		Organic Content (ASTM D2974) (%)				
30	<(	).2	<3%				

NOTES:

1. R-Value is required for materials placed in roadways or areas to receive vehicular traffic only. Not required for building foundations or ancillary improvements outside of traffic areas.

2. Water Soluble Sulfate required where structural fill will be located adjacent to, above, or in direct contact with concrete elements. Please contact the project geotechnical engineer for additional guidance.

Structural fill shall be placed in maximum 8-inch thick (loose) level lifts or layers and densified to at least 90 percent relative compaction. The required moisture content of the soils, prior to densification, shall range between plus or minus 2 percent of optimum moisture, as determined by moisture-density relationship test results (ASTM D1557). Moisture contents greater than 2 percent of optimum moisture are acceptable if the soil lift is stable and required relative compaction can be attained in the soil lift and succeeding soil lifts. Grading should not be performed with frozen soils or on frozen soils.



### 9.3 EXCAVATIONS

### 9.3.1 EXCAVATION DIFFICULTY

It is anticipated that a majority of the trenching and confined excavations will have a depth on the order of 5 feet or less and may be performed using conventional excavation equipment such as a large trackhoe (45 tons). The excavation contractor shall consider the use of twin tiger ripper teeth or other ripper teeth attachments. In addition, pneumatic hammer maybe required to remove resistant zones of bedrock as described in this report.

Based on the anticipated depth of installation, smaller equipment such as a backhoe or mini excavator are not recommended or advised for use as refusal may be encountered at depths less than the proposed depth of installation. It is the contractor's responsibility to provide properly sized equipment to accommodate excavations within weathered bedrock.

### 9.3.2 TRENCH STABILITY

Excavations performed in weathered bedrock are expected to stand near vertical; if excavations extending into the existing fill wedge are proposed, caving or sloughing should be expected.

In areas where temporary confined excavations may be unstable, trench boxes or trench shields may be used to provide safe ingress and egress for construction personnel. It should be noted that trench shields are not designed to prevent lateral movement of the trench sidewall and are used for protection of field personnel from cave-ins. Alternative methods for shoring may be required if trench excavations intercept the theoretical loading path for structural elements (i.e., 1H: 1V (horizontal: vertical)) such as foundations, retaining walls, tanks, or other structures exerting load on the underlying soils.

Regulations amended in OSHA Part 1926, Volume 54, Number 209 of the Federal Register (Table B-1, October 31, 1989) requires that the temporary sidewall slopes be no greater than those presented in Table 8 (Maximum Allowable Temporary Slopes).

Table 8: Maximum Allowable Temporary Slopes							
Soil or Rock Type Maximum Allowable Slopes <sup>1</sup> for Excavations (< 20 Feet) <sup>2</sup>							
Stable Rock	Vertical	90°					
Туре А	3H:4V	53°					
Туре В	1H:1V	45°					
Туре С	3H:2V	34°					
NOTES:							

1. Angles are expressed in degrees from the horizontal and have been rounded off.

 Sloping or benching for excavations greater than 20 feet deep shall be designed by a registered professional engineer.

3. For detailed description of the soil types outlined above visit the US Department of Labor Safety and Health Topics website at: https://www.osha.gov/SLTC/trenchingexcavation/construction.html

All excavations regardless of depth shall be evaluated to check the stability prior to occupation by construction personnel. Trenching and confined excavations within the bedrock are anticipated to comply with Stable Rock or Type A conditions and will be dependent on the depth and weathering patterns of the bedrock encountered. Excavations extending into the fill wedge may comply with Type C conditions.

Trench excavations shall be protected from surface water/runoff. Temporary drainage swales may be excavated to divert surface flows into a collection area away from the open excavation. Bank stability will remain the responsibility of the contractor present at the site, who is able to observe changes in ground conditions, and has control over the means and method of construction.



### 9.4 SITE DRAINAGE

The project site will be subjected to seasonal runoff. Adequate surface drainage shall be constructed and maintained to convey the water away from proposed structures. The permanent finished slope grade away from the structure shall be at least 2 percent for a minimum distance of 10 feet away from the structure. It is recommended that all runoff is collected within permanent drainage paths away from the structure and existing slope faces.

To limit the potential for moisture migration into the backfill adjacent to foundation stem walls, CME recommends that stem wall and foundation backfill is compacted to at least 90 percent relative compaction.

### 9.5 CORROSION CONSIDERATIONS

### 9.5.1 CONCRETE

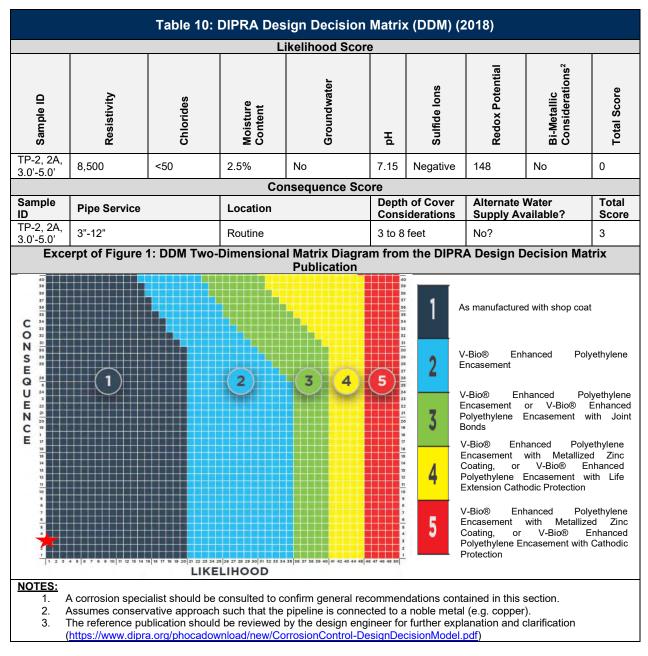
Many external sources can affect the potential for sulfate attack against concrete ranging from soil type, marine/wetland environments, to deicing and industrial conditions. The American Concrete Institute (ACI) Committee 201 and ACI 318-14 have established guidelines for determining the potential for sulfate attack from external sources. Table 9 (General Guideline Requirements for Concrete Subject to Sulfate Exposure) has been developed to provide the design engineer with guideline recommendations for cement type based on the severity of potential sulfate exposure associated with the tested soils encountered during the current exploration.

Tabl	Table 9: General Guideline Requirements for Concrete Subject to Sulfate Exposure									
Severity of Potential Exposure	Water Soluble Sulfate (SO4) in soil (%) by mass	Sulfate (SO₄) in water (ppm)	Maximum Water Cementitious Materials Ratio	Cementitious Material Requirements						
S0 (negligible)	SO <sub>4</sub> < 0.10	SO4 < 150	No Requirement	No Requirement						
S1 (Moderate)	0.10 < SO <sub>4</sub> < 0.20	150 < SO <sub>4</sub> < 1,500	0.50	ASTM C150 Type II Cement						
S2 (Severe)	0.2 < SO <sub>4</sub> < 2.0	1,500 < SO₄ < 10,000	0.45	ASTM C150 Type V Type I Cement with 20% Class N Pozzolan Type I Cement with 20% Class F Fly Ash						
S3 (Very Severe)	SO4 > 2.0	SO <sub>4</sub> > 10,000	0.40	Refer to ACI 201.2R.16 and ACI 318-14						
NOTES: 1. Table										

The soil tested has a sulfate content of less than 0.10 percent and comply with a severity of potential exposure classification of S0 (negligible). No special requirements are listed under this category; and Type II Cement may be used for project design.

### 9.6 DIPRA CORROSION POTENTIAL SUMMARY FOR BURIED DUCTILE IRON PIPES

Table 10 (DIPRA Design Decision Matrix (DDM) (2018)) summarizes general corrosion coating recommendations for ferrous pipe based on the ductile iron pipe research association (DIPRA) Design Decision Matrix.



Based on the DDM, if ductile iron pipe is considered, as manufactured with shop coat is recommended. A corrosion specialist should be consulted to confirm general recommendations contained in this section.

### 10.0 GENERAL CONSTRUCTION OBSERVATION, TESTING, AND DOCUMENTATION

### **10.1 RELATIVE DENSITY REQUIREMENTS**

The contractor is responsible for reading the site preparation and grading requirements in its entirety. This section is for general reference only and does not cover recommendations for placement and/or site remediation where required.

The following table provides a summary of the minimum relative compaction required for earthwork and site preparation:

	Table 11: Minimum Relative Density for Site Grading								
Material Type	Minimum Relative Density (ASTM D1557) <sup>1</sup>	Geotechnical Report Section Reference							
Subgrade Preparation	90%	Section 9.1.2 Subgrade Preparation							
Structural Fill	90%	Section 9.2.2 Structural Fill							
Retained Backfill	90%	Section 9.2.2 Structural Fill and 8.3 Retaining Wall Lateral Earth Pressures							
Foundation Grade Preparation	90%	Section 9.1.3 Water Tank Foundation Grade Preparation							
NOTES: 1. Relative compaction refers to the ratio percentage of the in-place density of a soil divided by the same soil's maximum dry density as determined by the ASTM D1557 laboratory test procedure. Optimum moisture content is the corresponding moisture content of the same soil at its maximum dry density									

All materials testing completed during construction should be in accordance with local governing standards.



### **10.2 TESTING AND DOCUMENTATION**

The recommendations presented in this report are based on the assumption that the owner/project manager provides sufficient field testing and construction review during all phases of construction. These construction observations and testing services should include but not be limited to:

- Site preparation and grading;
- Foundation grade soil preparation and observation;
- Reinforced concrete inspection and placement; and
- Structural observation and testing services.

CME employs a large staff of certified inspectors and testers to provide these services. Prior to construction, the owner/project manager should schedule a preconstruction conference to include, but not be limited to: owner/project manager, project engineer, general contractor, earthwork and materials subcontractors, and geotechnical engineer. It is the owner's/project manager's responsibility to set-up this meeting and contact all responsible parties. The conference will allow parties to review the project plans, specifications, and recommendations presented in this report, and discuss applicable material quality and mix design requirements. All quality control reports should be submitted to the owner/project manager for review and distributed to the appropriate parties.

Additionally, all plans and specifications should be reviewed by the engineer responsible for this geotechnical report to determine if they have been completed in accordance with the recommendations contained herein. It is the owner's/project manager's responsibility to provide the plans and specifications to the geotechnical engineer



### 11.0 LIMITATIONS

Exploration Location and Geologic Variations	<ul> <li>This report has been prepared in accordance with generally accepted local geotechnical practices. The conclusions and recommendations of this report are provided for the design and construction of the proposed project as described in this report. The analyses and recommendations contained herein are based upon field exploration locations included on Plate A-1.</li> <li>Exploration locations included as part of this report should be considered accurate only to the degree implied by the methods used. This report does not reflect soil, rock, or groundwater variations that may become evident during the construction period, at which time re-evaluation of the recommendations may be necessary.</li> </ul>
General Intent and Information Distribution	<ul> <li>The intent of this report is to provide geotechnical information related to construction and design of the project. The owner/project manager is responsible for distribution of this report to all designers and contractors whose work is affected by geotechnical recommendations provided. In the event of changes in the design, location, or ownership of the project prior to construction, our recommendations should be reviewed by our geotechnical representative.</li> <li>If our engineer is not accorded the privilege of making this recommended review, the CME can assume no responsibility for misinterpretation or misapplication of bis reports and the project prior to construction.</li> </ul>
Warranties	<ul> <li>his recommendations or their validity in the event changes have been made in the original design concept without our prior review.</li> <li>CME makes no other warranties, either expressed or implied, as to the professional advice provided under the terms of this agreement and included in this report. Any use, reliance on, or decisions, which a third party makes based upon the information contained in this report, are the sole responsibility of such third parties. CME accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.</li> </ul>
Clay Soil	<ul> <li>Clay soils may be present in discontinuous areas below the proposed improvements. Clay soils may potentially shrink or swell (volume changes) in response to changes in the moisture content of the soil. Moisture changes in these soils can occur as a result of seasonal variations in precipitation, poor site drainage, landscape irrigation, leaking underground pipes, capillary action, or from other sources. Volume changes in clay soils can cause differential movements in structural elements constructed in the sphere of influence or bearing on the clay soil. The project geotechnical engineer shall be notified where questionable soils are encountered.</li> </ul>
Standard Owner Maintenance and Monitoring Responsibility	• All structures are subjected to deterioration from environmental and manmade exposures. As a result, all structures require frequent monitoring and regular maintenance to prevent damage and/or deterioration. Such monitoring and maintenance are the sole responsibility of the Owner. CME, Inc. shall have no responsibility for such issues or resulting damages.
Environmental Hazards Evaluation	• Any evaluation of the site for the presence of surface or subsurface hazardous substances is beyond the scope of this study. When suspected hazardous substances are encountered during routine geotechnical investigations, they are noted in the exploration logs and reported to the client.

### **12.0 REFERENCES**

American Concrete Institute (ACI) 318, Building Code Requirements for Structural Concrete.

American Society for Testing and Materials (ASTM), 2014, *Soil and Rock; Dimension Stone; Geosynthetics,* Volume 4.08.

Bowles, J. E., 1996, Foundation Analysis and Design, McGraw Hill.

- Robert Baboian, et. al., Corrosion Tests and Standards, Application and Interpretation, 2<sup>nd</sup> edition, 2006
- ASCE. 2016. Minimum Design Loads for Buildings and Other Structures. ASCE/SEI Standard 7-16

Google Earth aerial photos, Accessed December 2022

International Building Code, 2018

- NRCS Web Soil Survey, accessed December 2022
- AASHTO LRFD Bridge Design Specifications. Washington, D.C.: American Association of State Highway and Transportation Officials, 2017.
- US Army Corps of Engineers, *Engineer Manual 1110-1-1904, Engineering and Design Settlement Analysis*, dated September 30, 1990
- AWWA Standard D100-21, Welded Carbon Steel Tanks for Water Storage, Effective Date, November 1, 2021

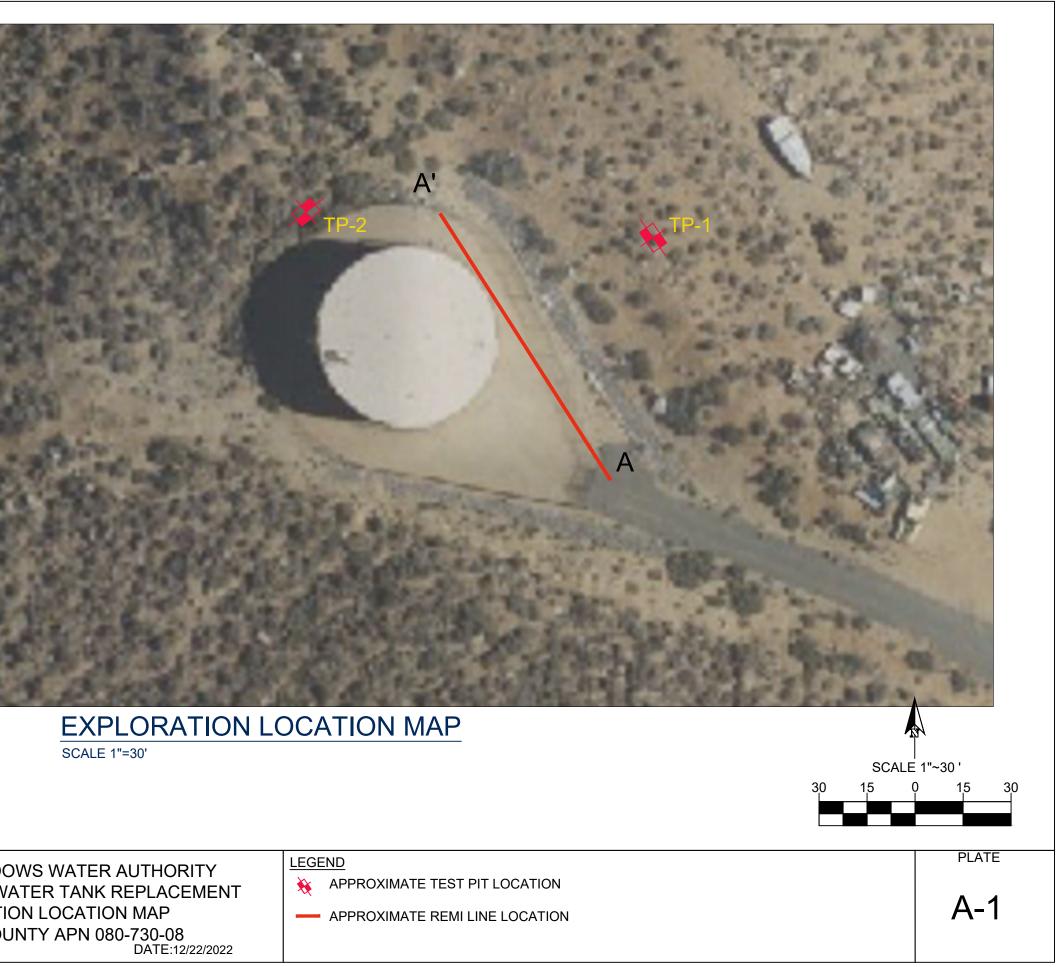


## **APPENDIX A**



 $\oint_{\mathcal{C}} \frac{\text{VICINITY MAP}}{N.T.S}$ STRUCTION CME 300 Sierra Manor Drive, Suite 1 Reno, NV 89511

TRUCKEE MEADOWS WATER AUTHORITY LEMMON VALLEY WATER TANK REPLACEMENT EXPLORATION LOCATION MAP WASHOE COUNTY APN 080-730-08 PROJECT NO.: 3152 DATE:12/22/2022



	LOG OF TEST PIT TP-1																				
PROJ	ECT	NO:	3152				E	EXCAVATION CONTRACTOR: Q&D CONSTRUCTION BEGIN DA						DATE: 12/8/2022							
PROJ	ECT:	LEI	MMO	N VALLE`	Y WA	ATER TANK						COMPL	ETIO	ETION DATE: 12/8/2022							
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									AND TYPE: 2 FEET	, 3-TEET	1	BACKFI									
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### SOIL CLASSIFICATION CHART

A-3

PLATE

		sc	DIL CLA	SSIFIC	ATION CHART
MAJ	OR DIVISI	ONS	SYMI GRAPH	BOLS	TYPICAL CLASSIFICATION NAMES
		Clean		GW	Well-graded gravels, gravel-sand mixtures, few or no fines
Course grained	Gravel and	gravels		GP	Poorly-graded gravels, gravel-sand mixtures, few or no fines
soils	gravelly soils	Gravels		GM	Silty gravels, gravel-sand-silt mixtures
		with fines		GC	Clayey gravels, gravel-sand-clay mixtures
		Clean	• • • •	SW	Well-graded sands, gravelly sands, few or no fines
More than 50% of the material is	Sand and sandy	sands		SP	Poorly-graded sands, gravelly sands, few or no fines
larger than No. 200 sieve size	soils	Sands		SM	Silty sands, sand-silt mixtures
		with fines		SC	Clayey sands, sand-clay mixtures
				ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands with slight plasticity
Fine grained soils		Liquid Limit less than 50		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
	Silts and		$\mathcal{W}$	OL	Organic silts and organic silt-clays of low plasticity
More than	clays	s Liquid		МН	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts
50% of the material is smaller than No. 200 sieve size		Limit greater		СН	Inorganic clays of medium to high plasticity
		than 50	II.	ОН	Organic clays of medium to high plasticity
			<u> </u>	PT	Peat or other highly organic soils
NOTES					

NOTES: 1. Dual classifications may occur (e.g. SP-SM, CL-ML, GP-GC)

PARTICLE ANGULARITY						
Angular	Particles have sharp edges and relatively plane sides with unpolished surfaces					
Subangular	Particles are similar to angular, but have rounded edges					
Subrounded	Particles have nearly plane sides, but have well-rounded corners and edges					
Rounded	Particles have smoothly curved sides and no edges					

PARTICLE SHAPE							
Flat	Particles with width/thickness >3						
Elongated	Particles with length/width >3						
Flat and Elongated	Particles meet criteria for both flat and elongated						

MOISTURE		
Dry	No discernable moisture	
Moist Moisture present, but no free water		
Wet Visible free water		

CEMENTATION		
Weak	Crumbles or breaks with handling or light finger pressure.	
Moderate	Crumbles or breaks with considerable finger pressure.	
Strong	Will not crumble or break with finger pressure.	

PAF	RTICLE	SIZE, Ps			
Boulders	6	Ps > 12"			
Cobbles		3" < Ps ≤ 12"		PFRCF	NT OF SOIL, Pp
	coarse	<u>3</u> " < Ps ≤ 3"			Pp < 5%
Gravel	c	1 3.	10	Trace	Pp < 5%
	fine	<sup>1</sup> / <sub>5</sub> " < Ps ≤ <sup>3</sup> / <sub>4</sub> "	F4( )	Few	5 ≤ Pp ≤ 15%
	coarse	<u>1</u> <sup>"</sup> < Ps ≤ <u>1</u> "	ĸ	Little	15 ≤ Pp ≤ 30%
Sand	medium	<u>1</u> <sup>-</sup>	K°	Some	$30 \le Pp \le 50\%$
	fine	<u>1</u> /300" < Ps ≤ <u>1</u> /64"	K.	Mostly	$50 \le Pp \le 100\%$
Fines	•	Ps ≤ <u>1</u> "	К		

### SOIL SAMPLE TYPES

Bulk Sample



Standard Penetration Test (2.0" OD, 1.42" ID)



California Modified Sampler (3.0" OD, 2.42" ID)



Thin walled Shelby Tube (3.0" OD)

Rock Core

### **GROUNDWATER SYMBOLS**

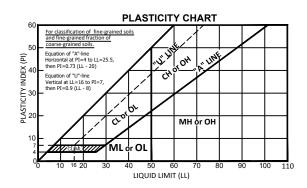


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Water level during drilling

Water level after drilling



APPARENT DENSITY OF COHESIONLESS SOIL		
	SPT (1.4" ID) N <sub>60</sub>	
Very Loose	< 5	
Loose	5 - 10	
Medium Dense	10 - 30	
Dense	30 - 50	
Very Dense	> 50	
Based on 60% energy ratio (ER <sub>i</sub> ). N <sub>60</sub> = N <sub>measured</sub> * (ER <sub>i</sub> /60)		

California Modified Sampler can be corrected to SPT by multiplying by 0.62

CONSISTENCY OF COHESIVE SOIL			
	SPT (1.4"ID) N <sub>60</sub>	Unconfined Compressive Strength (psf)	Pocket Penetrometer (tsf)
Very Soft	0 - 1	< 500	< 0.25
Soft	2 - 4	500 - 1,000	0.25 - 0.5
Medium Stiff	5 - 8	1,000 - 2,000	0.5 - 1.0
Stiff	9 - 15	2,000 - 4,000	1.0 - 2.0
Very Stiff	16 - 30	4,000 - 8,000	2.0 - 4.0
Hard	31 - 60	8,000 - 16,000	> 4.0
Very Hard	> 60	> 16,000	

### CME CONSTRUCTION MATERIALS ENGINEERS, INC.

### **ROCK CLASSIFICATION CHART**

**A-4** 

PLATE

# BEDDING SPACING, Sb Massive 10' < Sb</th> Very Thickly Bedded $3' < Sb \leq 10'$ Thickly Bedded $1' < Sb \leq 3'$ Moderately Bedded $4" < Sb \leq 1'$ Thinkly Bedded $4" < Sb \leq 1'$ Thinkly Bedded $1' < Sb \leq 1''$ Laminated $Sb \leq \frac{1}{4}"$

	ROCK HARDNESS
Extremely Hard	Cannot be scratched with a pocketknife or sharp pick. Can only be chipped with repeated heavy hammer blows.
Very Hard	Cannot be scratched with a pocketknife or sharp pick. Breaks with repeated heavy hammer blows.
Hard	Can be scratched with a pocketknife or sharp pick with difficulty (heavy pressure). Breaks with heavy hammer blows.
Moderately Hard	Can be scratched with a pocketknife or sharp pick with light or moderate pressure. Breaks with moderate hammer blows.
Moderately Soft	Can be grooved 1/16 in. deep with a pocketknife or sharp pick with moderate or heavy pressure. Breaks with light hammer blow or heavy manual pressure.
Soft	Can be grooved or gouged easily with a pocketknife or sharp pick with light pressure, can be scratched with fingernail. Breaks with light to moderate manual pressure.
Very Soft	Can be readily indented, grooved or gouged with fingernail, or carved with a pocketknife. Breaks with light manual pressure.

WEATHERING FOR INTACT ROCK						
	Diagnostic Features					
Description	Chemical weathering-discolora oxidation	Mechanical weathering- grain	Texture and leaching		General Characteristics	
	Body of rock	Fracture surfaces	boundary conditions	Texture	Leaching	
Fresh	No discoleration, not oxidized.	No discoloratio n or oxidation.	No separation, intact (tight).	No change	No leaching	Hammer rings when crystalline rocks are struck.
Slightly Weathered	Discoloration or oxidation is limited to surface of, or short distance from, fractures; some feldspar crystals are dull.	Minor to complete discoloratio n or oxidation of most surfaces.	No visible separation, intact (tight).	Preserved	Preserved	Hammer rings when crystalline rocks are stuck. Body of rock not weakened.
Moderately Weathered	Discoloration or oxidation extends from fractures usually throughout; Fe-Mg minerals are "rusty" feldspar crystals are "cloudy".	are	separation of boundaries	Generally preserved	Generally preserved	Hammer does not ring when rock is struck. Body of rock is slightly weakened.
Intensely Weather	Discoloration or oxidation throughout; all feldspars and Fe-Mg minerals are altered to clay to some extent; or chemical alteration produces in situ disaggregation, see grain boundary conditions.	All fracture surfaces are discolored or oxidized, surfaces friable.	rock is friable; in semiarid	Texture altered by chemical disintegratio n (hydration, argillation).	Leaching of soluble minerals may be complete.	Dull sound when struck with hammer, usually can be broken with moderate to heavy manual pressure or by light hammer blow without reference to planes of weakness such as incipient or hairline fractures, or veinlets.
Decomposed	Discolored or oxidized throughout, but resistant minerals such as quartz may be unaltered; all feldspars and Fe-Mg minerals are completely altered to clay.		Complete separation of grain boundaries (disaggregat ed).	Resembles a partial or cor remnant rock may be pres leaching of s minerals usu complete.	nplete k structure erved; oluble	Can be granulated by hand. Resistant minerals such as quartz may be present as "stringers" or "dikes."

### CORE RECOVERY

The core recovery value (REC) provides an indication of the success of the coring operation in recovering the cored rock. Diminished core recovery can be attributed to voids within the rock mass or loss of rock mass due to drilling fluids.

 $REC = \frac{\sum (Length of recovered core pieces)(100\%)}{\text{Total length of the core run}}$ 

#### ROCK QUALITY DESIGNATION

Rock Quality Designation is a measure of the fracturing in a rock mass as observed in a core specimen. A high value of RQD indicates few or widely spaced fractures. RQD is valid for core diameters from 1.4 to 3.335 inches. RQD is based on ASTM D6032.

 $REC = \frac{\sum(Length of intact core pieces \ge 4 \text{ inches})(100\%)}{\text{Total length of the core run}}$ 

FRACTURE DENSITY		
Unfractured	No fractures.	
Very Slightly Fractured	Core lengths greater than 3 ft.	
Slightly Fractured	Core lengths mostly from 1 to 3 ft.	
Moderately Fractured	Core lengths mostly from 4 in. to 1 ft.	
Intensely Fractures	Core lengths mostly from 1 to 4 in.	
Very Intensely Fractured Mostly chips and fragments.		
Note: exclude mechanical breaks		

FRACTURE FILLING, FF		
Clean	No visible separation	
Very Thin	FF < 1/32"	
Moderately Thin	$\frac{1}{32}$ " $\leq$ FF $<\frac{1}{8}$ "	
Thin	<u>1</u> " ≤ FF < 8 <sup>*</sup>	
Moderately Thick	<sup>3</sup> / <sub>8</sub> " ≤ FF < 1"	
Thick	1" ≤ FW	

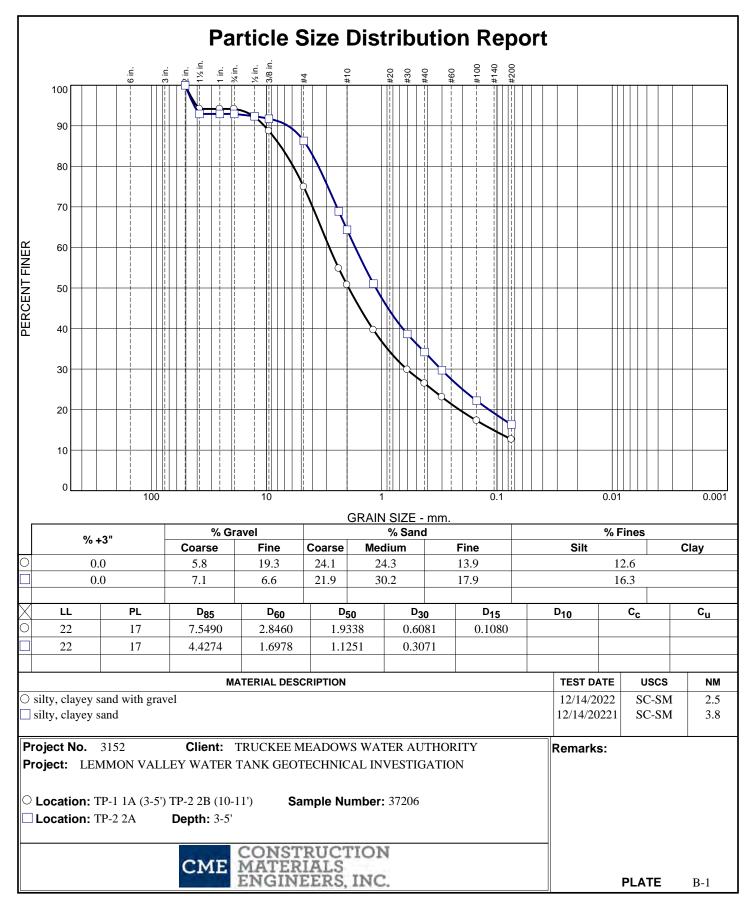
FRACTURE HEALING		
Totally Healed	Fracture is completely healed or recemented to a degree at least as hard as surrounding rock.	
Moderately Healed	Greater than 50 percent of fracture is healed or recemented.	
Partly Healed	Less than 50 percent of fractured material, filling, or fracture surface is healed or recemented	
Not Healed	Fracture surface filling is not healed or recemented.	

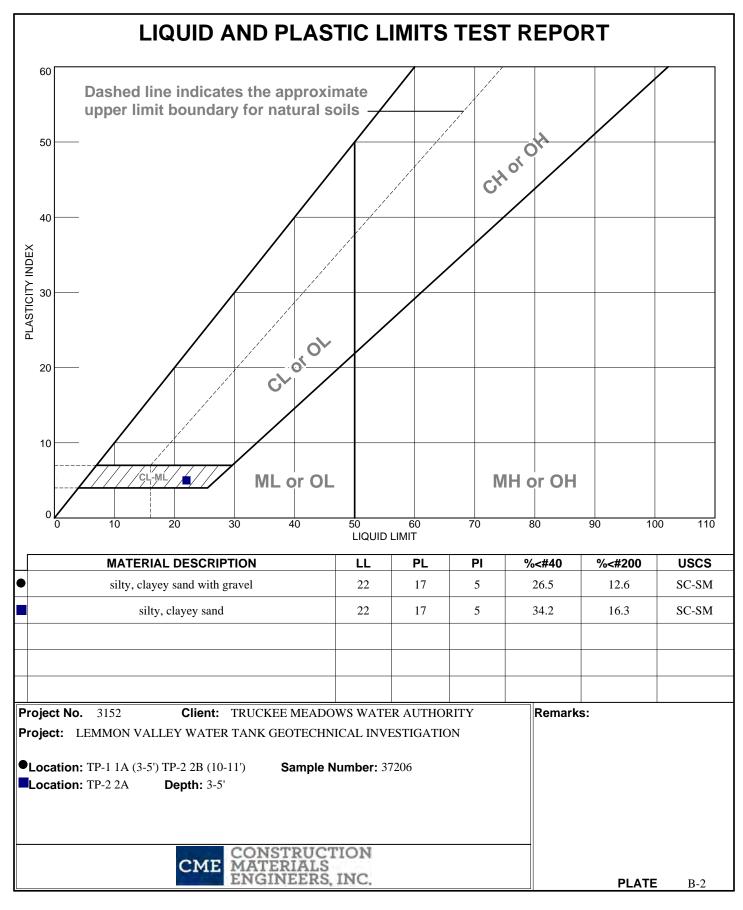
FRACTURE ROUGHNESS		
Stepped	Near-normal steps and ridges occur on the fracture surface.	
Rough	Large, angular asperities can be seen.	
Moderately Rough	Asperities are clearly visible and fracture surface feels abrasive.	
Slightly Rough	Small asperities on the fracture surface are visible and can be felt.	
Smooth	No asperities, smooth to the touch.	

ROCK STRENGTH		
Plastic	Plastic or very low strength	
Friable	Crumbles easily by rubbing with fingers	
Weak	An unfractured specimen will crumble under light hammer blows	
Moderately Strong	Specimen will withstand a few heavy hammer blows before breaking	
Strong	Specimen will withstand a few heavy ringing hammer blows and will yield with difficulty only dust and small flying pieces	
Very Srong	Specimen will resist heavy ringing hammer blows and will yield with difficulty dust and small flying fragments	

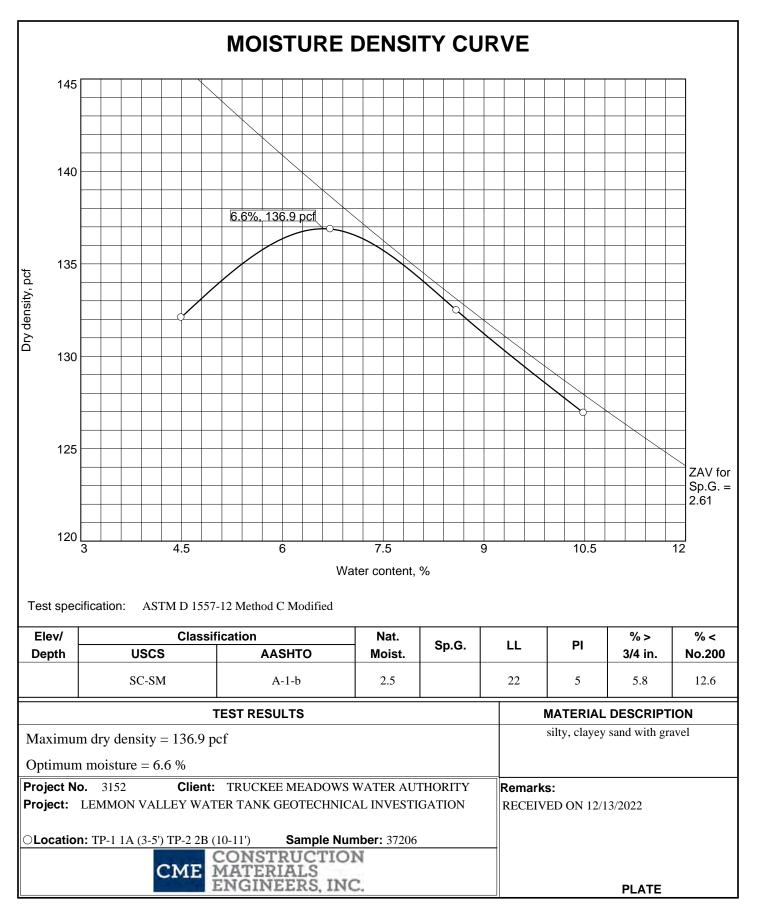
## **APPENDIX B**

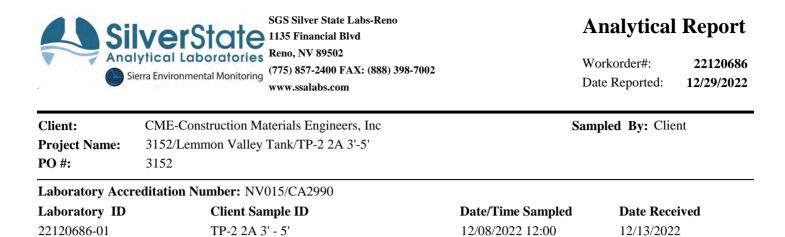






Checked By: HB





Parameter	Method	Result	Units	PQL	Analyst	Date/Time Analyzed	Data Flag
Chloride	EPA 9056	<50	mg/Kg	50	SR	12/28/2022 22:24	
Oxidation-Reduction Potential	SM 2580B	148	mV		AC	12/20/2022 9:14	
рН	SW-846 9045D	7.15	pH Units		AC	12/28/2022 9:16	
pH Temperature	SW-846 9045D	20.0	°C		AC	12/28/2022 9:16	
Resistivity	EPA 120.1	8500	Ohms-cm		AC	12/27/2022 14:15	
Sulfate	ASTM 1580C	< 0.02	%	0.02	AC	12/28/2022 9:18	
Sulfide	AWWA C105	Negative	POS/NEG		AC	12/27/2022 16:08	

<b>C</b> Silv	ver	Stc		5 Silver State 5 Financial B		no		Qua	lity	Con	trol	Report
Analy	tical Lo ra Environn	aborat	nitoring (775	o, NV 89502 5) 857-2400 F w.ssalabs.con		) 398-70(	02			WO		22120686 12/29/2022
	idation- 1 2580B		on Potentia	al, Soil				Ba	atch ID	: R74	1003	
	Duplica	ate										
RunID: 74003	SeqNo	18960	19 Un	its: mV								
Analysis Date: 12/20/2	2022 9:14	:00 AM	An	alyst: AC								
Analyte		Result	t Rep Lin	nit Rep Qu	al R	RPD	Sample Val	ue				
Oxidation-Reduction Po	otential	14	46		0.04	468227		153				
Laborator RunID: 74003 Analysis Date: 12/20/2	SeqNo	18960	17 Un	its: mV alyst: AC								
Analyte	5	LCS Spike Added	LCS Result	LCS % Recovery	LCSD Spike Added	LCSD Result	LCSD % Recovery	RPD	RPD Limit	Low Limit	High Limit	Qual
Oxidation-Reduction Potential		439.0	445	101	]						1	
	ASTE pH V-846 90 Duplica SegNo	)45D	56 Un	its: pH Ur	nits			Ba	atch ID	: R74	1228	
Analysis Date: 12/28/2	•			alyst: AC								
Analyte		Result	t Rep Lin	nit Rep Qu	al R	PD	Sample Val	ue				
pН		7.1	18		0.0	041870	-	7.15				
pH Temperature		20	).0			0		20				
Laborator RunID: 74228 Analysis Date: 12/28/2 Analyte	SeqNo 2022 9:16	0 19022 :00 AM	54 Un	alyst: AC	LCSD Spike Added	LCSD Result	LCSD % Recovery	RPD	RPD Limit	Low Limit	High Limit	
pН		7.020	7.02	100								
Analysis: W	STM 158 <mark>y Control</mark>	ıble Suli 30C	fate-ASTN 9 (LCS)	I (SO4)				Ba	atch ID	: R74	1229	
Analysis Date: 12/28/2	2022 9:18	:00 AM	An	alyst: AC								
Analyte	5	Spike Added	LCS Result	Recovery	LCSD Spike Added	LCSD Result	LCSD % Recovery	RPD	RPD Limit	Low Limit	High Limit	
Sulfate	Τ	25.00	27.1	108								
Original												



### **Quality Control Report**

R74302

**Batch ID:** 

WO#: 22120686 12/29/2022

www.ssalabs.com

Analysis:		Anions 30	0.	0 Solid							
Meth	od:	EPA 9056	)								
Method Blank											
RunID:	7430	2 SeqN	0	1904349	Units:	mg/Kg					
Analysis	Date:	12/3/2021 8:08	:07	7 PM	Analys	st: SR					
	Analyte Result Rep Limit Rep Qual										
Chloride				< 0.50	0.50						

### Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked: 22120940-01A

RunID: 74302 SeqNo 1904432 Units: mg/Kg

Analysis Date: 12/29/2022 12:44:38 AM Analyst: SR

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit	Qual
Chloride	0	1000	990	99.4	1000	1000	100	0.806	20	90	110	

### Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked: 22120940-01A

RunID: 74302 SeqNo 1904433 Units: mg/Kg

Analysis Date: 12/29/2022 1:12:43 AM Analyst: SR

Analyte	Sample Result	_		MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit	Qual
Chloride	0	1000	1000	100								



### **Definitions & Qualifiers**

WO#: **22120686** Date: **12/29/2022** 

### Definitions:

LCS: Laboratory Control Sample; prepared by adding a known mass of target analytes to a specified amount of de-ionized water and prepared with the batch of samples, used to calculate Accuracy (%REC).

LCSD: LCS Duplicate; used to calculate both Accuracy (%REC) and Precision (%RPD)

MBLK: Method Blank; a sample of similar matrix that is processed simultaneously with and under the same conditions as samples through all steps of the analytical procedure, and in which no target analytes or interferences are present at concentrations that impact the analytical results for sample analyses.

MS: Matrix Spike; prepared by adding a known mass of target analytes to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available, used to calculate Accuracy (%REC)

MSD: Matrix Spike Duplicate; used to calculate both Accuracy (%REC) and Precision (%RPD)

RPD: Relative Percent Difference; comparison between sample and duplicate and/or MS and MSD.

PQL: Practical Quantitation Limit; the limit to which data is quantitated for reporting.

MDL: Method Detection Limit; the limit to which the instrument can reliably detect.

MCL: Maximum Contaminant Level; value set according to EPA guidelines.

Qualifiers:

- \* Analyte exceeds Safe Drinking Water Act MCL, does not meet drinking water standards.
- C Analyte value below Safe Drinking Water Act MCL, does not meet drinking water standards.
- B Analyte found above the PQL in associated method blank.
- G Calibration blank analyte detected above PQL.
- H Sample analyzed beyond holding time for this parameter.
- J Estimated Value; Analyte found between MDL and PQL limits.
- L Sample concentration is at least 5 times greater than spike contribution. Spike recovery criteria do not apply.
- R RPD between sample and duplicate sample outside the RPD acceptance limits.
- S Batch MS and/or MSD were outside acceptance limits, batch LCS was acceptable.
- W Sample temperature when recieved was out of limit as specified by method.
- Z Batch LCS and/or LCSD were outside acceptance limits.

## **APPENDIX C**





### ASCE 7 Hazards Report

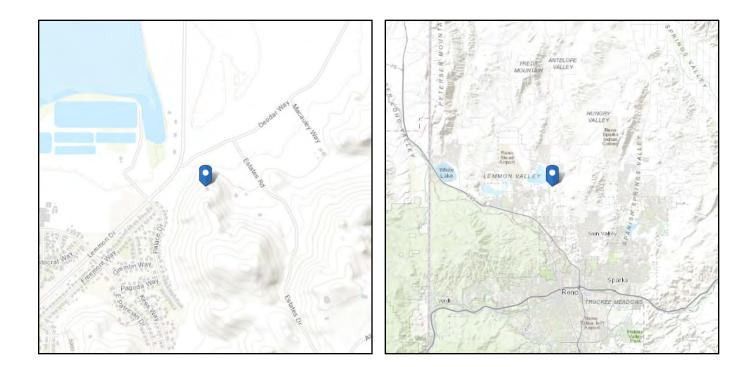
Standard:

ASCE/SEI 7-16 Latitude:

**Risk Category:** IV Soil Class:

C - Very Dense

39.64723 Longitude: -119.8269 Elevation: 5102.17 ft (NAVD 88) Soil and Soft Rock



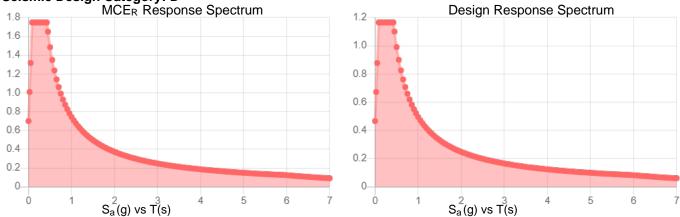


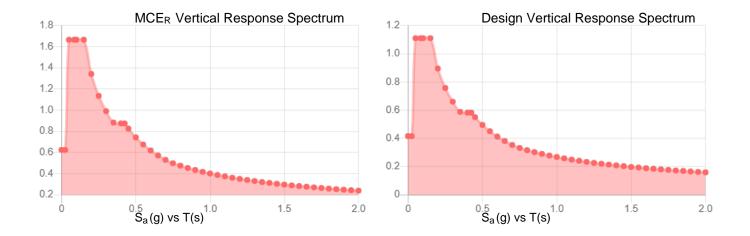
### Site Soil Class:

### **Results:**

S <sub>S</sub> :	1.456	<b>S</b> <sub>D1</sub> :	0.495
<b>S</b> <sub>1</sub> :	0.495	T∟ :	6
F <sub>a</sub> :	1.2	PGA :	0.619
$F_v$ :	1.5	PGA M :	0.743
S <sub>MS</sub> :	1.747	F <sub>PGA</sub> :	1.2
S <sub>M1</sub> :	0.742	l <sub>e</sub> :	1.5
S <sub>DS</sub> :	1.165	C <sub>v</sub> :	1.191







### Data Accessed:

Wed Feb 01 2023

### Date Source:

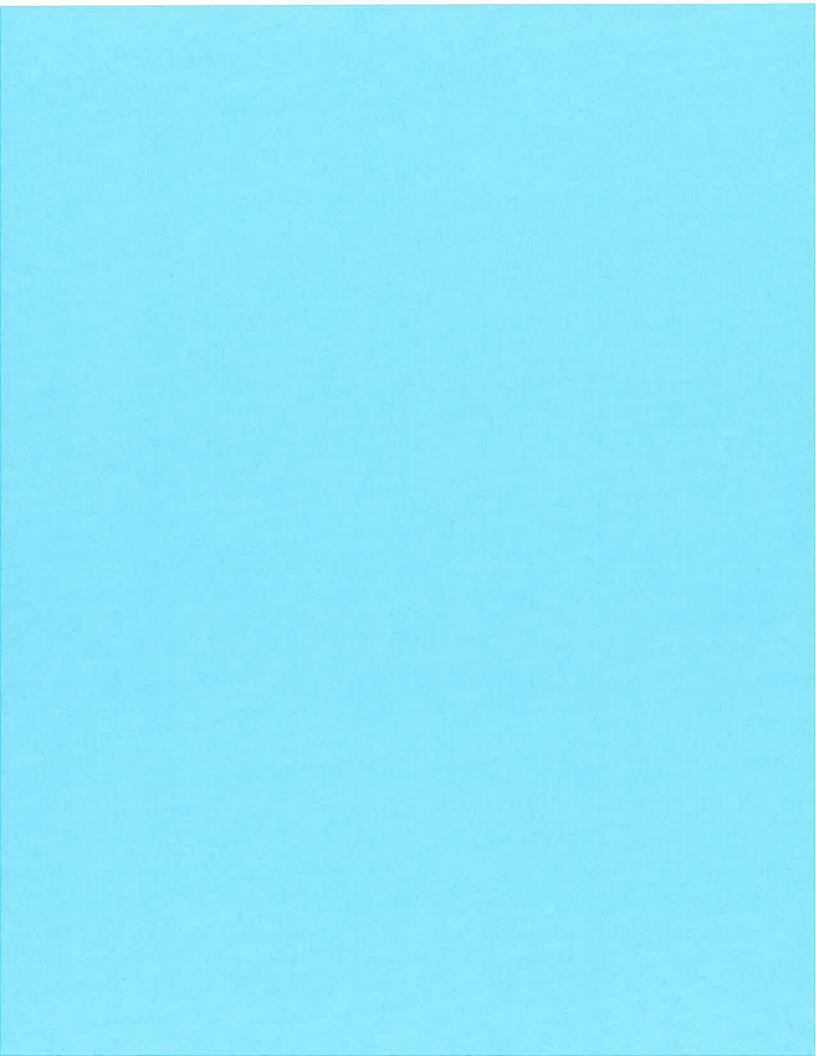
USGS Seismic Design Maps based on ASCE/SEI 7-16 and ASCE/SEI 7-16 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-16 Ch. 21 are available from USGS.



The ASCE 7 Hazard Tool is provided for your convenience, for informational purposes only, and is provided "as is" and without warranties of any kind. The location data included herein has been obtained from information developed, produced, and maintained by third party providers; or has been extrapolated from maps incorporated in the ASCE 7 standard. While ASCE has made every effort to use data obtained from reliable sources or methodologies, ASCE does not make any representations or warranties as to the accuracy, completeness, reliability, currency, or quality of any data provided herein. Any third-party links provided by this Tool should not be construed as an endorsement, affiliation, relationship, or sponsorship of such third-party content by or from ASCE.

ASCE does not intend, nor should anyone interpret, the results provided by this Tool to replace the sound judgment of a competent professional, having knowledge and experience in the appropriate field(s) of practice, nor to substitute for the standard of care required of such professionals in interpreting and applying the contents of this Tool or the ASCE 7 standard.

In using this Tool, you expressly assume all risks associated with your use. Under no circumstances shall ASCE or its officers, directors, employees, members, affiliates, or agents be liable to you or any other person for any direct, indirect, special, incidental, or consequential damages arising from or related to your use of, or reliance on, the Tool or any information obtained therein. To the fullest extent permitted by law, you agree to release and hold harmless ASCE from any and all liability of any nature arising out of or resulting from any use of data provided by the ASCE 7 Hazard Tool.



OWNER'S CERTIFICATE . The access, public utility and cable television easements as shown hereon are hereby granted and set apart forever. LEMMON VALLEY LAND COMPANY, INC. GEORGE F. PEEK, VICE PRESIDENT STATE OF NEVADA COUNTY OF WASHOE On this q day of September, 1985, personally appeared before me, a Notary Public, in the County of Nashoe, GEORGE F. PEEK who acknowledged to me that he executed the above instrument. In witness whereof, I hereunto set my hand and affix my official seal on the date and year first above written. NOTARY PUBLIC SURVEYOR'S CERTIFICATE I, HARRY R. ERICSON, a Registered Land Surveyor in the State of Nevada, certify that: This plat complies with the applicable state statutes and any local ordinances. The parcels and the areas shown hereon. Han the LAKSON HARRY A. ERICSON REGISTERED LAND SURVEYOR NEVADA CERTIFICATE NO: 1797 PLANNING COMMISSION APPROVAL Rohn M. Yang PLANNING DIRECTOR COUNTY COMMISSION CERTIFICATE UTILITY EASEMENT ACCEPTANCE The utility easements shown on this plat have been checked. accepted and approved by the undersigned utility companies and Group W Cable, Incorporated. 1 11 SIERRA PACIFIC POWER COMPANY unnin NOSERI

This is to certify that the undersigned LEMMON VALLEY LAND COMPANY, INC. is the owner of the tract of land represented on this plat and has consented to the preparation and recordation of this plat and that the same is executed in compliance with and subject to the provisions of N.A.S. Chapter 278.

All streets as identified hereon including all appurtenances thereto are hereby dedicated to Washoe County and to be public thoroughfares forever.

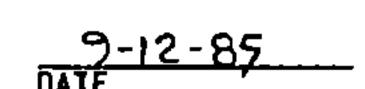
## SS

in the second	THE ANN ALLAS
 Bar an an	Notary 35-10 State Of Freshold 1
LET -	The second
	ALT ANY ANTIMENT EAPINES WINE OF 1997
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This is a true and accurate representation of the lands surveyed under my supervision at the instance of LEMMON VALLEY LAND COMPANY, INC.

The lands surveyed lie within a portion of Sections 3 and 4, T.20N., R.19E., M.D.M., and portions of Sections 11, 14, 15, 22, 23, 28, 27, 34 and 35, T.21N., R.19E., M.D.M., and the survey was completed on September 23, 1985.

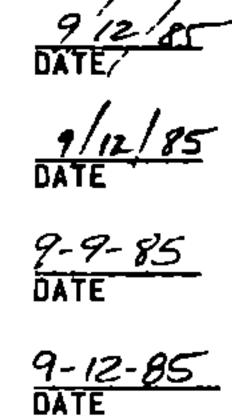
The monuments are of the character shown and occupy the positions indicated and are sufficient to enable the survey to be retraced.

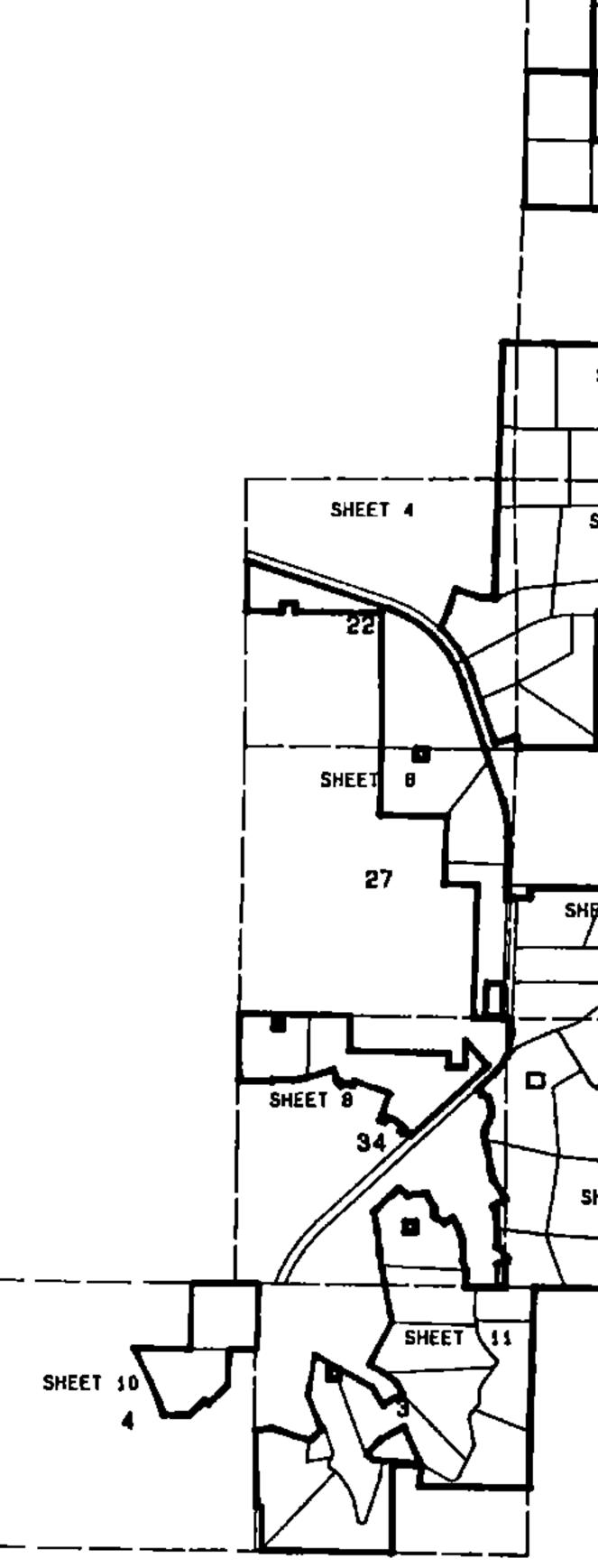


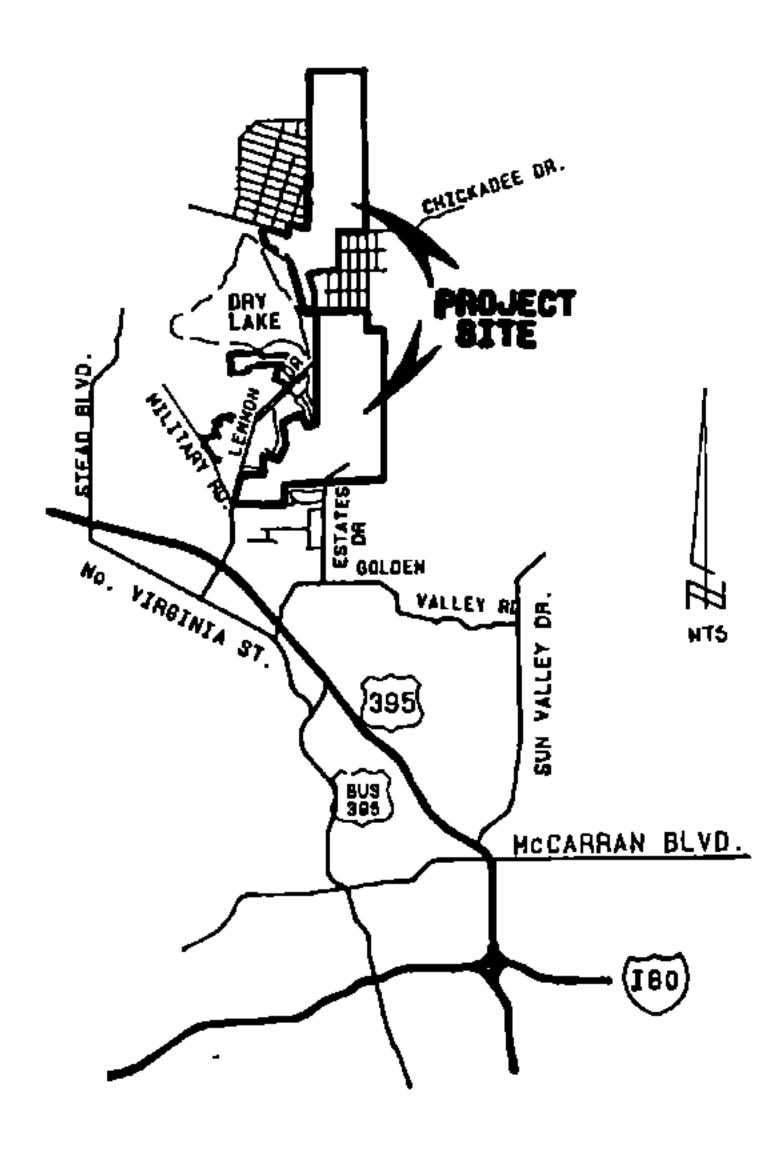
The Tentative Map was reviewed and found in compliance with N.R.S. Chapter 278 on November 7, 1984 by the Washoe County Planning Commission.

DATE

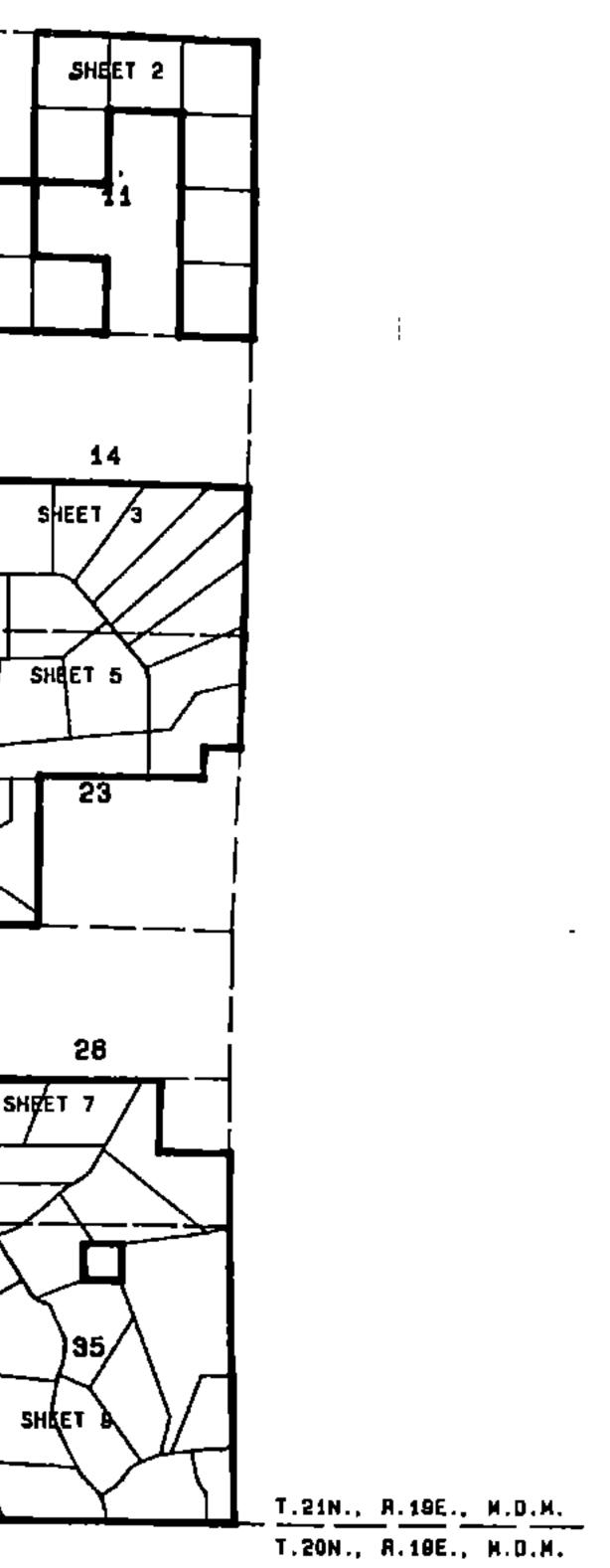
This Final Map was approved and accepted by the Board of County Commissioners, Washoe County, Nevada on the <u>17 TH</u> day of <u>Septemmen</u>, 1985. The offer of dedication of all streets shown hereon, with the exception of Chickadee Drive and Lemmon Drive, is rejected at this time, with the offer to remain open in accordance with the provisions of N.R.S. Chapter 278.4725. The access easement to Parcel B of Parcel Map No. 314 is hereby relocated to a more suitable location as shown hereon.













# VICINITY MAP

1023013

## NOTES

- Portions of this area may be subjec the drinking water from private wel
- Access to portions of this property which are not maintained by Washoe ( responsibility of the user. Roadway
- A public utility easement is hereby the exclusive purpose of installing facilities to that parcel at location owner of record and the utility comp
- All parcel acreages shown include
- This map is not a subdivision as all or are 1/18th of a section.
- The natural drainage will not be im development of these parcels.
- A schematic representation of futur necessarily represent the ultimate addressed through this map, is avai of the Washoe County Department of Lemmon Valley Land Company, Inc., D
- 8. All side and rear parcel lines shall television easement ten feet in widt In addition, the boundary shown on t shall have a public utility and cabl width adjacent to the boundary, exce

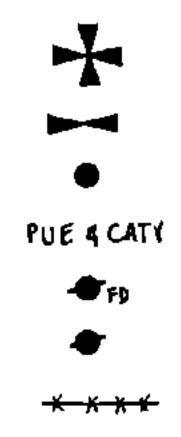
## TOTAL AREA = 3047.130

## TOTAL LOTS = 66

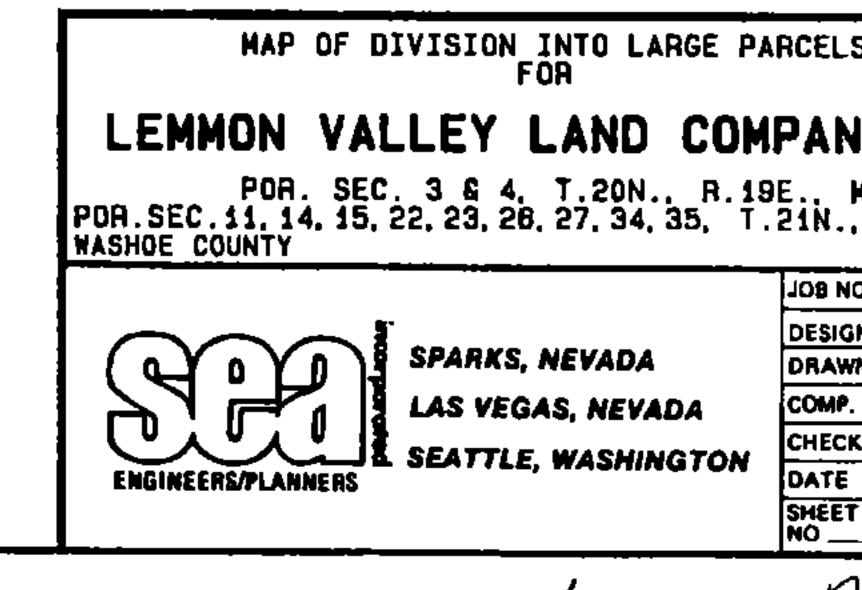
## BASIS OF BEARINGS

NEVADA COORDINATE SYSTEM, WEST ZONE

## LEGEND



FOUND G.L.O. BRASS CAP (UNL FOUND G.L.O. BRASS CAP (UNL SET 5/8" REBAR CAPPED RLS PUBLIC UTILITY AND CABLE TO EXISTING POINT AS INDICATED RECORD POINT FENCE



LAND ,

	j	
mpeded during the re lots and roads, development of th ilable for review Comprehensive Pla Division of Land : ll have a public a dth centered about	and/or easements tenance is the easonal. each parcel for utility service eed upon by the ty easements. n 40 acres or more, improvement or , which does not he properties at the offices anning. (See into Large Parcels File.) utility and cable t the parcel line.	
this map, indicat ble television eas cept where otherw: <b>AC.</b> <u>+</u>	ted by a heavy line. sement ten feet in	
LESS OTHERWISE NO LESS OTHERWISE NO 1797 ELEVISION EASEMEN D	TED)	
CELS	FILE NO. <u>10230/3</u> FEE: <u>x8/25, 99</u>	
ANY, INC. H.D.M. N.D.M. N.B. 19E., M.D.M. NEVADA NEVADA NEVADA OB NO. 200-014-842 DESIGNED K.L.H. DRAWN HP 1000A COMP. CHECKED C RHP 1/5/85 DATE AUGUST 1985	FILED FOR RECORD AT THE	CUMUNTY SUBSECTION
NO 1 OF 11 SHEETS	UEPUTY 79	

SCALE: 1"=300" NUMBERED COURSES DISTANCE BEARING N89°13'45 W N73°10'23 E N10°15'57 E N45°10'34 W N18°51'51 W N57°51'15 E N11°48'52 E N11°31'55 W N57°16'28 W N54°49'12 E N14°37'18 W N54°49'12 E N14°37'18 W N57°16'28 W N57°16'28 W N17°41'23 W N10°37'47 E N11°39'47 W N10°37'47 W N10°37 W N85° 2'14'Y 

 N 42
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 N 1
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 N75
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 N31
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 N31
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 N52
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 N71
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 N36
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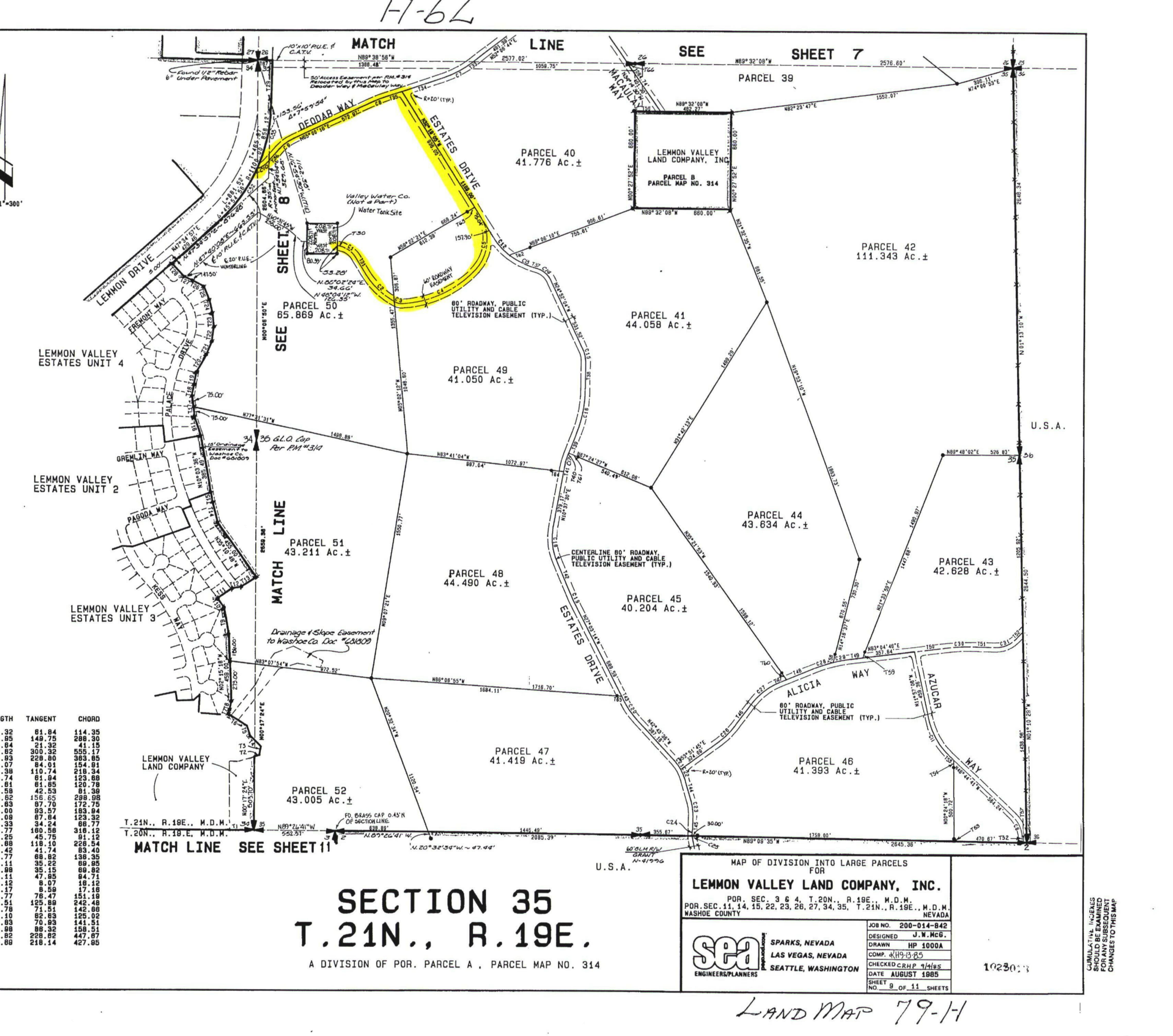
 N67
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 E

 N83
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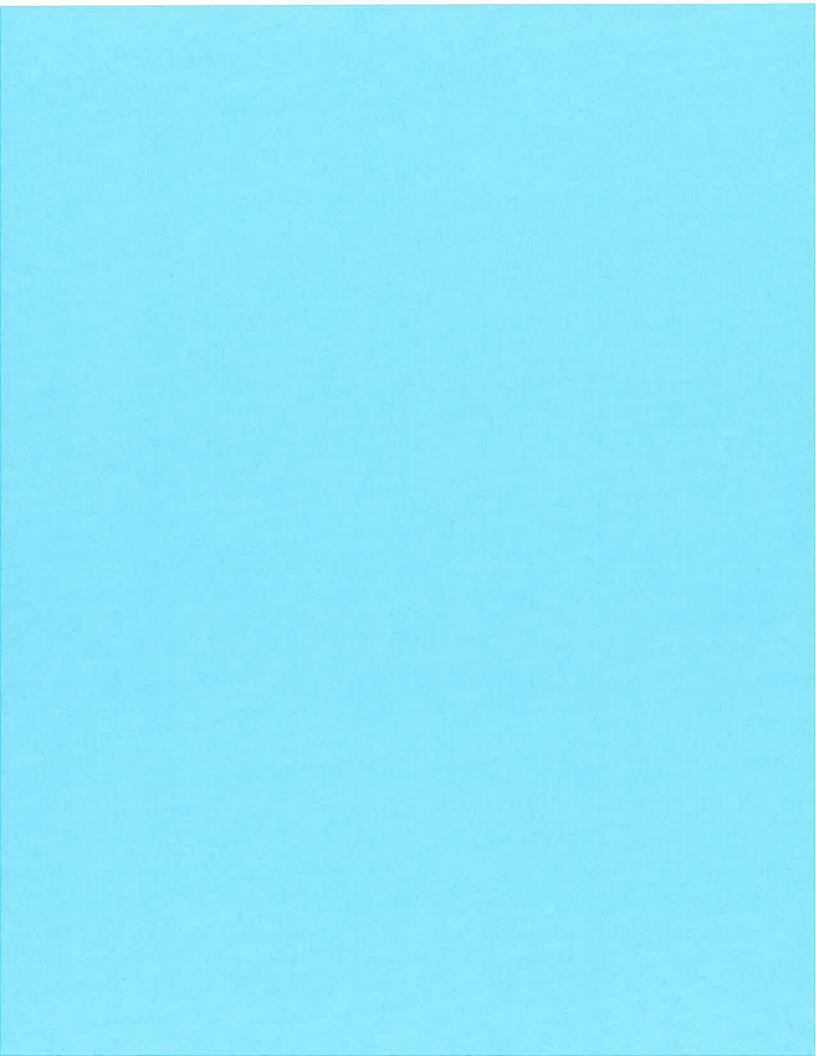
 N89
 35< 40 41 260.94 49.79 161.15 125.64 185.39 42 T 43 T 44 T 45 T 46 53.12 195.43 48 48 T 87 100.03 CURVE DATA CURVE ND. RADIUS DELTA LENGTH 
 $44 \cdot 48 \cdot 45$ 
 $31 \cdot 28 \cdot 44$ 
 $30 \cdot 14 \cdot 30$ 
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 $74 \cdot 39 \cdot 43$ 
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 $19 \cdot 20 \cdot 15$ 
 $8 \cdot 28 \cdot 43$ 
 $23 \cdot 13 \cdot 34$ 
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 $34 \cdot 47 \cdot 33$ 
 $19 \cdot 53 \cdot 46$ 
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 $34 \cdot 47 \cdot 33$ 
 $19 \cdot 53 \cdot 46$ 
 $21 \cdot 11 \cdot 56$ 
 $48 \cdot 32 \cdot 42$ 
 $25 \cdot 43 \cdot 10$ 
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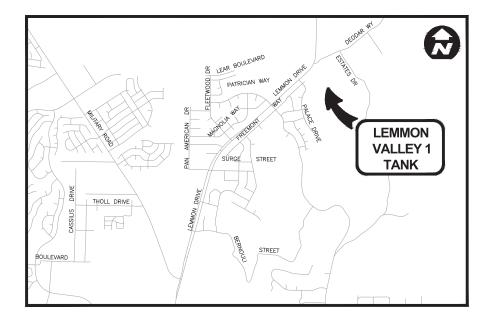
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### **IMPROVEMENT PLANS** for **LEMMON VALLEY 1 TANK REBUILD RENO - WASHOE COUNTY - NEVADA** TMWA PROJECT NO: 14-0035 **PWP# WA-2023-XXX**

#### SHEET INDEX

SHT NO.	DWG NO.	DESCRIPTION
1	G000	COVER SHEET
2	G001	GENERAL NOTES
з	G002	LEGENDS, AND ABBREVIATIONS
4	D100	DEMOLITION PLAN
5	D200	INTERIOR DEMO DETAILS
6	COO 1	DETAILS
7	C002	DETAILS
8	C003	DETAILS
9	C004	DETAILS
10	C100	OVERALL SITE PLAN
11	C101	GRADING PLAN
12	C102	YARD PIPING PLAN
13	C103	PROFILE VIEWS & CONFLUENCE PLAN
14	C104	SECTIONS
15	T200	TANK PLAN AND ELEVATION
16	T302	TANK DETAILS
17	<b>T303</b>	TANK DETAILS
18	<b>T304</b>	TANK DETAILS
19	<b>T305</b>	TANK DETAILS
20	RW-1	RETAINING WALL NOTES
21	RW-2	RETAINING WALL DETAILS
22	RW-3	RETAINING WALL SECTIONS
23	<b>SOO</b> 1	GENERAL STRUCTURAL NOTES AND ABBREVIATIONS
24	S002	STANDARD STRUCTURAL DETAILS
25	S101	STRUCTURAL FOUNDATION PLAN
26	S102	STRUCTURAL ROOF PLAN
27	<b>S301</b>	STRUCTURAL FULL TANK SECTION
28	S501	STRUCTURAL SECTIONS AND DETAILS
29	E001	ELECTRICAL LEGENDS AND NOTES
30	E002	ONE LINE DIAGRAMS AND SCHEDULES
31	E002	CONDUIT AND WIRE REQUIREMENTS TABLE
32	E100	TANK ELECTRICAL PLAN
33	E500	ELECTRICAL DETAILS 1
34	E501	ELECTRICAL DETAILS 2
35	CP500	
36	CP501	CORROSION MONITORING TEST STATION DETAILS 2



LOCATION MAPS NTS







1355 CAPITAL BLVD. PO BOX 30013 RENO, NEVADA 89520-3013 PHONE: 775-834-8080

### JOHN ZIMMERMAN GENERAL MANAGER

KAREN MEYER PROJECT REPRESENTATIVE Office Phone: 775-834-8012 Cell Phone: 775-544-3886

> **THOMAS SPEER** PROJECT ENGINEER Office Phone: 775-834-8164 email: tspeer@tmwa.com





NOT REPRODUCIBLE PROPERTY OF TRUCKEE MEADOWS WATER AUTHORITY RETURN UPON COMPLETION OF PROJECT (Per Homel urity Act)





PROJECT #14-0035

#### **GENERAL NOTES**

- 1. CONTRACTOR SHALL COMPLY WITH ALL FEDERAL, STATE, AND TMWA SAFETY REGULATIONS AND SHALL MAINTAIN THE WORK AREA IN A SAFE CONDITION 24 HOURS PER DAY UNTIL THE PROJECT IS COMPLETE. WORKER AND PUBLIC SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR NOT TMWA.
- 2. THE CONTRACTOR SHALL BE REQUIRED TO PREPARE, SUBMIT FOR APPROVAL AND ABIDE BY ALL TRAFFIC CONTROL PLANS AS REQUIRED BY THE CITY OF RENO. THE CONTRACTOR SHALL REVIEW AND UNDERSTAND THE CONDITIONS OF THE PERMITS PRIOR TO HIS/HER BID.
- 3. AT LEAST 4 WORKING DAYS BEFORE STARTING CONSTRUCTION, THE CONTRACTOR SHALL CALL UNDERGROUND SERVICE ALERT AT 811 AND UTILITY MARKING. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE COST OF REPAIRING EXISTING FACILITIES (PUBLIC OR PRIVATE) THAT ARE DAMAGED BY HIS OPERATIONS.
- 4. DEPTH AND HORIZONTAL LOCATION OF EXISTING UTILITIES DEPICTED ON THESE PLANS ARE APPROXIMATE BASED ON INFORMATION PROVIDED BY THIRD PARTIES. TMWA MAKES NO REPRESENTATION AS TO THE COMPLETENESS OR ACCURACY OF SUCH DATA, AND IT IS NOT INTENDED TO AND SHALL NOT BE RELIED UPON AS A SUBSTITUTE FOR THE INDEPENDENT INVESTIGATION BY CONTRACTOR. CONTRACTOR SHALL IDENTIFY & VERIFY THE DEPTH & LOCATION OF ALL EXISTING UTILITIES PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION ACTIVITIES. ANY CONFLICT SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE TIMWA REPRESENTATIVE. ALL EXISTING UTILITIES ARE NOT SHOWN, AND FACILITIES SHOWN MAY BE IN A LOCATION DIFFERENT FROM THAT DEPICTED.
- 5. SYMBOLS ARE NOT TO SCALE AND DO NOT NECESSARILY REPRESENT ACTUAL LOCATIONS OF FACILITIES.
- 6. CONTRACTOR IS RESPONSIBLE FOR LOCATING AND COORDINATING WORK AROUND ALL EXISTING UTILITIES.
- 7. CONTRACTOR SHALL VERIFY CONSTRUCTION METHODS AND OVERALL JOB APPROACH WITH TMWA AND ENGINEER PRIOR TO CONSTRUCTION.
- 8. CONTRACTOR SHALL PROVIDE ALL STAKING AND SURVEYING NECESSARY TO CONSTRUCT THE PROJECT. SURVEYING SHALL BE CONDUCTED BY A LICENSED SURVEYOR IN THE STATE OF NEVADA
- 9. THE MATERIALS AND METHODS OF CONSTRUCTION HEREIN SPECIFIED SHALL BE FURNISHED IN ACCORDANCE WITH NAC 445A.65505 TO 445A.6723 INCLUSIVE AND THE STANDARDS OF THE TMWA CONSTRUCTION STANDARDS, STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION ("STANDARD SPECIFICATIONS" OR "ORANGE BOOK"), AMERICAN WATER WORKS ASSOCIATION (AWWA), AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC), AMERICAN CONCETE INSTITUTE (ACI), THE AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM), THE AMERICAN WELDING SOCIETY (AWS), AND MANUFACTURER STANDARDS. CONFLICTS OR QUESTIONS REGARDING THE SPECIFICATIONS SHALL BE BROUGHT TO THE ATTENTION OF THE TMWA REPRESENTATIVE FOR RESOLUTION.
- 10. SOILS RETENTION MAY BE REQUIRED AROUND WATER METER BOXES, FIRE HYDRANTS, AND OTHER FACILITIES IF SLOPES EXCEED 15%.
- 11. CONTRACTOR SHALL CONTROL DUST IN ACCORDANCE WITH WASHOE COUNTY DISTRICT HEALTH DISTRICT AIR QUALITY REGULATIONS
- 12. THE CONTRACTOR REALIZES THAT INCLEMENT (WINTER WEATHER) MAY OCCUR DURING THE PROPOSED WORK, NO ADDITIONAL PAYMENTS SHALL BE GRANTED FOR PROTECTING THE WORK IN PROGRESS AND DELAYS DUE TO INCLEMENT WEATHER CONDITIONS
- 13. THE CONTRACTOR SHALL MAINTAIN A NEAT AND LEGIBLE DRAWING SET DENOTING ANY FIELD CHANGES THAT DEVIATE FROM THE APPROVED DESIGN ON A DAILY BASIS. PRIOR TO TMWA'S ACCEPTANCE OF THE IMPROVEMENTS AND FINAL PAYMENT THE CONTRACTOR IS TO PRESENT THIS DRAWING SET, WHICH REFLECTS ALL FIELD CHANGES TO TMWA'S PROJECT REPRESENTATIVE.
- 14. SEE SPECIFICATIONS FOR SEQUENCE OF CONSTRUCTION REQUIREMENTS.
- 15. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL MATERIAL SPILLED OR TRACKED ONTO EXISTING ROADWAYS ON A DAILY
- 16. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATION OF ALL EXISTING UTILITIES WITHIN THE LIMITS OF CONSTRUCTION, WHETHER OR NOT SAID UTILITIES ARE SHOWN ON THE PLANS. THIS RESPONSIBILITY INCLUDES CONTACTING UTILITY COMPANIES FOR LOCATIONS AND POTHOLING PRIOR TO CONSTRUCTION. REPAIR OF ANY DAMAGE TO EXISTING UTILITIES DURING CONSTRUCTION IS THE RESPONSIBILITY OF THE CONTRACTOR

### BASIS OF BEARING AND ELEVATION

BASIS OF BEARINGS: NORTH AMERICAN DATUM OF 1983 AS BASED ON FEDERAL BASE NETWORK/COOPERATIVE BASE NETWORK OBSERVATIONS IN 1994 (AKA NAD83/94), NEVADA STATE PLANE COORDINATE SYSTEM, WEST ZONE AND HOLDING THE WASHOE COUNTY PUBLISHED LATITUDE AND LONGITUDE OF 39'32'16.44843" NORTH AND 119' 53' 08.87676" WEST FOR REGIONAL GPS CORS "RNO1" (WASHOE COUNTY IDENTIFIER N74SM01028). A COMBINED GRID-TO-GROUND SCALE FACTOR OF 1.000197939 IS USED TO SCALE THE STATE PLANE GRID COORDINATES TO GROUND.

BASIS OF ELEVATIONS: NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88) AND HOLDING THE WASHOE COUNTY PUBLISHED ELLIPSOID HEIGHT OF 1531.277 METERS (5023.865 FEET) FOR REGIONAL GPS CORS "RNO1" AND USING GEOID 99 TO DERIVE THE ORTHOMETRIC ELEVATION ABOVE MEAN SEA LEVEL.

### WATER GENERAL NOTES

- 1. THE CONTRACTOR SHALL BE RESPONSIBLE TO PROTECT THE INTEGRITY OF EXISTING WATER LINES DURING CONSTRUCTION.
- 2. CONTRACTOR SHALL PROVIDE ALL MISCELLANEOUS PIPE, FITTINGS AND APPURTENANCES AS REQUIRED TO COMPLETE THE UTILITY WORK AS SHOWN
- 3. TMWA DOES NOT GUARANTEE EXISTING VALVES WILL PROVIDE A COMPLETE SHUTDOWN. THE REMOVAL OF NUISANCE WATER TO CONDUCT THE WORK SHALL BE INCIDENTAL TO THE MOST APPROPRIATE BID ITEM. EXCESSIVE AMOUNTS OF WATER SHALL BE EVALUATED BY THE TMWA INSPECTOR FOR THE MOST APPROPRIATE ACTION TO PURSUE.
- ALL WATER MAINS SHALL BE TESTED FOR PRESSURE AND LEAKAGE PER AWWA C600 & C605. TEST PRESSURE SHALL BE AS INDICATED IN CONTRACT DOCUMENTS AND NO LESS THAN 150 PSI ON MAINS NOT SPECIFICALLY CALLED OUT. DUCTILE IRON PIPELINES MUST BE TESTED ACCORDING TO AWWA STANDARD C600 AND PVC PIPELINES MUST BE PRESSURE TESTED ACCORDING TO AWWA STANDARD C605 PER NAC 445A67145 (7). FOR OTHER MATERIALS, THE PIPELINES MUST BE PRESSURE TESTED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION PER NAC 445A.67145 (7)(c).
- BACTERIOLOGICAL TESTING, DISINFECTION, AND FLUSHING, FOR POTABLE WATER LINE CONSTRUCTION, SHALL BE PERFORMED PER AWWA C651 TMWA SHALL BE RESPONSIBLE FOR PERFORMING AND FUNDING UP TO TWO BACTERIOLOGICAL TESTS PER RUN OF PIPE CONSTRUCTED. IF 5. IMWA SHALL BE RESPONSIBLE FOR PERFORMING AND FONDING OP TO TWO BACIENIOLOGICAL TESTS PER RUN OF PIPE CONSINUCLED. IF MORE THAN TWO TESTS ARE REQUIRED, THE CONSTANT OF PLACED UPON THE CONTRACTOR. TWO (2) BACTERIOLOGICAL TESTS SHALL BE CONDUCTED PER TEST SEGMENT. BACTERIOLOGICAL TEST SAMPLES WILL NOT BE COLLECTED ON FRIDAYS, WEEKENDS, TMWA OBSERVED HOLIDAYS, OR THE DAY BEFORE A TMWA OBSERVED HOLIDAY, UNLESS AUTHORIZED BY THE TMWA INSPECTOR. BACTERIOLOGICAL TESTING OF MAIN/APPURETAACES SHALL BE CONDUCTED BY A NEVADA CERTIFIED LABORATORY. TMWA CAN PROVIDE TESTING AT NO COST TO THE CONTRACTOR WITH A 2 WORKING DAY PRIOR NOTICE. UNLESS SPECIAL APRANCEMENTS ARE AGREED UPON IN ADVANCE BY THE TMWA INSPECTOR SAMPLING BY TMWA LABORATORY STAFF SHALL BE LIMITED TO NORMAL WORKING HOURS MONDAY THROUGH THURSDAY
- 6. PER NAC 445A.67145(6).
  - WATER MAIN MUST NOT BE PLACED INTO SERVICE AFTER ITS INITIAL CONSTRUCTION UNTIL: 6.1. THE WATER MAIN HAS BEEN DISINFECTED AND FLUSHED IN ACCORDANCE WITH AWWA STANDARD C651. 6.2. THE DISPOSAL OF ANY SPENT CHLORINE SOLUTIONS MUST BE COORDINATED WITH NDEP'S BUREAU OF WATER POLLUTION CONTROL
  - 6.3. ANALYSES OF THE WATER MAIN WHICH INDICATE THAT THE WATER MEETS PRIMARY DRINKING WATER STANDARDS FOR COLIFORM BACTERIA (ABSENT FOR COLIFORM BACTERIA) HAVE BEEN OBTAINED AND REPORTED TO THE WCHD, PER AWWA STANDARD C651, TWO SETS OF CONSECUTIVE SAMPLES MUST BE TAKEN AT LEAST 24 HOURS APART <u>FROM EVERY 1200 FEET OF MAIN</u>, AT THE END OF THE LINE, AND FROM EACH BRANCH
- PRIOR TO BEING PUT INTO SERVICE, TMWA WILL DISINFECT THE TANK AND ENSURE THAT TWO COLIFORM SAMPLES PASS PRIMARY DRINING WATER STANDARDS IN ACCORDANCE WITH AWWA C652 AND NAC 445A.67085.3.
- AFTER THE TANKS HAVE BEEN DRAINED, TMWA WILL INSPECT SILT STOPS AND OVERFLOW PIPING FOR COMPLIANCE WITH NAC445A AND AWWA D100. ANY DEFICIENCIES INCLUDING MISSING OR NON-FUNCTIONING COMPONENTS WILL BE CORRECTED PRIOR TO COMPLETION OF THE WORK.
- 9. AFTER THE TANK INTERIOR IS CURED FOR THE APPROPRIATE TIME, THE TANK WILL BE FILLED WITH WATER BY TMWA AND THE WATER WILL BE HELD IN THE TANK FOR FIVE (5) DAYS. ON THE SIXTH DAY, THE WATER RETAINED IN THE TANK WILL BE TESTED ON THE SIXTH DAY BY A PROPERLY CERTIFIED LABORATORY HIRED BY TMWA FOR THE PRESENCE OF VOLATILE ORGANIC CHEMICALS, AND THE RESULTS SUBMITTED TO WASHOE COUNTY HEALTH DISTRICT FOR APPROVAL
- 10. THE TANK WILL NOT BE PLACED INTO SERVICE UNTIL ALL REQUIREMENTS OF NAC 445A ARE MET.

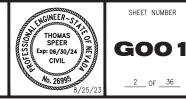
### CONTROL OF POLLUTION, NOISE, AND WATER

- A. DUST SHALL BE CONTROLLED AT ALL TIMES IN ACCORDANCE WITH THE REQUIREMENTS OF THE WASHOE COUNTY DISTRICT HEALTH DEPARTMENT.
- THE CONTRACTOR SHALL NOT DISCHARGE OR ALLOW THE SPILLAGE OF PAINT, SOLVENT, THINNER, ENGINE OIL, FUEL, HYDRAULIC FLUID, OTHER PETROLEUM PRODUCTS, OR ANY HAZARDOUS MATERIAL. EQUIPMENT SHALL BE MAINTAINED AT ALL TIMES IN A MANNER TO PREVENT LEAKAGE B. AND SPILLAGE OF PETROLEUM PRODUCTS.
  - 1. AT A MINIMUM, TO PREVENT SOIL CONTAMINATION FROM ACCIDENTAL SPILLS, 3M POWERSORB FABRIC, OR EQUAL, SHALL BE USED UNDER ENGINES AND ENGINE DRIVEN EQUIPMENT, UNDER FUEL STORAGE AREAS, UNDER EQUIPMENT SERVICING AREAS, AND UNDER ANY OTHER AREAS WHERE PETROLEUM PRODUCTS OR HAZARDOUS MATERIALS ARE STORED OR USED.
- 2. FABRIC SHALL BE PROTECTED FROM MECHANICAL DAMAGE AND ANCHORED AGAINST WIND DISPLACEMENT. AREAS WHERE PETROLEUM PRODUCTS OR HAZARDOUS MATERIALS ARE STORED SHALL BE SURROUNDED BY A BERM DESIGNED TO CONTAIN ANY SPILL THAT MAY
- 3. THE CONTRACTOR SHALL HAVE A SPILL CLEANUP KIT CAPABLE OF CLEANING UP A SPILL OF AT LEAST 10 GALLONS OF PETROLEUM PRODUCT AT THE WORK SITE AT ALL IMMES. THE KIT SHALL BE A COMMERCIALLY AVAILABLE KIT CONTAINING OIL ABSORBING PADS OF GRANULAR ABSORBENT MATERIAL, CONTAINMENT BOOMS, AND A DISPOSAL CONTAINER, WORKERS SHALL BE INSTRUCTED IN USE OF TH KIT AND SHALL BE ADEQUATELY TRAINED AND EQUIPPED TO DEAL WITH THE ACCIDENTAL SPILL OF ANY HAZARDOUS MATERIAL USED.
- 4. IN THE EVENT OF AN ACCIDENTAL SPILL OF PETROLEUM PRODUCTS OR HAZARDOUS MATERIALS THE CONTRACTOR SHALL IMMEDIATELY CONTAIN THE SPILL AND ARRANGE FOR THE MATERIAL TO BE CLEANED UP AND DISPOSED OF IN ACCORDANCE WITH ALL FEDERAL, STATE, AND LOCAL REGULATIONS. THE COSTS OF ALL CLEANUP AND DISPOSAL WORK SHALL BE BORNE BY THE CONTRACTOR. IF A HAZARDOUS CONDITION EXISTS THE CONTRACTOR SHALL TAKE WHATEVER ACTIONS ARE INCESSARY TO PROTECT THE PUBLIC AND WORKERS FROM INJURY AND ADJACENT PROPERTIES FROM DAMAGE. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE TMWA REPRESENTATIVE OF THE SPILL.
- C. THE CONTRACTOR SHALL EMPLOY ALL APPLICABLE BEST MANAGEMENT PRACTICES (BMPS) FOR CONTROL OF SEDIMENT AND EROSION FROM CONSTRUCTION SITES PER RECOMMENDATIONS OF THE TRUCKEE MEADOWS CONSTRUCTION SITE BMPS HANDBOOK. THE ESTIMATED AREA OF SITE DISTURBANCE FOR THIS PROJECT IS LESS THAN ONE ACRE.
- THE CONTRACTOR SHALL CONTROL NOISE FROM HIS OPERATIONS TO LEVELS THAT ARE NOT A NUISANCE AND THAT MEET ALL LOCAL NOISE D. CONTROL REGULATIONS IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE NOISE LEVELS ALLOWED BY THE JURISDICTION WHERE THE WORK IS LOCATED AND TO COMPLY WITH THOSE REGULATIONS.
- E. WATER DEVELOPED AS A RESULT OF THE WORK SHALL BE DISPOSED OF BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE
- F. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ARRANGE FOR LEGAL DISPOSAL OF WATER WITHOUT DAMAGE TO ADJACENT PROPERTIES

EVISION	DESCRIPTION	BY	APP	DATE	WORK ORDER NO.         14-0035           DESIGNED         TES           DRAWN         JRH           DATE         AUG. 2023           CHECKED	TRUCKEE MEADOWS WATER	NOT REPRODUCIBLE PROPERTY OF TRUCKEE MEADOWS WATER AUTHORITY, RETURN UPON COMPLETION OF PROJECT	<b>LEMMON VALLEY 1 TANK</b> RENO, NEVADA
					SUBMITTED RECOMMENDED	Quality. Delivered.	(Per Homeland Security Act)	GENERAL NOTES
					APPROVED	1355 CAPITAL BLVD. PO BOX 30013 RENO, NEVADA 89520-3013 PHONE: 775-834-8080		GENERAL NOTES



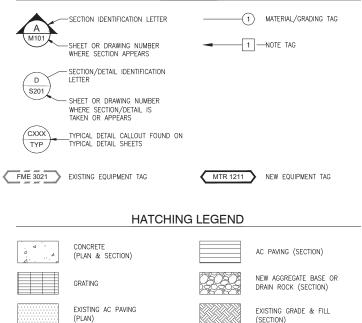




### LINETYPE LEGEND

	NEW WATER MAIN/SERVICE LINE
w	EXISTING WATER MAIN
	EXISTING WATER SERVICE LINE
·····	PREVIOUSLY ABANDONED WATER SERVICE LINE
	EXISTING STORM DRAIN MAIN/LATERAL WITH SIZE
12"SS	EXISTING SANITARY SEWER MAIN WITH SIZE
RW	EXISTING RECLAIMED WATER
	EXISTING WATER TANK DRAIN LINE WITH SIZE
	EXISTING NATURAL GAS MAIN/LATERAL
— — — — T —	EXISTING UNDERGROUND TELECOMMUNICATIONS FACILITY
CATV	EXISTING UNDERGROUND CABLE TV
— — — — FOC —	EXISTING FIBER OPTIC CABLE - CHARTER COMMUNICATIONS
UGE	EXISTING UNDERGROUND ELECTRIC FACILITY
TS	EXISTING UNDERGROUND TRAFFIC SIGNAL FACILITY
	EXISTING ROADWAY CENTERLINE (APPROXIMATE)
	EXISTING PROPERTY LINE
· XXXXXXXXXXXXXXXXXXXXXXXXXXXX	EXISTING PIPE TO BE REMOVED AND DISPOSED OF BY OTHERS
•	EXISTING PIPE TO ABANDON. CONC CAP AT ENDS
$ \longrightarrow \longrightarrow$	EXISTING FLOWLINE
	EXISTING FENCE LINE
	EXISTING MAJOR CONTOUR
	EXISTING MINOR CONTOUR
	NEW MAJOR CONTOUR
	NEW MINOR CONTOUR
	EXISTING CONCRETE
	CONSTRUCTED BY DEVELOPER (FUTURE)





GRATING	NEW AGGREGATE BASE OR DRAIN ROCK (SECTION)
EXISTING AC PAVING (PLAN)	EXISTING GRADE & FILL (SECTION)
NEW AC PAVING (PLAN)	ROCK SLOPE PROTECTION (PLAN & SECTION)
REMOVE & WASTE (R&W), DEMOLISH	CONCRETE CURB, GUTTER AN

DRIVEWAY REMOVAL & REPLACEMENT GRAVEL ROAD SURFACING

NOTE: NOT ALL LINETYPES, SYMBOLS, HATCHES OR ABBREVIATIONS ARE REPRESENTED IN THIS PLANSET.

OR ABANDON (ABND)

#### GA GAL GALV GB GPM GSP GV GAUGE GALLONS GALVANIZED AGGREGATE BASE ASPHALT CONCRETE ASPHALT CONCRETE PAVEMENT

HDPE HEX HOA

HORI7 HP HR

IF INC

INV IP

LB(S) LF LIP LLC LN LP LT

MAG MAX MDD MFR MH MIN MIP MJ MLS MPH

(N) NAC NAVD NO NPT NTS

OAE OC OD OHP

OSHA

PCC PE PL PO POC PP

PRS PRV PSF PSI PT PV PVC PWP

R&R

R&S

PLUS OR MINUS

DIAMETER

AGGRERATE ALUMINUM APPROVED

BEGINNING OF CURVE BELOW GRADE SURFACE

BOOSTER PUMP STATION BALL VALVE, BUTTERFLY VALVE

CONCRETE SPOT ELEVATION CENTER-TO-CENTER CURB AND GUTTER CABLE TELEVISION COMBINATION AIR VALVE CORRECTION FACTOR CAST IRON CAST IRON PIPE CLASS, CENTER LINE

BOTTOM BARRIER POST

CHAINLINK FENCE CLEAR

CONCRETE CORPORATION CONTROL POINT COPPER, CUBIC

DETAIL

DRAIN DRAWING

EAST END OF CURVE

ELEVATION

EXISTING

FINISHED GRADE FIRE HYDRANT FEMALE IRON PIPE

FLOWLINE, FENCELINE FLANGE

FLANGE FIBER OPTIC CABLE

FEET

FAX

EDGE OF CONCRETE EACH FACE EXISTING GRADE EDGE OF GRAVEL ROAD

CEMENT MASONRY UNIT COMPACTED

DECOMPOSED GRANITE

CHECK VALVE, CONTROL VALVE

DUCTILE IRON, DRAINAGE INLET, DROP INLET DUCTILE IRON PIPE

EDGE OF PAVEMENT EDGE OF PAVEMENT EHYLENE PROPYLENE DIENE MONOMER

FLEX COUPLING FLANGED COUPLING ADAPTER FIRE DEPARTMENT CONNECTION FUSION EPOXY LINED AND COATED

AMERICAN NATIONAL STANDARDS INSTITUTE ASSESSOR PARCEL NUMBER APPROXIMATE(LY)

AIR RELEASE VALVE AMERICAN SOCIETY FOR TESTING AND MATERIALS AMERICAN WATER WORKS ASSOCIATION

AB AC AGC ALUM APP ANSI APN APPROX.

ARV ASTM AWWA

BC BGS BOT BP BPS BV

C C&G CATV CAV CF CI CLF CLF CLR CMU COMP CONC CORP CP CU CV

DET DG DI DIP DR DWG

EC EDC EF EG EGR ELEV EOP EP EPDM

EX, (E)

FC FCA FDC FEL&C FG FH FIP FL FLA FLG FOC FT FX

	GRADE BREAK GALLONS PER MINUTE GALVANIZED STEEL PIPE GATE VALVE, GAS VALVE
HORIZ	HEIGHT HIGH DENSITY POLYETHYLENE HEXACONAL HOMEOWNERS ASSOCIATION ONTAL HORSEPOWER HOUR
	INVERT ELEVATION INCH INCORPORATED INVERT IRON PIPE
	LENGTH POUND(S) LINEAR FEET LIM FOUTER LIMITED LIABILITY CORPORATION LANE LIGHT POLE LEFT
	MAGNETIC MAXIMUM MAXIMUM DAY DEMAND, MAXIMUM DRY DENSIT MANUFACTURER MANUFACTURER MINIMUM MALE IRON PIPE MECHANICAL JOINT MORTAR LINED STEEL MILES PER HOUR
	NORTH NEW NEVADA ADMINISTRATIVE CODE NORTH AMERICAN VERTICAL DATUM NUMBER NATIONAL PIPE THREAD NOT TO SCALE
	OR APPROVED EQUAL ON CENTER OUTSIDE DIAMETER OVERHEAD POWER OCCUPATIONAL SAFETY AND HEALTH ADMINISTR
	PORTLAND CEMENT CONCRETE PLAIN END, POLYETHYLENE PROPERTY LINE PUSH-ON, POST OFFICE POINT OF CONNECTION POWER POLE PRESSURE REDUCING/REGULATING STATION PRESSURE RELEASE VALVE POUNDS PER SQUARE FOOT POUNDS PER SQUARE FOOT POUNDS PER SQUARE INCH PRESSURE TRANSDUCER, POINT PLUG VALVE POLYVINYL CHLORIDE PUBLIC WORKS PROJECT

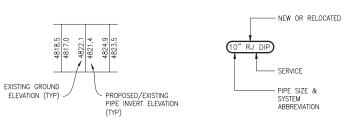
ABBREVIATIONS

	R&W RAD RBP RCP RD REF REQD REF REV RFA RFCA RJ RMJ ROW RS RT RTC RTU RW	REMOVE AND WASTE RADIUS REMOVABLE BARRIER POST REINFORCED CONCRETE PIPE ROAD REFERENCE REQUIRED RESTRAINED FLANGE ADAPTER RESTRAINED FLANGE ADAPTER RESTRAINED JOINT RESTRAINED MECHANICAL JOINT RIGHT OF WAY RESULENT SEATED RIGHT REGIONAL TRANSPORTATION COMMISSION REMOTE TELEMETRY UNIT RESILIENT WEDGE, RECLAIMED WATER, REDWOOD
SITY	S SCH SD SDMH SDR SF SS, SSWR SS, SSWR SST, SS SSMH SSPWC STA STA STA STA STMFD STMFD STMFD SSWR	SLOPE, SOUTH SCHEDULE STORM DRAIN STORM DRAIN STORM DRAIN STANDARD DIMENSION RATIO SQUARE FEET SQUARE SANITARY SEWER STANLESS STEEL SANITARY SEWER MANHOLE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION STREET STATION STREEL STANDARD STEEL SOUTH TRUCKEE MEADOWS FIRE DEPARTMENT SOUTH TRUCKEE MEADOWS GENERAL IMPROVEMENT DISTRICT SEWER
	TBC TBD TEL TEMP TMH TMWA TR TRW TW TYP	TOP BACK OF CURB TOP BACK OF ASPHALT DIKE TELEPHONE TEMPORARY TELEPHONE MANHOLE TRUCKEE MEADOWS WATER AUTHORITY TRANSITE (AC) PIPE, TRAFFIC TOP OF RETAINING WALL TOP OF WALL TYPICAL
STRATION	UGE U.N.O. UV VB VERT VFD VG	UNDERGROUND ELECTRIC UNLESS NOTED OTHERWISE UTILITY VAULT VALVE BOX VERTICAL VARUABLE FREQUENCY DRIVE VALLEY GUTTER
	W WM WV YD	WITH, WATER, WIDTH, WEST WATER METER WATER VALVE YARD



### PIPING IDENTIFICATION SYSTEM

10" RJ DIP

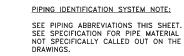


PUBLIC WORKS PROJECT

REMOVE AND REINSTALL

REMOVE AND SALVAGE

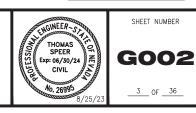
RADIUS



- EXISTING

REVISION DESCRIPTION APP DATE WORK ORDER NO. 14-0035 **LEMMON VALLEY 1 TANK REBUILD** DESIGNED TES NOT REPRODUCIBLI DRAWN JRH **RENO, NEVADA** PROPERTY OF DATE \_ AUG. 2023 TRUCKEE MEADOWS WATER AUTHORITY, RETURN UPON COMPLETION OF PROJECT CHECKED **# # T H & # T T Y** SUBMITTED \_ (Per Homeland Security Act) Quality. Delivered. RECOMMENDED **LEGENDS, AND ABBREVIATIONS** APPROVED 1355 CAPITAL BLVD. PO BOX 30013 RENO, NEVADA 89520-3013 PHONE: 775-834-8080

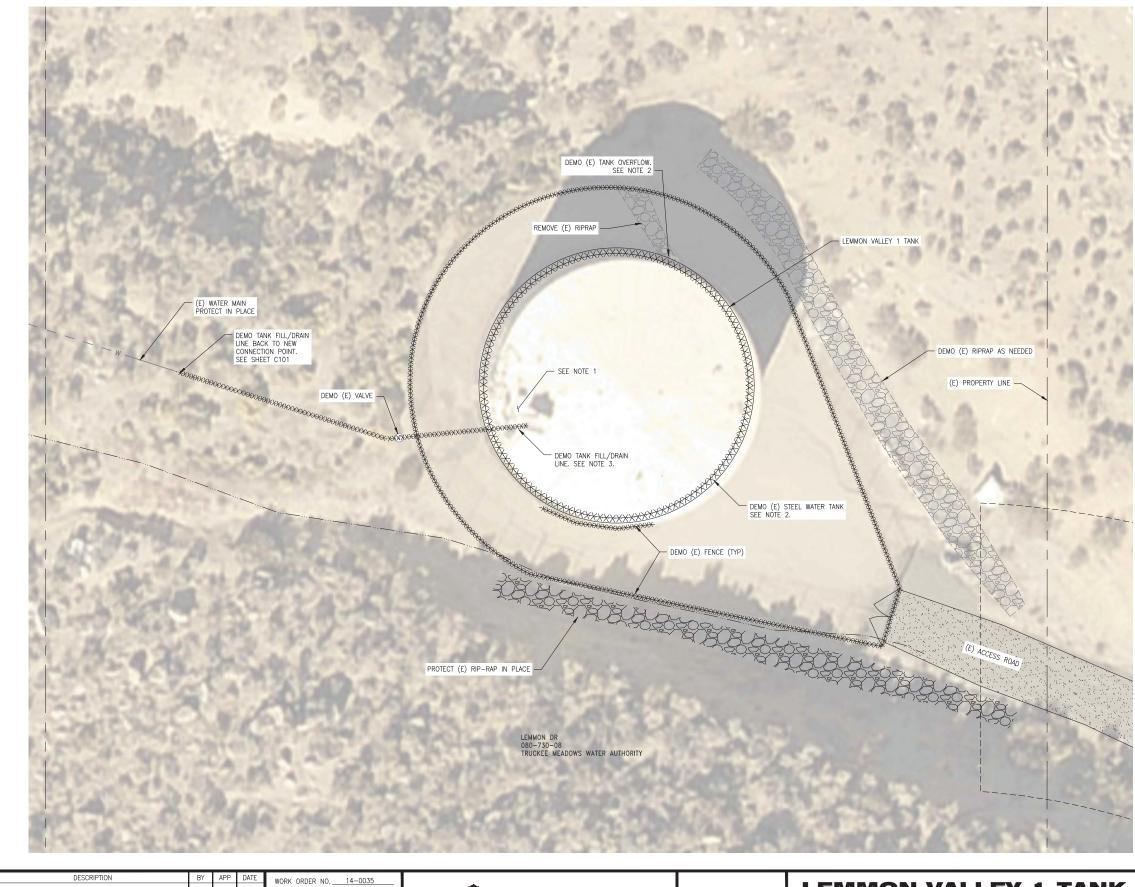




PERMIT SET

NOT FOR CONSTRUCTION AUGUST, 2023

PLAN AND PROFILE SYMBOL LEGEND											
д	PROPOSED TEE / TAPPING SLEEVE										
ц	PROPOSED 90' ELBOW										
<b>4</b>	PROPOSED 45' ELBOW										
7	PROPOSED 11.25* ELBOW										
н	PROPOSED VERTICAL ELBOW										
н	EXISTING VERTICAL ELBOW										
<b>A</b>	PROPOSED THRUST BLOCK										
	PROPOSED REDUCER										
÷.	PROPOSED GATE VALVE PLAN										
M	PROPOSED GATE VALVE PROFILE										
6	PROPOSED GATE VALVE - NORMALLY CLOSED										
•	EXISTING ISOLATION VALVE										
®	EXISTING ISOLATION VALVE - NORMALLY CLOSED										
•	PROPOSED COUPLING										
Ŧ	PROPOSED CAP / FCA WITH BLIND FLANGE EXISTING CAP										
•	PROPOSED NEW WATER METER BOX AND COVER										
	EXISTING WATER METER FACILITY										
	PROPOSED FLUSH ASSEMBLY										
	EXISTING FLUSH ASSEMBLY										
Ś	PROPOSED SSMH BY OTHERS										
Ø.	EXISTING SSMH TO BE DEMO BY OTHERS										
φ	EXISTING SINGLE CHECK VALVE										
A FH⊷	EXISTING FIRE HYDRANT										
⊗ ₩V⊗	EXISTING WATER VALVE										
0	EXISTING STORM DRAIN MANHOLE (SDMH)										
S 8	EXISTING SANITARY SEWER MANHOLE (SSMH)										
<u>A</u>	EXISTING STORM DRAIN CATCH BASIN TYPE 1 EXISTING STORM DRAIN CATCH BASIN TYPE 4-R										
	EXISTING STORM DRAIN CATCH BASIN TYPE 4-R EXISTING ROUND STORM DRAIN CATCH BASIN WITH GRATE										
GV	EXISTING NOUND STORM DIGIN CATCH DASIN WITH GRATE										
Ň	EXISTING NATURAL GAS CAP										
۵	EXISTING NATURAL GAS REDUCER										
С D	EXISTING UTILITY POLE										
Ð	EXISTING UNDERGROUND ELECTRIC VAULT WITH MANHOLE ACCESS										
EB	EXISTING ELECTRIC BOX / VAULT (SIZES VARY)										
ET	EXISTING ELECTRIC TRANSFORMER										
TEL	EXISTING TELECOMMUNICATIONS BOX / VAULT (SIZES VARY)										
0	EXISTING TELECOMMUNICATIONS VAULT WITH MANHOLE ACCESS										
TV	EXISTING CHARTER COMMUNICATIONS CABLE TV/FIBER OPTIC BOX (SIZES VARY)										
TS	EXISTING TRAFFIC SIGNAL BOX (SIZES VARY)										
TR	EXISTING TRAFFIC SIGNAL CABLE MANHOLE ACCESS BOX										
<u>ت ۳</u>	EXISTING TRAFFIC SIGNAL - MULTIPLE LIGHTS WITH ARM										
<b>忠</b>	EXISTING TRAFFIC SIGNAL - SINGLE LIGHT										
•¢	EXISTING STREET LIGHT										
×	EXISTING (FOUND) MONUMENT										
A	SURVEY CONTROL POINT										
MSP4	EXISTING METAL SIGN POST										
ලා	EXISTING TREE										
	FLOW ARROW BARRIER POST										
0	REMOVABLE BARRIER POST										
$\smile$	HENOROEE ON MENTOOT										



DESCRIPTION	BY	APP	DATE	WORK ORDER NO.         14-0035           DESIGNED         TES           DRAWN         JRH           DATE         AUG. 2023           CHECKED         SUBMITTED           SECOMMENDED         SUBMITTED	TRUCKEE MEADOWC WATER	NOT REPRODUCIBLE PROPERTY OF TRUCKEE MEADOWS WATER AUTHORITY, RETURN UPON COMPLETION OF PROJECT (Per Homeland Security Act)	<b>LEMMON VALLEY 1 TAN</b> RENO, NEVADA
				APPROVED	1355 CAPITAL BLVD. PO BOX 30013 RENO, NEVADA 89520-3013 PHONE: 775-834-8080		DEMOLITION PL

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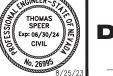
NOTES:

- 1. ROOF MOUNTED APPURTENANCES TO BE REMOVED BY TMWA PRIOR TO DEMO.
- DEMO (E) WATER TANK, RETAINING RING, AND APPURTENANCES.
- 3. CUT AND CAP (E) TANK FILL/DRAIN PIPE AT A PROPER LOCATION THAT WILL ALLOW CONNECTION FOR NEW.

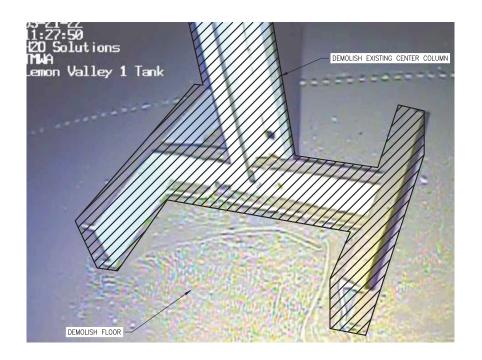


SHEET NUMBER

N PLAN





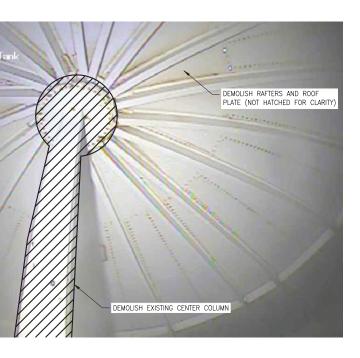


CENTER COLUMN - BASE



CENTER COLUMN - MIDDLE

ISION	DESCRIPTION	BY	APP	DATE	WORK ORDER NO. 14-0035			
					DESIGNED TES	<b>**</b>	NOT DEPRODUCIDUE	LEMMON VALLEY 1 7
					DRAWN K. GONZALEZ		NOT REPRODUCIBLE	RENO, NEVA
					DATE AUG. 2023	TRUCKEE MEADOWS WATER	PROPERTY OF TRUCKEE MEADOWS WATER	RENO, NEVA
					CHECKED	<b>**</b> TH <b>*</b> 1TY	AUTHORITY, RETURN UPON COMPLETION OF PROJECT	
					SUBMITTED	Quality. Delivered.	(Per Homeland Security Act)	
					RECOMMENDED	··· •		INTERIOR DEMO
					APPROVED	1355 CAPITAL BLVD. PO BOX 30013 RENO, NEVADA 89520-3013 PHONE: 775-834-8080		

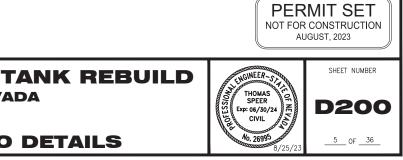


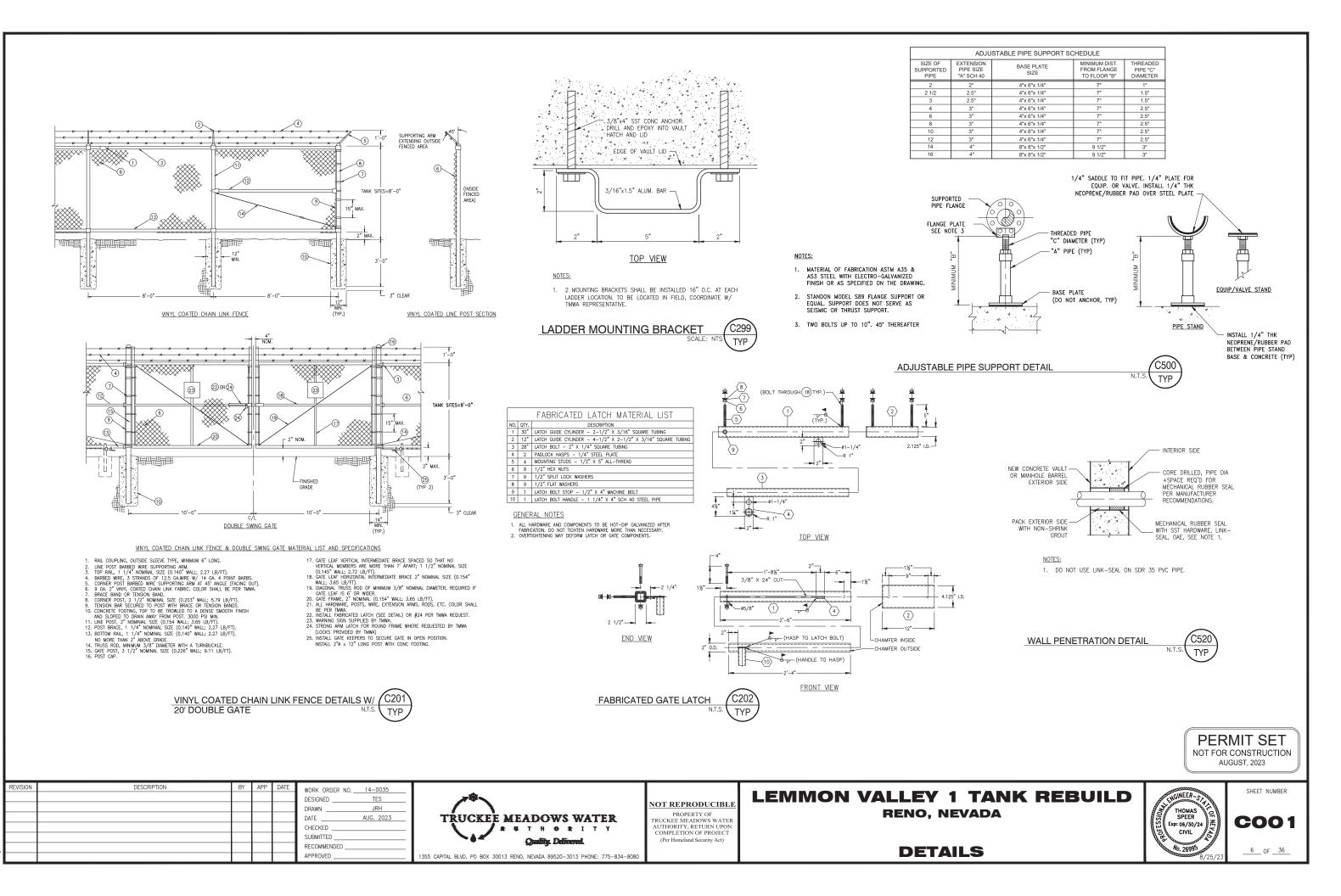
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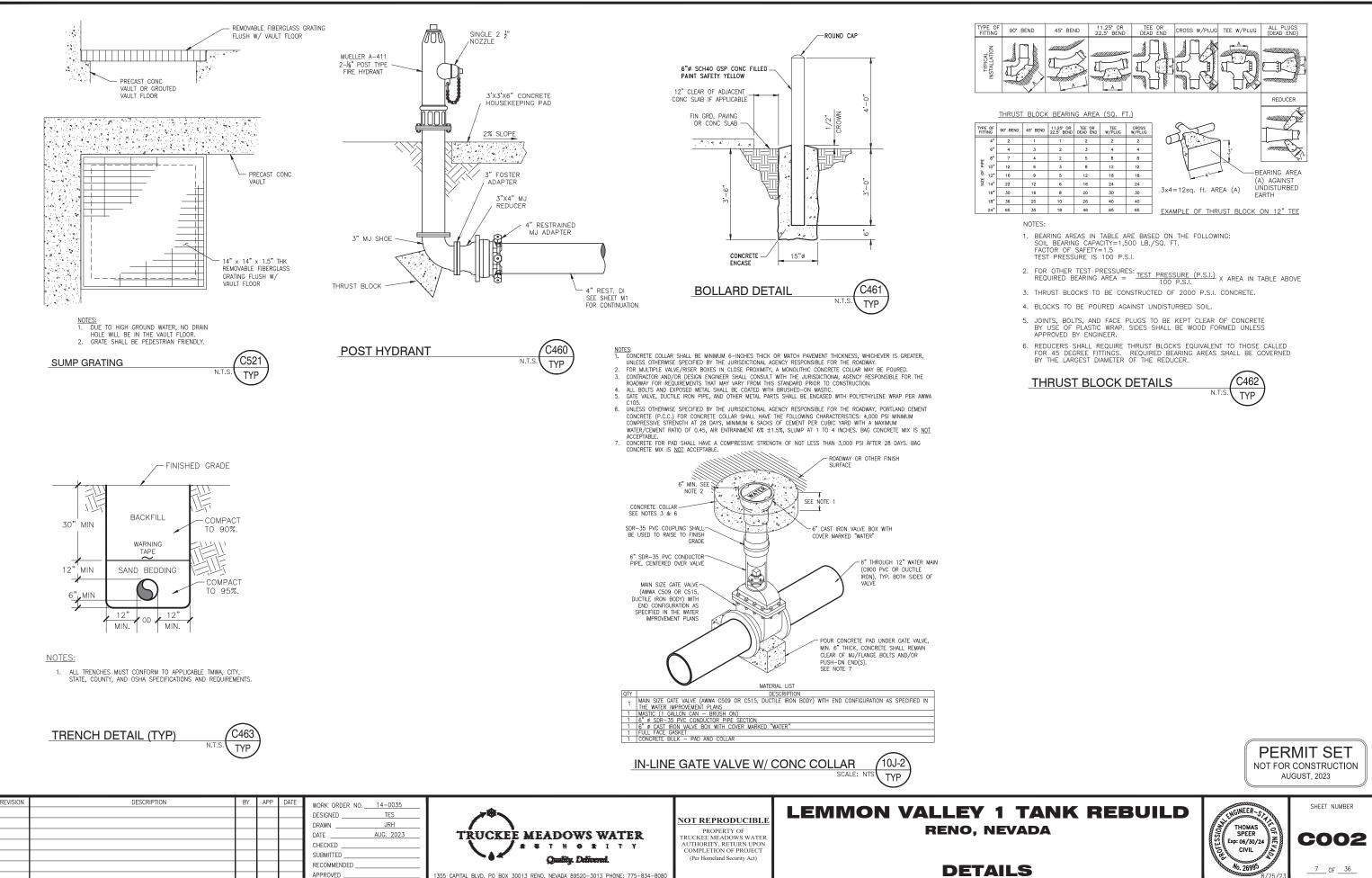
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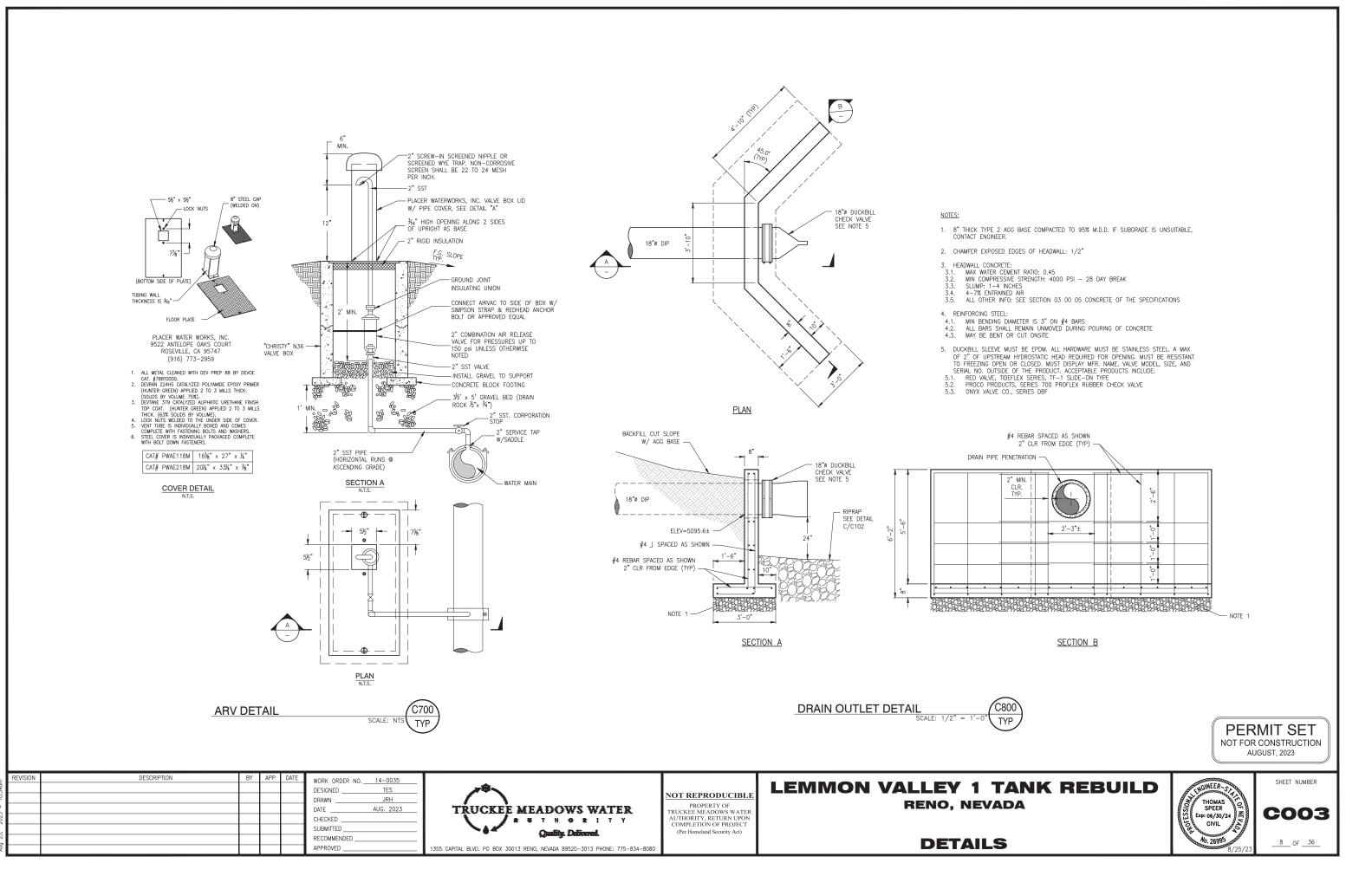
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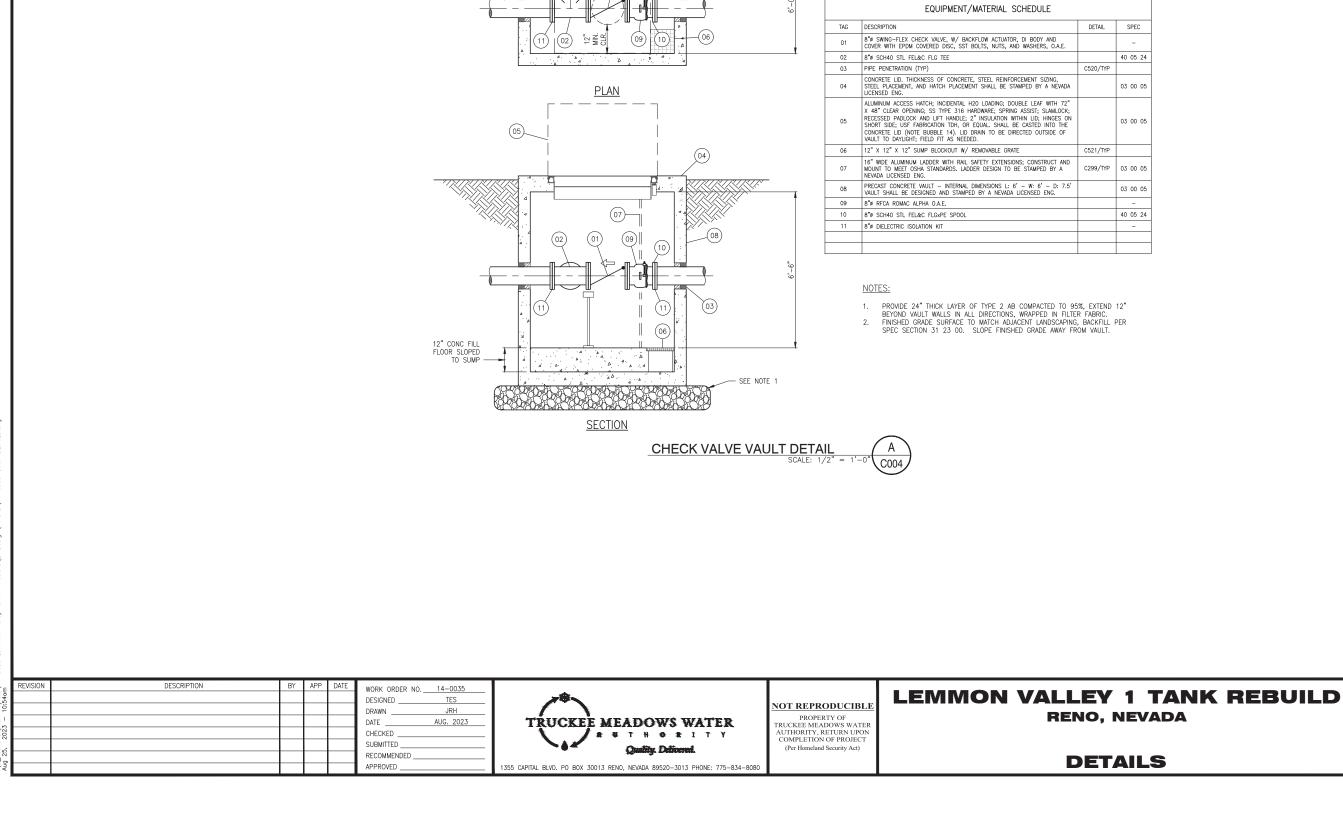
- THESE DETAILS ARE INTENDED TO PROVIDE THE CONTRACTOR WITH INFORMATION AS TO THE CONSTRUCTION OF THE TANK FROM THE INSIDE. NOT ALL ITEMS HAVE BEEN CALLED OUT OR HATCHED FOR CLARITY.
- 2. THE ENTIRE TANK IS TO BE DEMOLISHED.











6'-0"

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(08)

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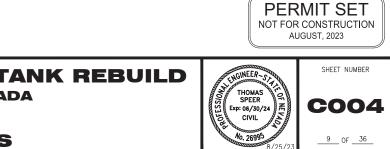
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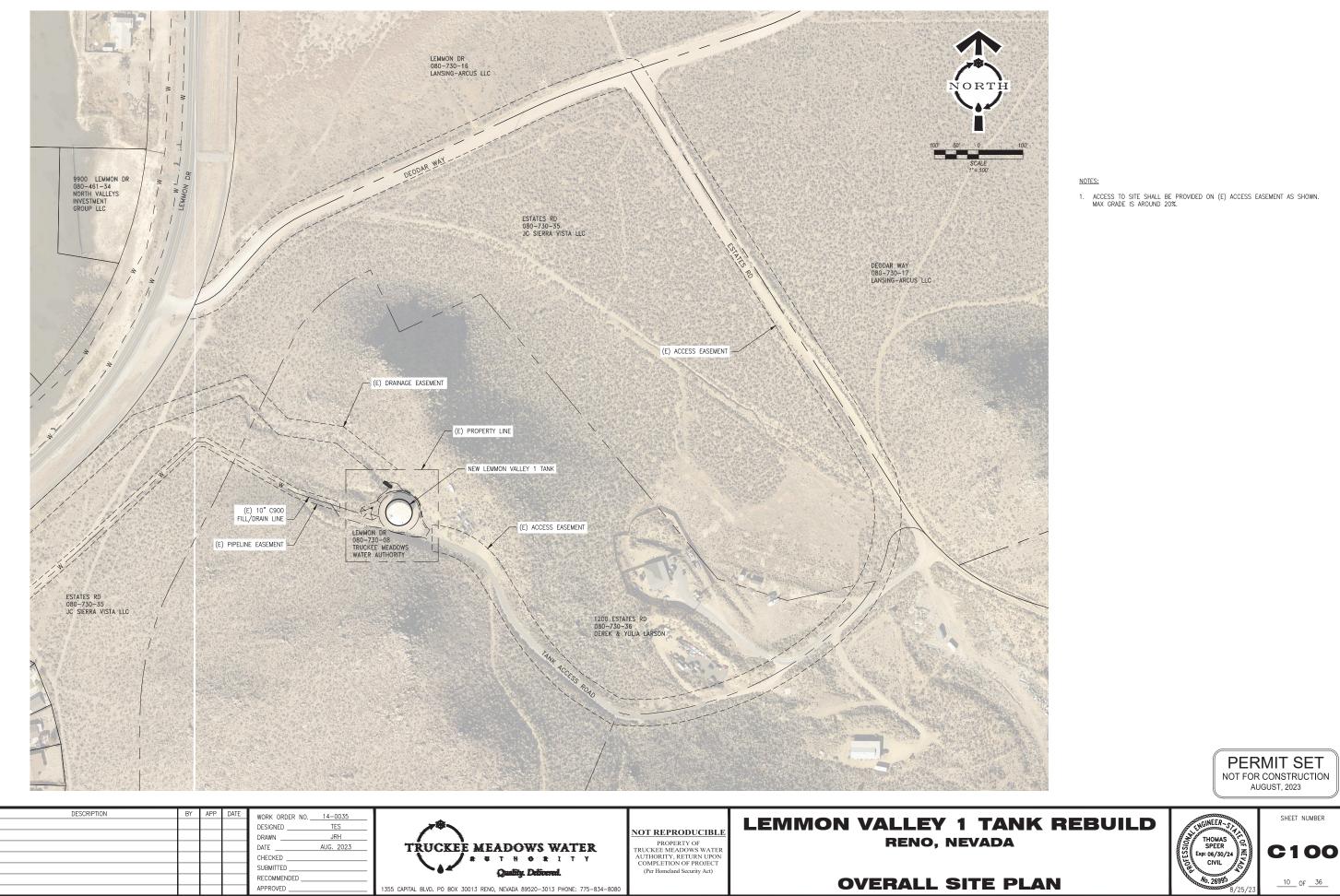
2" PE PT SENSING LINE

- 2" SST BALL VALVE. SEE DETAIL X/XX

6" MIN. CLR. (TYP)

8" DIP. SEE SHEET C101 (TYP 3) –

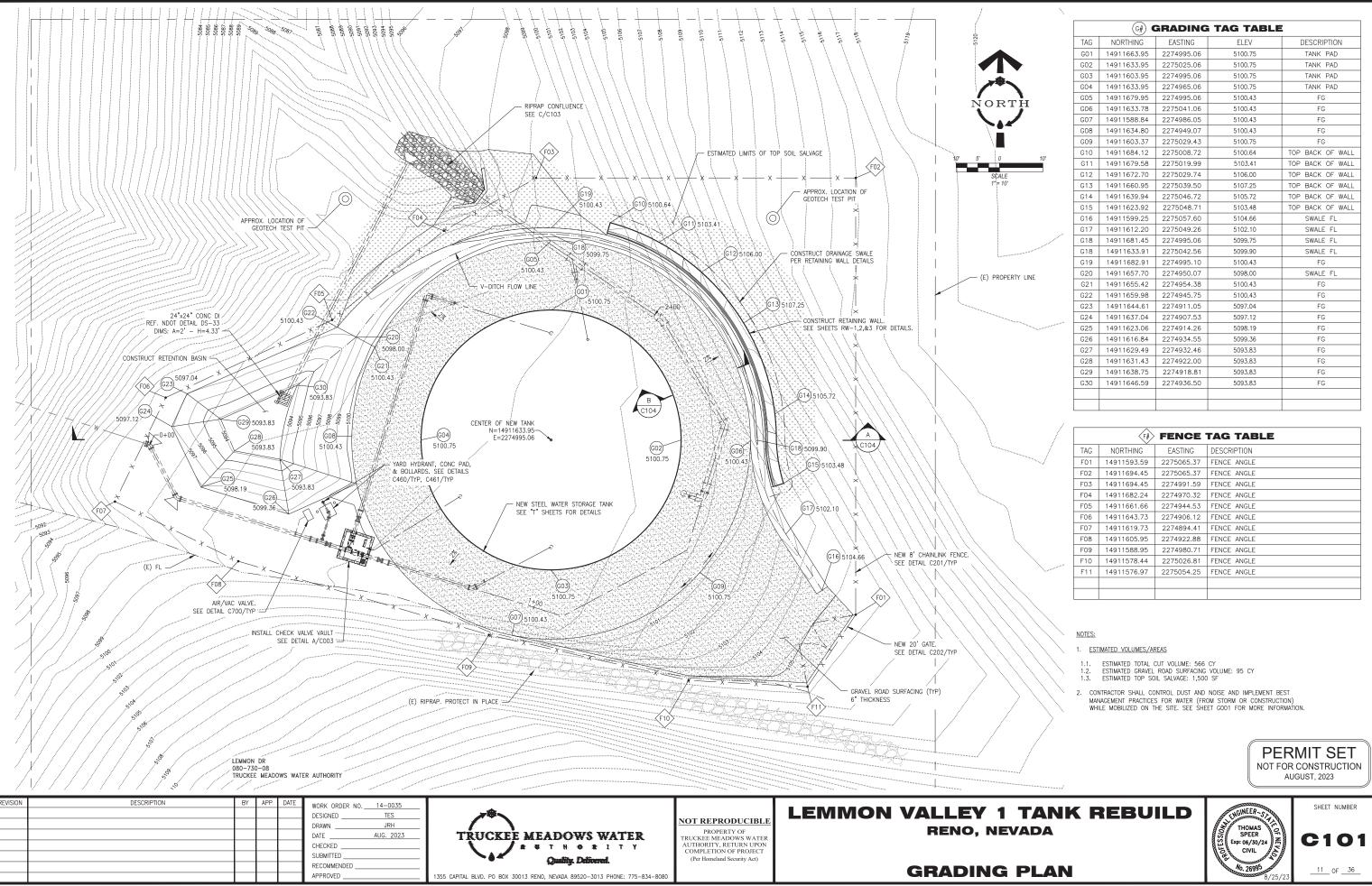




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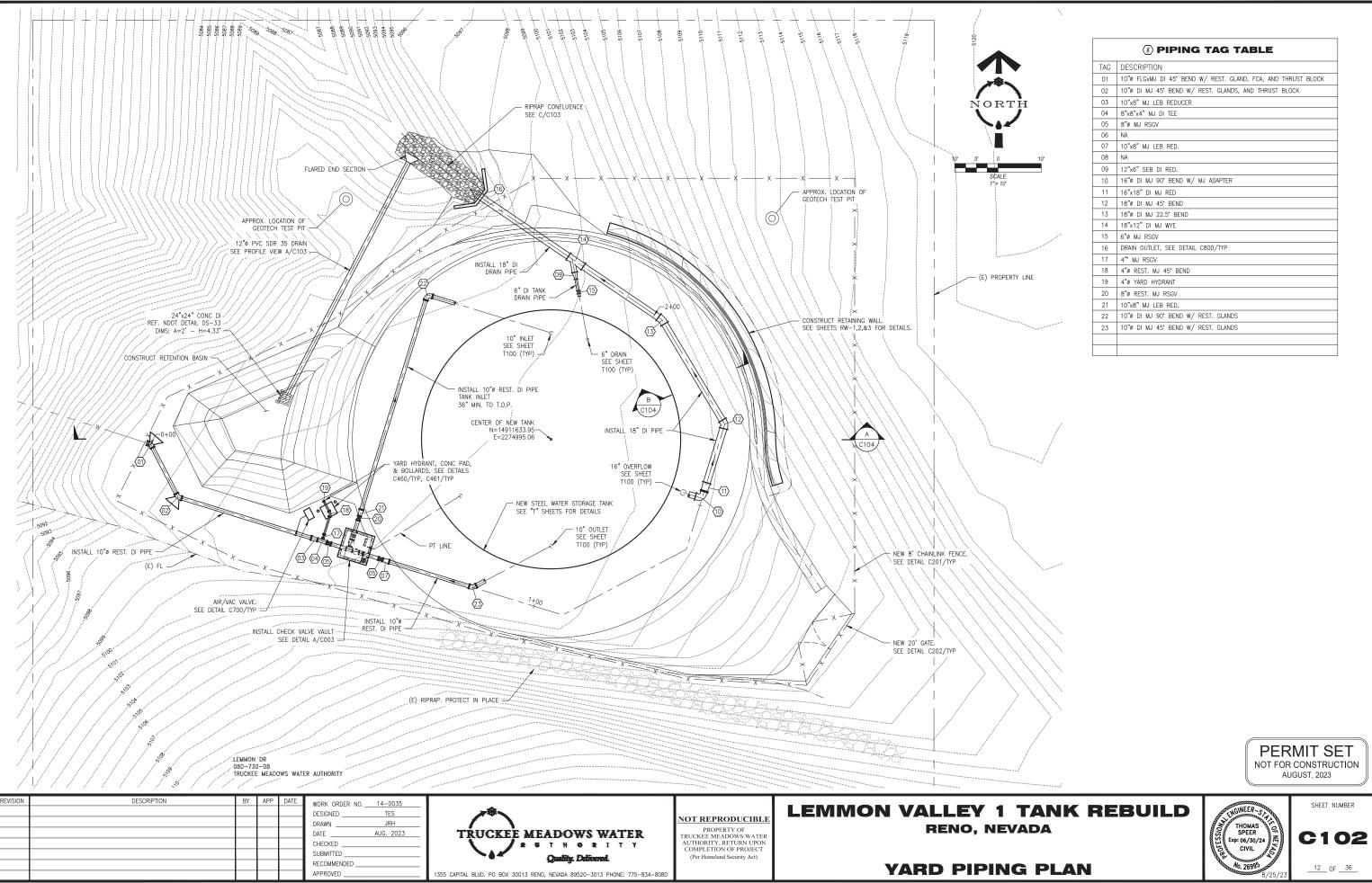




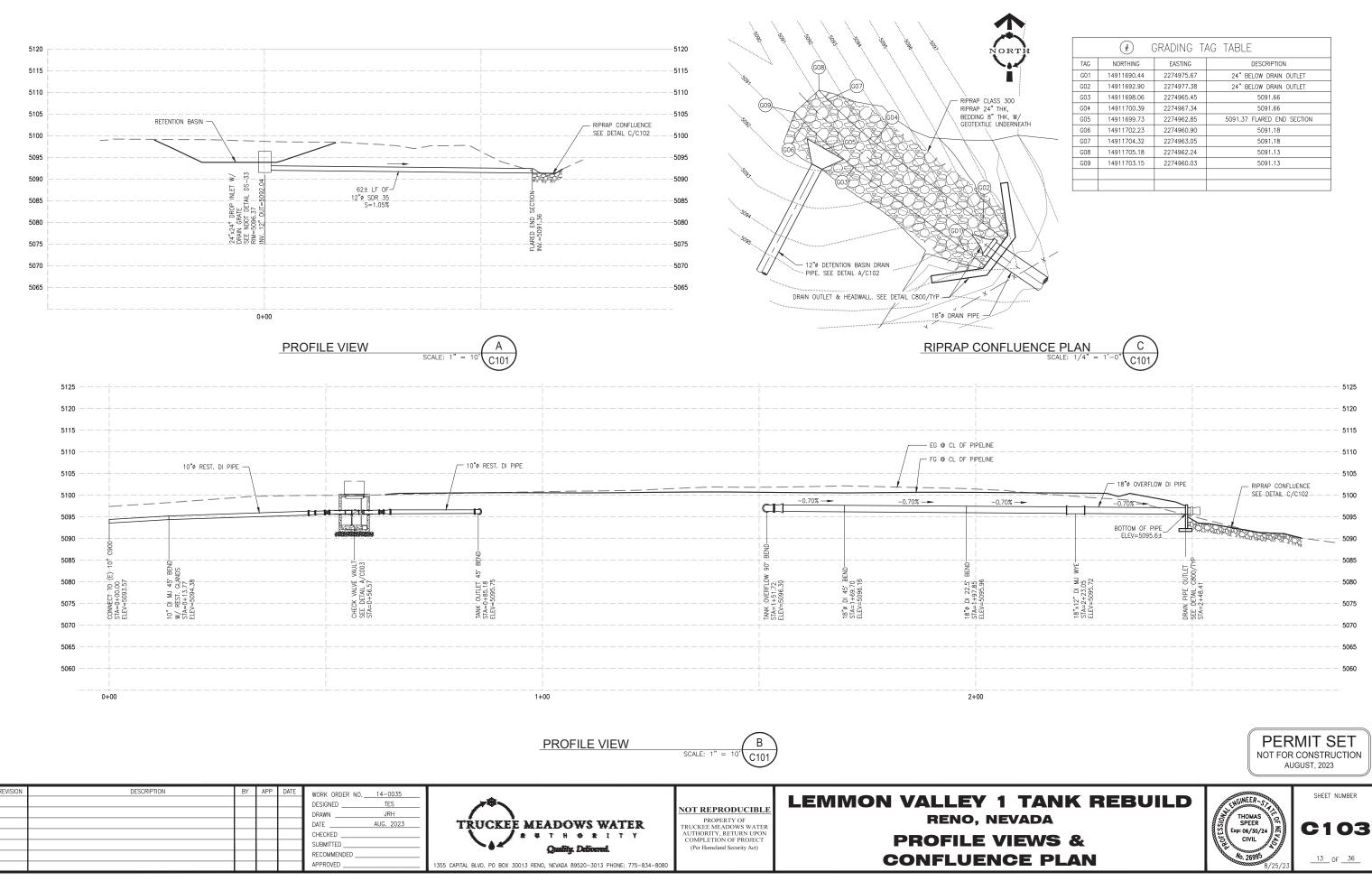


	(G#) (	GRADING '	IAG IABL	.6
TAG	NORTHING	EASTING	ELEV	DESCRIPTION
G01	14911663.95	2274995.06	5100.75	TANK PAD
G02	14911633.95	2275025.06	5100.75	TANK PAD
G03	14911603.95	2274995.06	5100.75	TANK PAD
G04	14911633.95	2274965.06	5100.75	TANK PAD
G05	14911679.95	2274995.06	5100.43	FG
G06	14911633.78	2275041.06	5100.43	FG
G07	14911588.84	2274986.05	5100.43	FG
G08	14911634.80	2274949.07	5100.43	FG
G09	14911603.37	2275029.43	5100.75	FG
G10	14911684.12	2275008.72	5100.64	TOP BACK OF W
G11	14911679.58	2275019.99	5103.41	TOP BACK OF W
G12	14911672.70	2275029.74	5106.00	TOP BACK OF WA
G13	14911660.95	2275039.50	5107.25	TOP BACK OF W
G14	14911639.94	2275046.72	5105.72	TOP BACK OF W
G15	14911623.92	2275048.71	5103.48	TOP BACK OF W
G16	14911599.25	2275057.60	5104.66	SWALE FL
G17	14911612.20	2275049.26	5102.10	SWALE FL
G18	14911681.45	2274995.06	5099.75	SWALE FL
G18	14911633.91	2275042.56	5099.90	SWALE FL
G19	14911682.91	2274995.10	5100.43	FG
G20	14911657.70	2274950.07	5098.00	SWALE FL
G21	14911655.42	2274954.38	5100.43	FG
G22	14911659.98	2274945.75	5100.43	FG
G23	14911644.61	2274911.05	5097.04	FG
G24	14911637.04	2274907.53	5097.12	FG
G25	14911623.06	2274914.26	5098.19	FG
G26	14911616.84	2274934.55	5099.36	FG
G27	14911629.49	2274932.46	5093.83	FG
G28	14911631.43	2274922.00	5093.83	FG
G29	14911638.75	2274918.81	5093.83	FG
G30	14911646.59	2274936.50	5093.83	FG

	(F#	FENCE	TAG TABLE
TAG	NORTHING	EASTING	DESCRIPTION
F01	14911593.59	2275065.37	FENCE ANGLE
F02	14911694.45	2275065.37	FENCE ANGLE
F03	14911694.45	2274991.59	FENCE ANGLE
F04	14911682.24	2274970.32	FENCE ANGLE
F05	14911661.66	2274944.53	FENCE ANGLE
F06	14911643.73	2274906.12	FENCE ANGLE
F07	14911619.73	2274894.41	FENCE ANGLE
F08	14911605.95	2274922.88	FENCE ANGLE
F09	14911588.95	2274980.71	FENCE ANGLE
F10	14911578.44	2275026.81	FENCE ANGLE
F11	14911576.97	2275054.25	FENCE ANGLE



TAG	DESCRIPTION
01	10"Ø FLGxMJ DI 45° BEND W/ REST. GLAND, FCA, AND THRUST BLOCK
02	10"Ø DI MJ 45' BEND W/ REST. GLANDS, AND THRUST BLOCK
03	10"x8" MJ LEB REDUCER
04	8"x8"x4" MJ DI TEE
05	8"Ø MJ RSGV
06	NA
07	10"x8" MJ LEB RED.
08	NA
09	12"x6" SEB DI RED.
10	16"Ø DI MJ 90° BEND W/ MJ ADAPTER
11	16"x18" DI MJ RED
12	18"Ø DI MJ 45" BEND
13	18"Ø DI MJ 22.5" BEND
14	18"x12" DI MJ WYE
15	6"Ø MJ RSGV
16	DRAIN OUTLET, SEE DETAIL C800/TYP
17	4" MJ RSGV
18	4"Ø REST. MJ 45" BEND
19	4"Ø YARD HYDRANT
20	8"Ø REST. MJ RSGV
21	10"x8" MJ LEB RED.
22	10"Ø DI MJ 90" BEND W/ REST. GLANDS
23	10"ø DI MJ 45' BEND W/ REST. GLANDS



	#	GRADING T	AG TABLE
TAG	NORTHING	EASTING	DESCRIPTION
G01	14911690.44	2274975.67	24" BELOW DRAIN OUTLET
G02	14911692.90	2274977.38	24" BELOW DRAIN OUTLET
G03	14911698.06	2274965.45	5091.66
G04	14911700.39	2274967.34	5091.66
G05	14911699.73	2274962.85	5091.37 FLARED END SECTION
G06	14911702.23	2274960.90	5091.18
G07	14911704.32	2274963.05	5091.18
G08	14911705.18	2274962.24	5091.13
G09	14911703.15	2274960.03	5091.13

	4 (4"	4' 0"		-)			
SCALE:	1/4" =	1-0	<b>\</b> C101				
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		/ 18	ø overf	LOW DI	PIPE		
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		$\vdash$	70%			 	

DESCRIPTION	APP DATE WORK ORDER	R NO. <u>14-0035</u> TES	— I	1.			IEMMON	VALLEY 1
DESCRIPTION BY	APP DATE WORK OPDER					· · · ·		
					RING ROAD SUR	<b>EFACING</b> SCALE: 1/2" = 1'-0"	B C101	
							COMPACTED NATIVE SUBGRADE	<b>A</b>
							GRAVEL ROAD SURFACING 6" THICKNESS	۲. Na hair an
				TAN	K WALL			
					SECTION VIEW	SCALE: 1" = 10'	A C101	
			       	·			       	
				RING ROAD				<u>+</u>
	RETEN SEE GR	ntion basin Rading plan —				-0 Ø WALEN SIOKAGE TANK. SEE SHEET C200		FRETAINING WALL SEE GRADING PLAN
				·	NEW 60	'−0"ø water storage tank.		← RETAINING WALL
				·				

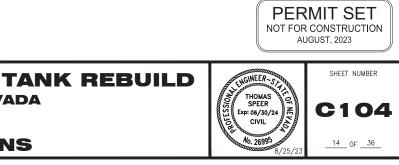
1355 CAPITAL BLVD. PO BOX 30013 RENO, NEVADA 89520-3013 PHONE: 775-834-8080

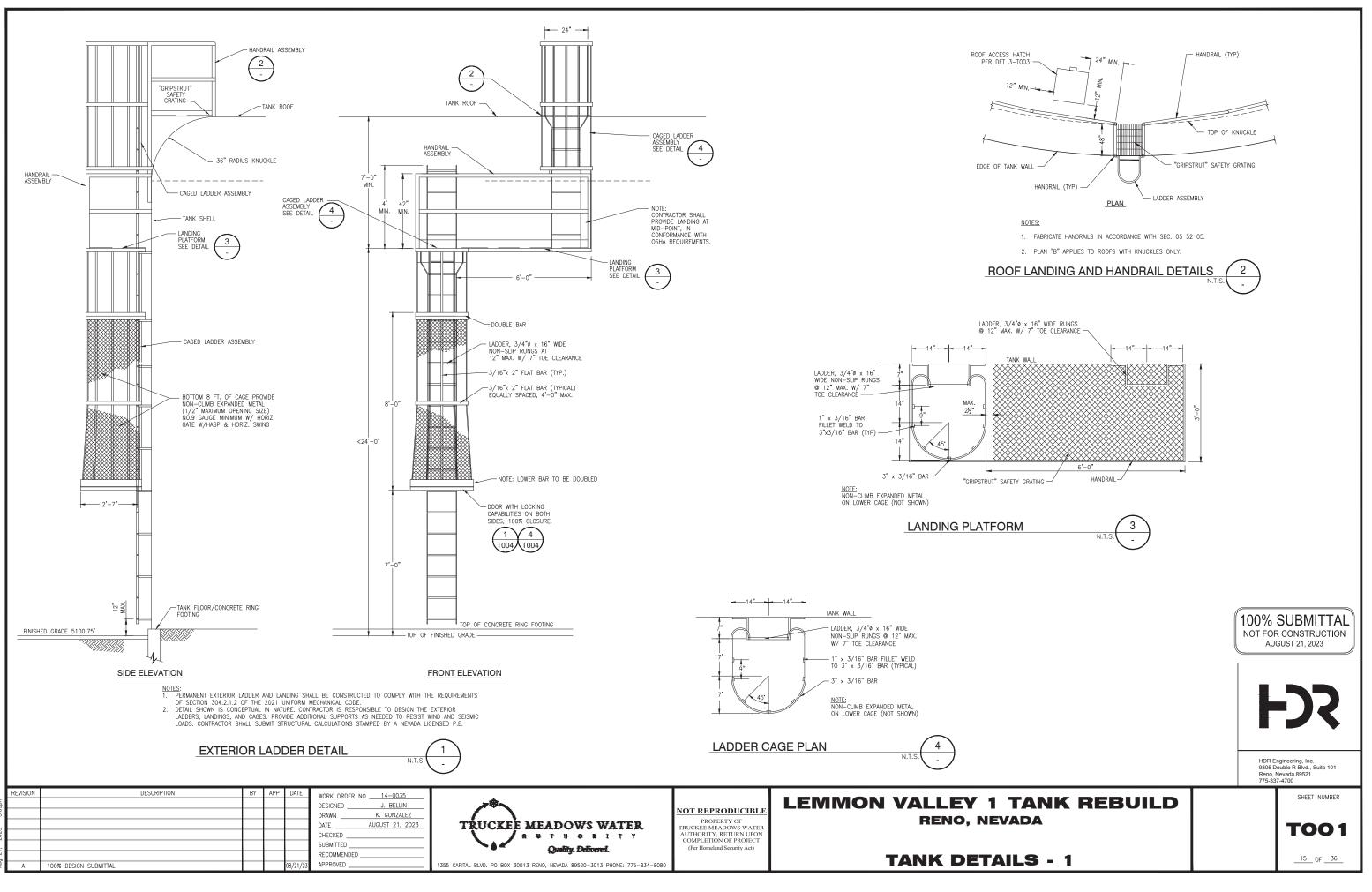
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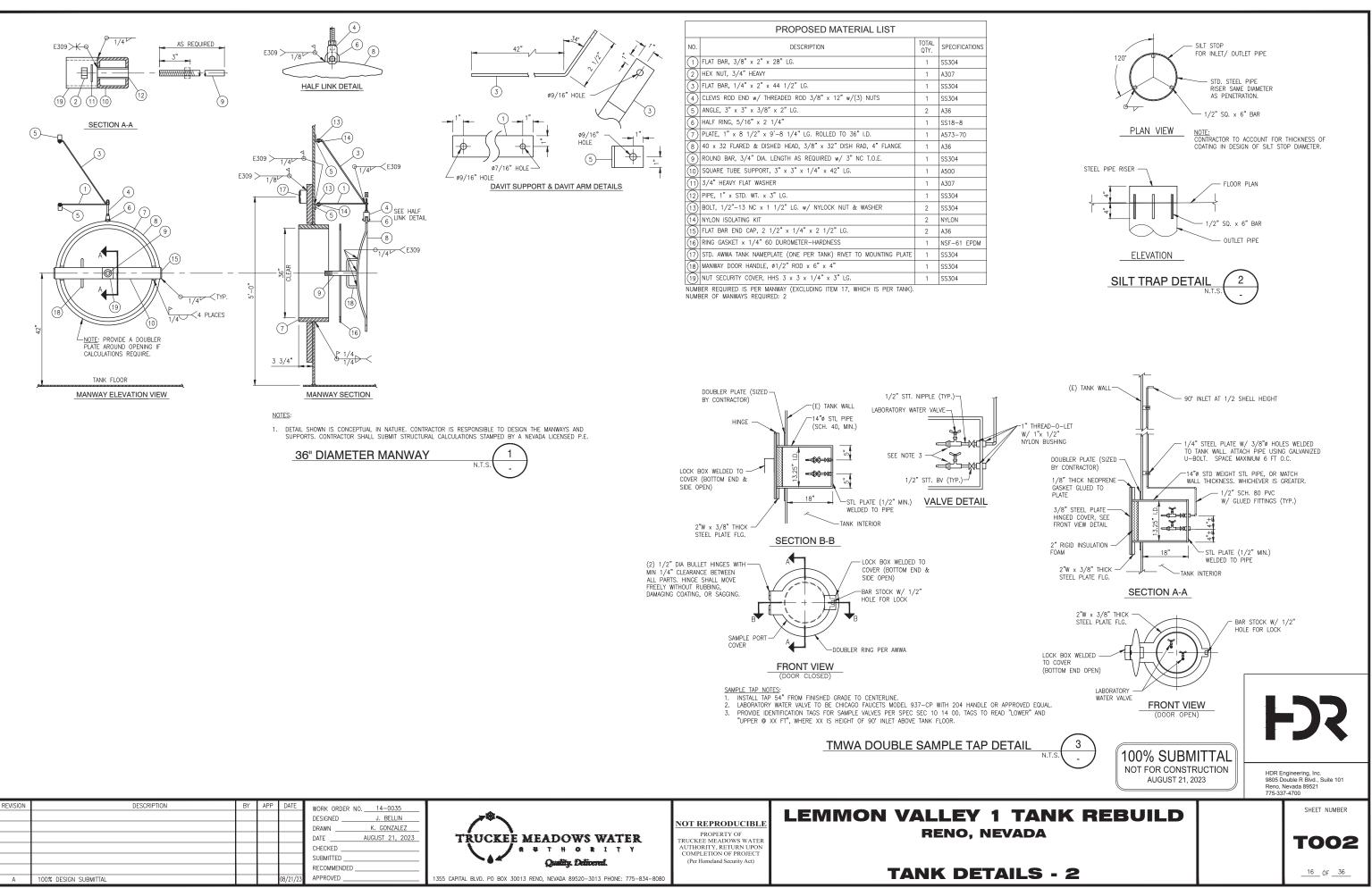
SECTIONS

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 _	_	_	_	_	_	-	5105
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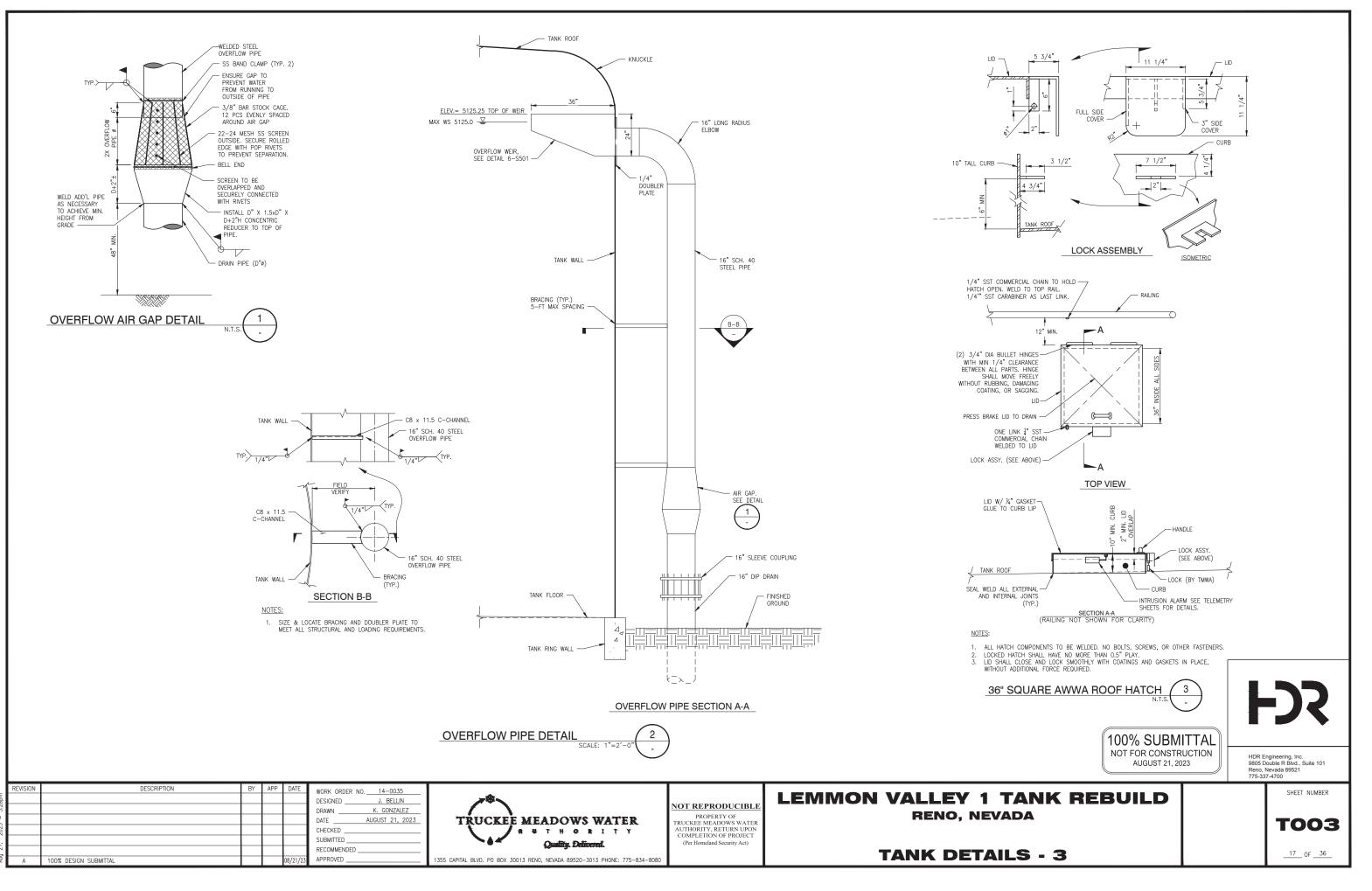


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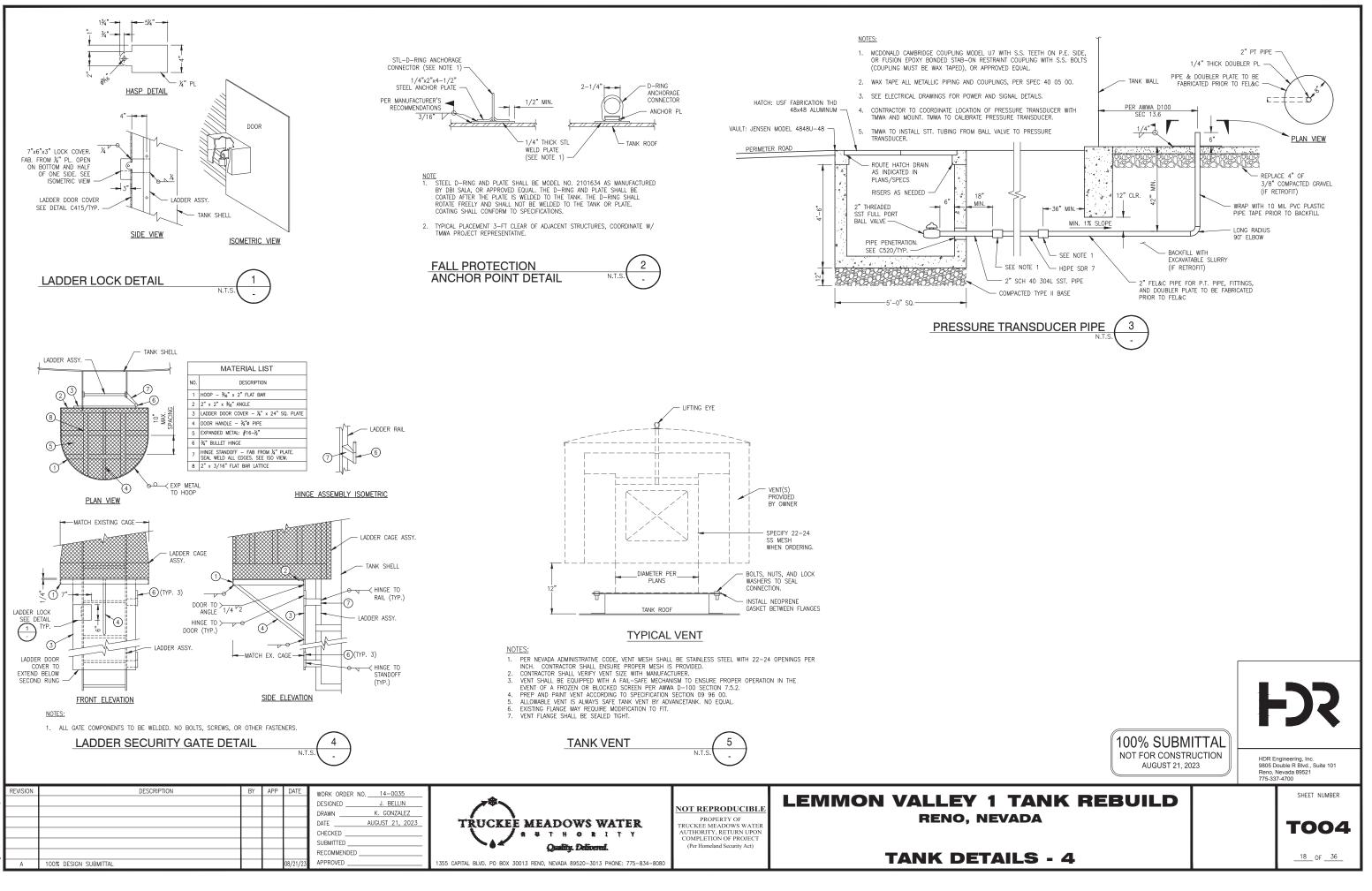


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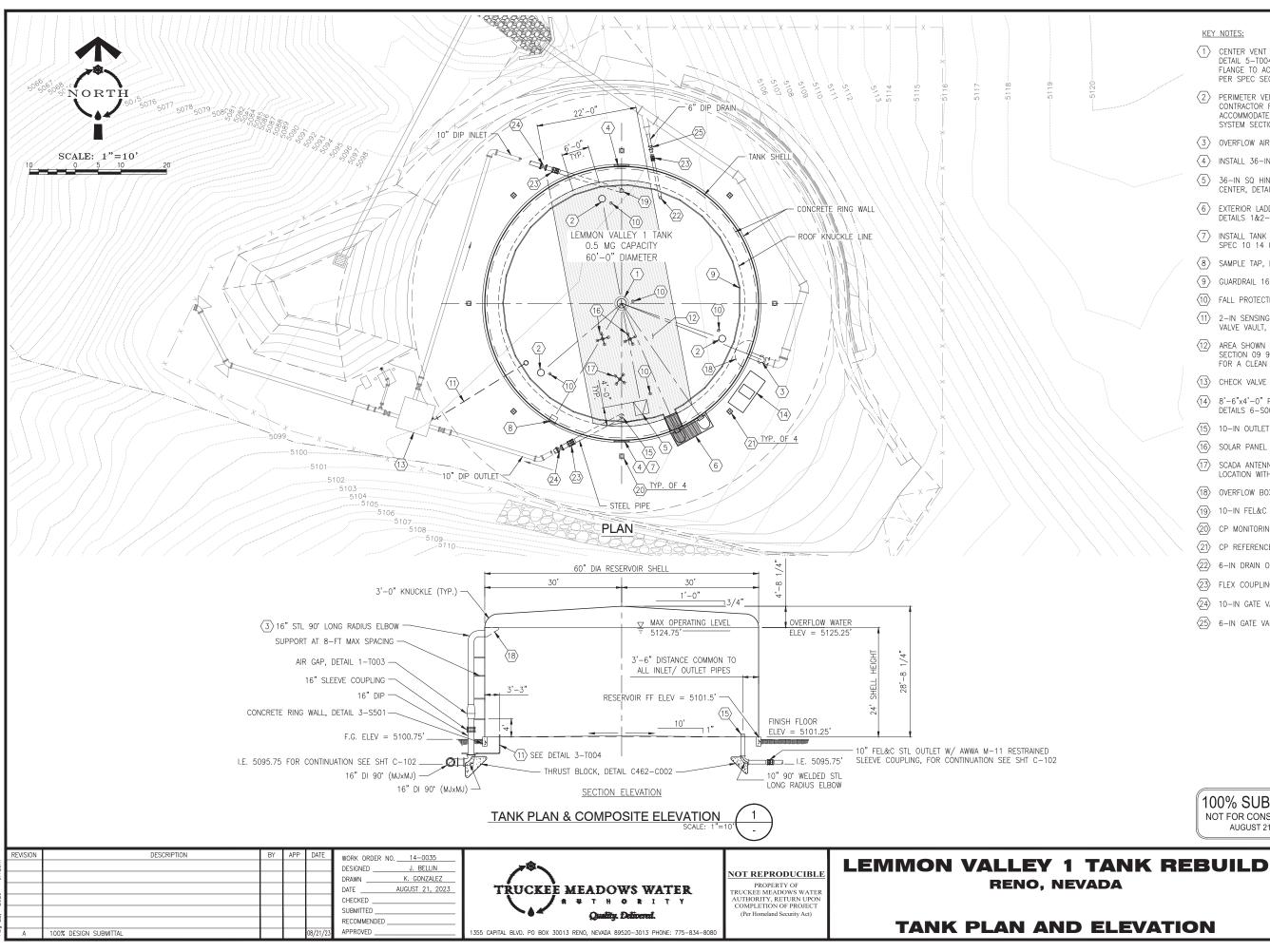
 Quality. Delivered.	COMPLETION OF PROJECT (Per Homeland Security Act)	
 1355 CAPITAL BLVD. PO BOX 30013 RENO, NEVADA 89520-3013 PHONE: 775-834-8080		TANK DETAILS - 2



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- (1) CENTER VENT PROVIDED BY TMWA, 24-IN DIAMETER, DETAIL 5-T004. CONTRACTOR RESPONSIBLE TO FABRICATE FLANGE TO ACCOMMODATE VENTS. APPLY COATING SYSTEM PER SPEC SECTION 09 96 00.
- 2 PERIMETER VENT PROVIDED BY TMWA, 18-IN DIAMETER. CONTRACTOR RESPONSIBLE TO FABRICATE FLANGE TO ACCOMMODATE VENTS. DETAIL 5-TO04. APPLY COATING SYSTEM SECTION 09 96 00.
- $\left< \overline{3} \right>$  Overflow air gap, detail 1-too3.
- (4) INSTALL 36-IN DIA MANWAY, DETAIL 1-T002.
- $\left< 5 \right>$  36-IN SQ HINGED ROOF HATCH W/ LOCK BOX FACING TANK CENTER, DETAIL 3-TO03.
- 6 EXTERIOR LADDER ASSEMBLY W/ SAFETY CAGE, DETAILS 1&2-T001.
- $\left<\overline{7}\right>$  INSTALL TANK NAMEPLATE PER DETAIL 1–T002 AND SPEC 10 14 00.
- (8) SAMPLE TAP, DETAIL 3-T002.
- $\langle 9 \rangle$  GUARDRAIL 162–LF, DETAIL 1–S002.
- (10) FALL PROTECTION ANCHOR POINT, DETAIL 2-T004.
- (1) 2-IN SENSING PIPE TO PRESSURE TRANSDUCER IN CHECK VALVE VAULT, DETAIL 3-T004.
- (12) AREA SHOWN TO RECEIVE A NON-SLIP COATING. REFER TO SECTION 09 96 00 OF THE SPECIFICATIONS. TAPE EDGE FOR A CLEAN LINE.
- (13) CHECK VALVE VAULT, DETAIL A-COO4.
- (14) 8'-6"x4'-0" PAD FOR RTU AND BATTERY, DETAILS 6-S002 AND 1-E501.
- (15) 10-IN OUTLET WITH SILT STOP, DETAIL 2-T002.
- $\langle 16 \rangle$  SOLAR PANEL MAST, DETAIL 3-E500.
- (17) SCADA ANTENNA MAST, DETAIL 3-E500. COORDINATE LOCATION WITH TMWA.
- (18) OVERFLOW BOX, DETAIL 2-T003.
- (19) 10-IN FEL&C STEEL INLET.
- (20) CP MONITORING STATION, SEE SHT CP500.
- (21) CP REFERENCE CELL, SEE SHT CP500.
- 22 6-IN DRAIN OUTLET.
- 23 FLEX COUPLING W/ M11 RESTRAINT HARNESS.
- 24 10-IN GATE VALVE (MJ×MJ).
- $\langle 25 \rangle$  6-IN GATE VALVE (MJ×MJ).

100% SUBMITTAL

NOT FOR CONSTRUCTION

AUGUST 21, 2023







**T100** 

19\_OF\_36

- NO WALL SHALL BE CONSTRUCTED ON AN UNSTABLE SLOPE. IF IT IS DETERMINED IN THE FIELD THAT THE EXISTING SLOPE IS NOT STABLE, THE SLOPE MUST FIRST BE STABILIZED (I.E. MSE, SOIL NAILING OR 13) CAP BLOCK PLACEMENT 1) APPROVED ALTERNATE) THE CONTRACTOR IS RESPONSIBLE FOR STABILITY DURING CONSTRUCTION.
- PERMANENT BMP'S SHALL BE DESIGNED AND INSTALLED TO CONVEY STORM WATER TO PROPERLY DESIGNED STORM WATER CONTROL SYSTEMS, AND PROVIDE EROSION PROTECTION AT THE TOE OF THE WALL TO PREVENT STORM WATER RUNOFF FROM UNDERCUTTING BASE OF RETAINING WALLS.
- EROSION CONTROL MEASURES WILL REQUIRE MAINTENANCE OVER THE LIFETIME OF THE DEVELOPMENT AND SHOULD BE CONSIDERED A PRIMARY MAINTENANCE OBJECTIVE
- 4) CONSTRUCTION OBSERVATION AND INSPECTION
  - a. THE OWNER'S QUALIFIED INSPECTION FIRM SHALL VERIFY THE MATERIALS SUPPLIED BY THE CONTRACTOR MEET ALL THE REQUIREMENTS OF THE SPECIFICATION. THIS INCLUDES ALL SUBMITTALS AND PROPER INSTALLATION OF THE SYSTEM.
  - THE CONTRACTOR'S FIELD CONSTRUCTION SUPERVISOR SHALL HAVE DEMONSTRATED EXPERIENCE AND BE QUALIFIED TO DIRECT ALL WORK AT THE SITE.
- 5) GENERAL DEFINITION
  - c. SEGMENTED RETAINING WALL UNITS: DRY-STACKED COLUMN OF CONCRETE UNITS THAT CREATE THE MASS OF A CONVENTIONAL SEGMENTED RETAINING WALL (SRW). REFER TO DETAIL SHEETS RW-2 AND RW-3
  - d. UNIT DRAINAGE FILL: FREE-DRAINING, COARSE GRAINED AGGREGATES PLACED IN THE CORES AND BETWEEN THE SRW UNITS EXTENDING A MINIMUM LATERAL DISTANCE OF 12-INCHES BEHIND THE TAIL OF THE SRW UNITS , REFER TO TABLE 1 FOR GRADATION REQUIREMENTS), UNIT DRAINAGE FILL SHALL BE FREE OF ORGANIC, CLAY, OR OTHER DELETERIOUS MATERIALS
  - e. REINFORCED SOIL: COMPACTED SOIL (REFER TO TABLE 3) CONFINED BY/BETWEEN GEOGRID REINFORCEMENT APPLICABLE TO REINFORCED SRW SYSTEMS. SRW UNITS AND REINFORCED SOILS ARE TREATED AS A SINGLE HOMOGENOUS ZONE CONTRIBUTING TO THE MASS AND WIDTH OF THE STRUCTURE; THEREFORE, 100% COVERAGE FOR EACH REINFORCED LAYER IS REQUIRED. REFER TO SHEET RW-2 AND RW-3 FOR ADDITIONAL INFORMATION
  - EMBEDMENT TRENCH: TRENCH EXCAVATED AT BASE OF RETAINING WALL FOR LEVELING PAD CONSTRUCTION.
  - 9. LEVELING PAD: LEVEL SURFACE CONSTRUCTED USING COMPACTED TYPE 2, CLASS B AGGREGATE BASE (2012 STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION), USED TO DISTRIBUTE 16) RECOMMENDED SPECIAL INSPECTION REQUIREMENTS: THE WEIGHT OF THE DRY-STACKED COLUMN OF SRW UNITS OVER A WIDER FOUNDATION AREA AND PROVIDE WORKING SURFACE DURING CONSTRUCTION.
  - h. FOUNDATION SOIL: SOIL MASS DIRECTLY UNDERLYING THE RETAINING WALL SECTION.
  - i. WALL EMBEDMENT : DEPTH OF SRW BELOW THE FINISHED GRADE ELEVATION. THE EMBEDMENT DEPTH SHALL BE A MINIMUM OF 2 FEET FOR FROST PROTECTION
  - j. EXPOSED HEIGHT: PORTION OF SRW ABOVE THE FINISHED GRADE ELEVATION
  - k. TOTAL WALL HEIGHT: WALL EMBEDMENT + EXPOSED HEIGHT

### CONSTRUCTION NOTES

- 6) EMBEDMENT TRENCH CONSTRUCTION SHALL INCLUDE
  - a. SUBGRADE SOILS SHALL BE PREPARED IN ACCORDANCE WITH THE PROJECT GEOTECHNICAL INVESTIGATION REPORT
  - b. REMEDIAL EARTHWORK (IF REQUIRED) SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT GEOTECHNICAL INVESTIGATION REPORT.
- 8) LEVELING PAD CONSTRUCTION SHALL INCLUDE
  - A MINIMUM 6 IN. THICK LAYER OF COMPACTED TYPE 2, CLASS B AGGREGATE BASE (SSPWC) COMPACTED TO AT LEAST 95% RELATIVE COMPACTION. THE RESULTING LEVELING COURSE SHALL BE FIRM, LEVEL BEARING PAD ON WHICH TO PLACE THE FIRST COURSE OF CONCRETE SRW UNITS.
  - b. THE LEVELING PAD SHALL EXTEND LATERALLY A MINIMUM OF 6 INCHES IN FRONT OF AND BEHIND THE SRW
- 9) SEGMENTED RETAINING WALL (SWR) PLACEMENT
  - a. ALL MATERIALS SHALL BE INSTALLED AT THE PROPER ELEVATION AND ORIENTATION AS SHOWN IN THE WALL DETAILS ON THE CONSTRUCTION PLANS. THE SRW UNITS SHALL BE INSTALLED IN GENERAL ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. THE DRAWINGS SHALL GOVERN IN ANY CONFLICT BETWEEN THE TWO REQUIREMENTS. PLACE UNITS ACCORDING TO NOMA'S "SEGMENTAL RETAINING WALL INSTALLATION GUIDE" AND SEGMENTAL RETAINING WALL UNIT MANUFACTURER'S WRITTEN INSTRUCTIONS.
  - b. UNITS WITH CHIPPED. DAMAGED. SPALLING. OR STAINED FACES SHALL NOT BE PLACED IN THE RETAINING WALL. c. FIRST COURSE OF UNITS SHALL BE PLACED ON THE LEVELING PAD AT THE APPROPRIATE LINE AND GRADE. ALIGNMENT AND LEVEL SHALL BE CHECKED IN ALL DIRECTIONS TO ENSURE THAT ALL UNITS
  - ARE IN FULL CONTACT WITH THE LEVELING COURSE AND PROPERLY SEATED.
  - d. TAMP UNITS INTO BASE LEVELING PAD AS NECESSARY TO BRING TOPS OF UNITS INTO A LEVEL PLANE, PLACE UNITS FOR FULL LENGTH OF WALL, PLACE UNITS IN FIRM CONTACT WITH EACH OTHER. PROPERLY ALIGNED AND LEVEL.
  - e. FOR SUBSEQUENT UNITS, REMOVE EXCESS FILL AND DEBRIS FROM TOP OF UNITS IN COURSE BELOW. PLACE UNITS IN FIRM CONTACT, PROPERLY ALIGNED AND DIRECTLY ON COURSE BELOW.
  - f. PLACE THE FRONT OF THE BLOCKS SIDE-BY-SIDE. DO NOT LEAVE GAPS BETWEEN ADJACENT UNITS. LAYOUT OF CORNERS AND CURVES SHALL BE IN ACCORDANCE WITH MANUFACTURER'S
  - c. INSTALL SHEAR/CONNECTING DEVICES PER MANUFACTURER'S RECOMMENDATIONS. VERTICAL SETBACK SHALL MEET THE REQUIREMENTS ON THE DETAIL SHEETS.
  - d. MAXIMUM HORIZONTAL GAP BETWEEN ERECTED UNITS SHALL BE ≤ 1/2 INCH (13 MM)
  - e. PLACE AND COMPACT DRAINAGE FILL WITHIN AND BEHIND WALL UNITS. PLACE AND COMPACT BACKFILL SOIL BEHIND DRAINAGE FILL. FOLLOW WALL ERECTION AND DRAINAGE FILL CLOSELY WITH STRUCTURE BACKFILL

PRIOR TO PLACEMENT AND COMPACTION OF UNIT DRAINAGE FILL, BACKFILL MAXIMUM STACKED VERTICAL HEIGHT OF SRW UNITS SHALL NOT EXCEED THREE COURSES OR 4 FEET, WHICHEVER IS LESS.

### 10) SRW UNIT SHEAR CONNECTORS (FIBERGLASS REINFORCEMENT PINS

- PINS SHALL BE CAPABLE OF HOLDING THE GEOGRID IN THE PROPER DESIGN POSITION.
- REINFORCEMENT PINS SHALL BE 1/2-INCH (12 MM) DIAMETER THERMOSET ISOPTHALIC POLYESTER RESIN PULTRUDED FIBERGLASS REINFORCEMENT PINS WITH THE FOLLOWING REQUIREMENTS:
- c. FLEXURAL STRENGTH IN ACCORDANCE WITH ASTM D4476: 128,000 PSI (882 MPA) MINIMUM
- d. SHORT BEAM SHEAR IN ACCORDANCE WITH ASTM D4475: 6,400 PSI (44 MPA) MINIMUM.
- 11) UNIT DRAINAGE FILL AND BACK-OF-WALL DRAINAGE
  - a. UNIT DRAINAGE FILL SHALL MEET THE REQUIREMENTS OF TABLE 1 AND BE A MINIMUM ONE CUBIC FOOT OF DRAINAGE FILL FOR EACH SQUARE FOOT OF WALL FACE
  - b. BACK-OF-WALL DRAINS (WHERE DETAILED) SHALL CONSIST OF 4" DIAMETER SLOTTED OR PERFORATED PVC DRAIN PIPE OR APPROVED ALTERNATE. THE DRAIN PIPE SHALL BE INSTALLED IN GENERAL ACCORDANCE WITH THE MANUFACTURERS' RECOMMENDATIONS AND SLOPED AT LEAST 1% TO DRAIN TO DAYLIGHT SECTION. ALL DRAINAGE PIPES SHALL BE DAYLIGHTED, IN NO CASE SHALL A BACK-DRAIN DEAD-END INTO THE BACK OF WALL.
  - DAYLIGHTED DRAINAGE LATERALS SHALL BE SPACED AT MAXIMUM 50 FT SPACING ALONG THE WALL FACE. A RODENT GRADE SHALL BE USED ON ALL DAYLIGHTED PIPE ENDS
  - d. A SEPARATION GEOTEXTILE SHALL BE PLACED BETWEEN THE RETAINED BACKFILL AND/OR REINFORCED SOIL AND DRAIN ROCK INTERFACE. THE GEOTEXTILE SHALL BE NON-WOVEN MEETING THE REQUIREMENTS OF TABLE 2 (SEPARATION GEOTEXTILE MINIMUM STRENGTH AND HYDRAULIC PROPERTIES).

12) REINFORCED SOIL BACKFILL SHALL MEET THE SPECIFICATIONS OF TABLE 3. PLACEMENT OF REINFORCED SOIL AND RETAINED BACKFILL SHALL

- a. BE IN COMPACT LIFTS SUCH THAT DISTURBANCE OF THE SRW ALIGNMENT DOES NOT OCCUR. OVER-COMPACTION OF RETAINED BACKFILL DURING RETAINING WALL CONSTRUCTION SHALL BE AVOIDED. HEAVY CONSTRUCTION EQUIPMENT SHALL NOT BE USED FOR PLACING AND/OR COMPACTING BACKFILL ADJACENT TO THE RETAINING WALL, AND SHOULD BE KEPT A MINIMUM OF THREE FEET OR AT A DISTANCE DETERMINED BY A 1H:1V SLOPE AWAY FROM THE BASE OF THE WALL, WHICHEVER IS GREATER.
- b. REINFORCED SOIL SHALL BE PLACED, SPREAD AND COMPACTED IN SUCH A MANNER THAT MINIMIZES THE DEVELOPMENT OF SLACK IN THE GEOGRID AND INSTALLATION DAMAGE.
- REINFORCED SOIL AND RETAINED BACKFILL SHALL BE PLACED AND COMPACTED IN LIFTS NOT TO EXCEED 6 INCHES WHERE HAND COMPACTION IS USED, OR 8 10 INCHES WHERE HEAVIER COMPACTION EQUIPMENT IS USED. LIFT THICKNESS SHALL BE FIELD ADJUSTED TO ENSURE DENSIFICATION IS REALIZED THROUGHOUT THE ENTIRE LIFT THICKNESS.ONLY LIGHTWEIGHT HAND-OPERATED EQUIPMENT SHALL BE ALLOWED WITHIN 3 FEET FROM THE TAIL THE MODULAR CONCRETE UNITS.
- d. REINFORCED SOIL AND RETAINED BACKFILL SHALL BE COMPACTED TO AT LEAST 90% RELATIVE COMPACTION BASED ON ASTM D1557. MOISTURE CONDITIONING PRIOR TO PLACEMENT IS RECOMMENDED TO ENSURE THE MOISTURE CONTENT OF THE BACKFILL MATERIAL IS UNIFORMLY DISTRIBUTED THROUGHOUT EACH LAYER AT ±2% OF OPTIMUM
- e. CONSTRUCTION EQUIPMENT SHALL NOT BE OPERATED DIRECTLY THE GEOGRID REINFORCEMENT. A MINIMUM FILL THICKNESS OF 6 INCHES IS REQUIRED PRIOR TO THE USE OF CONSTRUCTION VEHICLES OVER THE GEOGRID. VEHICLE TURNING SHALL BE KEPT TO A MINIMUM TO PREVENT DISPLACEMENT THE FILL AND DAMAGE TO THE GEOGRID.
- f. AT THE END OF EACH DAY'S OPERATION. THE CONTRACTOR SHALL SLOPE THE LAST LIFT OF REINFORCED SOIL AND RETAINED BACKFILL AWAY FROM THE WALL UNITS TO DIRECT RUNOFF AWAY FROM

WALL FACE. THE CONTRACTOR SHALL NOT ALLOW SURFACE RUNGEF FROM ADJACENT AREAS TO ENTER THE WALL CONSTRUCTION SITE

- a. THE CAP BLOCK AND/OR TOP SRW UNIT SHALL BE BONDED TO THE SRW UNITS BELOW USING AN APPROVED MASONRY CAP ADDESIVE SUCH AS SRW PRODUCTS SUPERIOR STRENGTH SOLVENT HTTPS://SRWPRODUCTS.COM/PRODUCTS/ADHESIVES/SUPERIOR-STRENGTH-SOLVENT-BASED-ADHESIVE/) OR APPROVED ALTERNATE . THE BLOCK SHALL BE DRY AND SWEPT CLEAN PRIOR TO ADHESIVE
- 14) REFER TO THE PROJECT GEOTECHNICAL INVESTIGATION REPORT (CME, 2023) FOR ADDITIONAL SITE PREPARATION AND FILL PLACEMENT RECOMMENDATIONS.
- 15) GEOGRID INSTALLATION (REFER TO SHEETS RW-2 AND RW-3 FOR ADDITIONAL DETAILS):
  - a. SHALL BE PERFORMED IN GENERAL ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATION. IN ADDITION:
  - b. GEOGRID SHALL BE ORIENTED WITH THE HIGHEST STRENGTH AXIS PERPENDICULAR TO THE WALL ALIGNMENT.
  - c. GEOGRID REINFORCEMENT SHALL BE PLACED AT THE STRENGTHS, LENGTHS AND ELEVATIONS SHOWN ON THE CONSTRUCTION DESIGN DRAWINGS OR AS DIRECTED BY THE ENGINEER.
  - d. THE GEOGRID SHALL BE LAID HORIZONTALLY ON COMPACTED BACKFILL AND ATTACHED TO THE MODULAR WALL UNITS. PLACE THE NEXT COURSE OF MODULAR CONCRETE UNITS OVER THE GEOGRID. THE GEOGRID SHALL BE PULLED TAUT AND ANCHORED PRIOR TO BACKFILL PLACEMENT ON THE GEOGRID e. GEOGRID REINFORCEMENTS SHALL BE CONTINUOUS THROUGHOUT THEIR EMBEDMENT LENGTHS AND PLACED SIDE-BY-SIDE TO PROVIDE 100% COVERAGE AT EACH LEVEL (UNLESS OTHERWISE NOTED
  - BY MANUFACTURER)
  - f. PLACE SOIL REINFORCEMENT IN HORIZONTAL JOINTS OF RETAINING WALL WHERE INDICATED AND ACCORDING TO SOIL-REINFORCEMENT MANUFACTURER'S WRITTEN INSTRUCTIONS. g. EMBED REINFORCEMENT WITHIN SRW UNITS PER MANUFACTURER RECOMMENDATIONS AND STRETCH TIGHT OVER COMPACTED BACKFILL. ANCHOR SOIL REINFORCEMENT TO SRW PER BLOCK
  - MANUFACTURERS' RECOMMENDATIONS BEFORE PLACING FILL.
  - h. PLACE ADDITIONAL SOIL REINFORCEMENT AT CORNERS AND CURVES OF WALLS TO PROVIDE CONTINUOUS REINFORCEMENT REFER TO DETAILS ON SHEET RW-2. FAILURE TO PROPERLY PLACE GEOGRID IN THESE ZONES MAY RESULT IN UNSATISFACTORY PERFORMANCE OF THE WALL.

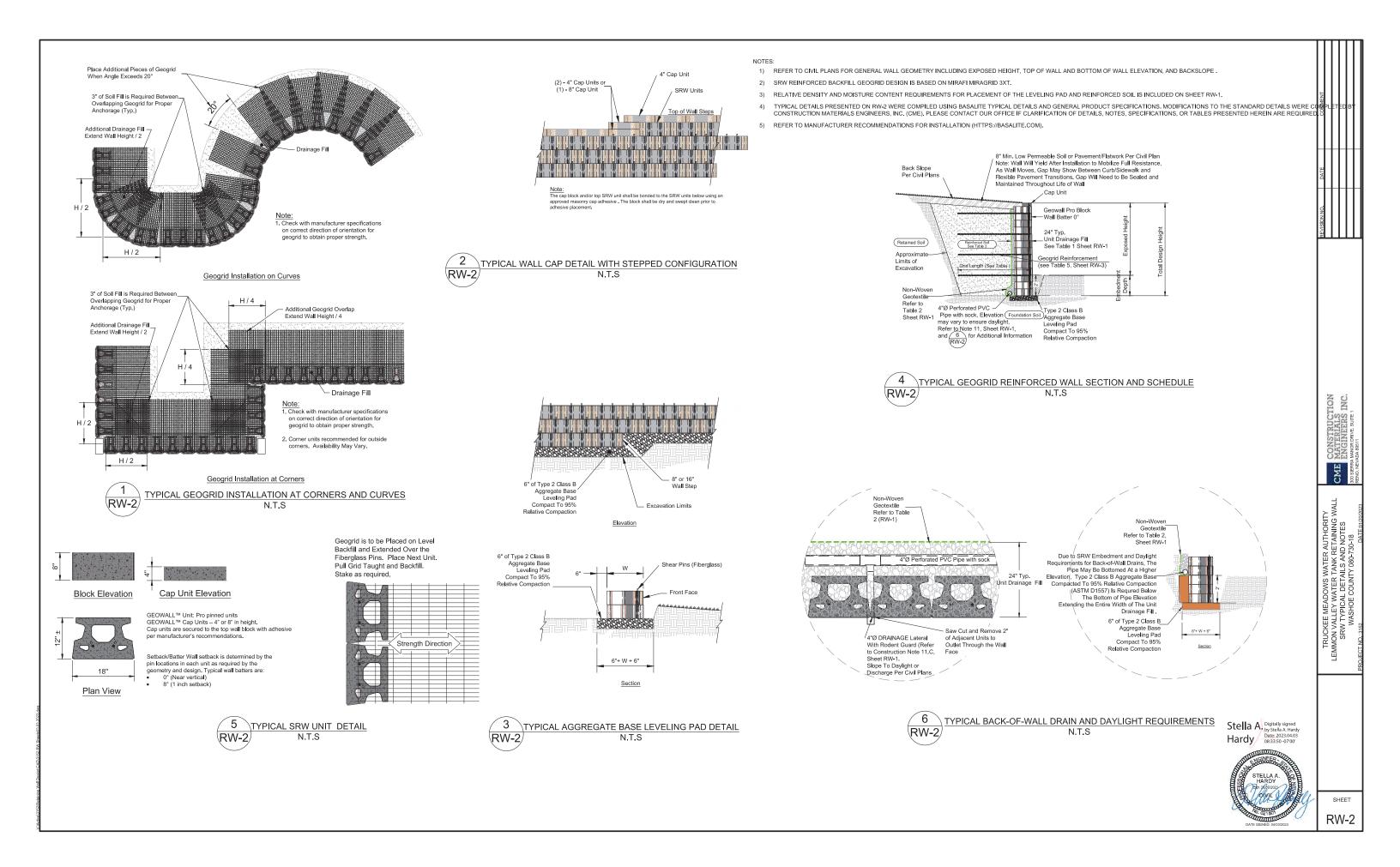
- h. EMBEDMENT TRENCH AND LEVELING PAD: PERIODIC. INCLUDES FIELD DENSITY TESTING OF BOTH PREPARED SUBGRADE AND LEVELING PAD.
- i DRAIN INSTALLATION: PERIODIC VISUAL OBSERVATION
- i. GENERAL WALL CONSTRUCTION, DRAINAGE FILL, AND COMPACTION OF BACKFILL; CONTINUOUS FOR GEOGRID REINFORCED WALLS, PERIODIC OBSERVATION FOR GRAVITY WALLS.
- 17) RELATIVE DENSITY AND MOISTURE CONTENT REQUIREMENTS FOR PLACEMENT OF THE LEVELING PAD AND REINFORCED SOIL AND RETAINED BACKFILL IS INCLUDED IN TABLE 4 ON SHEET RW-1
- 18) CME'S RETAINING WALL DESIGN INCLUDES A SNOW LOAD OF 31 PSF. DESIGN ASSUMES THAT ALL OTHER SURCHARGE LOADS BEHIND THE WALLS WILL BE A MINIMUM DISTANCE EQUAL TO OR GREATER THAN THE TOTAL WALL HEIGHT, ALTERNATIVELY, IF FOUNDATION LOADS ARE NOT SUFFICIENTLY OFFSET, BUILDING FOUNDATIONS SHALL BE DEEPENED TO REMOVE LOADING FROM THE ZONE OF INFLUENCE OF THE RETAINING WALL. THE "ZONE OF INFLUENCE" SHALL BE APPROXIMATED BY A 1 VERTICAL BY 1 HORIZONTAL (1V:1H) PROJECTION LINE (DOWNWARD AND OUTWARD) FROM THE EXTERIOR EDGE OF THE STRUCTURE FOUNDATION (E.G., "ZONE OF INFLUENCE"). IF THIS ASSUMPTION IS INACCURATE, THE SITE CIVIL DESIGNER SHALL NOTIFY OUR OFFICE IMMEDIATELY TO CONFIRM DESIGN CALCULATIONS.
- 19) SRW UNIT COLOR AND FINISH SHALL CONFORM TO THE PROJECT SPECIFICATIONS.
- 20) IF A CONFLICT IN THE PROJECT SPECIFICATIONS AND THE SRW PLAN SET ARE OBSERVED, PLEASE NOTIFY CONSTRUCTION MATERIALS ENGINEERS, INC. TO PROVIDE ADDITIONAL GUIDANCE AND/OR RECOMMENDATIONS.

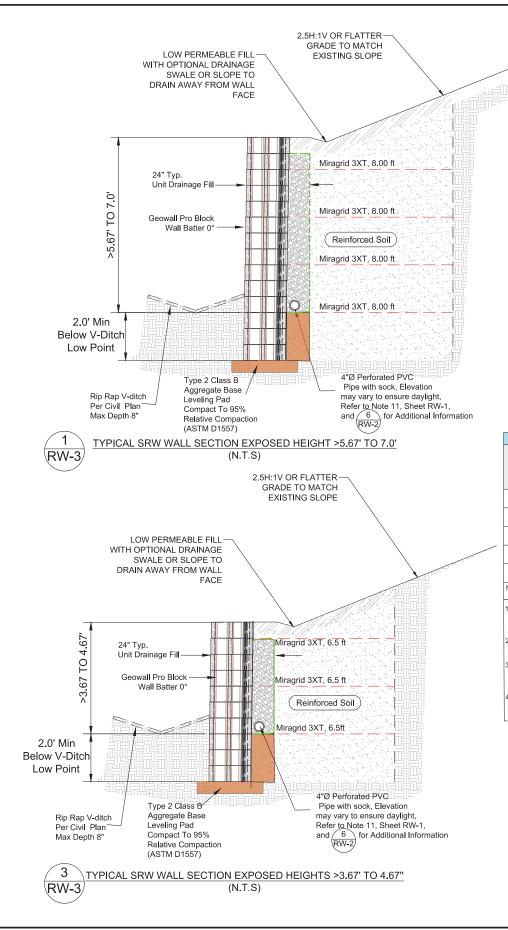
TABLE 1 : GRADATION REQUIREMENTS FOR UNIT DRAINAGE FILL							
SIEVE SIZE	PERCENT PASSING						
1 IN	100						
3/4 IN	75-100						
NO. 4	0-60						
NO. 40	0-50						
NO. 200	0-5						
* SEE GENERAL NOTES 5d, SHEET RW-2 AND RW-3 FOR ADDITIONAL INFORMATION							
TABLE 2 : SEPARATION GEOTEXTILE MINIMU	JM STRENGTH AND HYDRAULIC PROPERTIES						
TRAPEZOID TEAR STRENGTH (ASTM D 4533) 80 LBS							
PUNCTURE STRENGTH (ASTM D 4833) 80 LBS							

	TABLE 2 : SEPARATION GEOTEXTILE MINIMUM ST	ENGTH AND HYDRAULIC PROPERTIES			
TRAPEZOID TEAR ST	RENGTH (ASTM D 4533)	80 LBS			
PUNCTURE STREN	GTH (ASTM D 4833)	80 LBS			
GRAB STRENG	TH (ASTM D 4632)	200	LBS		
BURST STRENG	TH (ASTM D 3786)	250	) PSI		
MINIMUM PERMITT	IVITY (ASTM D 4491)	>0.2	SEC		
APPARENT OPENIN	G SIZE (ASTM D 4751)	<0.2	5 MM		
	TABLE 3: SPECIFICATIONS FOR REI	IFORCED SOIL BACKFILL			
SIEV	E SIZE	PERCENT PASSING BY WEIGHT			
4-1	NCH	100			
2.5	INCH	100			
NO	D. 40	30-50			
NC	. 200	15-30			
MAXIMUM LIQUID LIMIT	MINIMUM INTERNAL FRICT	ION ANGLE (¢)	MAXIMUM PLASTIC INDEX		
45	34°		25		
ASTM TEST METHODS D6913, D4318, D3080					
	TABLE 4 : MINIMUM RELATIVE DENSITY F	EQUIREMENTS (ASTM D1557)			
MATERIAL TYPE	MATERIAL SPECIFICATION	MINIMUM RELATIVE DENSITY	ACCEPTABLE MOISTURE CONTENTS		
	TYPE 2 CLASS B ACCRECATE BASE (SECTION 200.00.1.				

						2250			
ASTM TEST METHODS D6913, D4318, D3080						HE A			
TABLE 4 : MINIMUM RELATIVE DENSITY REQUIREMENTS (ASTM D1557)									
MATERIAL TYPE	ISTURE CONTENTS	AON V AON V BERAL N	315						
LEVELING COURSE	LEVELING COURSE TYPE 2, CLASS B AGGREGATE BASE (SECTION 200,00-1 OF 2012 SSPWC) 95%						CT NO		
REINFORCED SOIL	REFER TO TABLE 3 (SHEET RW-1)	90%		±2 % OF	OPTIMUM	9.6	ЧÖ		
RETAINED BACKFILL IN-PLACE NATIVE ONSITE SOIL/BEDROCK 90% (**REQUIRED FOR FILL ONLY**) ±2 % OF 1							PR		
GENERAL GUIDANCE FOR TEMPORARY CUT SLOPES [OSHA PART 1926, VOLUME 54, NUMBER 209 OF THE FEDERAL REGISTER (TABLE B-1, OCTOBER 31, 1989)]									
	DESCRIPTION								
NATURAL SOLID MINERAL MATTER THAT CAN BE EXCAVATED WITH VERTICAL SIDES AND REMAIN INTACT WHILE EXPOSED. IT IS USUALLY IDENTIFIED BY A ROCK NAME SUCH AS GRANITE OR SANDSTONE, DETERMINING WHETHER A DEPOSIT IS OF THIS TYPE MAY BE DIFFICULT UNLESS IT IS KNOWN WHETHER CRACKS EXIST AND WHETHER OR NOT THE CRACKS RUN INTO OR AWAY FROM THE EXCAVATION.					Stella A. Digitify signed by Stella A. Hardy Date 2023.04.03				
COHESIVE SOILS WITH AN UNCONFINED COMPRESSIVE STRENGTH OF 1.5 TONS PER SQUARE FOOT (TSF) (144 KPA) OR GREATER. EXAMPLES OF TYPE A COHESIVE SOILS ARE OFTEN: CLAY, SILTY CLAY, SANDY CLAY, CLAY LOAM AND, IN SOME CASES, SILTY CLAY LOAM AND SANDY CLAY LOAM, (NO SOIL IS TYPE A IF IT IS FISSURED, IS SUBJECT TO VIBRATION OF ANY TYPE, HAS PREVIOUSLY BEEN DISTURBED, IS PART OF A SLOPED, LAYERED SYSTEM WHERE THE LAYERS DIP INTO THE EXCAVATION ON A SLOPE OF 4 HORIZONTAL TO 1 VERTICAL (4H:1V) OR GREATER, OR HAS SEEPING WATER.					Hardy 083133 0700				
COHESIVE SOILS WITH AN UNCONFINED COMPRESSIVE STRENGTH GREATER THAN 0.5 TSF (48 KPA) BUT LESS THAN 1.5 TSF (144 KPA). EXAMPLES OF OTHER TYPE B SOILS ARE: ANGULAR GRAVEL; SLT; SLT LOAM; PREVIOUSLY DISTURBED SOILS UNLESS OTHERWISE CLASSIFIED AS TYPE C; SOILS THAT MEET THE UNCONFINED COMPRESSIVE STRENGTH OR CEMENTATION REQURREMENTS OF TYPE A SOILS BUT ARE FISSURED OR SUBJECT TO VIBRATION; DRY UNSTABLE ROCK; AND LAYERED SYSTEMS SLOPING INTO THE TRENCH AT A SLOPE LESS THAN 4H:1V (ONLY IF THE MATERIAL WOULD BE CLASSIFIED AS A TYPE B SOIL).				45°	STELLAA. HARDY HARDY Ep. official				
COHESIVE SOLS WITH AN UNCONFINED COMPRESSIVE STRENGTH OF 0.5 TSF (48 KPA) OR LESS. OTHER TYPE C SOLS INCLUDE GRANULAR SOLS SUCH AS GRAVEL, SAND AND LOAMY SAND, SUBMERGED SOL, SOL FROM WHICH WATER IS FREELY SEEPING, AND SUBMERGED ROCK THAT IS NOT STABLE. ALSO INCLUDED IN THIS CLASSIFICATION IS MATERIAL IN A SLOPED, LAYERD SYSTEM WHERE THE LAYERS DIPINTO THE EXCAVATION OR HAVE A SLOPE OF FOUR HORIZONTAL TO ONE VERTICAL (4H:1/) OR GRATER. WHERE SOLS ARE CONFIGURED IN LAYERS, LE, WHERE A LAYERD GEOLOGIC STRUCTURE EXISTS, THE SOL MUST BE CLASSIFIED ON THE BASIS OF THE SOL CLASSIFICATION OF THE WARKEST SOLI LAYER. FACH LAYER MAY BE CLASSIFIED INDUCALLY IF A MORE STABLE LAYER LESS STABLE LAYERS. THE SOL RUST BE CLASSIFIED ON THE BASIS OF OF STABLE ROCK.						SHEET	1		
ROJECT GEOTECHNICAL INVESTIGATION REPORT FOR ADDITION.		DATE SIGNED: 04/03/2023	RW-1						

							2250	
	ASTM TEST METHODS D6913, D4318, D3080		HOE A	L				
				~				
	MATERIAL TYPE MATERIAL SPECIFICATION MINIMUM RELATIVE DENSITY ACCEPTABLE MOI					ISTURE CONTENTS	Y Z Z Z	8
	LEVELING COURSE	TYPE 2, CLASS B AGGREGATE BASE (SECTION 200.00-1 OF 2012 SSPWC)	95%		±2 % OF	OPTIMUM	TRU GENER	CLNC
	REINFORCED SOIL	REFER TO TABLE 3 (SHEET RW-1)	90%		±2 % OF	OPTIMUM	88	3
	RETAINED BACKFILL	IN-PLACE NATIVE ONSITE SOIL/BEDROCK	90% {**REQUIRED FOR FILL ONLY**}	±2 % OF OPTIMUM			6	1
	GENERAL GUIDANCE FOR TEMPORARY CUT SL	OPES [OSHA PART 1926, VOLUME 54, NUMBER 209 OF THE FE	DERAL REGISTER (TABLE B-1, OCTOBER 31, 1	989)]				L
SOIL OR ROCK TYPE	DESCRIPTION					-		
STABLE BEDROCK		VITH VERTICAL SIDES AND REMAIN INTACT WHILE EXPOSED. IT IS USUALLY YPE MAY BE DIFFICULT UNLESS IT IS KNOWN WHETHER CRACKS EXIST AND		Vertical	90°	Stella A. Digitify signed by Stella A. Hardy Date 2023 04 03		
TYPE A	COHESIVE SOILS WITH AN UNCONFINED COMPRESSIVE STREM SILTY CLAY, SANDY CLAY, CLAY LOAM AND, IN SOME CASES, S PREVIOUSLY BEEN DISTURBED, IS PART OF A SLOPED, LAYERI HAS SEEPING WATER.	53°	Hardy 083:33-0700					
TYPE B	COHESIVE SOILS WITH AN UNCONFINED COMPRESSIVE STRENGTH GREATER THAN 0.5 TSF (48 KPA) BUT LESS THAN 1.5 TSF (144 KPA). EXAMPLES OF OTHER TYPE B SOILS ARE: ANGULAR GRAVEL; SLT. SLT. LOAM: PREVIOUSLY DISTURBED SOILS UNLESS OTHERWISE CLASSIFIED AS TYPE C; SOILS THAT MEET THE UNCONFINED COMPRESSIVE STRENGTH OR CEMENTATION REOLIREMENTS OF TYPE A SOILS BUT ARE FISSURED OR SUBJECT TO VIBRATION; DRY UNSTABLE ROCK; AND LAYERED SYSTEMS SLOPING INTO THE TRENCH AT A SLOPE LESS THAN 4H:1V (ONLY IF THE MATERIAL WOULD BE CLASSIFIED AS A TYPE B SOIL).							
COHESIVE SOLES WITH AN UNCONFINED COMPRESSIVE STRENGTH OF 0.5 TSF (48 KPA) OR LESS. OTHER TYPE C SOLS INCLUDE GRANULAR SOLS SUCH AS GRAVEL, SAND AND LOAMY SAND, SUBMERGED SOL, SOL FROM WHICH WATER IS FREELY SEEPING, AND SUBMERGED ROOK THAT IS NOT STABLE. ALSO INCLUDED IN THIS CLASSIFICATION IS MATERIAL IN A SLOPED, LAYERED SYSTEM WHERE THE LAYERE DIP INTO THE SECONFLOY EXCAVATION OR OF FOUR HORZONTAL TO ONE VERTICAL (H41 V) OR GRAFTER WHERE SOLES ARE CONFIGURED IN LAYER. BAY HERE A LAYERED GEOLOGICS STRUCTURE EXISTS, THE SOLI MUST BE CLASSIFIED ON THE BASIS OF THE SOLI CLASSIFICATION OF THE WERKERT SOLI LAYER. EACH LAYER MAY BE CLASSIFIED INTO THE SUBJECT AND LESS STABLE LAYER. LES STABLE LAYER LES STABLE LAYER LES STABLE LAYER LES STABLE LAYER. IN POOR 5 TABLE ROOK.						A COME OF STREET	sheet RW-1	1
* REFER TO PR	REFER TO PROJECT GEOTECHNICAL INVESTIGATION REPORT FOR ADDITIONAL INFORMATION							





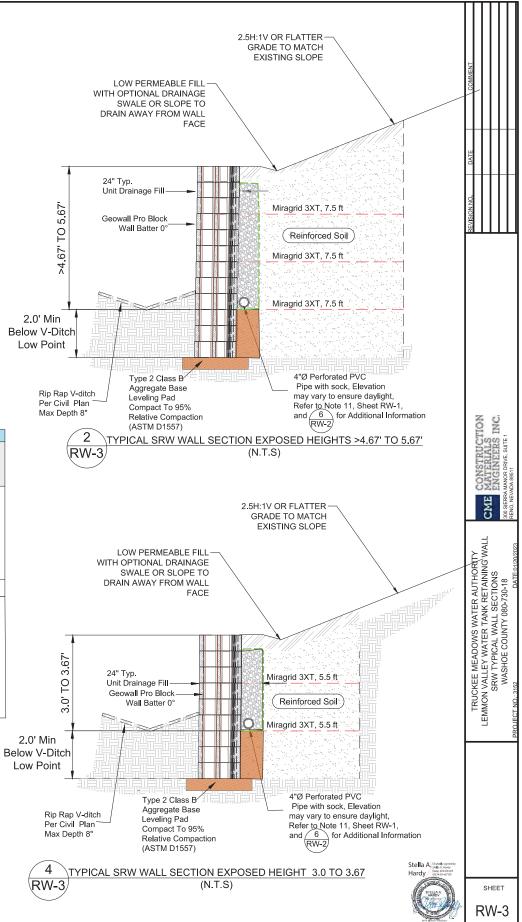
		TABL	E 5: GEOGRID REIN	IFORCEMENT SCHEI	DULE		
EXPOSED WALL HEIGHT (FT)	TOTAL WALL HEIGHT INCLUDING EMBEDMENT (FT)	BACKSLOPE ANGLE	NUMBER OF GEOGRID LAYERS	GEOGRID LAYER ELEVATIONS FROM TOP OF LEVELING PAD (FT)	MINIMUM GEOGRID EMBEDMENT LENGTH (FT)	GRID TYPE	GEOGRID VERTICAL SPACING (FT)
>5.67 TO 7.0	>8.3 TO 9.67	2.5H:1V OR FLATTER	4	2.0, 4.0, 6.0, 8.0	8.0		
>4.67 TO 5.67	>7.3 TO 8.3	2.5H:1V OR FLATTER	3	2.0, 4.0, 6.0	7.5		
>3.67 TO 4.67	>6.3 TO 7.3	2.5H:1V OR FLATTER	3	2.0, 4.0, 6.0	6.5	MIRAFI 3XT	2.0
3.0 TO 3.67	5.67 TO 6.3	2.5H:1V OR FLATTER	2	2.0, 4.0	5.5		
LESS THAN 3.0	LESS THAN 5.67	2.5H:1V OR FLATTER	1	2.0	4.5		
NOTES:							

TO MAINTAIN 100% LAYER COVERAGE FOR GEOGRID PLACEMENT, 1ST LAYER OF GEOGRID MUST BE PLACED AT THE TOP INTERFACE OF THE 3RD BLOCK UP FROM THE LEVELING COURSE AND CONTINUE AT 2 FOOT VERTICAL INTERVAL SPACINGS UNTIL THE TOTAL NUMBER OF LAYERS HAVE BEEN INSTALLED.

DEPTH OF GEOGRID EMBEDMENT WILL VARY BASED ON TOP OF WALL ELEVATION AND BLOCK SIZE. CALCULATIONS SUPPORT MAXIMUM EXPOSED WALL HEIGHT OF UP TO 7.0 FEET

THE LENGTH OF GEOGRID REINFORCEMENT VARIES BY WALL HEIGHT TO LIMIT THE NEED FOR UNNECESSARY CUT ALONG THE BEDROCK SLOPE. CARE SHOULD BE TAKEN DURING CONSTRUCTION TO ENSURE THE APPROPRIATE LENGTHS OF GEOGRID REINFORCEMENT HAVE BEEN IMPLEMENTED INTO THE DESIGN. IN NO CASE SHALL THE GEOGRID LENGTHS BE LESS THAN THE MINIMUM PRESENTED ON THE PLAN SET.

WHERE A V-DITCH OR SWALE WILL BE LOCATED WITHIN 5 FEET LATERALLY OF THE BASE OF THE WALL, THE DEPTH OF WALL EMBEDMENT SHALL BE INCRESED IN DEPTH EQUAL TO THE DEPTH OF THE V-DITCH OR SWALE.



### GENERAL STRUCTURAL NOTES (GSN)

### GENERAL

G1. SCOPE THE NOTES ON THIS SHEET AND THE STANDARD STRUCTURAL DETAILS ARE GENERAL AND APPLY TO THE ENTIRE PROJECT WHETHER SPECIFICALLY CALLED OUT OR NOT, EXCEPT WHERE THERE ARE SPECIFIC INDICATIONS TO THE CONTRARY ON THE STRUCTURAL SHEETS. IF THERE ARE QUESTIONS, THEY SHALL BE SUBMITED TO THE STRUCTURAL ENGINEER AND ANSWERED IN WRITING PRIOR TO CONSTRUCTION.

- G2. <u>APPLICABLE SPECIFICATIONS AND CODES</u>
   A. 2018 INTERNATIONAL BUILDING CODE (IBC 2018) WITH APPLICABLE EDITIONS OF THE CODE REFERENCED STANDARDS AND WITH NORTHERN NEVADA AMENDMENTS.
   B. 2016 MINIMUM DESIGN LOADS AND ASSOCIATED CRITERIA FOR BUILDINGS AND
  - OTHER STRUCTURE (ASCE 7-16) C. 2014 BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE (ACI 318-14)
  - D. 2016 STEEL CONSTRUCTION MANUAL, 15TH ED (AISC 360-16) E. 2011 WELDED CARBON STEEL TANKS FOR WATER STORAGE (AWWA D100-11)

### G3. DESIGN CRITERIA

7	۹.	DEAD	LOAD:	ACTUAL	TRIBUTARY	STRUCTURE	WEIGHT
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B. LIVE LOAD:	
	= 15 PSF
C. WIND:	
<ol> <li>ULTIMATE WIND SPEED:</li> </ol>	= 135 MPH
<ol><li>ALLOWABLE STRESS WIND SPEED:</li></ol>	= 104 MPH
3. EXPOSURE:	= C
4. IMPORTANCE FACTOR:	= 1.15
4. STRUCTURE IS ENCLOSED.	
D. SEISMIC:	
1. WELDED CARBON STEEL WATER STORAGE TANK:	11.7
a. OCCUPANCY CATEGORY: b. IMPORTANCE FACTOR:	= IV = 1.50
c. SITE CLASS:	= 1.50 = C
f. SPECTRAL RESPONSE COEFFICIENT: SDS	
g. SPECTRAL RESPONSE COEFFICIENT: SD1	
h. SEISMIC DESIGN CATEGORY:	= D
i. ANALYSIS PROCEDURE:	= AWWA D100
E. SNOW LOAD:	
1. GROUND SNOW LOAD:	= 31 PSF
2. EXPOSURE FACTOR: Ce	= 0.9
3. THERMAL FACTOR: Ct	= 1.0
4. ROOF SLOPE FACTOR: Cs	= 1.0
5. IMPORTANCE FACTOR: Is	= 1.2

G4. SAFETY SAFETY AND STRUCTURE STABILITY DURING CONSTRUCTION ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. STRUCTURES HAVE BEEN DESIGNED TO RESIST CODE FORCES AS A COMPLETED STRUCTURE. THE TANK SHELL SHALL BE SHORED AS REQUIRED TO RESIST CODE FORCES AT ALL TIMES DURING CONSTRUCTION. PROVIDE STIFFENERS AROUND ANY TEMPORARY ACCESS OPENING CUT INTO THE SHELL.

G5. <u>SPECIAL INSPECTIONS</u> SPECIAL INSPECTIONS ARE REQUIRED IN ACCORDANCE WITH CHAPTER 1 AND CHAPTER 17 OF THE IBC. PAYMENT FOR THESE INSPECTIONS IS NOT THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL PROVIDE FOR FULL ACCESS TO THE WORK BY THE SPECIAL INSPECTOR AND SHALL PROVIDE FOR THESE INSPECTIONS IN THE CONSTRUCTION SCHEDULE IN ACCORDANCE WITH THE CITY OF RENO REQUIREMENTS. A STATEMENT OF RESPONSIBILITY SHALL BE SUBMITTED UNDER SEPARATE COVER WITH THE PERMIT APPLICATION AS REQUIRED UNDER IBC SECTION 1704. SPECIAL INSPECTIONS ARE REQUIRED FOR THE FOLLOWING WORK: A TANK COATING SYSTEM A TANK COATING SYSTEM

B. STRUCTURAL WELDING C. CONCRETE

- G6. <u>STANDARD STRUCTURAL DETAILS</u> THE STANDARD STRUCTURAL DETAILS DEPICT TYPICAL DETAILING TO BE USED ON THIS PROJECT. CONDITIONS NOT EXPLICITLY SHOWN ON THE DRAWINGS SHALL BE MADE SIMILAR TO THE STANDARD STRUCTURAL DETAILS SHOWN, OBTAIN APPROVAL MADE SIMILAR TO THE STANDARD STRUCTURAL DETAILS SHOWN, OBTAIN APPROVAL OF THE ENGINEER IN WRITING FOR SIMILAR CONDITIONS PRIOR TO CONSTRUCTION
- G7. CONFLICTS LOWFLICTS IN CASES WHERE CONFLICTS OCCUR BETWEEN THE DRAWINGS AND SPECIFICATIONS, THE MOST STRINGENT REQUIREMENTS SHALL APPLY FOR BID PURPOSES, UNLESS OTHERWISE RESOLVED IN WRITING DURING THE BID PHASE.

G8. <u>GEOTECHNICAL</u> THE FOLLOWING NON-CONTRACTUAL GEOTECHNICAL REPORT WAS DEVELOPED FOR THIS PROJECT AND IS THE BASIS OF THE STRUCTURAL DESIGN: NAME OF GEOTECHNICAL FIRM: CONSTRUCTION MATERIALS ENGINEERS, INC. ADDRESS: 300 SIERRA MANOR DRIVE, SUITE 1, RENO, NEVADA 89511 REPORT NUMBER: 3152 REPORT DATE: FEBRUARY 1, 2023 A AULOWARDE NET SOUL BEARING DEFESSIVE = 4500 BSE (SUISTAINED LOADS)

A. ALLOWABLE NET SOIL BEARING PRESSURE = 4500 PSF (SUSTAINED LOADS) = 6000 PSF (WIND/SEISMIC LOADS) B ACTIVE LATERAL FARTH PRESSURE = 35 PSF

- C. PASSIVE LATERAL EARTH PRESSURE D. COEFFICIENT OF FRICTION = 300 PSF
- = 0.48

G9. TANK FOUNDATION SUBGRADE PREPARATION BELOW TANK AND CONCRETE RINGWALL SHALL BE PER THE RECOMMENDATIONS IN THE GEOTECHNICAL REPORT REFERENCED ABOVE. BACKFILL BELOW TANK INSIDE OF CONCRETE RINGWALL TO 8 INCHES MINIMUM THICKNESS WITH AB COURSE CONFORMING TO ASTM C33, SIZE #7 AND COMPACTED TO 95% DENSITY IN ACCORDANCE WITH ASTM D698 AND 4 INCHES MINIMUM FINAL THICKNESS OF OILED SAND.

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			WORK ORDER NO. 14-0035	DATE	APP	BY	SION DESCRIPTION	EVISION
LEMMON VALLEY 1		<b>大帝</b> 、	DESIGNED R. WRIGHT					
	NOT REPRODUCIBLE		DRAWN R. WRIGHT					
RENO, NE	PROPERTY OF TRUCKEE MEADOWS WATER	TRUCKEE MEADOWS WATER	DATE AUGUST 21, 2023					
	AUTHORITY, RETURN UPON		CHECKED J. NERVIG					
GENERAL STRUC	COMPLETION OF PROJECT (Per Homeland Security Act)	Quality. Delivered.	SUBMITTED					
		- Kanng Demostr	RECOMMENDED					
		1355 CAPITAL BLVD. PO BOX 30013 RENO, NEVADA 89520-3013 PHONE: 775-834-8080	APPROVED	08/21/23			A 100% DESIGN SUBMITTAL	A

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- S1. <u>DESIGN STRENGTHS:</u> SQUARE OR RECTANGULAR HSS: Fy=46 KSI ALL OTHER PLATES AND SHAPES: Fy=36 KSI
- S2. <u>DIMENSIONS</u> TO CENTERLINES OF COLUMNS AND BEAMS, TOP SURFACES OF BEAMS AND TUBES AND BACKS OF CHANNELS AND ANGLES UNO.
- S3. <u>ELEVATIONS</u> TOP OF STEEL REFERS TO TOP SURFACE OF MEMBER OR FLANGE UNO.
- S4. WHEN FILLET WELD SIZE IS NOT INDICATED, PROVIDE MAXIMUM WELD SIZE BASED ON MATERIAL THICKNESS IN ACCORDANCE WITH AISC AND AWWA SPECIFICATIONS.
- S5. CONFORM TO AISC 360. STEEL CONSTRUCTION MANUAL.

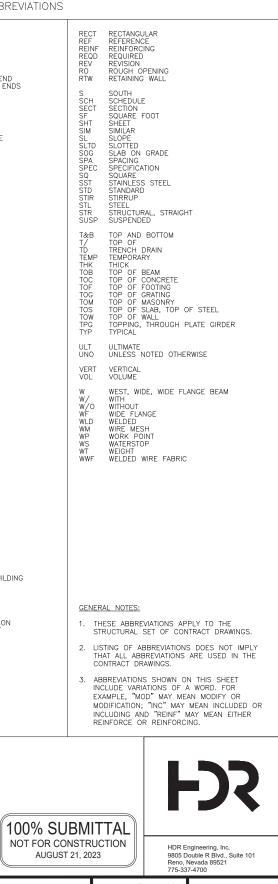
ONCRETE	

C1.	DESIGN STRENGTHS:		
	f'c = 4,000 PSI		
	fy = 60,000 PSI		
C2.	CONCRETE COVER		
	UNLESS OTHERWISE NOTED OR SHOWN, PROVIDE CONCRET	E COVER	FOR
	REINFORCING AS FOLLOWS:		
	CONCRETE DEPOSITED AGAINST EARTH:	3 IN	

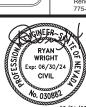
- 3 IN 2 IN ALL OTHER: SEE DRAWINGS FOR EXCEPTIONS
- C3. ALL DETAILING, FABRICATION, AND ERECTION OF REINFORCING BARS, UNLESS OTHERWISE NOTED, SHALL BE IN ACCORDANCE WITH THE CURRENT EDITION OF THE ACI MANUAL OF STANDARD PRACTICE. SEE SPECIFICATIONS FOR ADDITIONAL DENDEDUNC DURING FOR ADDITIONAL REINFORCING PLACEMENT REQUIREMENTS.
- C4. PROVIDE 3/4 IN CHAMFERS AT ALL EXPOSED EDGES. NOT ALL CHAMFERS MAY BE SHOWN ON DRAWINGS.
- C5. ABSOLUTELY NO WELDING OF REINFORCING BARS OR USING HEAT TO BEND REINFORCING BARS SHALL BE ALLOWED WITHOUT SPECIFIC APPROVAL FROM THE STRUCTURAL ENGINEER.

A/E AB ADDL AFF AFG ALUM ANC APRX APVD ARCH BC	ARCHITECT/ENGINEER ANCHOR BOLT ADDITIONAL ADHESIVE ABOVE FINISH FLOOR ABOVE FINISH GRADE ALUMINUM ANCHOR APPROXIMATE APPROVED ARCHITECTURAL BOTTOM CHORD	GA GALV GEN GR GRTG H1E H2E HC HDR HK HORIZ HP
BLDG BLKG BM BOL BOT BP BRG BTB BTW	BUILDING BLOCKING BEAM BOLLARD BOTTOM BASE PLATE BEARING BACK TO BACK BETWEEN	HS HSS HT ID IF INFO INT INV
C CHD CJP CJP CL CLJ CLR CMU COL	CHANNEL SHAPE CHORD CAST-IN-PLACE CONSTRUCTION JOINT CONTINUOUS JOINT PENETRATION CENTERLINE CONTROL JOINT CLEAR CONCRETE MASONRY UNIT COLUMN	JF JST JT KB KLF KSI
CONC CONN CONST CONT CTC CTR CY D	CONCRETE CONNECTION CONSTRUCTION CONTINUOUS CENTER TO CENTER CENTER CUBIC YARD DEEP	L LAD LB LG LIN LLV LNO
DBA DBL DEMO DIA DIAG DIM DIST DL DTL DTL DWG DWL	DEFORMED BAR ANCHOR DOUBLE DEMOLITION DIAMETER DIAGONAL DIMENSION DISTANCE DEAD LOAD DOUBLE TEE DETAIL DRAWING DOWEL	LOC LP LWC MBR MC MCJ MECH MFR MIN MISC ML
E EA ECC EF EJ ELEC ENGR EQ EQUIP ES EW EWEF EWTB EXP EXP EXST	EAST EACH ECCENTRIC EACH FACE EXPANSION JOINT ELEVATION ELECTRICAL ENGINEER EQUAL EQUIPMENT EACH SIDE EACH WAY, EACH FACE EACH WAY, EACH FACE EACH WAY, TOP AND BOTTOM EXPANSION EXISTING	N NIC NOM NTS OC OF OF OF OPNG OPP OVHG PAR PCF
FAB FD FDTN FG FIG FIN FLR FOC FR FRP FT FTG FV	FABRICATOR FLOOR DRAIN FOUNDATION FINISHED GRADE FIGURE FINISH FLOOR FACE OF CONCRETE, FACE OF CURB FRAME FRAME FIBERGLASS REINFORCED PLASTIC FEET, FOOT FOOTING FIELD VERIFY	PCLJ PEN PLBB PLBG PLF PREFAB PREFAB PSF PSI PT PVC QTY

GAGE (METAL THICKNESS) GALVANIZED GENERAL GRADE GRATING STANDARD ACI HOOK ONE END STANDARD ACI HOOK BOTH ENDS HOLLOW CORE HEADER HOOK HORIZONTAL HIGH POINT HEADED STUD HOLLOW STRUCTURAL SHAPE HEIGHT INSIDE DIAMETER INSIDE FACE INCH INFORMATION INTERIOR, INTERSECTION INVERT JOINT FILLER JOIST JOINT KNEF BRACE KIPS PER LINEAR FOOT KIPS PER SQUARE INCH ANGLE, LENGTH LADDER POUND LINEAR FOOT LONG LINEAR LINEAR LONG LEG HORIZONTAL LONG LEG VERTICAL LONGITUDINAL LOCATION LOW POINT LIGHTWEIGHT CONCRETE MAXIMUM MEMBER MOMENT CONNECTION MASONRY CONTROL JOINT MECHANICAL MANUFACTURER MINIMUM MISCELLANEOUS MASONRY LINTEL NORTH NOT IN CONTRACT NOMINAL NOT TO SCALE ON CENTER OUTSIDE DIAMETER OUTSIDE FACE OVERHEAD OPENING OPPOSITE OVERHANG PARALLEL POUNDS PER CUBIC FOOT PARTIAL CONTROL JOINT PENETRATION PRE ENGINEERED METAL BUILDING PL PLATE PLG PLUMBING PLF POUNDS PER LINEAR FOOT PREFAB PRECATED PRELIM PRELIMINARY PS PIPE SUPPORT, PUMP STATION PSP POUNDS PER SQUARE FOOT POUNDS PER SQUARE INCH POLYVINYL CHLORIDE QUANTITY





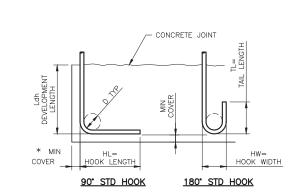




	WIDE MINIMUM HOOK DEVELOPMENT LENGTHS PER T HOOKS SHOWN ON THE DRAWINGS SHALL BE STAN		0.	<ol> <li>ALL SPLICES TO BE CONTACT S OTHERWISE APPROVED BY ENGIN</li> </ol>		NOTE:	SEE NOTE 1	D HEIGHT OF FLANGES, HEIGHT OF	#4@12" <u>NOTE:</u> 1. SEE GENERAL COMPACTION
	NFORCING HOOK SCHEDULE	N.T.S. 3	)	CONCRETE REINFO		FLANGE SHALL	BE MEASURED FROM THE HIG	H SIDE OF A SLOPED ROOF.	SLAB ON
REVISION	DESCRIPTION	BY	APP DATE	WORK ORDER NO. 14-0035 DESIGNED R. WRIGHT DRAWN R. WRIGHT DATE AUGUST 21, 2023 CHECKED J. NERVIG SUBMITTED RECOMMENDED	TRUCKEE MEADOWS W	VATER	NOT REPRODUCIBLE PROPERTY OF TRUCKEE MEADOWS WATER AUTHORITY, RETURN UPON COMPLETION OF PROJECT (Per Homeland Security Act)	LEMMON	RENO, NE
A A	100% DESIGN SUBMITTAL		08/21/23	APPROVED	1355 CAPITAL BLVD. PO BOX 30013 RENO, NEVADA 89520-3013 F	PHONE: 775-834-8080		ST	RUCTURA

NOTES:

		OK DEVELOP c =4.0 ksi			
BAR SIZE	HL	HW	TL	D	Ldh
#3	6"	3"	4"	2 1/4"	6"
#4	8"	4"	4 1/2"	3"	7"
#5	10"	5"	5"	3 3/4"	9"
#6	1'-0"	6"	6"	4 1/2"	10"
#7	1'-2"	7"	7"	5 1/4"	12"
#8	1'-4"	8"	8"	6"	14"
#9	1'-7"	11 3/4"	10 1/2"	9 1/2"	15"
#10	1'-10"	1'-1 1/4"	11 1/2"	10 3/4"	17"
#11	2'-0"	1'-2 3/4"	1'-1"	12"	19"



2" MIN

MFR'S STANDARD

SPLICE SLEEVE ASSEMBLY

SEE SPECS

-

- EJ IN TOEBOARD

1. TOEBOARDS SHALL BE PLACED 1/4" CLEAR MAX ABOVE WALKING SURFACE.

4. REFER TO SPECIFICATION SECTION 05 52 05 FOR ADDITIONAL INFORMATION.

RAIL SLIP JOINT

(MA)

2. 6'-0" MAXIMUM SPACING BETWEEN POSTS.

3. GUARDRAILS SHALL BE WELDED ASSEMBLIES.

GUARDRAIL ELEVATION

STEEL GUARDRAIL

REAM PIPE FOR FREE FIT —

g

4" TOFBOARD

SEE NOTE 1-

NOTES:

3/16 1

TOEBOARD -

1 7/8"

11 20. 20. 20. 20. 20. 20. 20. 1

TOEBOARD EXPANSION JOINT

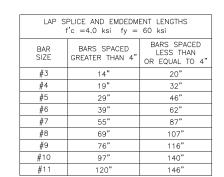
POST MOUNTING TO STEEL

1/4" GAP

- VERTICAL POST

1/4

ROOF PLATE



	PLICE AND EMDEDM 'c =4.0 ksi fy =	
BAR SIZE	BARS SPACED GREATER THAN 4"	BARS SPACED LESS THAN OR EQUAL TO 4"
#3	14"	20"
#4	19"	32"
#5	29"	46"
#6	39"	62"
#7	55"	87"
#8	69"	107"
#9	76"	116"
#10	97"	140"
#11	120"	146"

1. PROVIDE MINIMUM LAP SPLICE LENGTHS AND EMBEDMENTS PER TABLE UNO. EMBEDMENT LENGTH EQUALS THE LAP SPLICE LENGTH UNO.

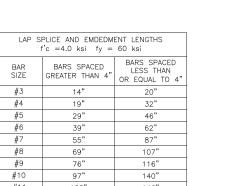
3. BAR SPACING AT LAP SPLICE IS THE MINIMUM CLEAR DISTANCE BETWEEN LAPPED BARS PLUS ONE BAR DIAMETER.

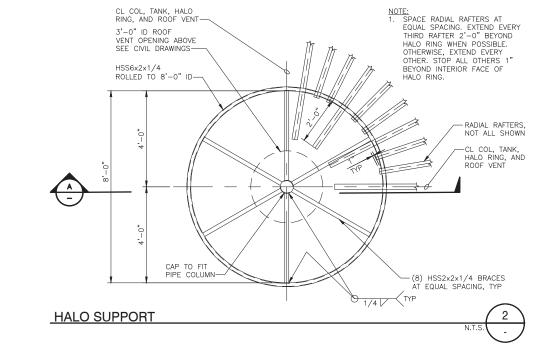
2. LENGTHS SHOWN IN THE TABLE ARE FOR BOTTOM BARS. MULTIPLY LENGTHS BY 1.3 FOR HORIZONTAL TOP BARS WITH MORE THAN 12" OF FRESH CONCRETE CAST BELOW.

-GUIDE PLATE - TOEBOARD

GUIDE PLATE

NOTES:

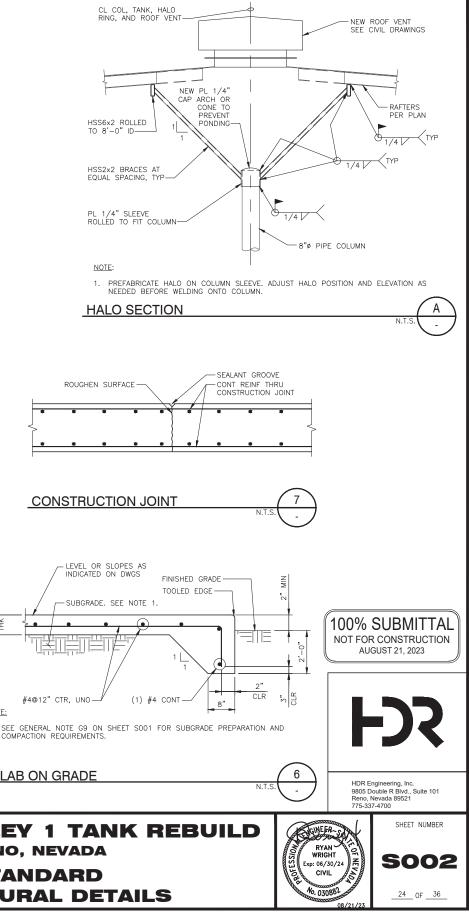




TANK APPURTENANCES AS REQ'D.

APPURTENANCE NOT SHOWN .-

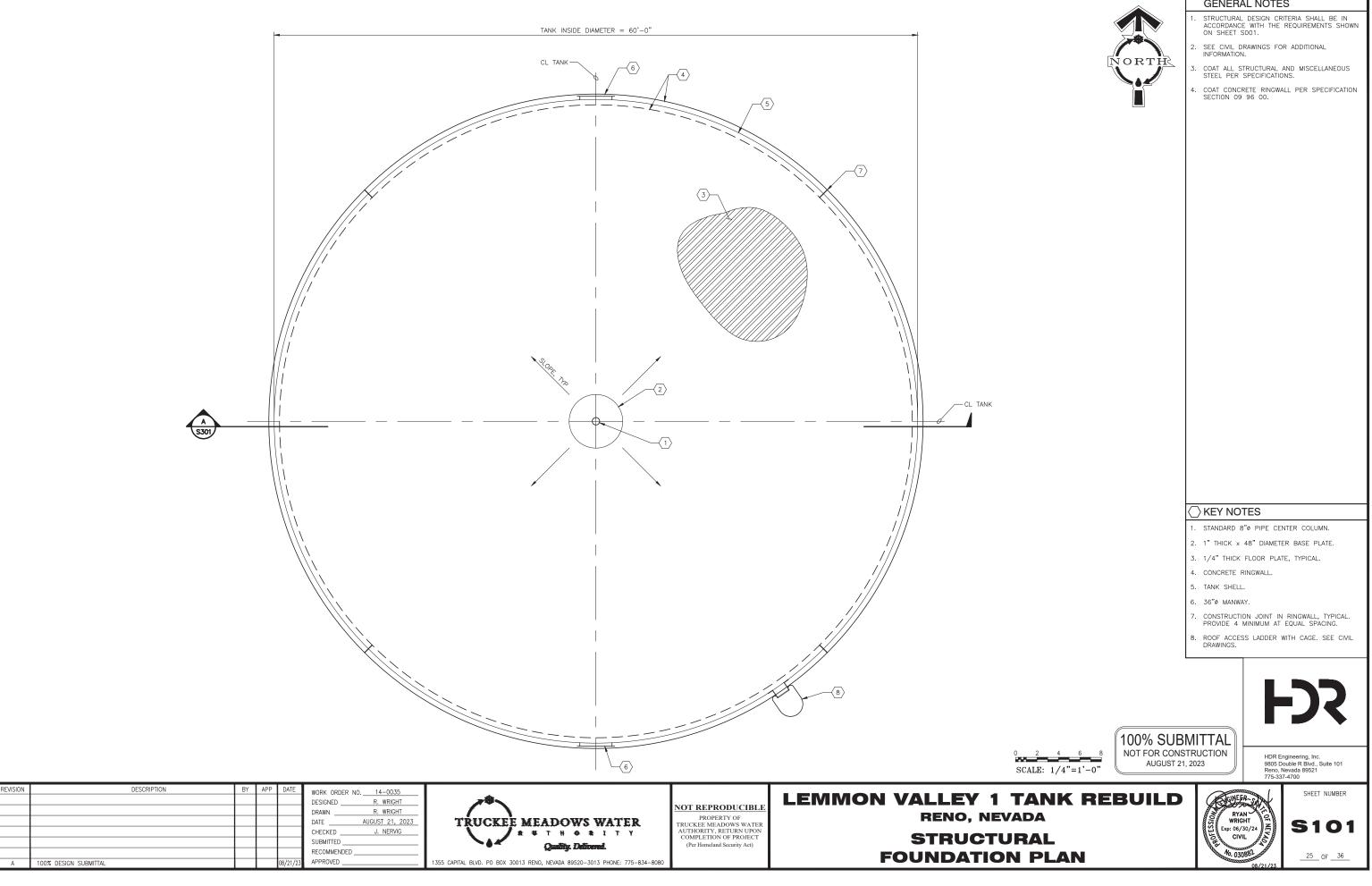
3/16" PLATE FOR FLANGE COLLAR

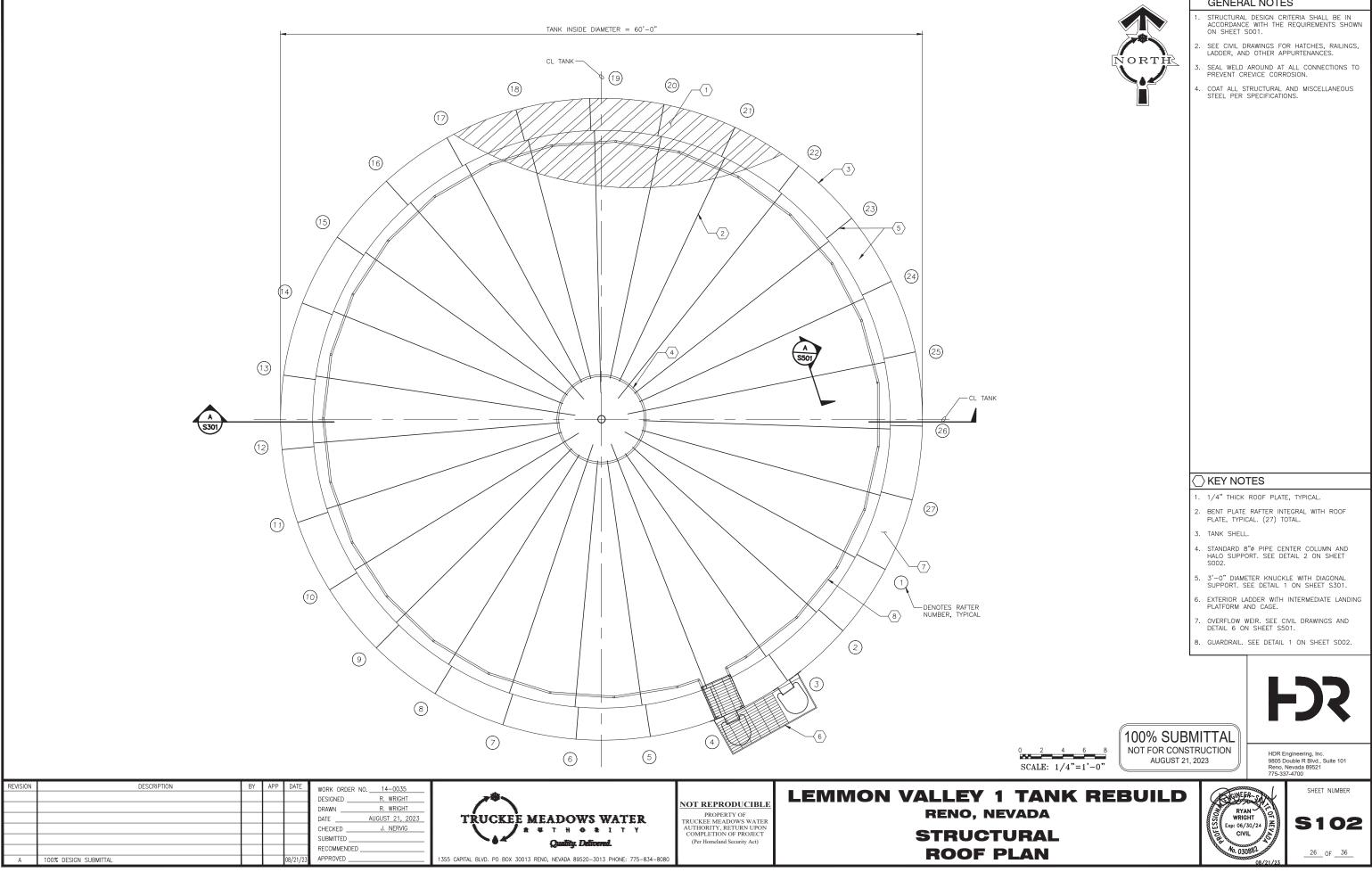


-LEVEL TOP OF FLANGE

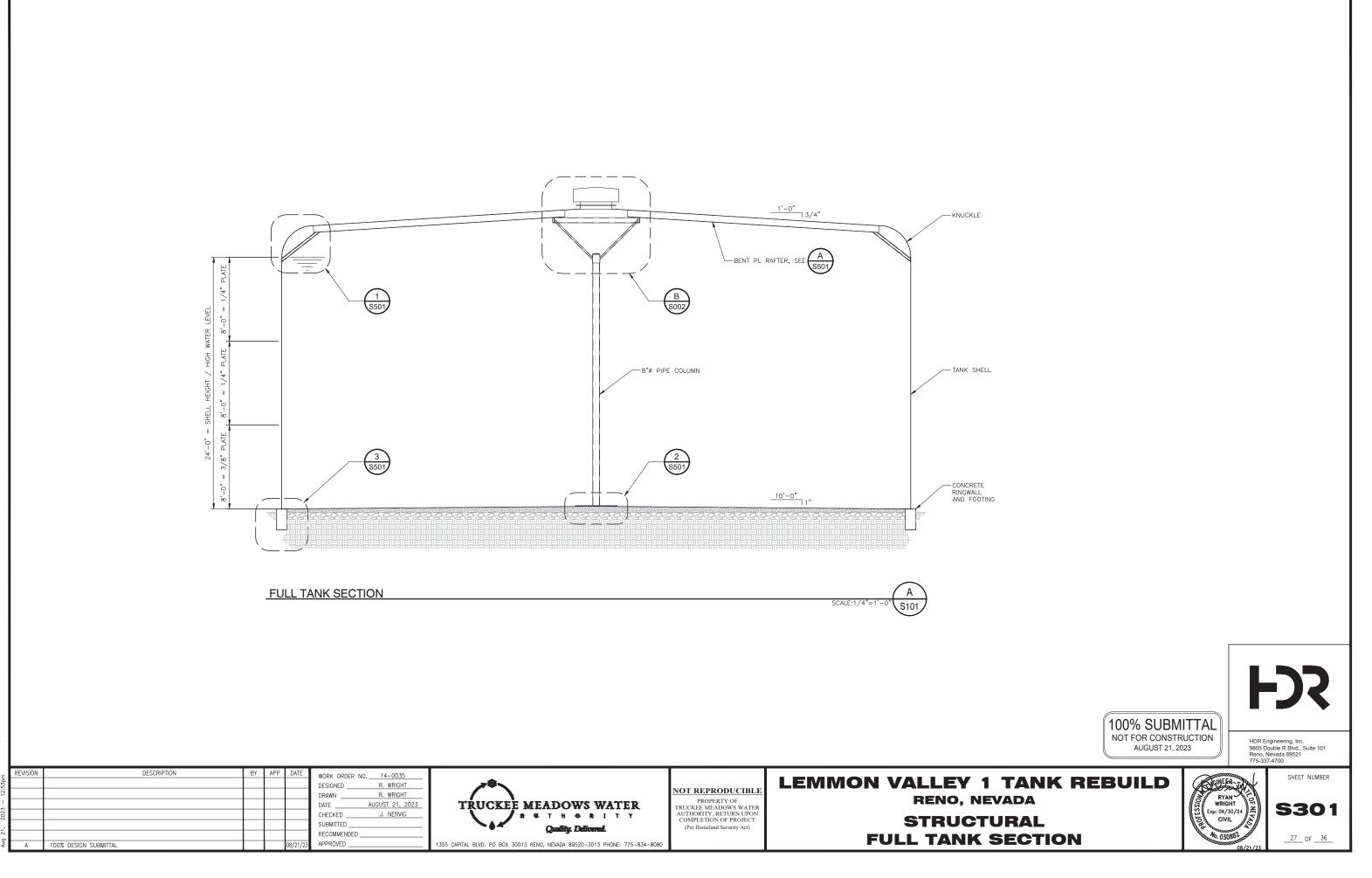
- ANSI B16.1 CLASS 125 STEEL FLANGE, UNO

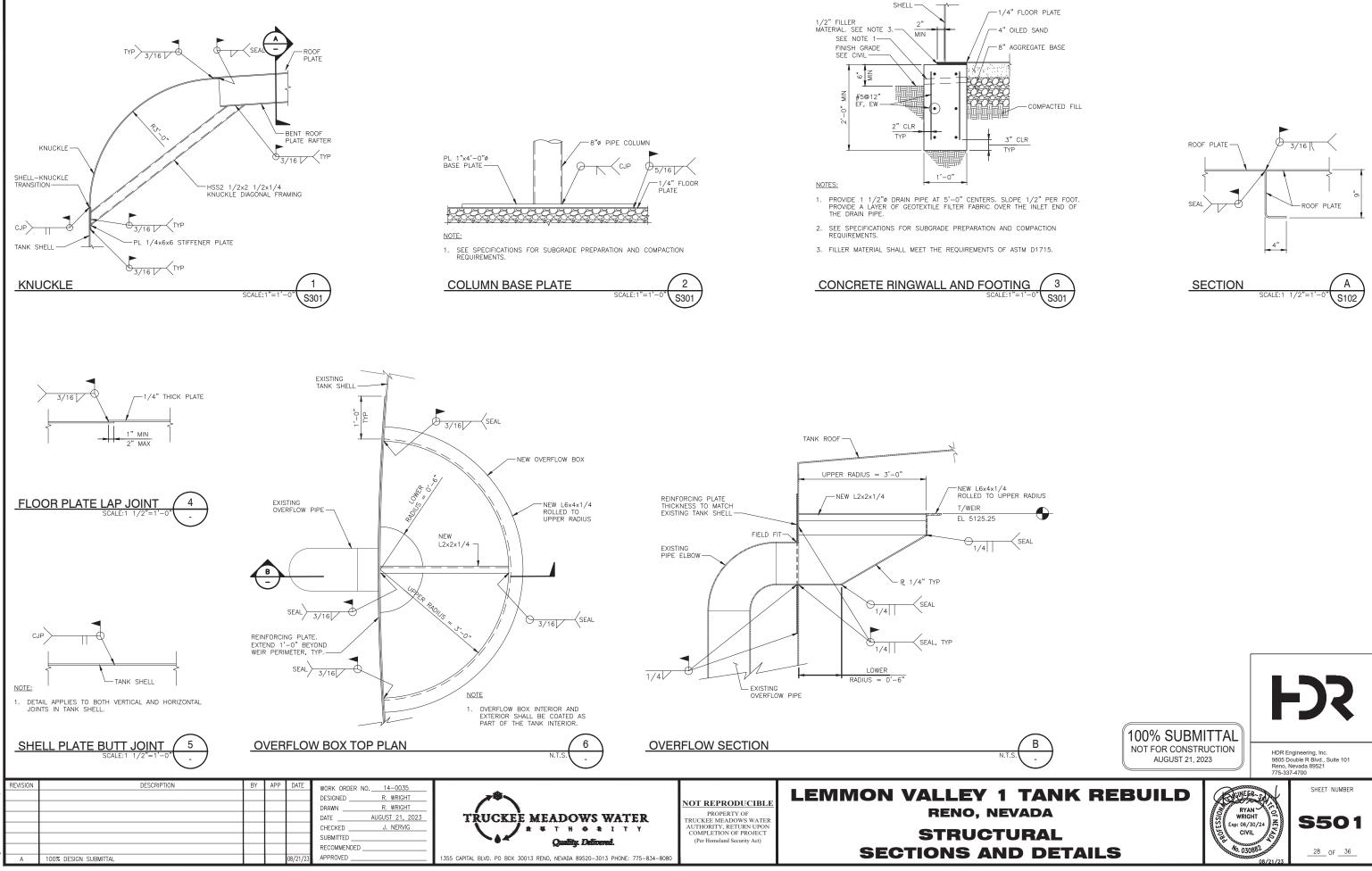
3/16

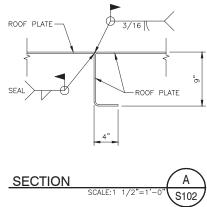




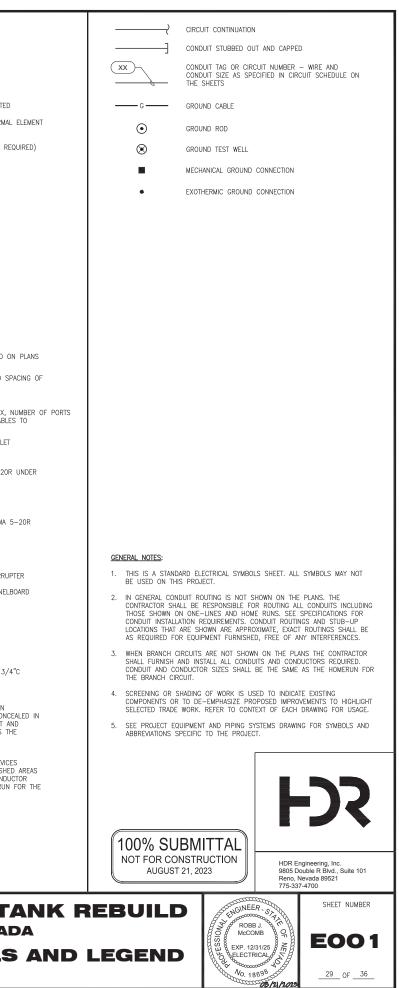


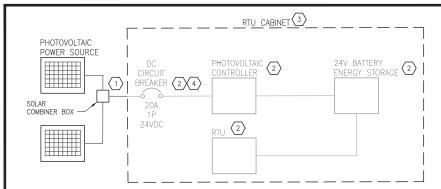






$\square$	D – CONTROLLER TYPE VFD – VARIABLE FREQUENCY DRIVE SS – SOLID STATE MOTOR CONTROLLER THERMAL OVERLOAD ELEMENT THERMAL OVERLOAD RELAY CONTACT DISCONNECT OR SAFETY SWITCH, 30A, 3P, NON-FUSED UNLESS OTHERWISE NOTED MOTOR WITH DESIGN HORSEPOWER (WHEN INDICATED)	%	DELAY ON CLOSING A NORMALLY CLOSED TI TIME DELAY ON OPEN NORMALLY OPEN TIME DELAY ON OPENING A NORMALLY CLOSED TI TIME DELAY ON CLOS NORMALLY OPEN TEM CLOSE ON RISING TEM NORMALLY CLOSED TE OPEN ON RISING TEM NORMALLY OPEN FLO	E DELAY RELAY CONTACT WITH TIME AFTER COIL IS ENERGIZED IME DELAY RELAY CONTACT WITH NING AFTER COIL IS ENERGIZED E DELAY RELAY CONTACT WITH TIME AFTER COIL IS DE-ENERGIZED IME DELAY RELAY CONTACT WITH SING AFTER COIL IS DE-ENERGIZED IPERATURE SWITCH; MPERATURE SWITCH; MPERATURE EMPERATURE W SWITCH;		CONTROL CENTER INDICATED CEILING/PENDANT WALL-MOUNTED CEILING/PENDANT WALL-MOUNTED	SS THAN 250V) PMENT ENCLOSURE: SWITCHBOARD, R, CONTROL PANEL, OR OTHER EQL I-MOUNTED LED LUMINAIRE LED LUMINAIRE I-MOUNTED LED FIXTURE LED FIXTURE LED FIXTURE LED FIXTURE		$ \begin{array}{c} \bigoplus_{r}^{X} \\ \bigoplus_{r}^{X} \\ \bigoplus_{r}^{Y} \\ \bigoplus_{r}^{Y} \\ \bigoplus_{r}^{X} \\ \bigoplus_{r}^{Y} \end{array} $	COMMON COVER PLATE DUPLEX RECEPTACLE, NEMA 5-20R FLOOR MOUNTED DUPLEX RECEPTACLE, NEMA SIMPLEX RECEPTACLE, NEMA 5-20R <u>SUBSCRIPTS:</u> X - INDICATES TYPE GFCI - GROUND FAULT CIRCUIT INTERR WP - WATERPROOF Y - INDICATES CIRCUIT NUMBER FROM PANE PEDESTAL CONDUIT TURNING UP CONDUIT TURNING DOWN HOME RUN TO PANEL, 2 #12, 1 #12G IN 3 UNLESS OTHERWISE NOTED
G G ATS J LP100 208/120V 3ø, 4W	GENERATOR TRANSFER SWITCH, CURRENT RATING, AND NUMBER OF POLES AS NOTED ATS - AUTOMATIC MTS - MANUAL TRANSFORMER	APP DATE WORK ORDER N DESIGNED DATE	CLOSE ON INCREASIN NORMALLY CLOSED FI OPEN ON INCREASING CLOSE ON RISING LEV CLOSE ON RISING LEV NORMALLY CLOSED LI OPEN ON RISING LEV NORMALLY OPEN PRE CLOSE ON INCREASING NORMALLY CLOSED PI OPEN ON INCREASING NORMALLY CLOSED PI OPEN ON REACHING NORMALLY CLOSED LIMI CLOSE ON REACHING NORMALLY CLOSED LIMI OPEN ON REACHING 0. 14-0035 A. RAGNEV R.J. GONZALVO	IG FLOW LOW SWITCH; S FLOW EL SWITCH, VEL EVEL SWITCH, VEL SSURE SWITCH, IG PRESSURE S PRESSURE T SWITCH, LIMIT IMIT SWITCH, LIMIT	$ \begin{array}{c}                                     $	DOUBLE-FACED ( DIRECTIONAL ARR PLANS SINGLE-FACED C DIRECTIONAL ARR PLANS AREA OR ROADW. LIGHTING FIXTL X - INDICATES ( Y - INDICATES ( Z - INDICATES ( EMERGENCY LIGH SHOWN EMERGENCY LIGH	CEILING OR WALL-MOUNTED EXIT LI OWS (IF REQUIRED) AS INDICATED EILING OR WALL-MOUNTED EXIT LI OWS (IF REQUIRED) AS INDICATED AY LIGHT – POLE-MOUNTED JRE SUBSCRIPTS: TXTURE TYPE PER LIGHTING HEDULE SIXCUIT NUMBER FROM PANELBOARI SONTROLLING SWITCH (IF REQUIRED), T FIXTURE, 2 ATTACHED HEADS AS T, REMOTE MOUNTED HEAD NOT REPRODUCIBLE PROPERTY OF	on Shtt; on D )	  MMON	UNLESS OTHERWISE NOTED CIRCUIT RUN BETWEEN DEVICES EXPOSED IN NON-ARCHITECTURALLY FINISHED AREAS: CON ARCHITECTURALLY FINISHED AREAS: CONDUIT CONDUCTOR SIZES SHALL BE THE SAME AS HOMERUN FOR THE CIRCUIT. CONDUIT RUN UNDERGROUND, BETWEEN DEVI CONCEALED IN NON-ARCHITECTURALLY FINISH OR UNDER FLOOR SLAB. CONDUIT AND CONE SIZES SHALL BE THE SAME AS THE HOMERU CIRCUIT. VALLEY 1 T RENO, NEVA
C:/buworking/west/ Aug 22, 2023 - 1 Aug 22, 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 - 2023 -	UBMITTAL	DATE           CHECKED           SUBMITTED           RECOMMENDED           08/21/23	AUGUST 21, 2023 W. ETTLICH	1355 CAPITAL BLVD. PO BOX 30013 RENO	T H O R I Quality. Delivered.	тү	TRUCKER MEADOWS WATER AUTHORITY, RETURN UPON COMPLETION OF PROJECT (Per Homeland Security Act)	ELE	ECTRIC	CAL SYMBOL





- PHOTOVOLTAIC SOURCE CIRCUIT CURRENTS, THE SUM OF PARALLEL- CONNECTED PV MODULE RATED SHORT-CIRCUIT CURRENTS MULTIPLIED BY 125 PERCENT PER NEC 690.8(A)(1)(1).
- DC CIRCUIT BREAKER IS RATED NOT LESS THAN 125 PERCENT OF THE MAXIMUM CURRENT CALCULATED IN 690.8(A)(1)(1) PER NEC 690.9(B)(1).

## ONE LINE DIAGRAM

KEYNOTES:

- 1 Connect two ameresco 200J–V solar panels in parallel at solar combiner box.
- 2 PROVIDED AND INSTALLED BY TMWA.
- $\langle \overline{3} \rangle$  provided by tmwa. Installed by contractor.
- PHOTOVOLTAIC SYSTEM DISCONNECTING MEANS SHALL BE LISTED AS SUITABLE FOR USE AS SERVICE EQUIPMENT AND LABELED PER NEC 690.13(B).
- EQUIPMENT SCHEDULE (ES) ES EQUIPMENT DESCRIPTION ITEM # RTU CABINET, FURNISHED BY TMWA AND INSTALLED BY CONTRACTOR. 36"W X 24"D X 72"H FREE-STANDING, CONTINUOUS HINGED, FRONT ACCESS ONLY, NEMA 4 STEEL CABINET WITH 20A 1P 1 MAIN BREAKER, STATUS LIMIT SWITCH, AND "HELP" PUSH BUTTON CONTROLS. SAGINAW CONTROL & ENGINEERING SCE-72EL3624FS ENCLOSURE AND SCE-DS36N4 SHIELD, OR APPROVED EQUAL. SEE E501 HATCH ALARM. INDUSTRIAL SURFACE MOUNT SWITCH, SPDT, N.O., N.C. MAGNETIC-CONTACT GRI 2 4402A OR APPROVED FOUAL FLOAT SWITCH. NORMALLY CLOSED TETHER FLOAT SWITCH. 3 SJE RHOMBUS #20GMWENC. NO EQUAL. JUNCTION BOX. 6"H X 6"W X 4"D, NEMA 4X, 316 STAINLESS STEEL, HINGED DOOR. 4 HOFFMAN A664CHQRFG OR APPROVED EQUAL PRESSURE TRANSMITTER 5 HONEYWELL #STG84L-E1G000-1-0-AHH-11S-A-10A0-00-0000. NO EQUAL. JUNCTION BOX. 12"H X 12"W X 6"D, NEMA 4X, 316 STAINLESS STEEL, HANDRAIL MOUNTED. 6 HOFFMAN A1212CHFL OR APPROVED EQUAL. AMERESCO #200J-V SOLAR PANEL AND #1X-SPM UNIMOUNTING BRACKETS. NO EQUAL. 7 SOLAR COMBINER BOX. 10.5"H X 4.5"W X 3.5"D, NEMA 3R, ALUMINUM, UNIMOUNTING BRACKETS. 8 MIDNITE MNPV3 AND TWO (2) MNEPV20 OR APPROVED EQUAL. VAULT FLOAT SWITCH PN#43980 (VAULT FLOOD INDICATION). NORMALLY CLOSED BRACKET MOUNTED 9 FLOAT SWITCH. GEMS LS-270 PN #43980. NO EQUAL. JUNCTION BOX. 6"H X 6"W X 4"D, NEMA 4X, 316 STAINLESS STEEL, HINGED DOOR. 10 HOFFMAN A606CHFL OR APPROVED EQUAL. JUNCTION BOX. 16"H X 14"W X 8"D, NEMA 4X, 316 STAINLESS STEEL, HINGED DOOR. 11 HOFFMAN A16148CHFL OR APPROVED EQUAL.

### EQUIPMENT SCHEDULE NOTES

- 1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PURCHASING AND INSTALLATION OF ALL EQUIPMENT SHOWN ON EQUIPMENT SCHEDULE UNLESS OTHERWISE NOTED.
- 2. THE EQUIPMENT SCHEDULE IS INTENDED TO BE AS COMPLETE AS POSSIBLE LESS STANDARD MATERIALS AND DETAILED INSTALLATION INSTRUCTIONS FOR EQUIPMENT. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE PROJECT REP. PRIOR TO BID.
- 3. THE CONTRACTOR SHALL PROVIDE A COMPLETE INSTALLATION OF ALL EQUIPMENT AND DEVICES INDICATED ON THE EQUIPMENT SCHEDULE INCLUDING SUPPORTS AND OTHER INSTALLATION MATERIALS NEEDED.
- 4. THE CONTRACTOR SHALL PROVIDE, PULL, AND IDENTIFY ALL WIRES AND CABLES. TMWA WILL TERMINATE AND LAND WIRES AT RTU AND AT FIELD DEVICES. CONTRACTOR SHALL PROVIDE SUFFICIENT LENGTHS FOR ALL TERMINATIONS.
- 5. ALL CONDUITS ENTERING BOXES, PANELS, RTU, ETC. SHALL BE INSTALLED WITH MYERS HUBS. CAP ALL UNUSED CONDUITS.
- 6. CONTRACTOR SHALL SUBMIT DESCRIPTIVE LITERATURE ON ALL EQUIPMENT AND MATERIALS TO BE USED.
- 7. CONTRACTOR IS RESPONSIBLE FOR THEIR OWN MATERIAL QUANTITY TAKE-OFFS.

REVISION	DESCRIPTION	BY	APP	DATE	WORK ORDER NO. 14-0035			
					DESIGNEDA. RAGNEV		NOT DEPRODUCIDI E	LEMMON VALLEY 1 7
					DRAWNR.J. GONZALVO		NOT REPRODUCIBLE PROPERTY OF	RENO, NEVA
					DATE AUGUST 21, 2023_	TRUCKEE MEADOWS WATER	TRUCKEE MEADOWS WATER	
					CHECKED W. ETTLICH	A UTHORITY	AUTHORITY, RETURN UPON COMPLETION OF PROJECT	
		$\vdash$			SUBMITTED	Quality. Delivered.	(Per Homeland Security Act)	
					RECOMMENDED			AND SCHED
A	100% DESIGN SUBMITTAL			08/21/23	APPROVED	1355 CAPITAL BLVD. PO BOX 30013 RENO, NEVADA 89520-3013 PHONE: 775-834-8080		

	CONDUIT AND CAB	LE SCHEDULE
SIZE	FILL	REMARKS
	#18 TSP (PRESSURE TRANSMITTER)	
	2#14, #14G (VALVE VAULT) 2#14 (VAULT FLOOD SWITCH)	
	PULLROPE	TURNS SHALL NOT EXCEED BEND RADIUS OF FUTURE ANTENNA CABLE. VERIFY ANTENNA CABLE WITH TMWA.
,	2#14, #14G (TANK) 2#14 (FLOAT SWITCH)	
,	PULLROPE	FUTURE LADDER ALARM
	2#14, #14G (TANK) 2#14 (FLOAT SWITCH) 2#14 (FUTURE LADDER ALARM)	FOR FUTURE LADDER ALARM, PROVIDE ADDITIONAL CONDUCTOR LENGTH TO REACH LADDER ALARM LOCATION AND COIL IN JUNCTION BOX ON TANK ROOF FOR FUTURE USE.
	2#10, #10G (SOLAR PANEL)	
,	2#14, #14G (TANK)	
,	#18 TSP (PRESSURE TRANSMITTER)	
,	2#14, #14G (VAULT FLOOD SWITCH)	
,	2#10, #10G (SOLAR PANEL)	

(TAG)

1

2

.3

4

5

6

7

8

9

10

CONDUIT S

1"

1"

2"

3/4"

3/4"

1"

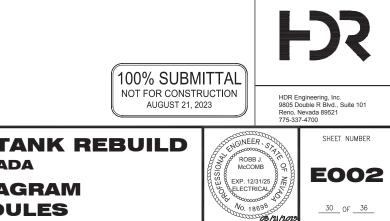
1"

3/4"

3/4"

3/4"

3/4"





# TIMWA STANDARD CONDUIT AND WIRING REQUIREMENTS

Note: All threaded conduit to be assembled with conductive lubricant.

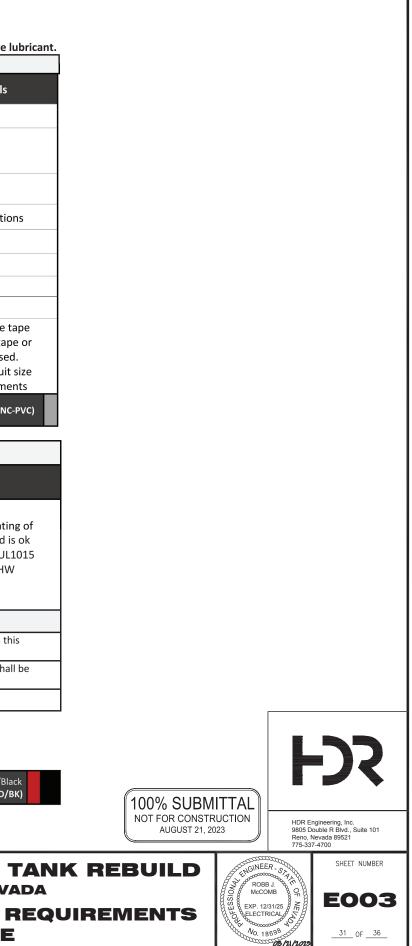
TABLE	26 00 00.A – CONDUIT REQUIREMENTS	5								
	Location	Power	Control	Analog, Communication	Data	Elbow Sweeps	Stub-ups, Exposed	Stub-ups, Concealed	Grounding System	Additional Details
	Outside/Wet locations	RGS	RGS	RGS	RGS	RGS	PVC-RGS	PVC-RGS	BD-RGS	
EXPOSED	Wet locations. Vaults, pump stations and Well-houses or where subject to physical damage	RGS	RGS	RGS	RGS	RGS	PVC-RGS	PVC-RGS	BD-RGS	
EXP	Inside dry locations. (i.e. office areas)	EMT	ЕМТ	EMT	EMT	EMT	PVC-RGS	PVC-RGS	EMT	
	Inside Chemical Rooms	PVC (sch. 40)	PVC (sch. 40)	PVC (sch. 40)	PVC (sch. 40)	PVC (sch. 40)	PVC (sch. 40)	PVC (sch. 40)		Other specified locations
н.	Not in Traffic	PVC (sch. 40)	PVC (sch. 40)	PVC (sch. 40)	PVC (sch. 40)	PVC-RGS	PVC-RGS	PVC-RGS		
DIRECT BURY	In Traffic	ENC-PVC	ENC-PVC	ENC-PVC	ENC-PVC	ENC-PVC-RGS	PVC-RGS	PVC-RGS		
	Underneath Concrete Slabs	PVC (sch. 40)	PVC (sch. 40)	PVC (sch. 40)	PVC (sch. 40)	PVC-RGS	PVC-RGS	PVC-RGS		
	Concrete Encased Duct Bank	PVC (sch. 40)	PVC (sch. 40)	PVC (sch. 40)	PVC (sch. 40)	PVC-RGS	PVC-RGS	PVC-RGS		
CTEI	In Slab	PVC (sch. 40)	PVC (sch. 40)	PVC (sch. 40)	PVC (sch. 40)	PVC-RGS	PVC-RGS	PVC-RGS	RGS	All in-slab RGS shall be tap wrapped with 10 mil tape
PROTECTED	In CMU Walls	PVC (sch. 40)	PVC (sch. 40)	PVC (sch. 40)	PVC (sch. 40)	PVC-RGS	PVC-RGS	PVC-RGS	PVC-RGS	PVC-RGS shall be used.
PR	In Stud Walls	EMT	EMT	ЕМТ	EMT	ЕМТ	EMT	ЕМТ	ЕМТ	Coordinate max conduit si with structural document
R	igid Galvanized Steel PVC C (RGS)	Coated Rigid Galvanized (PVC	l Steel Bonded	Rigid Galvanized Steel	(BD-RGS) Electr	ical Metallic Tubing <b>(EM</b>	РС	olyvinyl Chloride, sched (PVC, sc		Encased Polyvinyl Chloride <b>(ENC-P</b>

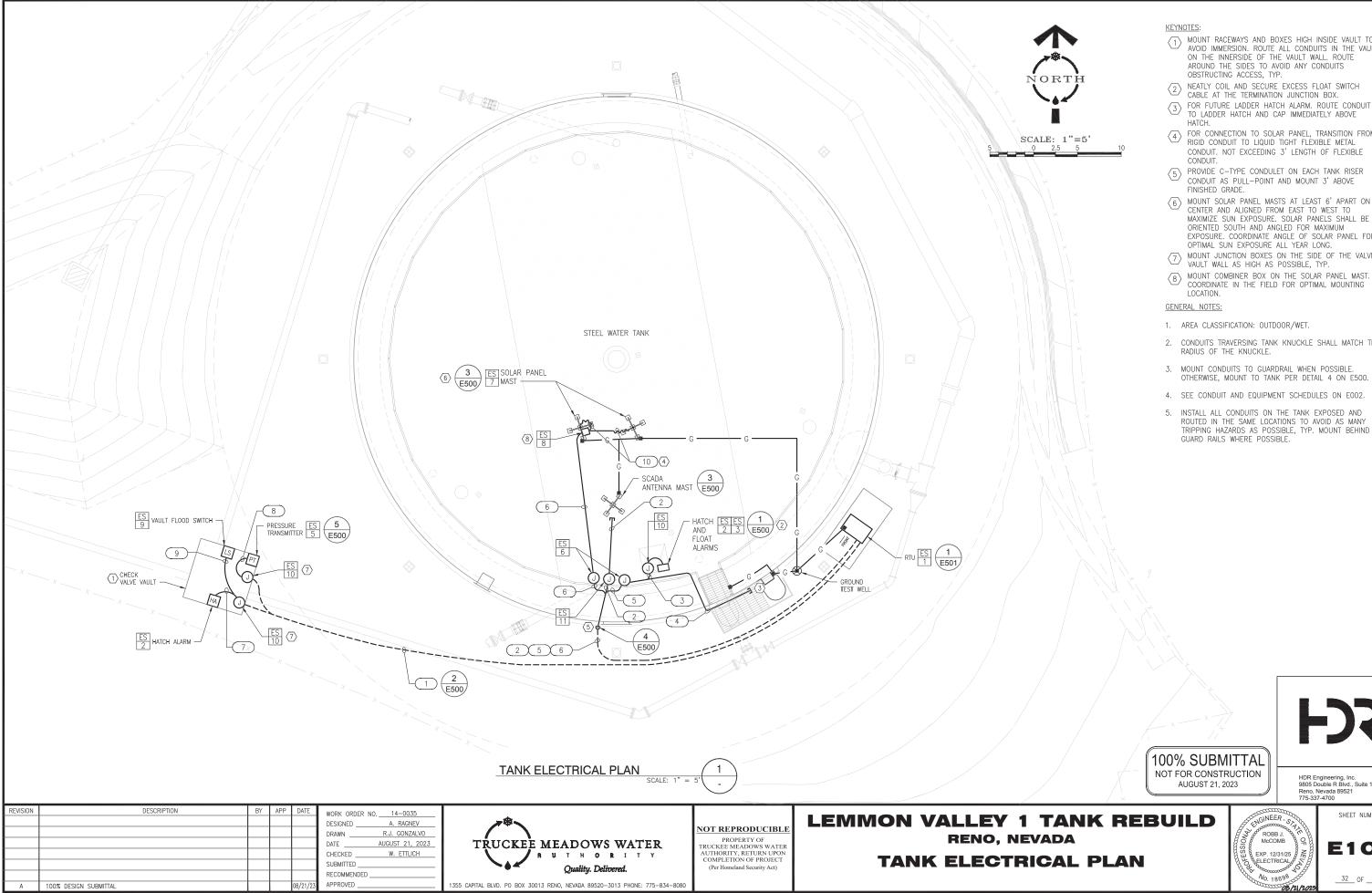
## TABLE 26 00 00 B - WIRING REQUIREMENTS

TABL	E 26 00 00.B – WI	RING REQUIRE	MENTS											
	Phase Code/ Letter	480 VAC 3ф	110v-240VAC Зф	120-240VAC 1ф		Description	Туре	Wire Color	AWG	Other Conditions	Wire Color	Cable Type	Additional Notes:	
	Α	BR	ВК				Control	YL						
	В	OR	RD (OR) if high L			AC	Neutral	WH/YL		Shielded Pair	Dod/Dlack	Belden 1120A Wet location	All wires shall have an insulation rating of 600V, stranded, copper. Tin coated is ol	
	С	YL	BL				Ground	GN					Control wiring shall be type MTW/UL102	
~	Ν	GY	WН	WH GR		Positive	Red				Belden 5300FE Dry Location	Power Wiring shall be type XHHW		
WER	G	GR	GR		12 VDC	0V or (-)	Black	16 MTW						
D	L1			ВКО			Ground	GN		ADDITIONAL SPECIAL REQUIREMENTS				
	L2			RD			Positive	BLUE		Variable Fi	requency Drives	(VFDs)	VFD cables shall be rated for use in this application	
	AWG	size per load requirement per NEC				24 VDC	0V or (-)	WH/BL		Underwa	ter Cable Applica	ations	Submerged cables and connections shall be appropriate	
	Solar	Positive (RD)	Negative (BK) Ground (GN)				Ground	GN						

Brown (BR)	Orange (OR)	Yellow <b>(YL)</b>	Grey <b>(GY)</b>	Green (GN)	Black <b>(BK)</b>	Red <b>(RD)</b>	Blue <b>(BL)</b>	White <b>(WH)</b>	White/Blue <b>(WH/BL)</b>	White/Yellow <b>(WH/YW)</b>	Black/White (BK/WH)	Red/Black (RD/BK)

mpn+:i	REVISION	DESCRIPTION	BY	APP	DATE	WORK ORDER NO. <u>14–0035</u> DESIGNED <u>A. RAGNEV</u> DRAWN R.J. GONZALVO	<b>/*</b>	NOT REPRODUCIBLE	LEMMON VALLEY 1 1
- 0707						DATEAUGUST 21, 2023_ CHECKEDW. ETTLICHSUBMITTED	TRUCKEE MEADOWS WATER	PROPERTY OF TRUCKEE MEADOWS WATER AUTHORITY, RETURN UPON COMPLETION OF PROJECT	RENO, NEVA
'77 Anv	A	100% DESIGN SUBMITTAL			08/21/23	RECOMMENDED	Quality. Delivered. 1355 CAPITAL BLVD. PO BOX 30013 RENO, NEVADA 89520-3013 PHONE: 775-834-8080	(Per Homeland Security Act)	TABLE





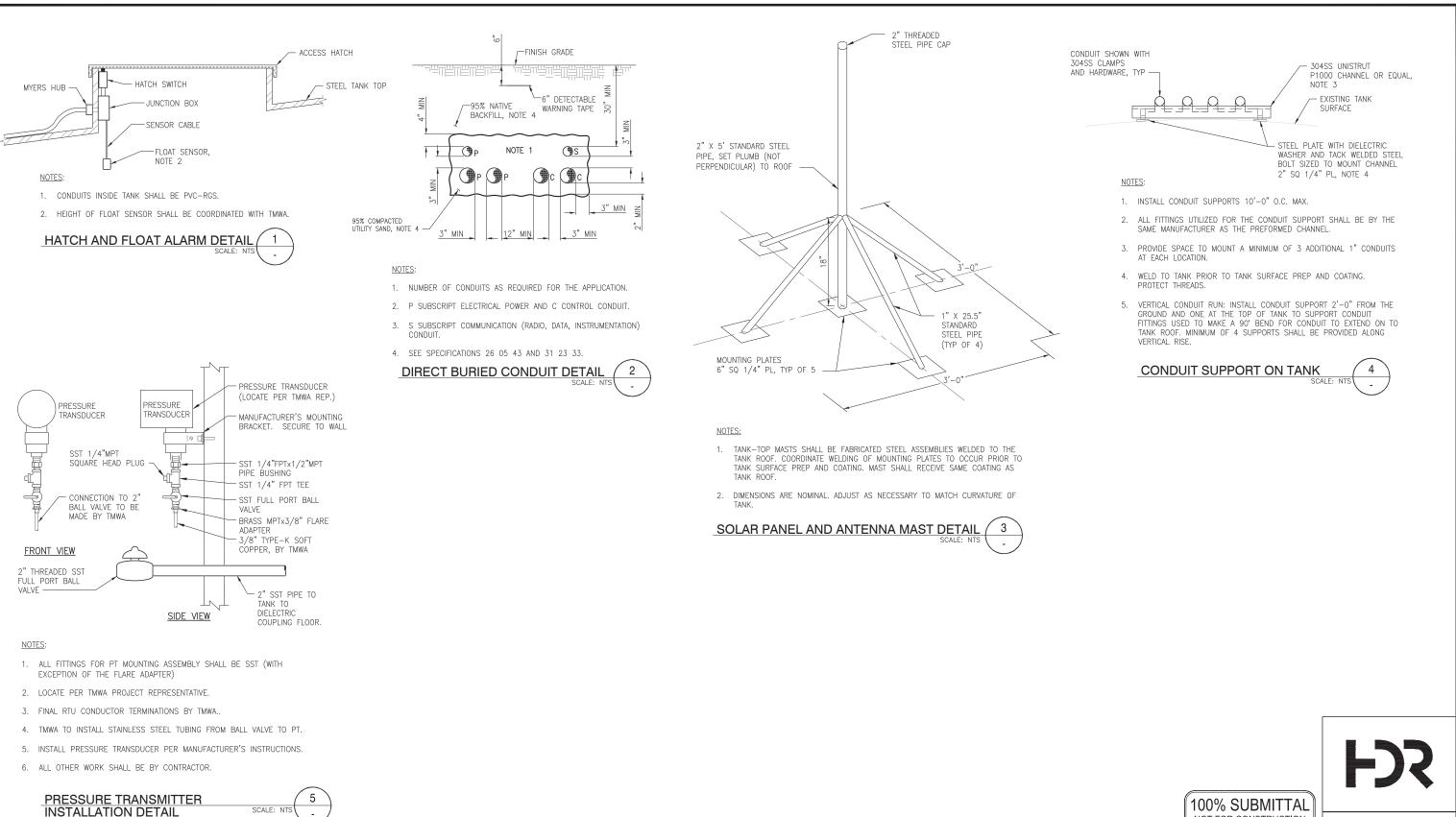
- (1) MOUNT RACEWAYS AND BOXES HIGH INSIDE VAULT TO AVOID IMMERSION. ROUTE ALL CONDUITS IN THE VAULT ON THE INNERSIDE OF THE VAULT WALL. ROUTE AROUND THE SIDES TO AVOID ANY CONDUITS
- CABLE AT THE TERMINATION JUNCTION BOX.
- FOR FUTURE LADDER HATCH ALARM. ROUTE CONDUIT TO LADDER HATCH AND CAP IMMEDIATELY ABOVE
- (4)
   FOR CONNECTION TO SOLAR PANEL, TRANSITION FROM RIGID CONDUIT TO LIQUID TIGHT FLEXIBLE METAL
   CONDUIT. NOT EXCEEDING 3' LENGTH OF FLEXIBLE
- (5) PROVIDE C-TYPE CONDULET ON EACH TANK RISER CONDUIT AS PULL-POINT AND MOUNT 3' ABOVE
- (6) MOUNT SOLAR PANEL MASTS AT LEAST 6' APART ON CENTER AND ALIGNED FROM EAST TO WEST TO MAXIMIZE SUN EXPOSURE. SOLAR PANELS SHALL BE ORIENTED SOUTH AND ANGLED FOR MAXIMUM EXPOSURE. COORDINATE ANGLE OF SOLAR PANEL FOR OPTIMAL SUN EXPOSURE ALL YEAR LONG.
- 7 MOUNT JUNCTION BOXES ON THE SIDE OF THE VALVE VAULT WALL AS HIGH AS POSSIBLE, TYP.
- COORDINATE IN THE FIELD FOR OPTIMAL MOUNTING

- 2. CONDUITS TRAVERSING TANK KNUCKLE SHALL MATCH THE
- 3. MOUNT CONDUITS TO GUARDRAIL WHEN POSSIBLE. OTHERWISE, MOUNT TO TANK PER DETAIL 4 ON E500.
- 4. SEE CONDUIT AND EQUIPMENT SCHEDULES ON E002.
- INSTALL ALL CONDUITS ON THE TANK EXPOSED AND ROUTED IN THE SAME LOCATIONS TO AVOID AS MANY TRIPPING HAZARDS AS POSSIBLE, TYP. MOUNT BEHIND

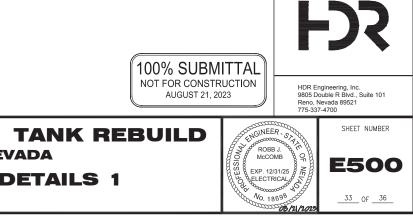


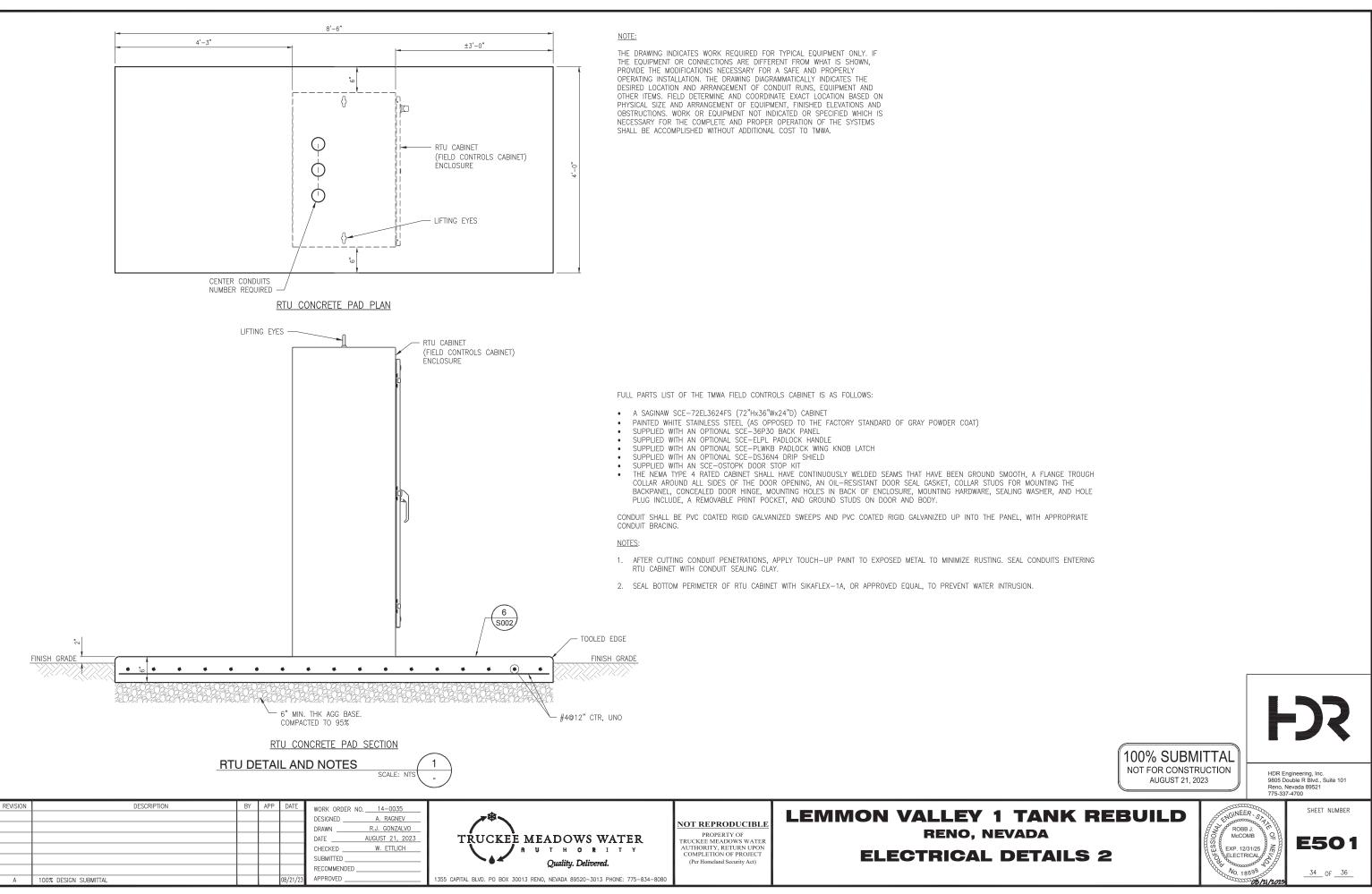


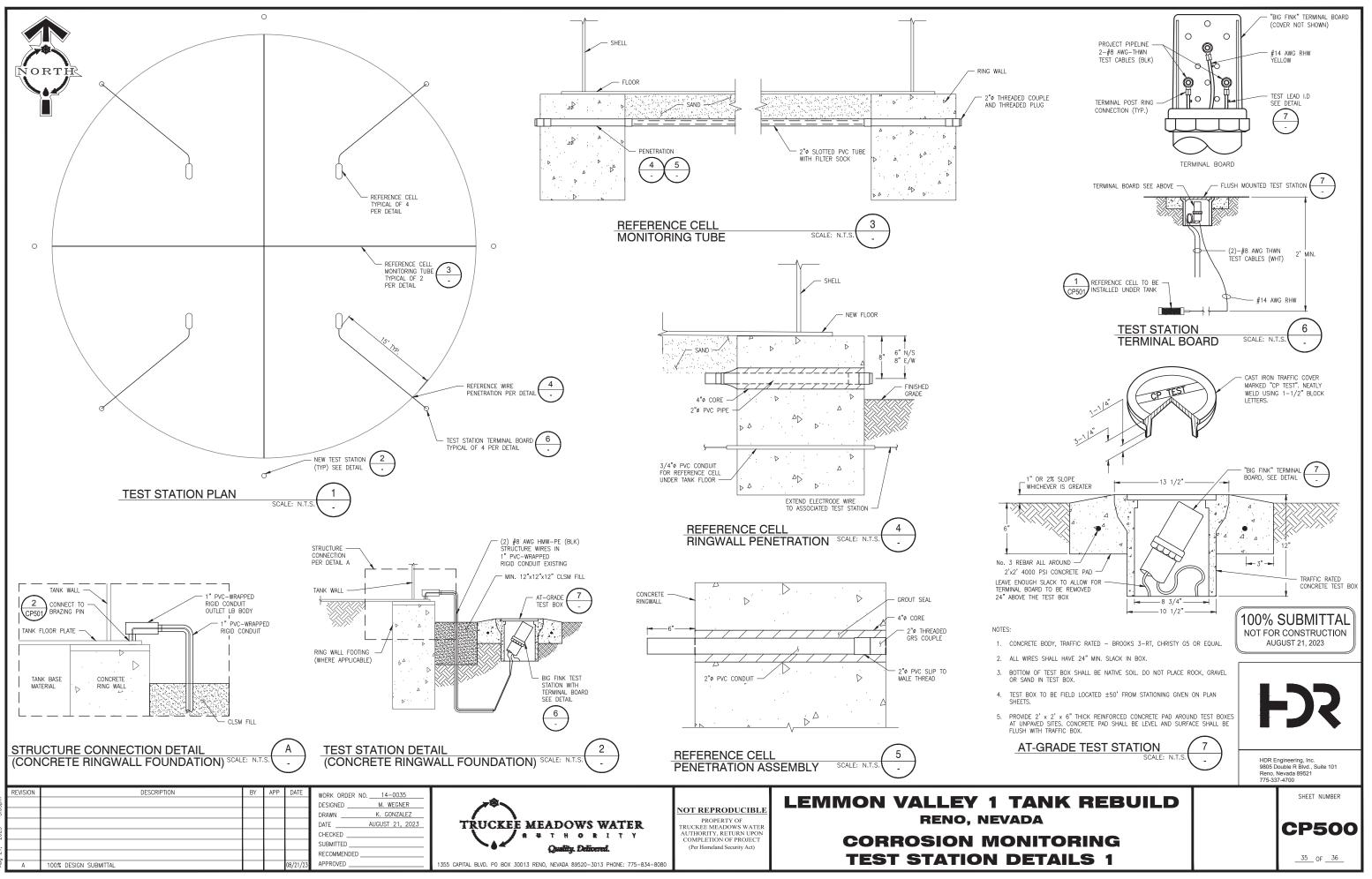


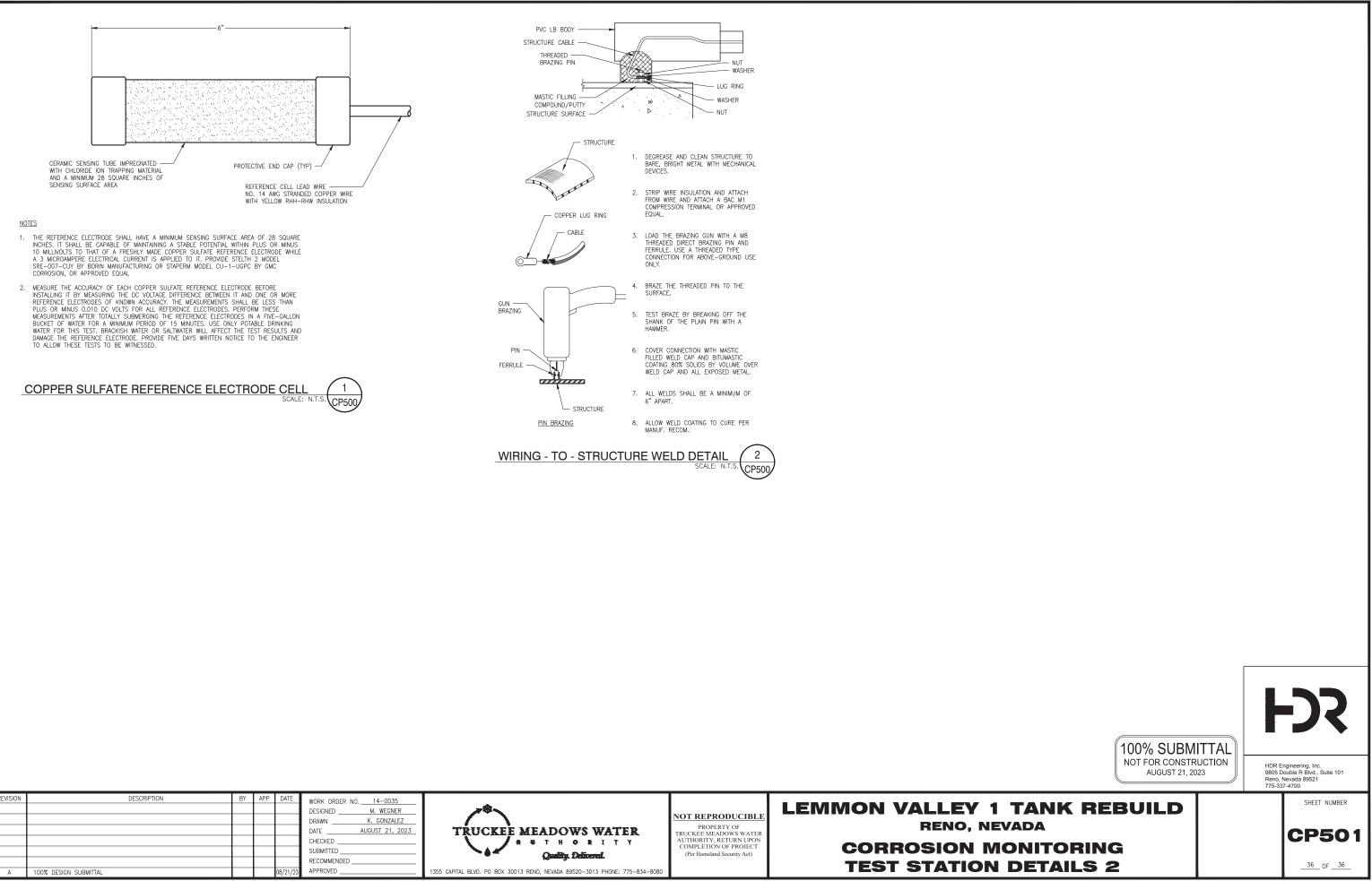


REVISION	DESCRIPTION	BY	APP	DATE	WORK ORDER NO. <u>14–0035</u> DESIGNED <u>A. RAGNEV</u> DRAWN <u>R.J. GONZALVO</u>		NOT REPRODUCIBLE	LEMMON VALLEY 1 RENO, NE
					DATEAUGUST 21, 2023 CHECKEDW. ETTLICH SUBMITTED	TRUCKEE MEADOWS WATER R U T H O R I T Y <i>Quality, Delivered.</i>	TRUCKEE MEADOWS WATER AUTHORITY, RETURN UPON COMPLETION OF PROJECT (Per Homeland Security Act)	ELECTRICAL I
A	100% DESIGN SUBMITTAL			08/21/23	RECOMMENDED APPROVED	1355 CAPITAL BLVD. PO BOX 30013 RENO, NEVADA 89520-3013 PHONE: 775-834-8080		









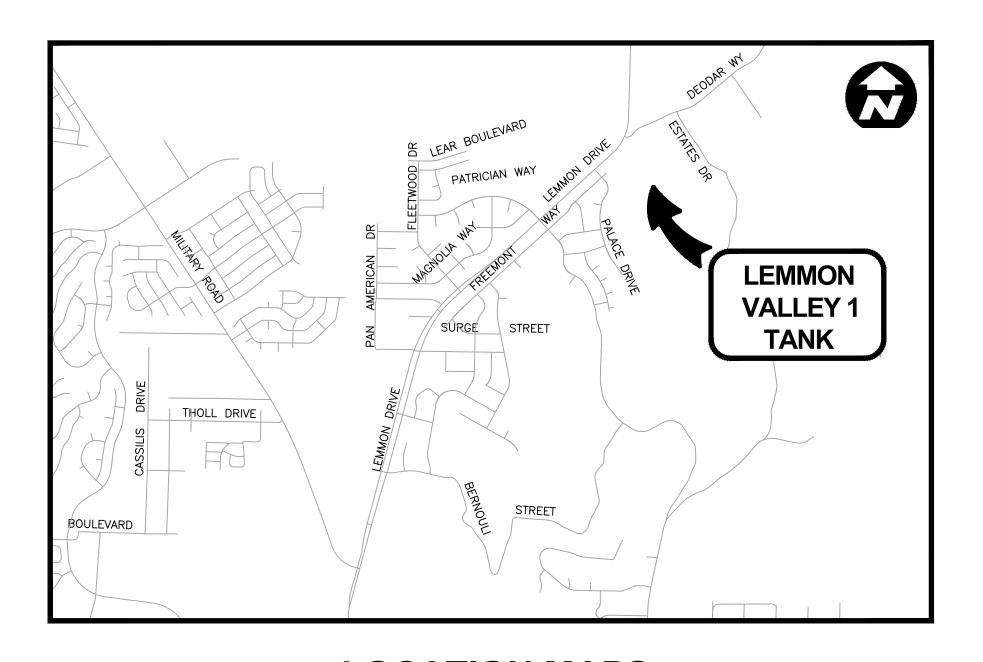
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# **Map Pocket**

# **IMPROVEMENT PLANS** for **LEMMON VALLEY 1 TANK REBUILD RENO - WASHOE COUNTY - NEVADA** TMWA PROJECT NO: 14-0035 **PWP# WA-2023-XXX**

## SHEET INDEX

SHT NO.	DWG NO.	DESCRIPTION
1	G000	COVER SHEET
2	G00 1	GENERAL NOTES
З	G002	LEGENDS, AND ABBREVIATIONS
4	D100	DEMOLITION PLAN
5	D200	INTERIOR DEMO DETAILS
6	C001	DETAILS
7	C002	DETAILS
8	C003	DETAILS
9	C004	DETAILS
10	C100	OVERALL SITE PLAN
11	C101	GRADING PLAN
12	C102	YARD PIPING PLAN
13	C103	PROFILE VIEWS & CONFLUENCE PLAN
14	C104	SECTIONS
15	T200	TANK PLAN AND ELEVATION
16	<b>T302</b>	TANK DETAILS
17	<b>T303</b>	TANK DETAILS
18	<b>T304</b>	TANK DETAILS
19	T305	TANK DETAILS
20	<b>RW-1</b>	RETAINING WALL NOTES
21	<b>RW-2</b>	RETAINING WALL DETAILS
22	<b>RW-3</b>	RETAINING WALL SECTIONS
23	S001	GENERAL STRUCTURAL NOTES AND ABBREVIATIONS
24	S002	STANDARD STRUCTURAL DETAILS
25	S101	STRUCTURAL FOUNDATION PLAN
26	S102	STRUCTURAL ROOF PLAN
27	<b>S</b> 301	STRUCTURAL FULL TANK SECTION
28	<b>S</b> 501	STRUCTURAL SECTIONS AND DETAILS
29	<b>EOO</b> 1	ELECTRICAL LEGENDS AND NOTES
30	E002	ONE LINE DIAGRAMS AND SCHEDULES
31	E002	CONDUIT AND WIRE REQUIREMENTS TABLE
32	E100	TANK ELECTRICAL PLAN
33	E500	ELECTRICAL DETAILS 1
34	E501	ELECTRICAL DETAILS 2
35	CP500	<b>CORROSION MONITORING TEST STATION DETAILS 2</b>
36	CP501	<b>CORROSION MONITORING TEST STATION DETAILS 2</b>



**LOCATION MAPS** NTS





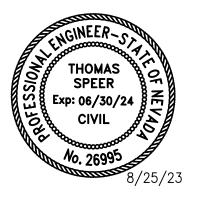


1355 CAPITAL BLVD. PO BOX 30013 RENO, NEVADA 89520-3013 PHONE: 775-834-8080

## JOHN ZIMMERMAN **GENERAL MANAGER**

**KAREN MEYER** PROJECT REPRESENTATIVE Office Phone: 775-834-8012 Cell Phone: 775-544-3886

> **THOMAS SPEER PROJECT ENGINEER** Office Phone: 775-834-8164 email: tspeer@tmwa.com



**NOT REPRODUCIBLE** PROPERTY OF TRUCKEE MEADOWS WATER AUTHORITY RETURN UPON COMPLETION OF PROJECT (Per Homeland Security Act)





PROJECT #14-0035

- 1. CONTRACTOR SHALL COMPLY WITH ALL FEDERAL, STATE, AND TMWA SAFETY REGULATIONS AND SHALL MAINTAIN THE WORK AREA IN A SAFE CONDITION 24 HOURS PER DAY UNTIL THE PROJECT IS COMPLETE. WORKER AND PUBLIC SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR NOT TMWA.
- 2. THE CONTRACTOR SHALL BE REQUIRED TO PREPARE, SUBMIT FOR APPROVAL AND ABIDE BY ALL TRAFFIC CONTROL PLANS AS REQUIRED BY THE CITY OF RENO. THE CONTRACTOR SHALL REVIEW AND UNDERSTAND THE CONDITIONS OF THE PERMITS PRIOR TO HIS/HER BID.
- 3. AT LEAST 4 WORKING DAYS BEFORE STARTING CONSTRUCTION, THE CONTRACTOR SHALL CALL UNDERGROUND SERVICE ALERT AT 811 AND REQUEST UTILITY MARKING. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE COST OF REPAIRING EXISTING FACILITIES (PUBLIC OR PRIVATE) THAT ARE DAMAGED BY HIS OPERATIONS.
- 4. DEPTH AND HORIZONTAL LOCATION OF EXISTING UTILITIES DEPICTED ON THESE PLANS ARE APPROXIMATE BASED ON INFORMATION PROVIDED BY THIRD PARTIES. TMWA MAKES NO REPRESENTATION AS TO THE COMPLETENESS OR ACCURACY OF SUCH DATA, AND IT IS NOT INTENDED TO AND SHALL NOT BE RELIED UPON AS A SUBSTITUTE FOR THE INDEPENDENT INVESTIGATION BY CONTRACTOR. CONTRACTOR SHALL IDENTIFY & VERIFY THE DEPTH & LOCATION OF ALL EXISTING UTILITIES PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION ACTIVITIES. ANY CONFLICT SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE TMWA REPRESENTATIVE. ALL EXISTING UTILITIES ARE NOT SHOWN, AND FACILITIES SHOWN MAY BE IN A LOCATION DIFFERENT FROM THAT DEPICTED.
- 5. SYMBOLS ARE NOT TO SCALE AND DO NOT NECESSARILY REPRESENT ACTUAL LOCATIONS OF FACILITIES.
- 6. CONTRACTOR IS RESPONSIBLE FOR LOCATING AND COORDINATING WORK AROUND ALL EXISTING UTILITIES.
- 7. CONTRACTOR SHALL VERIFY CONSTRUCTION METHODS AND OVERALL JOB APPROACH WITH TMWA AND ENGINEER PRIOR TO CONSTRUCTION.
- 8. CONTRACTOR SHALL PROVIDE ALL STAKING AND SURVEYING NECESSARY TO CONSTRUCT THE PROJECT. SURVEYING SHALL BE CONDUCTED BY A LICENSED SURVEYOR IN THE STATE OF NEVADA.
- 9. THE MATERIALS AND METHODS OF CONSTRUCTION HEREIN SPECIFIED SHALL BE FURNISHED IN ACCORDANCE WITH NAC 445A.65505 TO 445A.6723 INCLUSIVE AND THE STANDARDS OF THE TMWA CONSTRUCTION STANDARDS, STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION ("STANDARD SPECIFICATIONS" OR "ORANGE BOOK"). AMERICAN WATER WORKS ASSOCIATION (AWWA). AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC), AMERICAN CONCRETE INSTITUTE (ACI), THE AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM), THE AMERICAN WELDING SOCIETY (AWS), AND MANUFACTURER STANDARDS. CONFLICTS OR QUESTIONS REGARDING THE SPECIFICATIONS SHALL BE BROUGHT TO THE ATTENTION OF THE TMWA REPRESENTATIVE FOR RESOLUTION.
- 10. SOILS RETENTION MAY BE REQUIRED AROUND WATER METER BOXES, FIRE HYDRANTS, AND OTHER FACILITIES IF SLOPES EXCEED 15%.
- 11. CONTRACTOR SHALL CONTROL DUST IN ACCORDANCE WITH WASHOE COUNTY DISTRICT HEALTH DISTRICT AIR QUALITY REGULATIONS.
- 12. THE CONTRACTOR REALIZES THAT INCLEMENT (WINTER WEATHER) MAY OCCUR DURING THE PROPOSED WORK. NO ADDITIONAL PAYMENTS SHALL BE GRANTED FOR PROTECTING THE WORK IN PROGRESS AND DELAYS DUE TO INCLEMENT WEATHER CONDITIONS.
- 13. THE CONTRACTOR SHALL MAINTAIN A NEAT AND LEGIBLE DRAWING SET DENOTING ANY FIELD CHANGES THAT DEVIATE FROM THE APPROVED DESIGN ON A DAILY BASIS. PRIOR TO TMWA'S ACCEPTANCE OF THE IMPROVEMENTS AND FINAL PAYMENT THE CONTRACTOR IS TO PRESENT THIS DRAWING SET, WHICH REFLECTS ALL FIELD CHANGES TO TMWA'S PROJECT REPRESENTATIVE.
- 14. SEE SPECIFICATIONS FOR SEQUENCE OF CONSTRUCTION REQUIREMENTS.
- 15. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL MATERIAL SPILLED OR TRACKED ONTO EXISTING ROADWAYS ON A DAILY BASIS.
- 16. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATION OF ALL EXISTING UTILITIES WITHIN THE LIMITS OF CONSTRUCTION. WHETHER OR NOT SAID UTILITIES ARE SHOWN ON THE PLANS. THIS RESPONSIBILITY INCLUDES CONTACTING UTILITY COMPANIES FOR LOCATIONS AND POTHOLING PRIOR TO CONSTRUCTION. REPAIR OF ANY DAMAGE TO EXISTING UTILITIES DURING CONSTRUCTION IS THE RESPONSIBILITY OF THE CONTRACTOR.

## BASIS OF BEARING AND ELEVATION

BASIS OF BEARINGS: NORTH AMERICAN DATUM OF 1983 AS BASED ON FEDERAL BASE NETWORK/COOPERATIVE BASE NETWORK OBSERVATIONS IN 1994 (AKA NAD83/94). NEVADA STATE PLANE COORDINATE SYSTEM. WEST ZONE AND HOLDING THE WASHOE COUNTY PUBLISHED LATITUDE AND LONGITUDE OF 39°32'16.44843" NORTH AND 119° 53' 08.87676" WEST FOR REGIONAL GPS CORS "RNO1" (WASHOE COUNTY IDENTIFIER N74SM01028). A COMBINED GRID-TO-GROUND SCALE FACTOR OF 1.000197939 IS USED TO SCALE THE STATE PLANE GRID COORDINATES TO GROUND.

BASIS OF ELEVATIONS: NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88) AND HOLDING THE WASHOE COUNTY PUBLISHED ELLIPSOID HEIGHT OF 1531.277 METERS (5023.865 FEET) FOR REGIONAL GPS CORS "RNO1" AND USING GEOID 99 TO DERIVE THE ORTHOMETRIC ELEVATION ABOVE MEAN SEA LEVEL.

REVISION	DESCRIPTION	BY	APP	DATE	WORK ORDER NO. 14-0035	
					DESIGNED TES	
					DRAWN JRH	
					DATE AUG. 2023	– TŘU
					CHECKED	
					SUBMITTED	
					RECOMMENDED	_
					APPROVED	1355 CAPITAL BLVD.
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## WATER GENERAL NOTES

- 1. THE CONTRACTOR SHALL BE RESPONSIBLE TO PROTECT THE INTEGRITY OF EXISTING WATER LINES DURING CONSTRUCTION.
- 2. CONTRACTOR SHALL PROVIDE ALL MISCELLANEOUS PIPE, FITTINGS AND APPURTENANCES AS REQUIRED TO COMPLETE THE UTILITY WORK AS SHOWN.
- 3. TMWA DOES NOT GUARANTEE EXISTING VALVES WILL PROVIDE A COMPLETE SHUTDOWN. THE REMOVAL OF NUISANCE WATER TO CONDUCT THE WORK SHALL BE INCIDENTAL TO THE MOST APPROPRIATE BID ITEM. EXCESSIVE AMOUNTS OF WATER SHALL BE EVALUATED BY THE TMWA INSPECTOR FOR THE MOST APPROPRIATE ACTION TO PURSUE.
- ALL WATER MAINS SHALL BE TESTED FOR PRESSURE AND LEAKAGE PER AWWA C600 & C605. TEST PRESSURE SHALL BE AS INDICATED IN 4 CONTRACT DOCUMENTS AND NO LESS THAN 150 PSI ON MAINS NOT SPECIFICALLY CALLED OUT. DUCTILE IRON PIPELINES MUST BE PRESSURE TESTED ACCORDING TO AWWA STANDARD C600 AND PVC PIPELINES MUST BE PRESSURE TESTED ACCORDING TO AWWA STANDARD C605 PER NAC 445A.67145 (7). FOR OTHER MATERIALS, THE PIPELINES MUST BE PRESSURE TESTED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION PER NAC 445A.67145 (7)(c).
- BACTERIOLOGICAL TESTING, DISINFECTION, AND FLUSHING, FOR POTABLE WATER LINE CONSTRUCTION, SHALL BE PERFORMED PER AWWA C651. 5. TMWA SHALL BE RESPONSIBLE FOR PERFORMING AND FUNDING UP TO TWO BACTERIOLOGICAL TESTS PER RUN OF PIPE CONSTRUCTED. IF MORE THAN TWO TESTS ARE REQUIRED, THE COST SHALL BE PLACED UPON THE CONTRACTOR. TWO (2) BACTERIOLOGICAL TESTS SHALL BE CONDUCTED PER TEST SEGMENT. BACTERIOLOGICAL TEST SAMPLES WILL NOT BE COLLECTED ON FRIDAYS, WEEKENDS, TMWA OBSERVED HOLIDAYS. OR THE DAY BEFORE A TMWA OBSERVED HOLIDAY. UNLESS AUTHORIZED BY THE TMWA INSPECTOR. BACTERIOLOGICAL TESTING OF MAIN/APPURTENACES SHALL BE CONDUCTED BY A NEVADA CERTIFIED LABORATORY. TMWA CAN PROVIDE TESTING AT NO COST TO THE CONTRACTOR WITH A 2 WORKING DAY PRIOR NOTICE. UNLESS SPECIAL ARRANGEMENTS ARE AGREED UPON IN ADVANCE BY THE TMWA INSPECTOR SAMPLING BY TMWA LABORATORY STAFF SHALL BE LIMITED TO NORMAL WORKING HOURS MONDAY THROUGH THURSDAY.
- PER NAC 445A.67145(6), WATER MAIN MUST NOT BE PLACED INTO SERVICE AFTER ITS INITIAL CONSTRUCTION UNTIL:
- 6.1. THE WATER MAIN HAS BEEN DISINFECTED AND FLUSHED IN ACCORDANCE WITH AWWA STANDARD C651. 6.2. THE DISPOSAL OF ANY SPENT CHLORINE SOLUTIONS MUST BE COORDINATED WITH NDEP'S BUREAU OF WATER POLLUTION CONTROL (BWPC).
- 6.3. ANALYSES OF THE WATER MAIN WHICH INDICATE THAT THE WATER MEETS PRIMARY DRINKING WATER STANDARDS FOR COLIFORM BACTERIA (ABSENT FOR COLIFORM BACTERIA) HAVE BEEN OBTAINED AND REPORTED TO THE WCHD, PER AWWA STANDARD C651, TWO SETS OF CONSECUTIVE SAMPLES MUST BE TAKEN AT LEAST 24 HOURS APART FROM EVERY 1200 FEET OF MAIN, AT THE END OF THE LINE, AND FROM EACH BRANCH.
- 7. PRIOR TO BEING PUT INTO SERVICE, TMWA WILL DISINFECT THE TANK AND ENSURE THAT TWO COLIFORM SAMPLES PASS PRIMARY DRINING WATER STANDARDS IN ACCORDANCE WITH AWWA C652 AND NAC 445A.67085.3.
- 8. AFTER THE TANKS HAVE BEEN DRAINED, TMWA WILL INSPECT SILT STOPS AND OVERFLOW PIPING FOR COMPLIANCE WITH NAC445A AND AWWA D100. ANY DEFICIENCIES INCLUDING MISSING OR NON-FUNCTIONING COMPONENTS WILL BE CORRECTED PRIOR TO COMPLETION OF THE WORK.
- 9. AFTER THE TANK INTERIOR IS CURED FOR THE APPROPRIATE TIME, THE TANK WILL BE FILLED WITH WATER BY TMWA AND THE WATER WILL BE HELD IN THE TANK FOR FIVE (5) DAYS. ON THE SIXTH DAY, THE WATER RETAINED IN THE TANK WILL BE TESTED ON THE SIXTH DAY BY A PROPERLY CERTIFIED LABORATORY HIRED BY TMWA FOR THE PRESENCE OF VOLATILE ORGANIC CHEMICALS, AND THE RESULTS SUBMITTED TO WASHOE COUNTY HEALTH DISTRICT FOR APPROVAL.
- 10. THE TANK WILL NOT BE PLACED INTO SERVICE UNTIL ALL REQUIREMENTS OF NAC 445A ARE MET.

## CONTROL OF POLLUTION, NOISE, AND WATER

- A. DUST SHALL BE CONTROLLED AT ALL TIMES IN ACCORDANCE WITH THE REQUIREMENTS OF THE WASHOE COUNTY DISTRICT HEALTH DEPARTMENT.
- B. THE CONTRACTOR SHALL NOT DISCHARGE OR ALLOW THE SPILLAGE OF PAINT, SOLVENT, THINNER, ENGINE OIL, FUEL, HYDRAULIC FLUID, OTHER PETROLEUM PRODUCTS, OR ANY HAZARDOUS MATERIAL. EQUIPMENT SHALL BE MAINTAINED AT ALL TIMES IN A MANNER TO PREVENT LEAKAGE AND SPILLAGE OF PETROLEUM PRODUCTS.
- AT A MINIMUM, TO PREVENT SOIL CONTAMINATION FROM ACCIDENTAL SPILLS, 3M POWERSORB FABRIC, OR EQUAL, SHALL BE USED UNDER ENGINES AND ENGINE DRIVEN EQUIPMENT, UNDER FUEL STORAGE AREAS, UNDER EQUIPMENT SERVICING AREAS, AND UNDER ANY OTHER AREAS WHERE PETROLEUM PRODUCTS OR HAZARDOUS MATERIALS ARE STORED OR USED.
- 2. FABRIC SHALL BE PROTECTED FROM MECHANICAL DAMAGE AND ANCHORED AGAINST WIND DISPLACEMENT. AREAS WHERE PETROLEUM PRODUCTS OR HAZARDOUS MATERIALS ARE STORED SHALL BE SURROUNDED BY A BERM DESIGNED TO CONTAIN ANY SPILL THAT MAY OCCUR.
- 3. THE CONTRACTOR SHALL HAVE A SPILL CLEANUP KIT CAPABLE OF CLEANING UP A SPILL OF AT LEAST 10 GALLONS OF PETROLEUM PRODUCT AT THE WORK SITE AT ALL TIMES. THE KIT SHALL BE A COMMERCIALLY AVAILABLE KIT CONTAINING OIL ABSORBING PADS OR GRANULAR ABSORBENT MATERIAL, CONTAINMENT BOOMS, AND A DISPOSAL CONTAINER. WORKERS SHALL BE INSTRUCTED IN USE OF THE KIT AND SHALL BE ADEQUATELY TRAINED AND EQUIPPED TO DEAL WITH THE ACCIDENTAL SPILL OF ANY HAZARDOUS MATERIAL USED.
- 4. IN THE EVENT OF AN ACCIDENTAL SPILL OF PETROLEUM PRODUCTS OR HAZARDOUS MATERIALS THE CONTRACTOR SHALL IMMEDIATELY CONTAIN THE SPILL AND ARRANGE FOR THE MATERIAL TO BE CLEANED UP AND DISPOSED OF IN ACCORDANCE WITH ALL FEDERAL, STATE, AND LOCAL REGULATIONS. THE COSTS OF ALL CLEANUP AND DISPOSAL WORK SHALL BE BORNE BY THE CONTRACTOR. IF A HAZARDOUS CONDITION EXISTS THE CONTRACTOR SHALL TAKE WHATEVER ACTIONS ARE NECESSARY TO PROTECT THE PUBLIC AND WORKERS FROM INJURY, AND ADJACENT PROPERTIES FROM DAMAGE. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE TMWA REPRESENTATIVE OF THE SPILL.
- C. THE CONTRACTOR SHALL EMPLOY ALL APPLICABLE BEST MANAGEMENT PRACTICES (BMPS) FOR CONTROL OF SEDIMENT AND EROSION FROM CONSTRUCTION SITES PER RECOMMENDATIONS OF THE TRUCKEE MEADOWS CONSTRUCTION SITE BMPS HANDBOOK. THE ESTIMATED AREA OF SITE DISTURBANCE FOR THIS PROJECT IS LESS THAN ONE ACRE.
- D. THE CONTRACTOR SHALL CONTROL NOISE FROM HIS OPERATIONS TO LEVELS THAT ARE NOT A NUISANCE AND THAT MEET ALL LOCAL NOISE CONTROL REGULATIONS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE NOISE LEVELS ALLOWED BY THE JURISDICTION WHERE THE WORK IS LOCATED AND TO COMPLY WITH THOSE REGULATIONS.
- E. WATER DEVELOPED AS A RESULT OF THE WORK SHALL BE DISPOSED OF BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE.
- F. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ARRANGE FOR LEGAL DISPOSAL OF WATER WITHOUT DAMAGE TO ADJACENT PROPERTIES.



NOT REPRODUCIBL

PROPERTY OF TRUCKEE MEADOWS WATER AUTHORITY, RETURN UPON COMPLETION OF PROJECT (Per Homeland Security Act)

# **LEMMON VALLEY 1 TANK REBUILD RENO, NEVADA**

# **GENERAL NOTES**

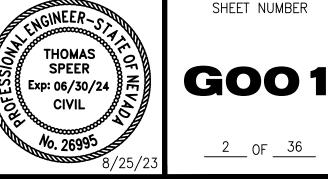




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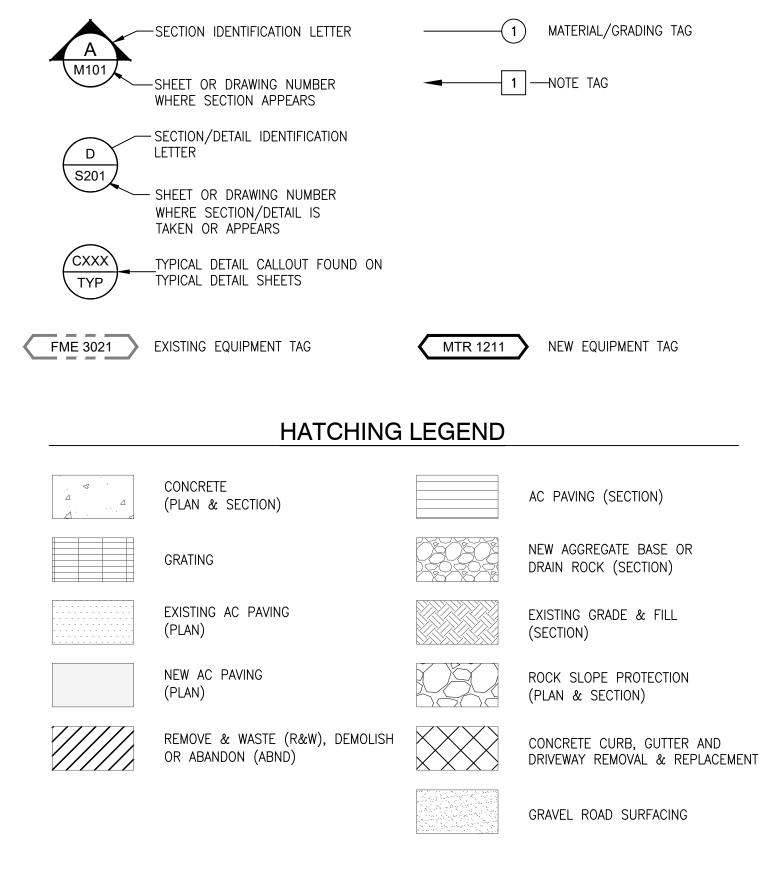




## LINETYPE LEGEND

	NEW WATER MAIN/SERVICE LINE
W	
	EXISTING WATER SERVICE LINE
·····	PREVIOUSLY ABANDONED WATER SERVICE LINE
18"SD	EXISTING STORM DRAIN MAIN/LATERAL WITH SIZE
12''SS	EXISTING SANITARY SEWER MAIN WITH SIZE
——————————————————————————————————————	EXISTING RECLAIMED WATER
	EXISTING WATER TANK DRAIN LINE WITH SIZE
G	EXISTING NATURAL GAS MAIN/LATERAL
— — — T —	EXISTING UNDERGROUND TELECOMMUNICATIONS FACILITY
CATV	EXISTING UNDERGROUND CABLE TV
— — — FOC —	EXISTING FIBER OPTIC CABLE - CHARTER COMMUNICATIONS
UGE	EXISTING UNDERGROUND ELECTRIC FACILITY
TS	EXISTING UNDERGROUND TRAFFIC SIGNAL FACILITY
	EXISTING ROADWAY CENTERLINE (APPROXIMATE)
	EXISTING PROPERTY LINE
· XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	EXISTING PIPE TO BE REMOVED AND DISPOSED OF BY OTHERS
///////////////////////////////////////	EXISTING PIPE TO ABANDON. CONC CAP AT ENDS
$\rightarrow \rightarrow $	EXISTING FLOWLINE
_oooo	EXISTING FENCE LINE
	EXISTING MAJOR CONTOUR
	EXISTING MINOR CONTOUR
	NEW MAJOR CONTOUR
	NEW MINOR CONTOUR
	EXISTING CONCRETE
	CONSTRUCTED BY DEVELOPER (FUTURE)

## SYMBOLS



NOTE: NOT ALL LINETYPES, SYMBOLS, HATCHES OR ABBREVIATIONS ARE REPRESENTED IN THIS PLANSET.

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_ ج 2	REVISION	DESCRIPTION	BY	APP	DATE	WORK ORDER NO. 14-0035	
ects 53ai						DESIGNED TES	
10:55						DRAWN JRH	
						DATE AUG. 2023	TRUCKEE MEADOWS WATER
023 2023						CHECKED	
, tive						SUBMITTED	Quality. Delivered.
AC						RECOMMENDED	Quunty. Denveren.
∩∕:^ Auç						APPROVED	1355 CAPITAL BLVD. PO BOX 30013 RENO, NEVADA 89520-3013 PHONE: 775-834
- 1							

## ABBREVIATIONS

PLUS OR MINUS DIAMETER	GA GAL	GAUGE GALLONS
AGGREGATE BASE ASPHALT CONCRETE ASPHALT CONCRETE PAVEMENT AGGRERATE ALUMINUM		GALVANIZED GRADE BREAK GALLONS PER MINUTE GALVANIZED STEEL PIPE GATE VALVE, GAS VALVE
APPROVED AMERICAN NATIONAL STANDARDS INSTITUTE ASSESSOR PARCEL NUMBER APPROXIMATE(LY) AIR RELEASE VALVE AMERICAN SOCIETY FOR TESTING AND MATERIALS	HDPE HEX HOA HORIZ HORIZ	HEIGHT HIGH DENSITY POLYETHYLENE HEXAGONAL HOMEOWNERS ASSOCIATION CONTAL HORSEPOWER
AMERICAN WATER WORKS ASSOCIATION		HOUR INVERT ELEVATION
BEGINNING OF CURVE BELOW GRADE SURFACE BOTTOM BARRIER POST BOOSTER PUMP STATION BALL VALVE, BUTTERFLY VALVE	IN INC INV IP	INCH INCORPORATED INVERT IRON PIPE
CONCRETE SPOT ELEVATION CENTER-TO-CENTER CURB AND GUTTER CABLE TELEVISION COMBINATION AIR VALVE CORRECTION FACTOR CAST IRON	LB(S) LF	LENGTH POUND(S) LINEAR FEET LIP OF GUTTER LIMITED LIABILITY CORPORATION LANE LIGHT POLE LEFT
CAST IRON PIPE CLASS, CENTER LINE CHAINLINK FENCE CLEAR CEMENT MASONRY UNIT COMPACTED CONCRETE CORPORATION CONTROL POINT COPPER, CUBIC CHECK VALVE, CONTROL VALVE	MAG MAX MDD MFR MH MIN MIP MJ MLS MPH	MAGNETIC MAXIMUM MAXIMUM DAY DEMAND, MAXIMUM DRY DENSITY MANUFACTURER MANHOLE MINIMUM MALE IRON PIPE MECHANICAL JOINT MORTAR LINED STEEL MILES PER HOUR
DETAIL DECOMPOSED GRANITE DUCTILE IRON, DRAINAGE INLET, DROP INLET DUCTILE IRON PIPE DRAIN DRAWING	N (N) NAC NAVD NO NPT NTS	NORTH NEW NEVADA ADMINISTRATIVE CODE NORTH AMERICAN VERTICAL DATUM NUMBER NATIONAL PIPE THREAD NOT TO SCALE
EAST END OF CURVE EDGE OF CONCRETE EACH FACE EXISTING GRADE EDGE OF GRAVEL ROAD	OAE OC OD OHP OSHA	OR APPROVED EQUAL ON CENTER OUTSIDE DIAMETER OVERHEAD POWER OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
ELEVATION EDGE OF PAVEMENT EDGE OF PAVEMENT EHYLENE PROPYLENE DIENE MONOMER EXISTING	PCC PE PL PO POC	PORTLAND CEMENT CONCRETE PLAIN END, POLYETHYLENE PROPERTY LINE PUSH-ON, POST OFFICE POINT OF CONNECTION
FLEX COUPLING FLANGED COUPLING ADAPTER FIRE DEPARTMENT CONNECTION FUSION EPOXY LINED AND COATED FINISHED GRADE FIRE HYDRANT FEMALE IRON PIPE FLOWLINE, FENCELINE FLANGE FLANGE	PP PRS PRV PSF PSI PT PV PVC PWP	POWER POLE PRESSURE REDUCING/REGULATING STATION PRESSURE RELEASE VALVE POUNDS PER SQUARE FOOT POUNDS PER SQUARE INCH PRESSURE TRANSDUCER, POINT PLUG VALVE POLYVINYL CHLORIDE PUBLIC WORKS PROJECT
FIBER OPTIC CABLE FEET FAX	R&R R&S R	REMOVE AND REINSTALL REMOVE AND SALVAGE RADIUS

ACP AGG ALUM APP ANSI

APN APPROX

ARV ASTM AWWA

BC BGS BOT

ΒP BPS

ΒV

C/C C&G CATV CAV

CF

CI CIP

CL CLF

CLR

CMU COMP CONC CORP

СР CU CV

DET DG

EC EDC EF

EG EGR ELEV

EOP

EΡ

FC FCA FDC

FEL&C

FG

FH FIP FL FLA FLG FOC FT FX

FAX

EPDM

EX, (E)

DI DIP DR DWG

R&WREMOVE AND WASTERADRADIUSRBPREMOVABLE BARRIER POSTRCPREINFORCED CONCRETE PIPERDROADREFREFERENCEREQREQUIREDREVREVISIONRFARESTRAINED FLANGED COUPLING ADAPTERRJRESTRAINED FLANGED COUPLING ADAPTERRJRESTRAINED JOINTRWWRESTRAINED MECHANICAL JOINTROWRICHT OF WAYRSRESILIENT SEATEDRTRICHTRTCREGIONAL TRANSPORTATION COMMISSIONRTUREDUENT WEDGE, RECLAIMED WATER, REDWOODSSLOPE, SOUTHSCHSCHEDULESDSTORM DRAINSDMSTORM DRAINSDMSTORM DRAINSDMSTANDARD DIMENSION RATIOSFSQUARESST, SSSTAINLESS STEELSSMHSANITARY SEWER MANHOLESDRSTANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTIONSTSTREETSTSTREETSMHSANITARY SEWER MANHOLESTMESOUTH TRUCKEE MEADOWS FIRE DEPARTMENTSTMEDSOUTH TRUCKEE MEADOWS FIRE DEPARTMENTSTMEDSOUTH TRUCKEE MEADOWS GENERAL IMPROVEMENT DISTRICTSWRSEWERTBCTOP BACK OF CURBTBDTOP BACK OF CURBTBDTOP BACK OF CURBTBDTOP ACK OF ASPHALT DIKETLTELEPHONETHTELEPHONE MANHOLETMWTOP OF RETAINING WALLTYPTYPICAL<		
SCHSCHEDULESDSTORM DRAINSDMHSTORM DRAIN MANHOLESDRSTANDARD DIMENSION RATIOSFSQUARE FEETSQSQUARESS, SSWRSANITARY SEWERSST, SSSTANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTIONSTSTREETSTASTANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTIONSTSTREETSTASTANDARDSTLSTELELSTMFDSOUTH TRUCKEE MEADOWS FIRE DEPARTMENTSTMGIDSOUTH TRUCKEE MEADOWS GENERAL IMPROVEMENT DISTRICTSWRSEWERTBCTOP BACK OF CURB TBDTBDTOP BACK OF ASPHALT DIKETELTELEPHONETEMPTEMPORARYTMHTELEPHONE MANHOLETMWATRUCKEE MEADOWS WATER AUTHORITYTRTRANSITE (AC) PIPE, TRAFFICTRWTOP OF RETAINING WALLTWTOP OF RETAINING WALLTWTOP OF RETAINING WALLTWTOP OF RETAINING WALLTWTOP OF RETAINING WALLTVPTYPICALUGEUNDERGROUND ELECTRICU.N.O.UNLESS NOTED OTHERWISEUVUTILITY VAULTVBVALVE BOXVERTVERTICALVGVALLEY GUTTERWWITH, WATER, WIDTH, WESTWMWATER METERWVWATER METERWVWATER VALVE	RAD RBP RCP RD REF REQD REV RFA RFCA RJ RMJ ROW RS RT RTC RTU	RADIUS REMOVABLE BARRIER POST REINFORCED CONCRETE PIPE ROAD REFERENCE REQUIRED REVISION RESTRAINED FLANGE ADAPTER RESTRAINED FLANGE ADAPTER RESTRAINED FLANGED COUPLING ADAPTER RESTRAINED—JOINT RESTRAINED MECHANICAL JOINT RIGHT OF WAY RESILIENT SEATED RIGHT REGIONAL TRANSPORTATION COMMISSION REMOTE TELEMETRY UNIT
TBDTOP BACK OF ASPHALT DIKETELTELEPHONETEMPTEMPORARYTMHTELEPHONE MANHOLETMWATRUCKEE MEADOWS WATER AUTHORITYTRTRANSITE (AC) PIPE, TRAFFICTRWTOP OF RETAINING WALLTWTOP OF WALLTYPTYPICALUGEUNDERGROUND ELECTRICU.N.O.UNLESS NOTED OTHERWISEUVUTILITY VAULTVBVALVE BOXVERTVERTICALVFDVARIABLE FREQUENCY DRIVEVGVALLEY GUTTERWWITH, WATER, WIDTH, WESTWMWATER METERWVWATER VALVE	SCH SD SDMH SDR SF SQ SS, SSWR SST, SS SSMH SSPWC ST STA STD STL STMFD STMFD STMGID	SCHEDULE STORM DRAIN STORM DRAIN MANHOLE STANDARD DIMENSION RATIO SQUARE FEET SQUARE SANITARY SEWER STAINLESS STEEL SANITARY SEWER MANHOLE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION STREET STATION STREET STATION STANDARD STEEL SOUTH TRUCKEE MEADOWS FIRE DEPARTMENT SOUTH TRUCKEE MEADOWS GENERAL IMPROVEMENT DISTRICT
UVUTILITY VAULTVBVALVE BOXVERTVERTICALVFDVARIABLE FREQUENCY DRIVEVGVALLEY GUTTERWWITH, WATER, WIDTH, WESTWMWATER METERWVWATER VALVE	TBD TEL TEMP TMH TMWA TR TRW TW TYP UGE	TOP BACK OF ASPHALT DIKE TELEPHONE TEMPORARY TELEPHONE MANHOLE TRUCKEE MEADOWS WATER AUTHORITY TRANSITE (AC) PIPE, TRAFFIC TOP OF RETAINING WALL TOP OF WALL TYPICAL UNDERGROUND ELECTRIC
	UV VB VERT VFD VG W WM WV	UTILITY VAULT VALVE BOX VERTICAL VARIABLE FREQUENCY DRIVE VALLEY GUTTER WITH, WATER, WIDTH, WEST WATER METER WATER VALVE

## PROFILE ELEVATION INDICATORS

R

RADIUS

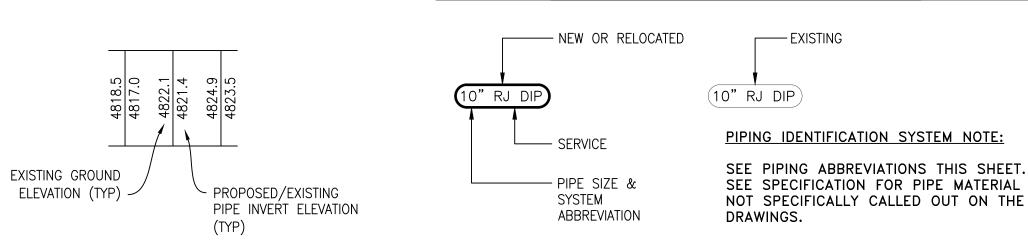
NOT REPRODUCIBL

PROPERTY OF

TRUCKEE MEADOWS WATER

COMPLETION OF PROJECT

(Per Homeland Security Act)



# LEMMON VALLEY 1 TANK REBUILD **RENO, NEVADA**

PIPING IDENTIFICATION SYSTEM

## <sup>1</sup> RUTHORITY AUTHORITY, RETURN UPON **- 4** 4 Quality. Delivered.

## D. PO BOX 30013 RENO, NEVADA 89520-3013 PHONE: 775-834-8080

# **LEGENDS, AND ABBREVIATIONS**

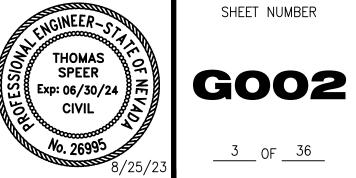
## PLAN AND PROFILE SYMBOL LEGEND

д	PROPOSED TEE / TAPPING SLEEVE
Ъ	PROPOSED 90° ELBOW
<u>ሩ</u>	PROPOSED 45° ELBOW
h	PROPOSED 11.25° ELBOW
н	PROPOSED VERTICAL ELBOW
н	EXISTING VERTICAL ELBOW
	PROPOSED THRUST BLOCK
	PROPOSED REDUCER
•	PROPOSED GATE VALVE PLAN
Μ	PROPOSED GATE VALVE PROFILE
	PROPOSED GATE VALVE – NORMALLY CLOSED
	EXISTING ISOLATION VALVE
NC	EXISTING ISOLATION VALVE - NORMALLY CLOSED
	PROPOSED COUPLING
•	PROPOSED CAP / FCA WITH BLIND FLANGE
	EXISTING CAP
	PROPOSED NEW WATER METER BOX AND COVER
	EXISTING WATER METER FACILITY
	PROPOSED FLUSH ASSEMBLY
	EXISTING FLUSH ASSEMBLY
$\mathcal{S}$	PROPOSED SSMH BY OTHERS
	EXISTING SSMH TO BE DEMO BY OTHERS
Ø	EXISTING SINGLE CHECK VALVE
A FH+++	EXISTING FIRE HYDRANT
⊘ <b>₩</b> V⊗	EXISTING WATER VALVE
-	EXISTING STORM DRAIN MANHOLE (SDMH)
	EXISTING SANITARY SEWER MANHOLE (SSMH)
	EXISTING STORM DRAIN CATCH BASIN TYPE 1
	EXISTING STORM DRAIN CATCH BASIN TYPE 4-R
	EXISTING ROUND STORM DRAIN CATCH BASIN WITH GRATE
GV	EXISTING NATURAL GAS VALVE
	EXISTING NATURAL GAS CAP
Δ	EXISTING NATURAL GAS REDUCER
_ 	EXISTING UTILITY POLE
Ē	EXISTING UNDERGROUND ELECTRIC VAULT WITH MANHOLE ACCESS
EB	EXISTING ELECTRIC BOX / VAULT (SIZES VARY)
ET	EXISTING ELECTRIC TRANSFORMER
TEL	EXISTING TELECOMMUNICATIONS BOX / VAULT (SIZES VARY)
$\square$	EXISTING TELECOMMUNICATIONS VAULT WITH MANHOLE ACCESS
	EXISTING CHARTER COMMUNICATIONS
	CABLE TV/FIBER OPTIC BOX (SIZES VARY)
TS	EXISTING TRAFFIC SIGNAL BOX (SIZES VARY)
TR	EXISTING TRAFFIC SIGNAL CABLE MANHOLE ACCESS BOX
<u>щ щ щ</u>	EXISTING TRAFFIC SIGNAL – MULTIPLE LIGHTS WITH ARM
щ	EXISTING TRAFFIC SIGNAL – SINGLE LIGHT
ф	EXISTING STREET LIGHT
ø	EXISTING (FOUND) MONUMENT
$\Delta$	SURVEY CONTROL POINT
MSP	EXISTING METAL SIGN POST
$\langle \circ \rangle$	EXISTING TREE
	FLOW ARROW
	BARRIER POST
	REMOVABLE BARRIER POST
$\bigcirc$	NEWUYADLE DANNILIN FUST

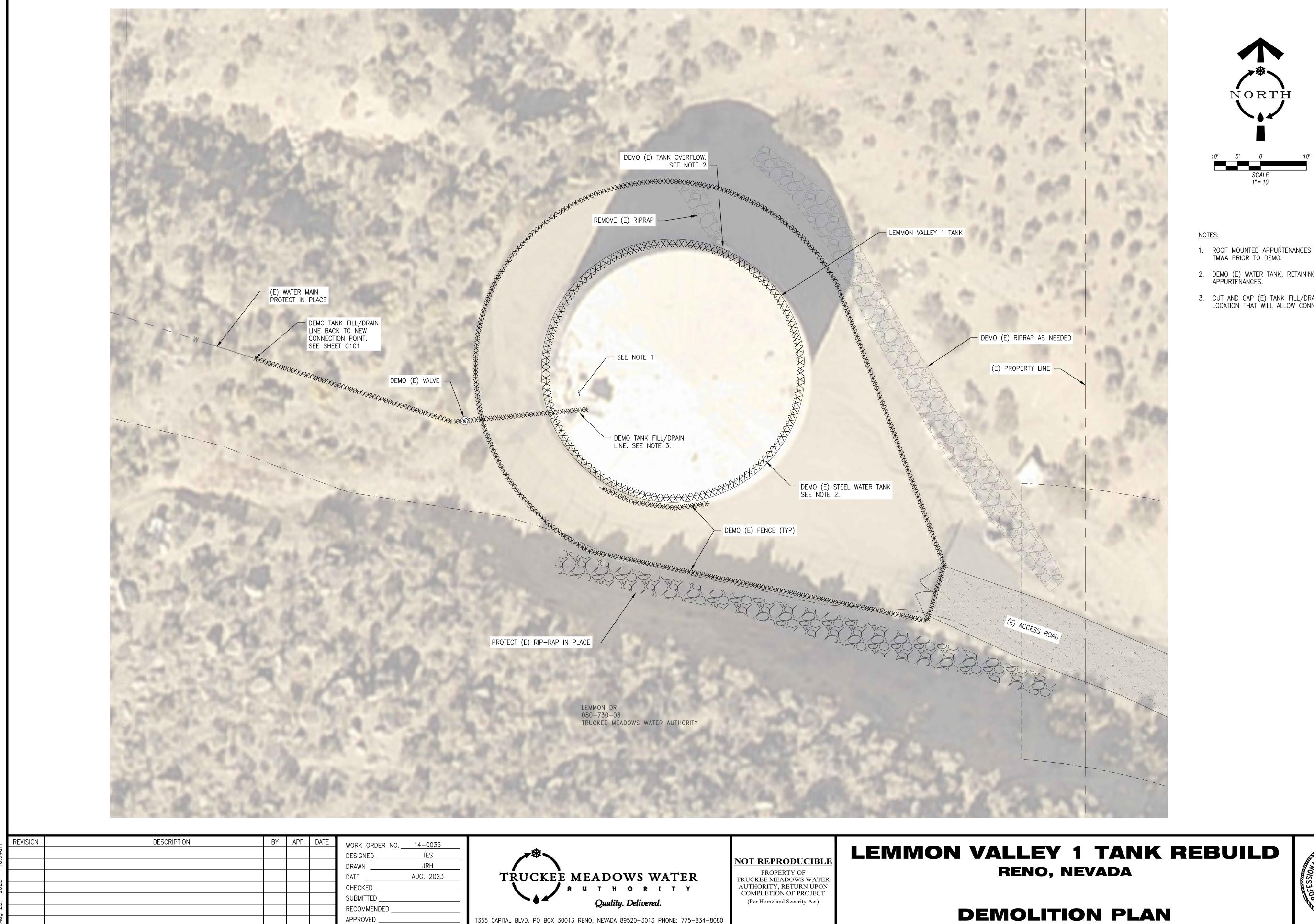


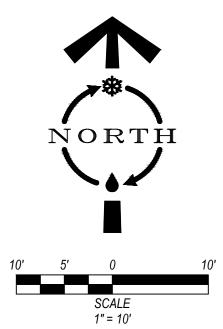






SHEET NUMBER



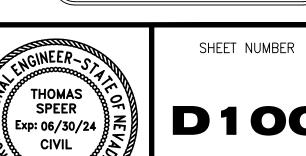


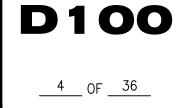
- 1. ROOF MOUNTED APPURTENANCES TO BE REMOVED BY
- 2. DEMO (E) WATER TANK, RETAINING RING, AND
- 3. CUT AND CAP (E) TANK FILL/DRAIN PIPE AT A PROPER LOCATION THAT WILL ALLOW CONNECTION FOR NEW.

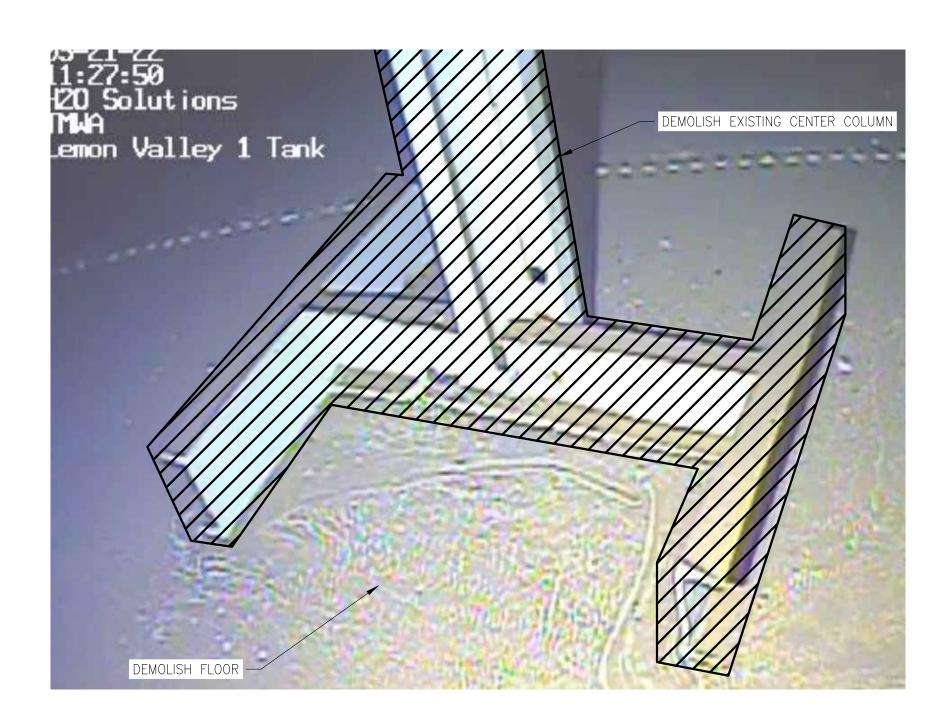


ENGINEER-S

No. 26995







CENTER COLUMN - BASE



REVISION	DESCRIPTION	BY	APP	DATE	WORK ORDER NO. <u>14-0035</u>	
					DESIGNEDTES	
					DRAWN K. GONZALEZ	
					DATE AUG. 2023	TRU
					CHECKED	
					SUBMITTED	
					RECOMMENDED	
					APPROVED	1355 CAPITAL BLVD.





CENTER COLUMN - MIDDLE

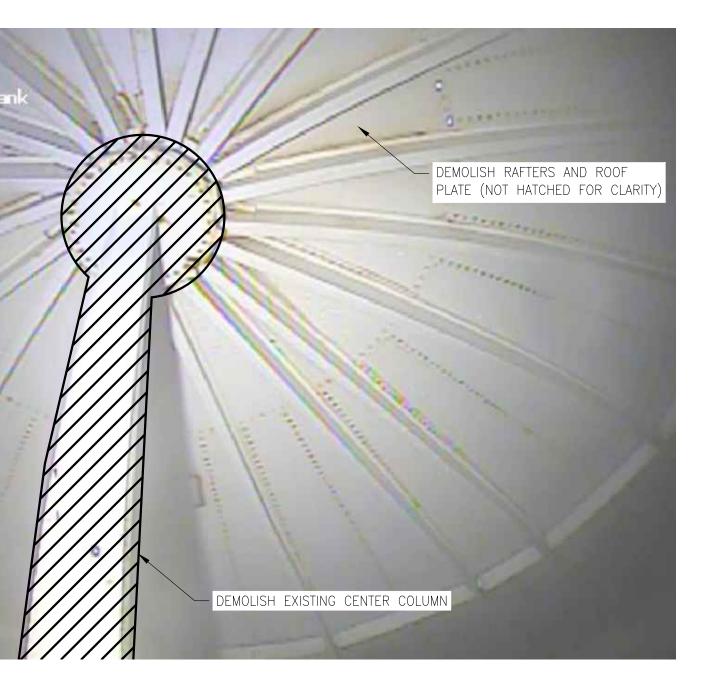
JCKEE MEADOWS WATER **AUTHORITY > 🍐** . Quality. Delivered. D. PO BOX 30013 RENO, NEVADA 89520-3013 PHONE: 775-834-8080

NOT REPRODUCIBLE

PROPERTY OF TRUCKEE MEADOWS WATER AUTHORITY, RETURN UPON COMPLETION OF PROJECT (Per Homeland Security Act)

## LEMMON VALLEY 1 TANK REBUILD RENO, NEVADA

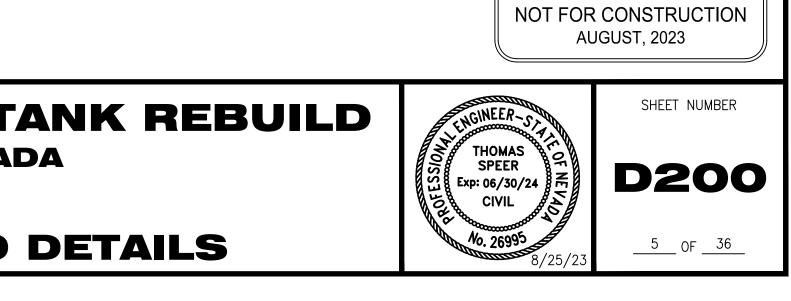
# **INTERIOR DEMO DETAILS**



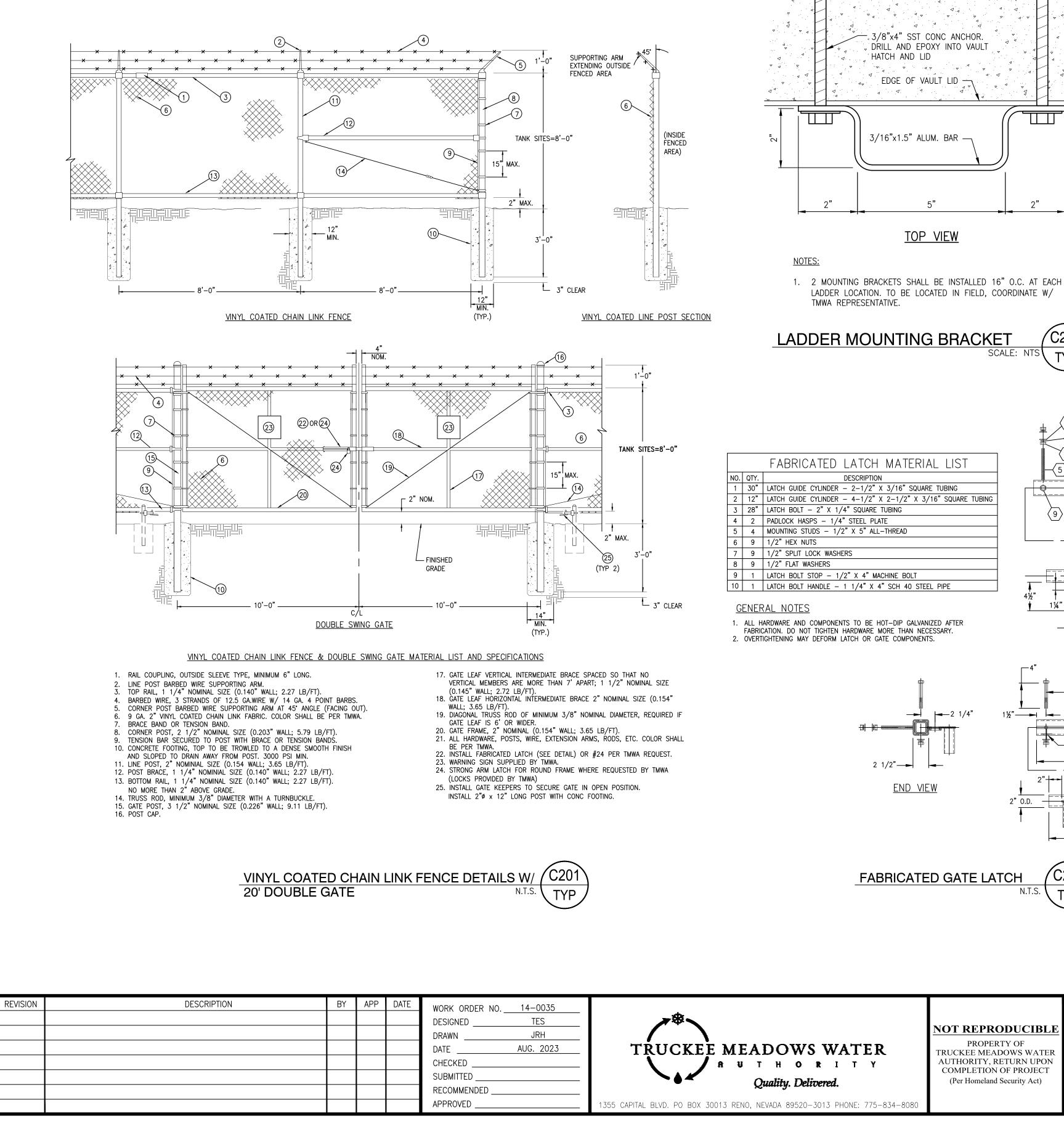
### CENTER COLUMN - TOP

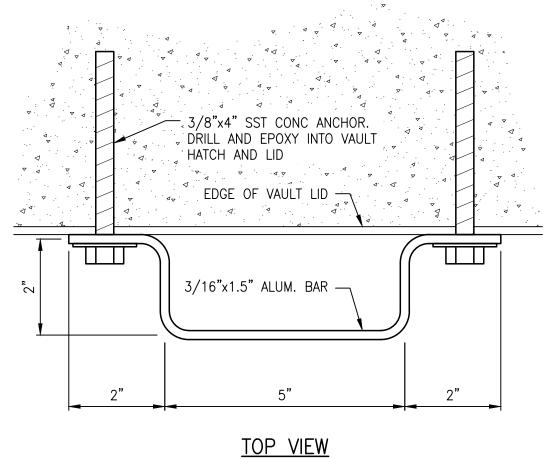
NOTES:

- 1. THESE DETAILS ARE INTENDED TO PROVIDE THE CONTRACTOR WITH INFORMATION AS TO THE CONSTRUCTION OF THE TANK FROM THE INSIDE. NOT ALL ITEMS HAVE BEEN CALLED OUT OR HATCHED FOR CLARITY.
- 2. THE ENTIRE TANK IS TO BE DEMOLISHED.



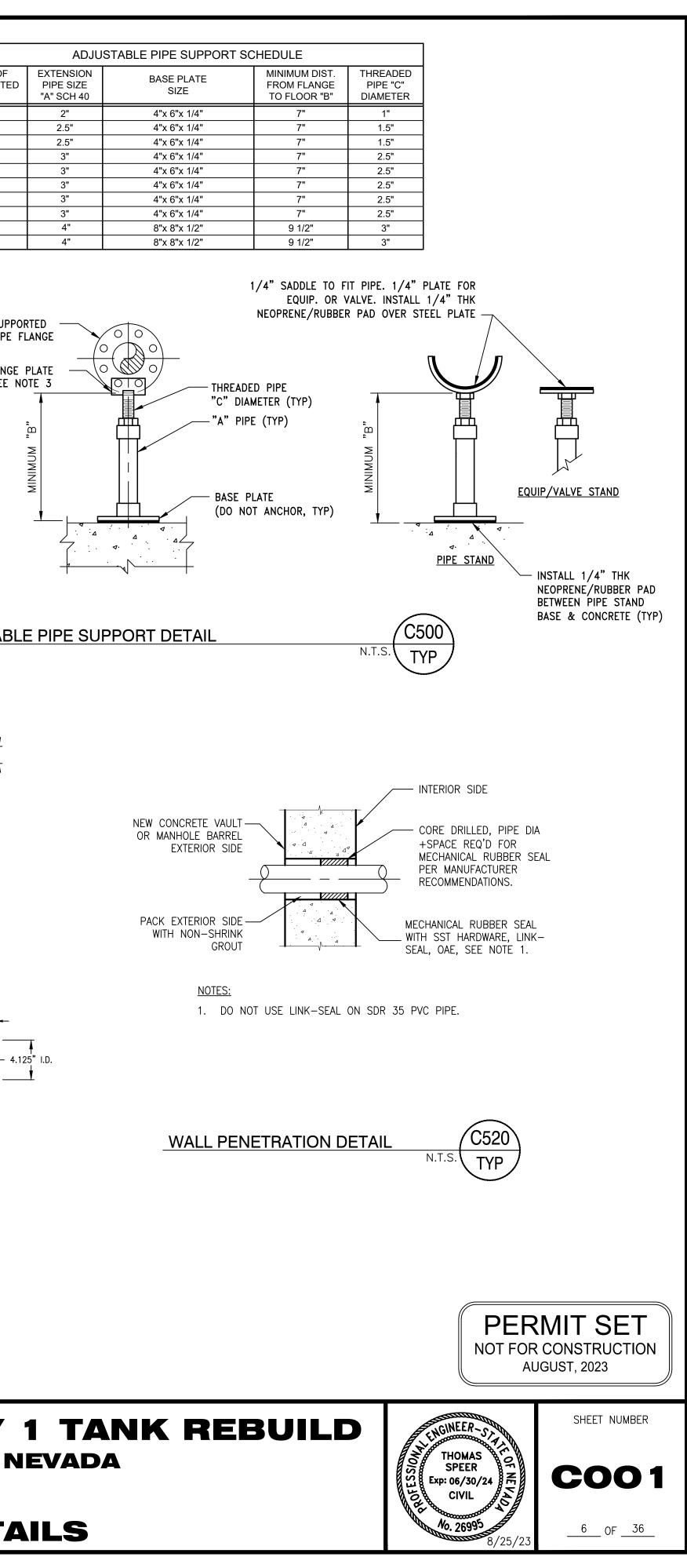
PERMIT SET





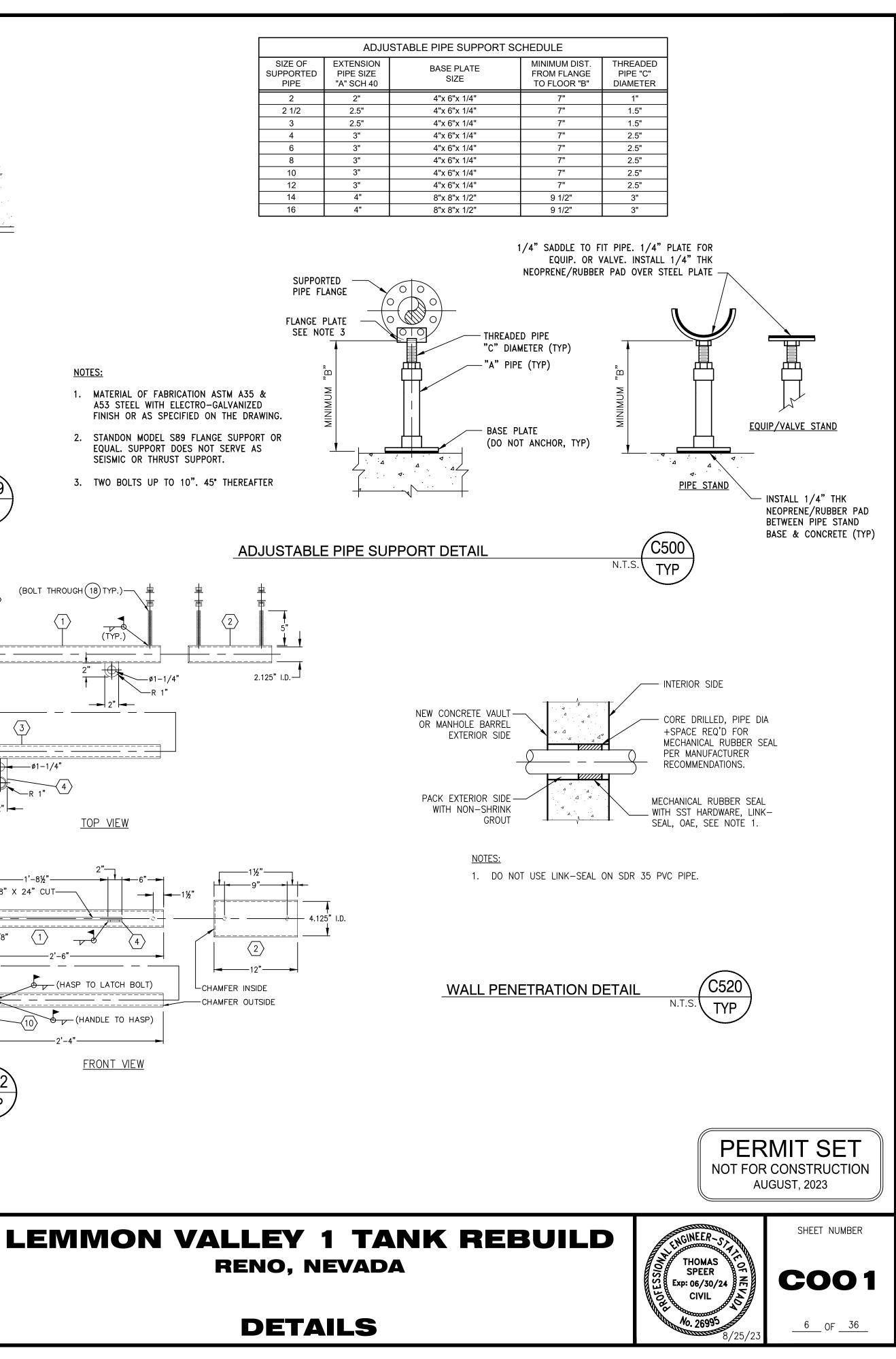
SIZE OF SUPPORTED PIPE	EXTENS PIPE S "A" SCH
2	2"
2 1/2	2.5"
3	2.5"
4	3"
6	3"
8	3"
10	3"
12	3"
14	4"
16	4"

FLANGE PLATE

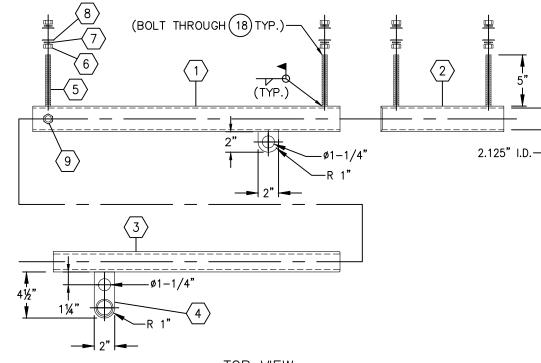


3. TWO BOLTS UP TO 10". 45" THEREAFTER

SEISMIC OR THRUST SUPPORT.



FABRICATED LATCH MATERIAL LIST							
NO.	QTY.	DESCRIPTION					
1	30"	LATCH GUIDE CYLINDER – 2–1/2" X 3/16" SQUARE TUBING					
2	12"	LATCH GUIDE CYLINDER - 4-1/2" X 2-1/2" X 3/16" SQUARE TUBING					
3	28"	LATCH BOLT – 2" X 1/4" SQUARE TUBING					
4	2	PADLOCK HASPS – 1/4" STEEL PLATE					
5	4	MOUNTING STUDS – 1/2" X 5" ALL-THREAD					
6	9	1/2" HEX NUTS					
7	9	1/2" SPLIT LOCK WASHERS					
8	9	1/2" FLAT WASHERS					
9	1	LATCH BOLT STOP - 1/2" X 4" MACHINE BOLT					
10	1	LATCH BOLT HANDLE – 1 1/4" X 4" SCH 40 STEEL PIPE					

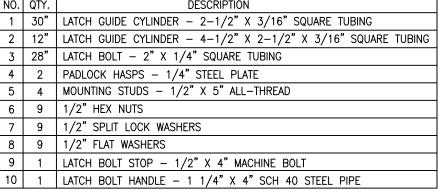


NOTES:

C299

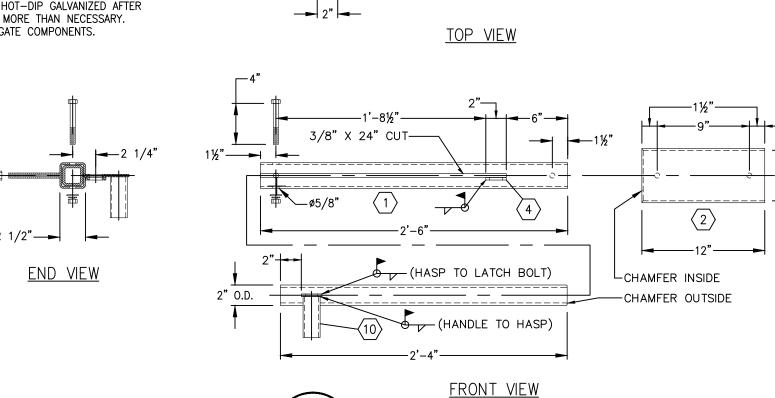
TYP

SCALE: NTS

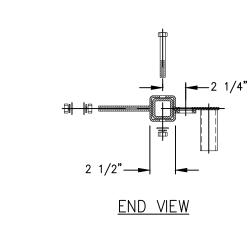


1. ALL HARDWARE AND COMPONENTS TO BE HOT-DIP GALVANIZED AFTER

FABRICATION. DO NOT TIGHTEN HARDWARE MORE THAN NECESSARY.



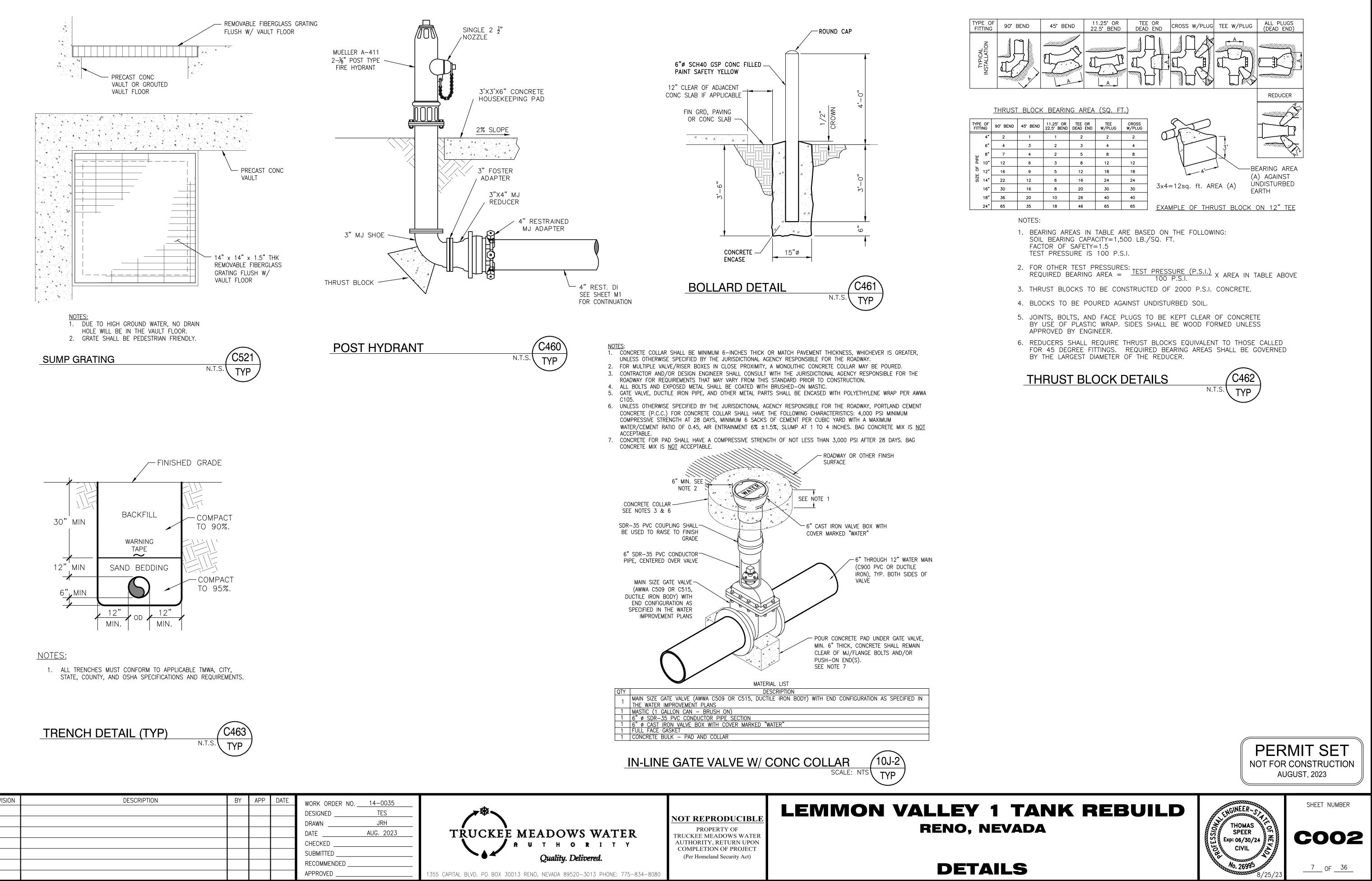




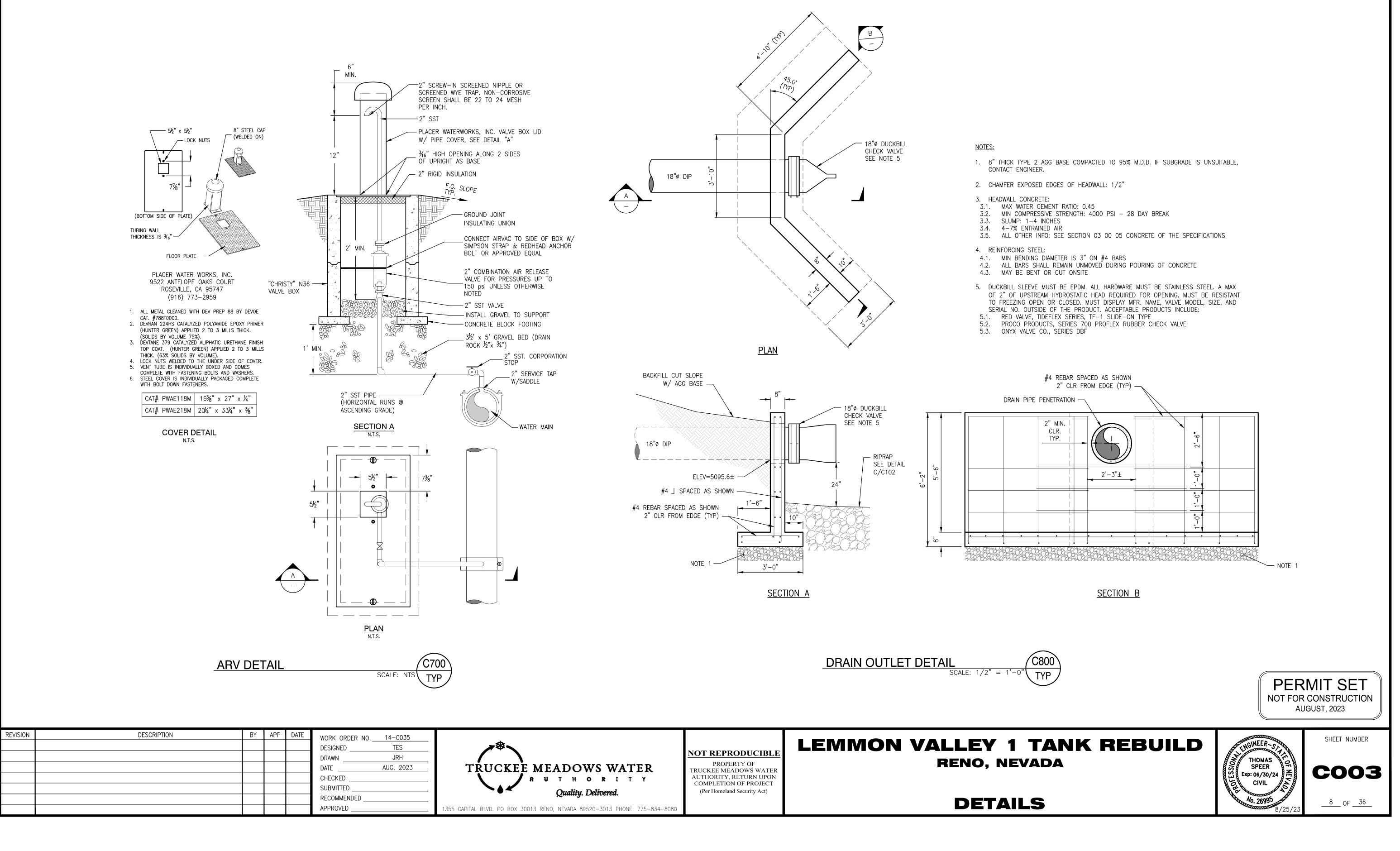
C202 FABRICATED GATE LATCH N.T.S. TYP

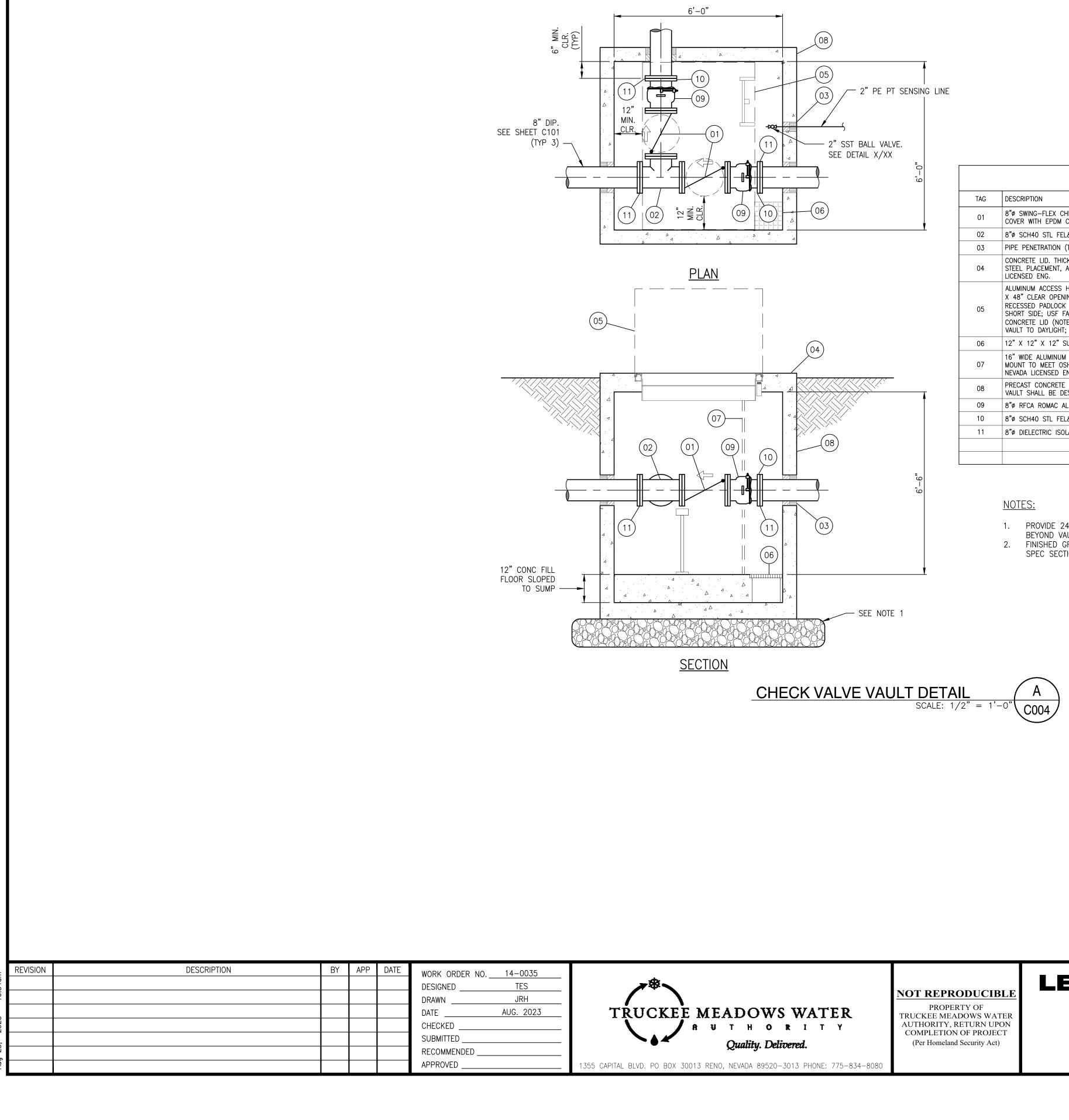
> NOT REPRODUCIBL PROPERTY OF

TRUCKEE MEADOWS WATER AUTHORITY, RETURN UPON COMPLETION OF PROJECT (Per Homeland Security Act)



REVISION	DESCRIPTION	BA	APP	DAIE	WORK ORDER NO.	14-0035	
					DESIGNED	TES	<b>**</b>
					DRAWN	JRH	
					DATE	AUG. 2023	TRUCI
					CHECKED		
					SUBMITTED		
					RECOMMENDED		
					APPROVED		1355 CAPITAL BLVD. PO





TAG	DESCRIPTION	DETAIL	SPEC
01	8"Ø SWING-FLEX CHECK VALVE, W/ BACKFLOW ACTUATOR, DI BODY AND COVER WITH EPDM COVERED DISC, SST BOLTS, NUTS, AND WASHERS, O.A.E.		_
02	8"ø SCH40 STL FEL&C FLG TEE		40 05 2
03	PIPE PENETRATION (TYP)	C520/TYP	
04	CONCRETE LID. THICKNESS OF CONCRETE, STEEL REINFORCEMENT SIZING, STEEL PLACEMENT, AND HATCH PLACEMENT SHALL BE STAMPED BY A NEVADA LICENSED ENG.		03 00 0
05	ALUMINUM ACCESS HATCH; INCIDENTAL H20 LOADING; DOUBLE LEAF WITH 72" X 48" CLEAR OPENING; SS TYPE 316 HARDWARE; SPRING ASSIST; SLAMLOCK; RECESSED PADLOCK AND LIFT HANDLE; 2" INSULATION WITHIN LID; HINGES ON SHORT SIDE; USF FABRICATION TDH, OR EQUAL. SHALL BE CASTED INTO THE CONCRETE LID (NOTE BUBBLE 14). LID DRAIN TO BE DIRECTED OUTSIDE OF VAULT TO DAYLIGHT; FIELD FIT AS NEEDED.		03 00 0
06	12" X 12" X 12" SUMP BLOCKOUT W/ REMOVABLE GRATE	C521/TYP	
07	16" WIDE ALUMINUM LADDER WITH RAIL SAFETY EXTENSIONS; CONSTRUCT AND MOUNT TO MEET OSHA STANDARDS. LADDER DESIGN TO BE STAMPED BY A NEVADA LICENSED ENG.	C299/TYP	03 00 0
08	PRECAST CONCRETE VAULT – INTERNAL DIMENSIONS L: 6' – W: 6' – D: 7.5' VAULT SHALL BE DESIGNED AND STAMPED BY A NEVADA LICENSED ENG.		03 00 0
09	8"Ø RFCA ROMAC ALPHA O.A.E.		-
10	8"ø SCH40 STL FEL&C FLGxPE SPOOL		40 05 2
11	8"Ø DIELECTRIC ISOLATION KIT		_

### NOTES:

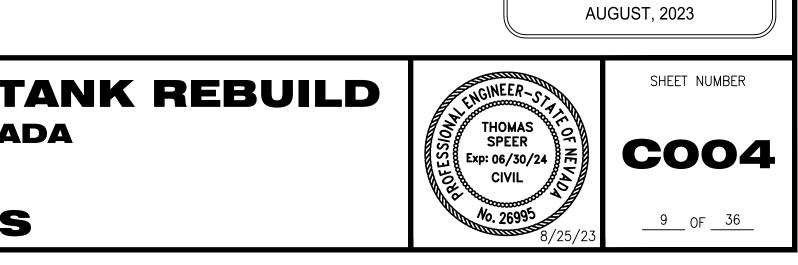
1. PROVIDE 24" THICK LAYER OF TYPE 2 AB COMPACTED TO 95%, EXTEND 12"

BEYOND VAULT WALLS IN ALL DIRECTIONS, WRAPPED IN FILTER FABRIC.
FINISHED GRADE SURFACE TO MATCH ADJACENT LANDSCAPING, BACKFILL PER SPEC SECTION 31 23 00. SLOPE FINISHED GRADE AWAY FROM VAULT.

## LEMMON VALLEY 1 TANK REBUILD RENO, NEVADA

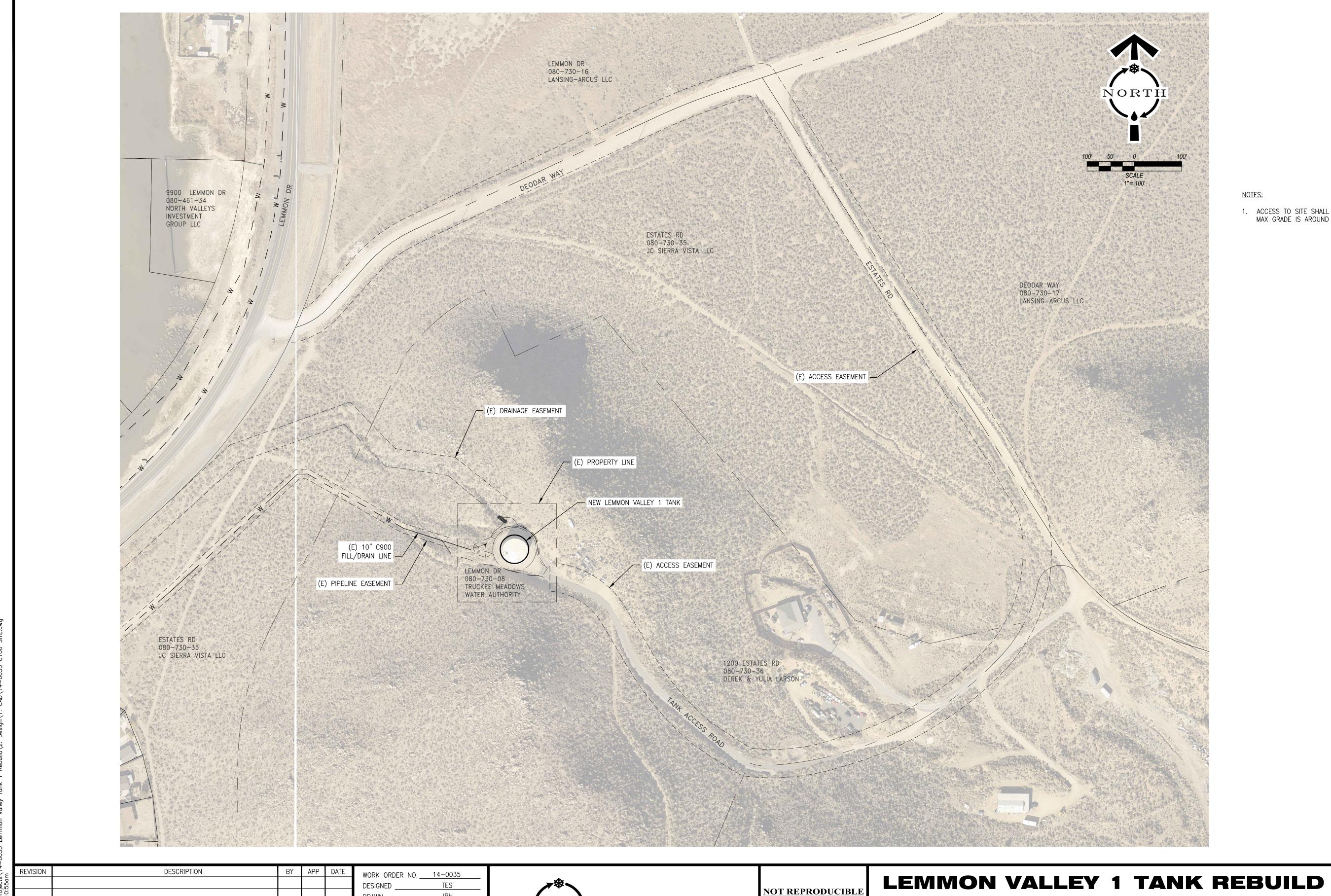
PROPERTY OF TRUCKEE MEADOWS WATER AUTHORITY, RETURN UPON COMPLETION OF PROJECT (Per Homeland Security Act)

DETAILS



PERMIT SET

NOT FOR CONSTRUCTION



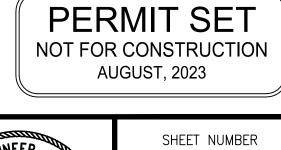
JRH DRAWN DATE \_\_\_\_ AUG. 2023 CHECKED SUBMITTED \_ RECOMMENDED APPROVED \_ 1355 CAPITAL BLVD. PO BOX 30013 RENO, NEVADA 89520-3013 PHONE: 775-834-8080



### NOT REPRODUCIBLE

PROPERTY OF TRUCKEE MEADOWS WATER AUTHORITY, RETURN UPON COMPLETION OF PROJECT (Per Homeland Security Act)

# **OVERALL SITE PLAN**

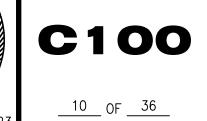


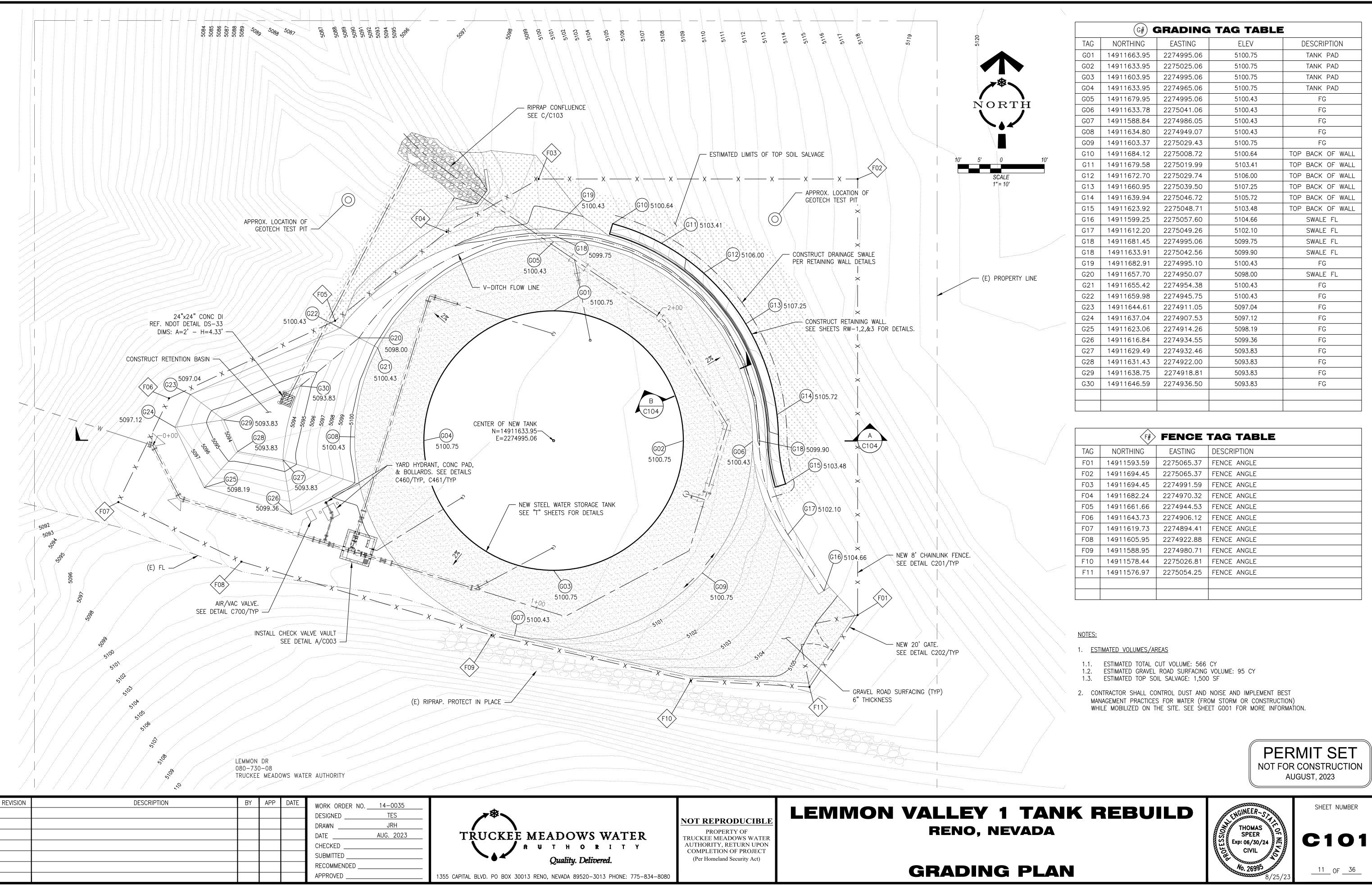
No. 26995



NOTES:

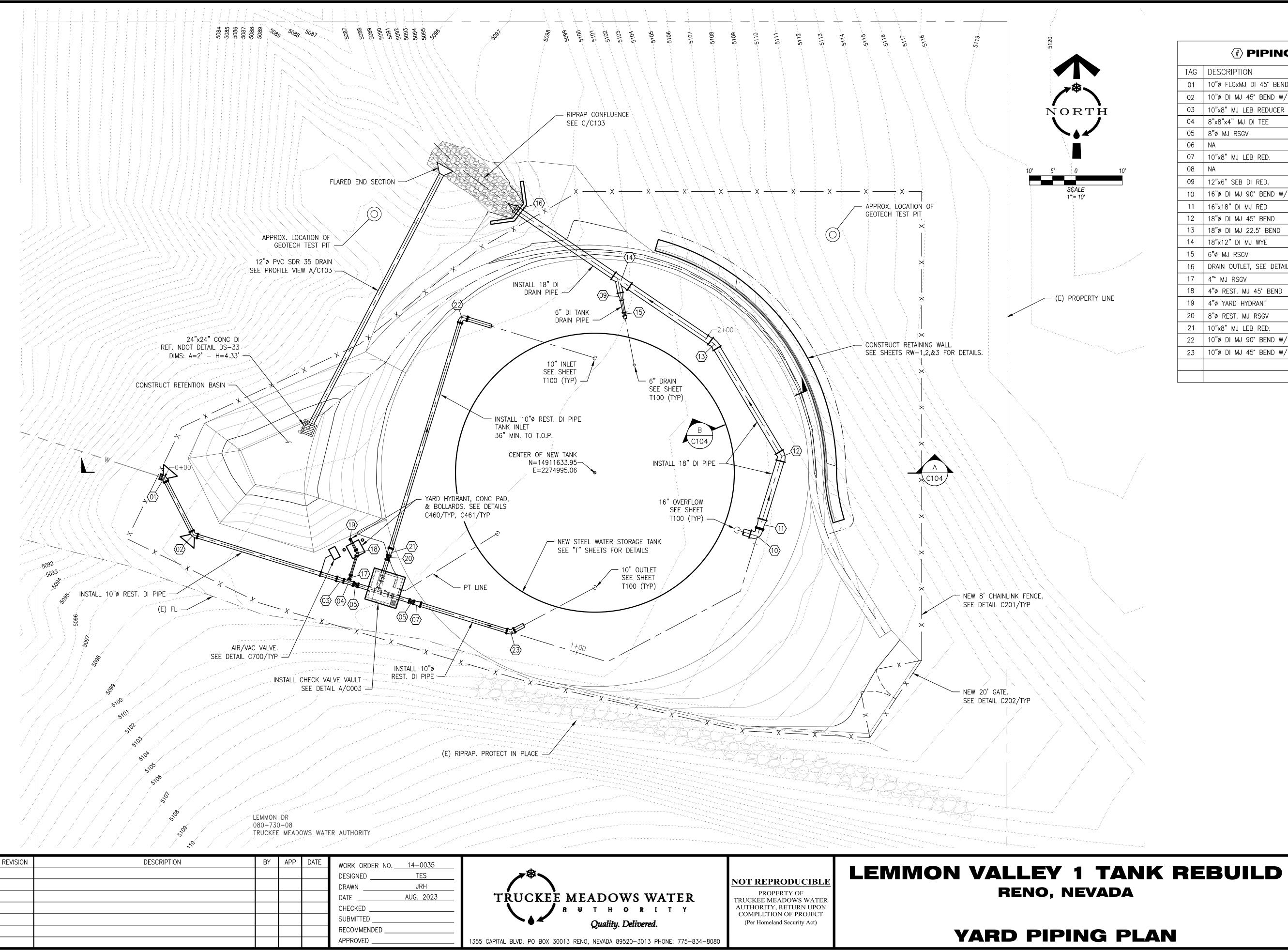
1. ACCESS TO SITE SHALL BE PROVIDED ON (E) ACCESS EASEMENT AS SHOWN. MAX GRADE IS AROUND 20%.



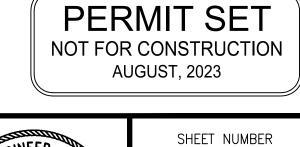


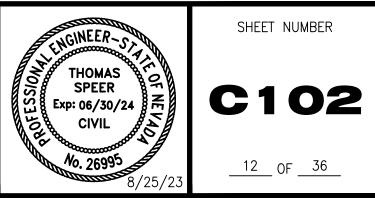
	(G#) <b>(</b>	GRADING	TAG TABL	-E
TAG	NORTHING	EASTING	ELEV	DESCRIPTION
G01	14911663.95	2274995.06	5100.75	TANK PAD
G02	14911633.95	2275025.06	5100.75	TANK PAD
G03	14911603.95	2274995.06	5100.75	TANK PAD
G04	14911633.95	2274965.06	5100.75	TANK PAD
G05	14911679.95	2274995.06	5100.43	FG
G06	14911633.78	2275041.06	5100.43	FG
G07	14911588.84	2274986.05	5100.43	FG
G08	14911634.80	2274949.07	5100.43	FG
G09	14911603.37	2275029.43	5100.75	FG
G10	14911684.12	2275008.72	5100.64	TOP BACK OF WA
G11	14911679.58	2275019.99	5103.41	TOP BACK OF WA
G12	14911672.70	2275029.74	5106.00	TOP BACK OF WA
G13	14911660.95	2275039.50	5107.25	TOP BACK OF WA
G14	14911639.94	2275046.72	5105.72	TOP BACK OF WA
G15	14911623.92	2275048.71	5103.48	TOP BACK OF WA
G16	14911599.25	2275057.60	5104.66	SWALE FL
G17	14911612.20	2275049.26	5102.10	SWALE FL
G18	14911681.45	2274995.06	5099.75	SWALE FL
G18	14911633.91	2275042.56	5099.90	SWALE FL
G19	14911682.91	2274995.10	5100.43	FG
G20	14911657.70	2274950.07	5098.00	SWALE FL
G21	14911655.42	2274954.38	5100.43	FG
G22	14911659.98	2274945.75	5100.43	FG
G23	14911644.61	2274911.05	5097.04	FG
G24	14911637.04	2274907.53	5097.12	FG
G25	14911623.06	2274914.26	5098.19	FG
G26	14911616.84	2274934.55	5099.36	FG
G27	14911629.49	2274932.46	5093.83	FG
G28	14911631.43	2274922.00	5093.83	FG
G29	14911638.75	2274918.81	5093.83	FG
G30	14911646.59	2274936.50	5093.83	FG

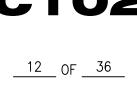
	F#	FENCE	TAG TABLE
TAG	NORTHING	EASTING	DESCRIPTION
F01	14911593.59	2275065.37	FENCE ANGLE
F02	14911694.45	2275065.37	FENCE ANGLE
F03	14911694.45	2274991.59	FENCE ANGLE
F04	14911682.24	2274970.32	FENCE ANGLE
F05	14911661.66	2274944.53	FENCE ANGLE
F06	14911643.73	2274906.12	FENCE ANGLE
F07	14911619.73	2274894.41	FENCE ANGLE
F08	14911605.95	2274922.88	FENCE ANGLE
F09	14911588.95	2274980.71	FENCE ANGLE
F10	14911578.44	2275026.81	FENCE ANGLE
F11	14911576.97	2275054.25	FENCE ANGLE

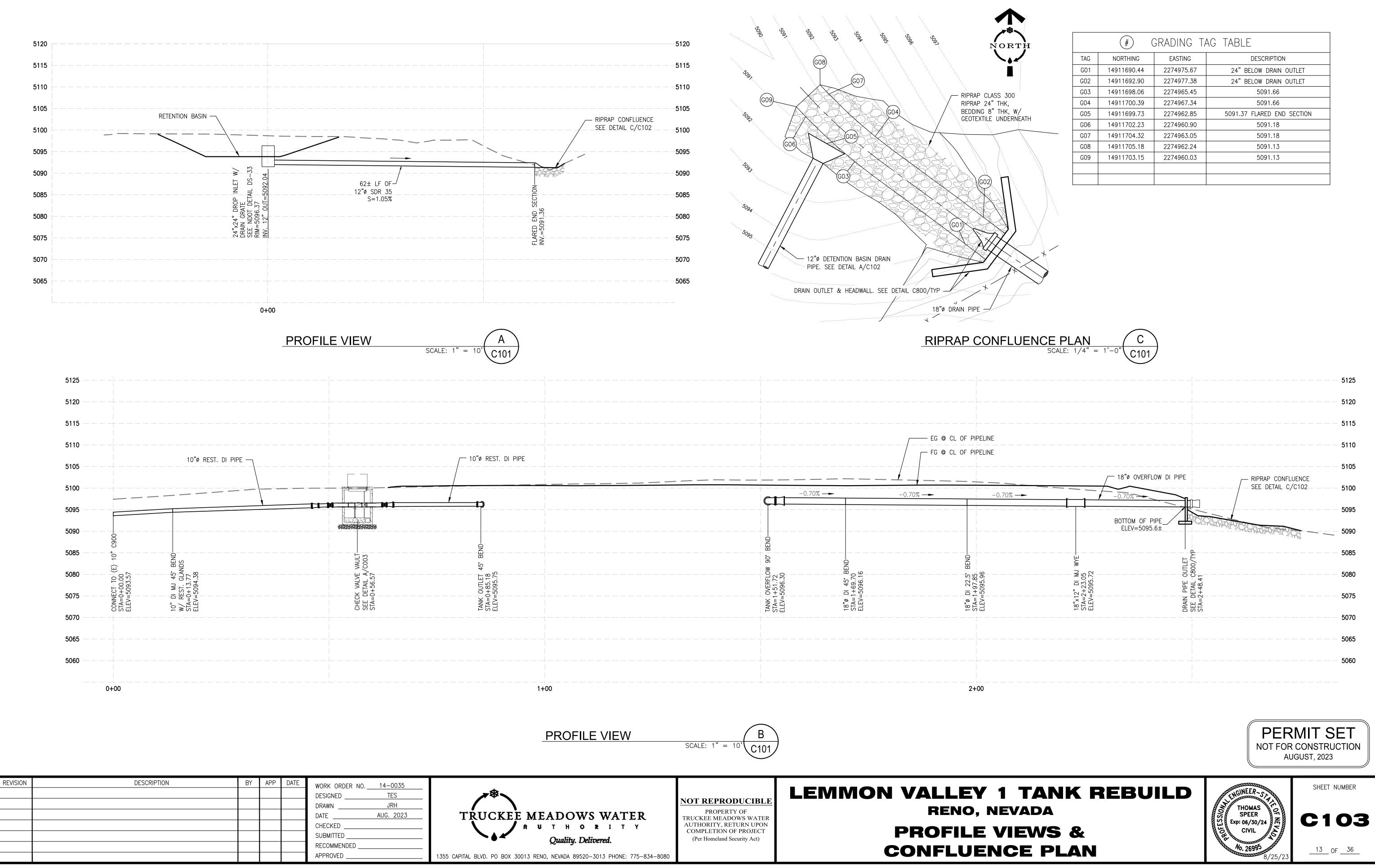


TAG	DESCRIPTION
01	10"Ø FLG×MJ DI 45° BEND W/ REST. GLAND, FCA, AND THRUST BLOCI
02	10"ø DI MJ 45° BEND W/ REST. GLANDS, AND THRUST BLOCK
03	10"x8" MJ LEB REDUCER
04	8"x8"x4" MJ DI TEE
05	8"ø MJ RSGV
06	NA
07	10"x8" MJ LEB RED.
08	NA
09	12"x6" SEB DI RED.
10	16"ø DI MJ 90° BEND W/ MJ ADAPTER
11	16"x18" DI MJ RED
12	18"ø DI MJ 45° BEND
13	18"ø DI MJ 22.5° BEND
14	18"x12" DI MJ WYE
15	6"Ø MJ RSGV
16	DRAIN OUTLET, SEE DETAIL C800/TYP
17	4" MJ RSGV
18	4"ø REST. MJ 45° BEND
19	4"ø YARD HYDRANT
20	8"ø REST. MJ RSGV
21	10"x8" MJ LEB RED.
22	10"ø DI MJ 90° BEND W/ REST. GLANDS
23	10"ø DI MJ 45° BEND W/ REST. GLANDS





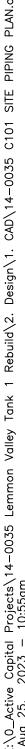




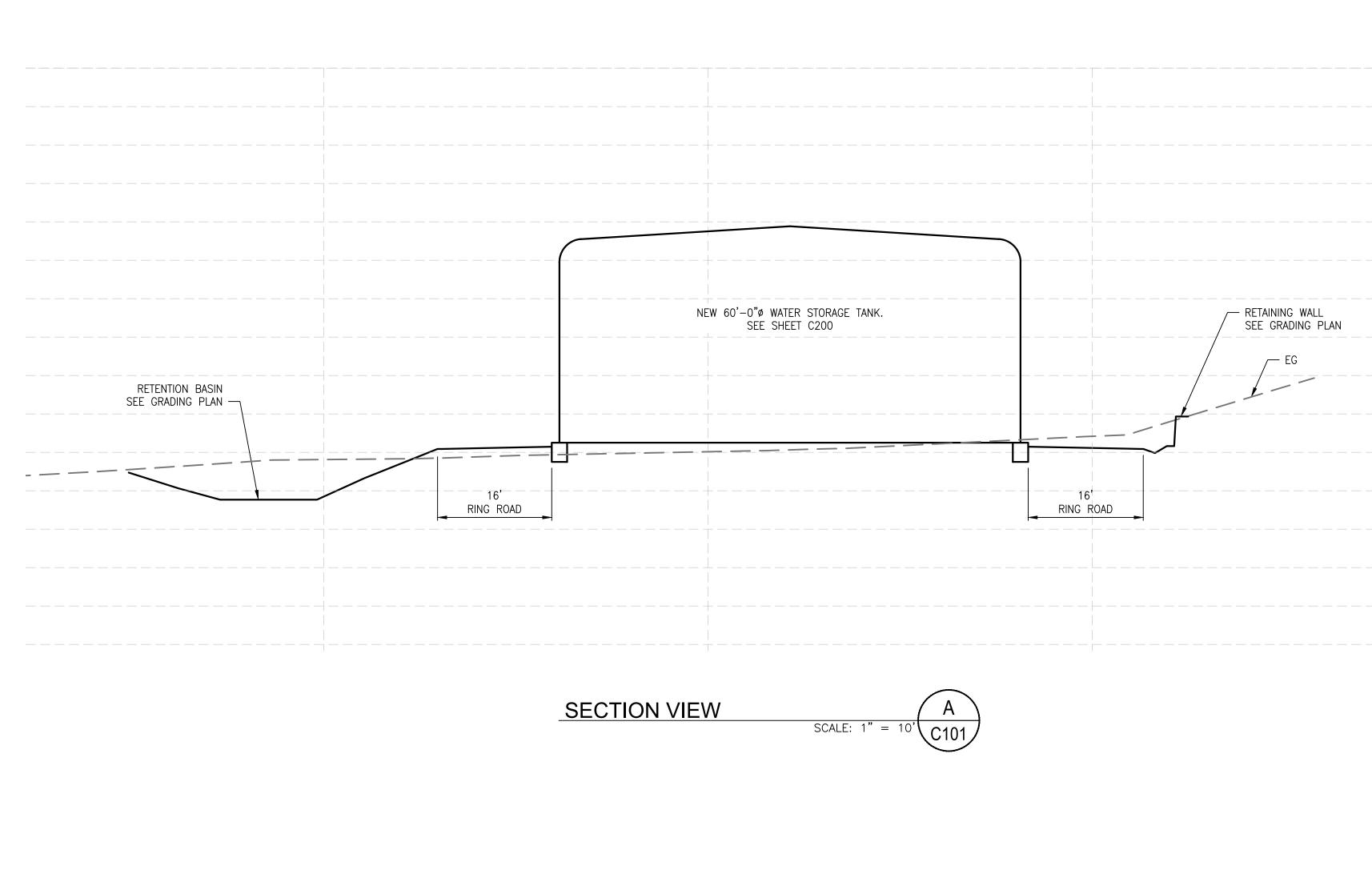
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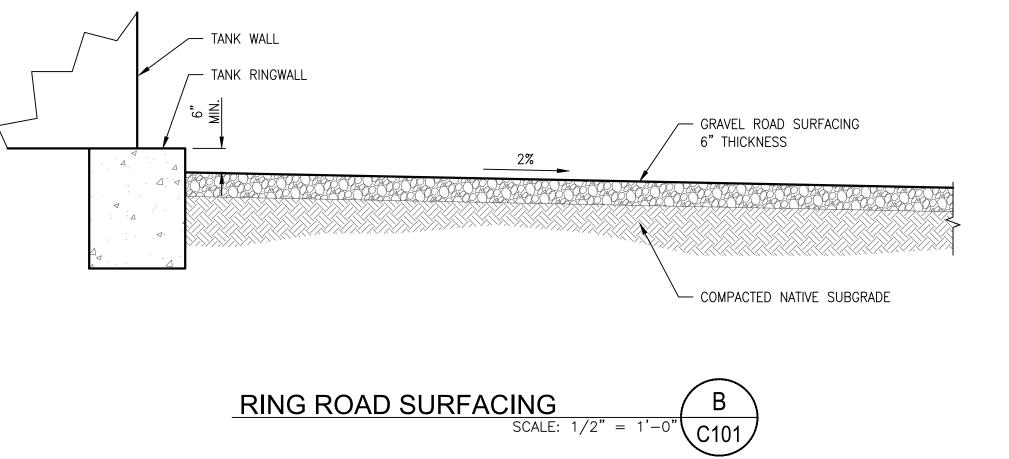
(#) GRADING TAG TABLE									
TAG	NORTHING	EASTING	DESCRIPTION						
G01	14911690.44	2274975.67	24" BELOW DRAIN OUTLET						
G02	14911692.90	2274977.38	24" BELOW DRAIN OUTLET						
G03	14911698.06	2274965.45	5091.66						
G04	14911700.39	2274967.34	5091.66						
G05	14911699.73	2274962.85	5091.37 FLARED END SECTION						
G06	14911702.23	2274960.90	5091.18						
G07	14911704.32	2274963.05	5091.18						
G08	14911705.18	2274962.24	5091.13						
G09	14911703.15	2274960.03	5091.13						

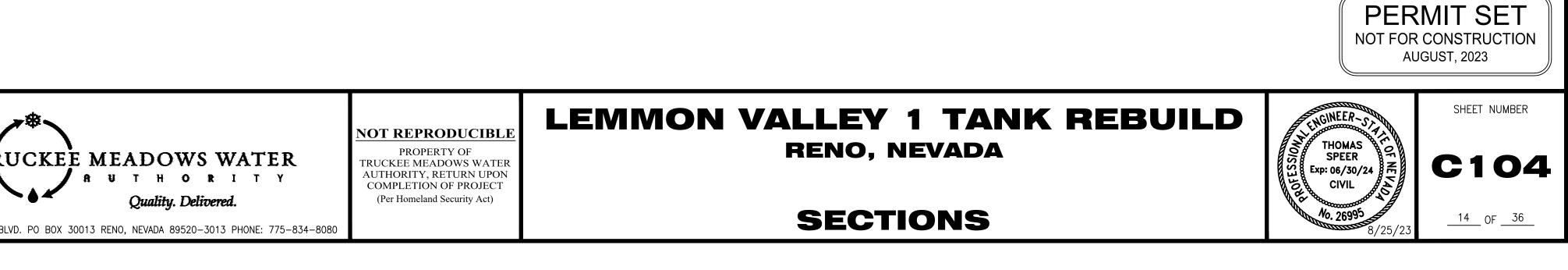




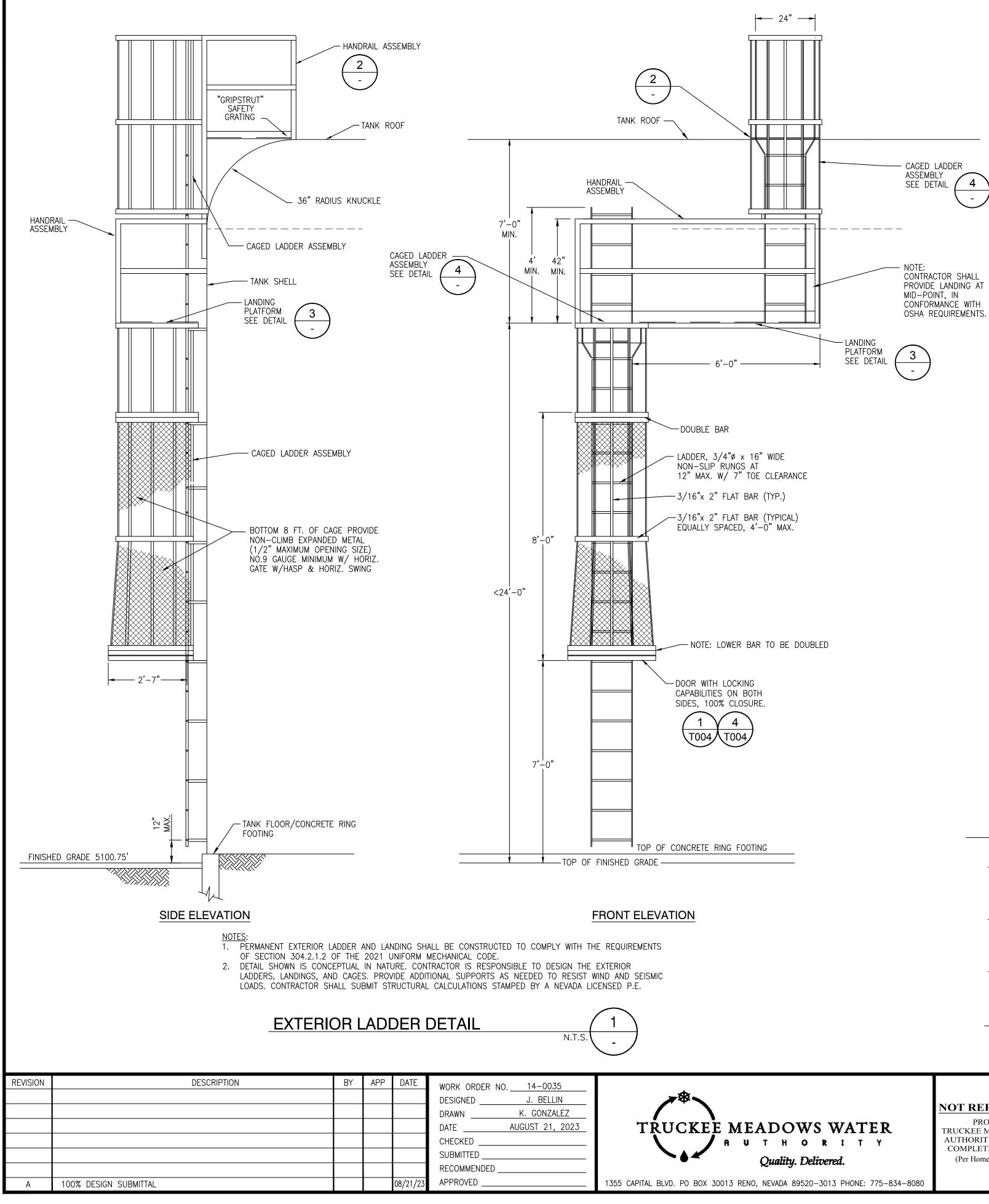
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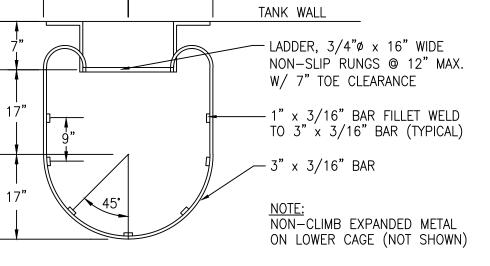
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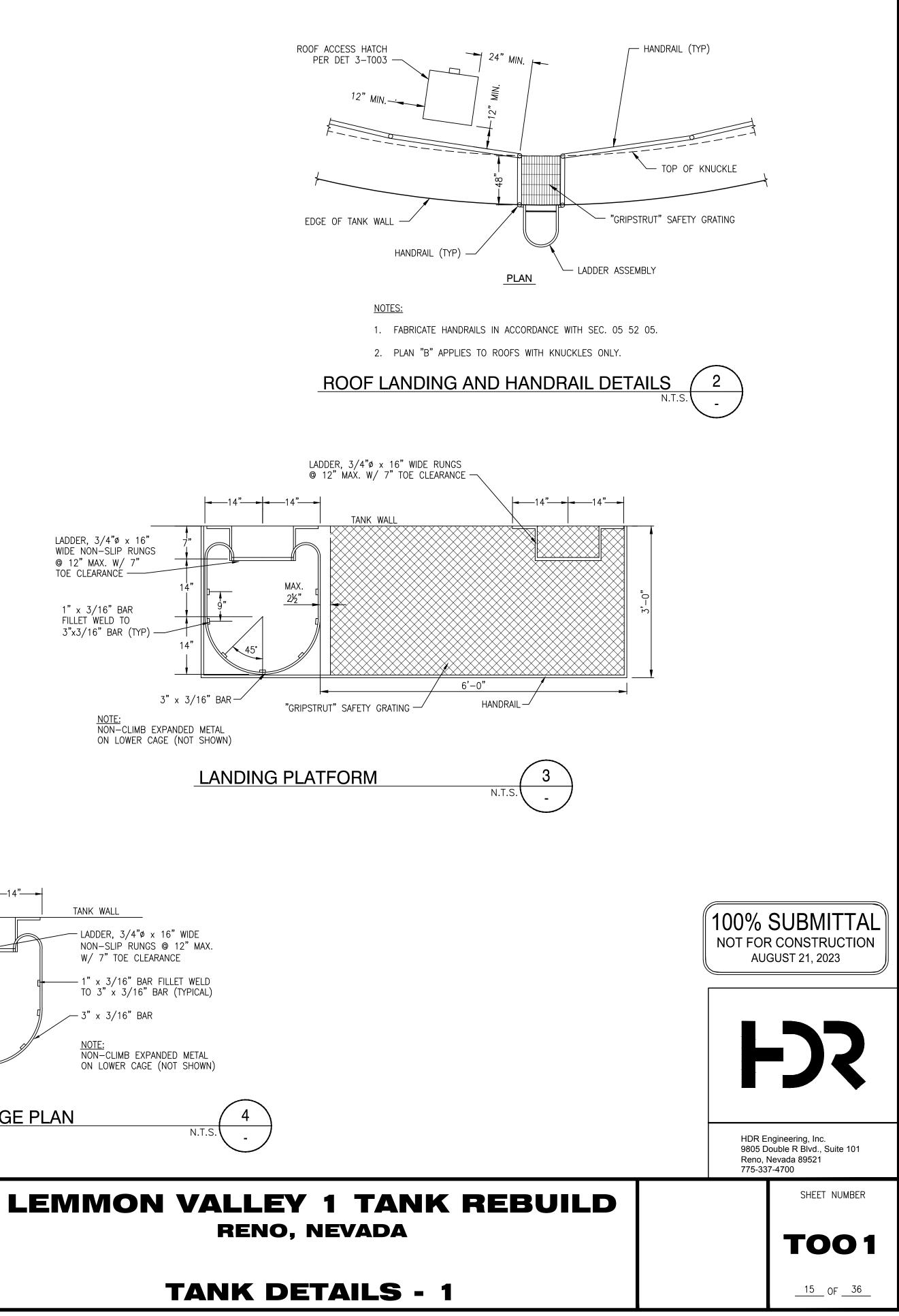


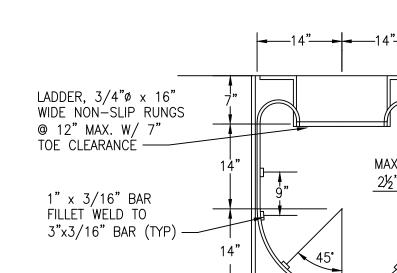
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NOT REPRODUCIBL TRUCKEE MEADOWS WATER AUTHORITY, RETURN UPON COMPLETION OF PROJECT (Per Homeland Security Act)

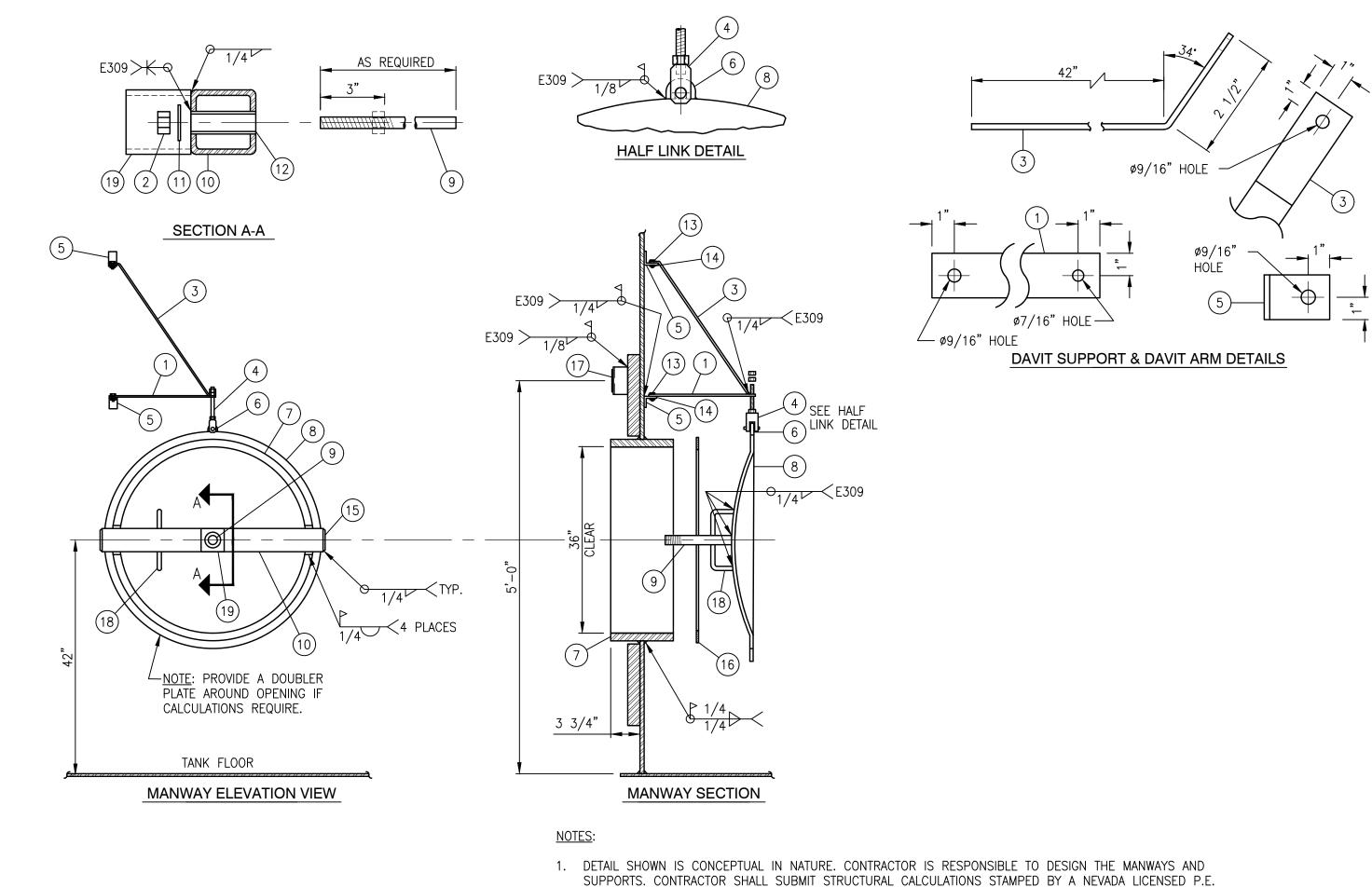
# LADDER CAGE PLAN N.T.S.







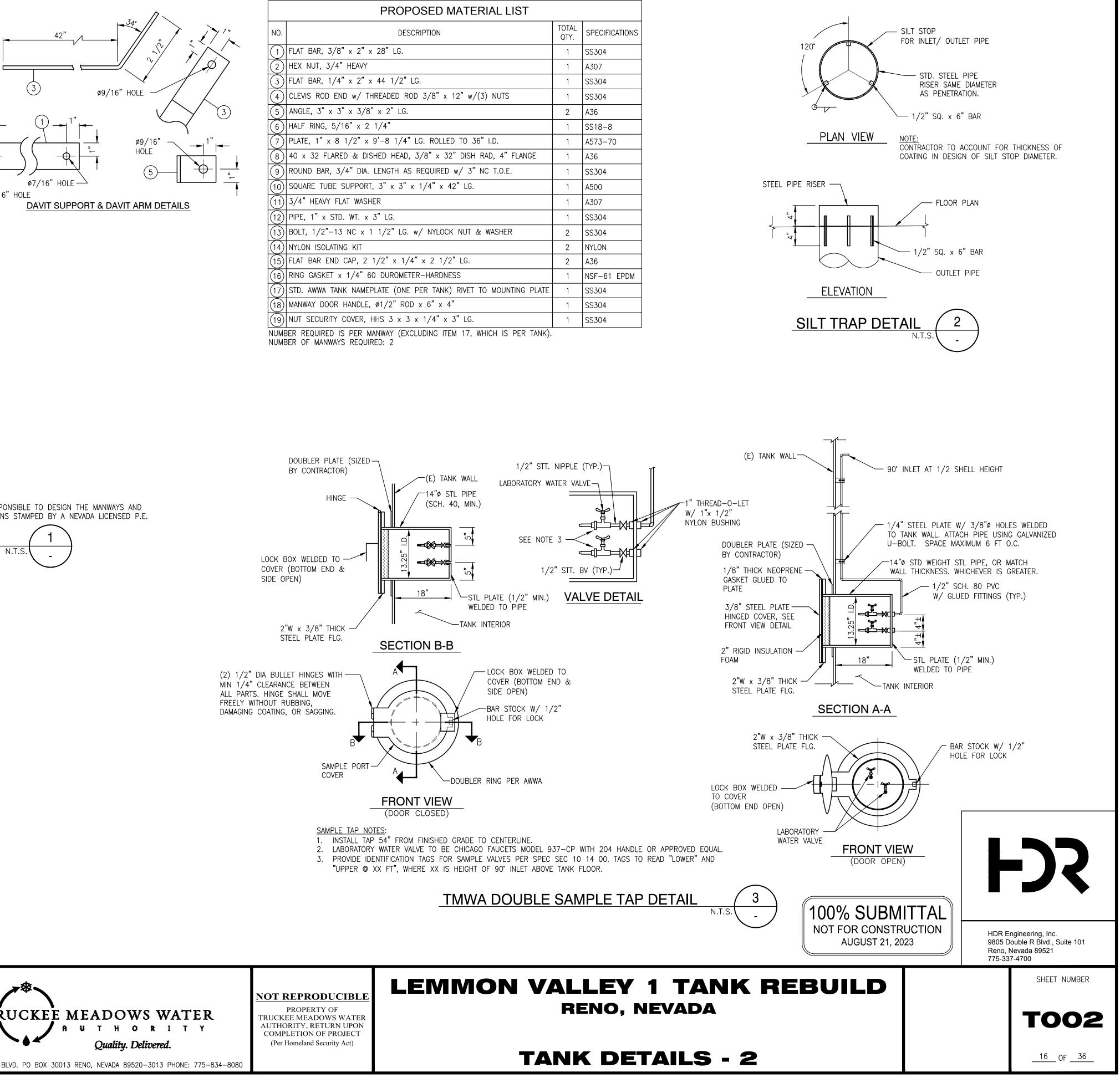


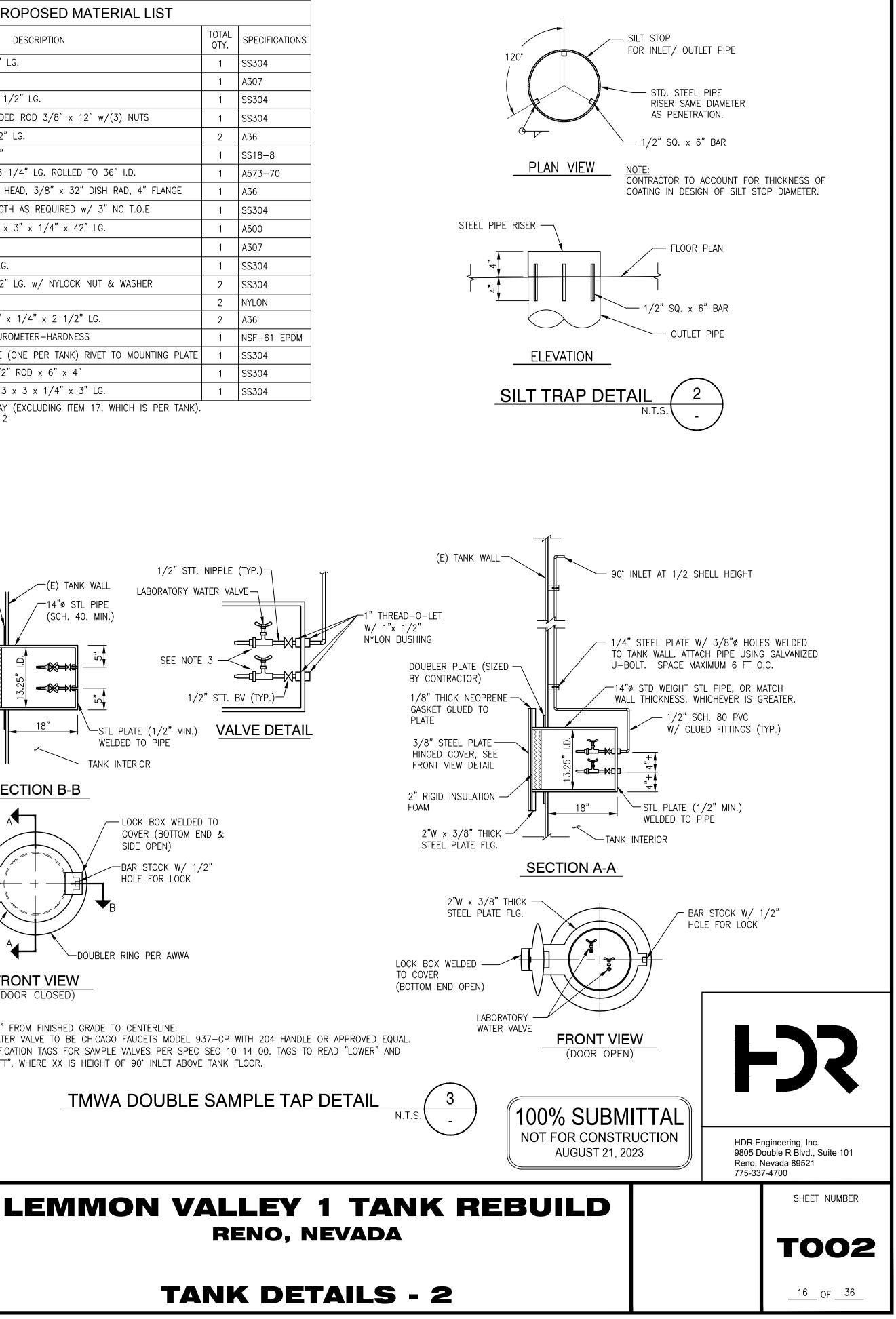


36" DIAMETER MANWAY

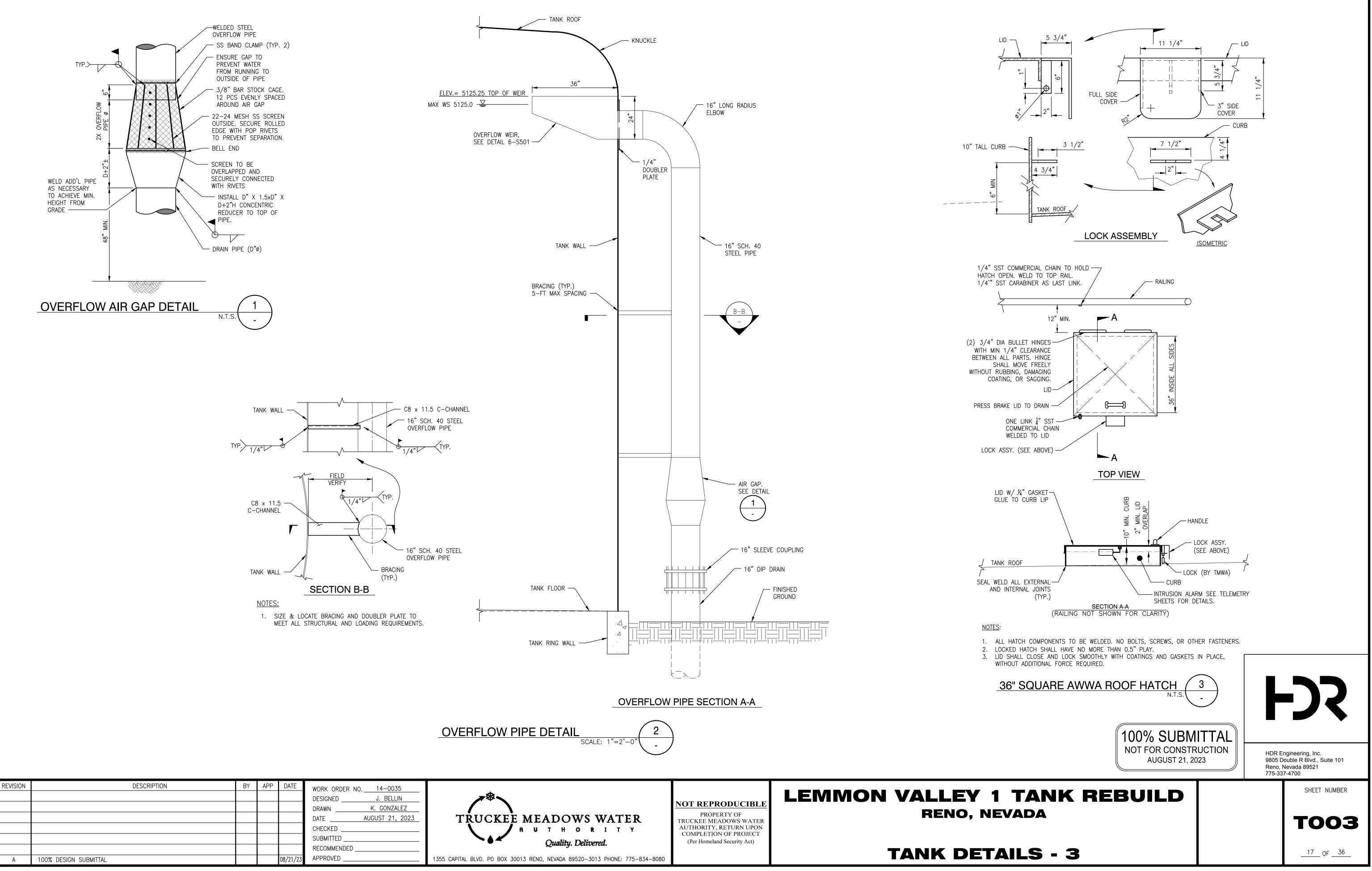
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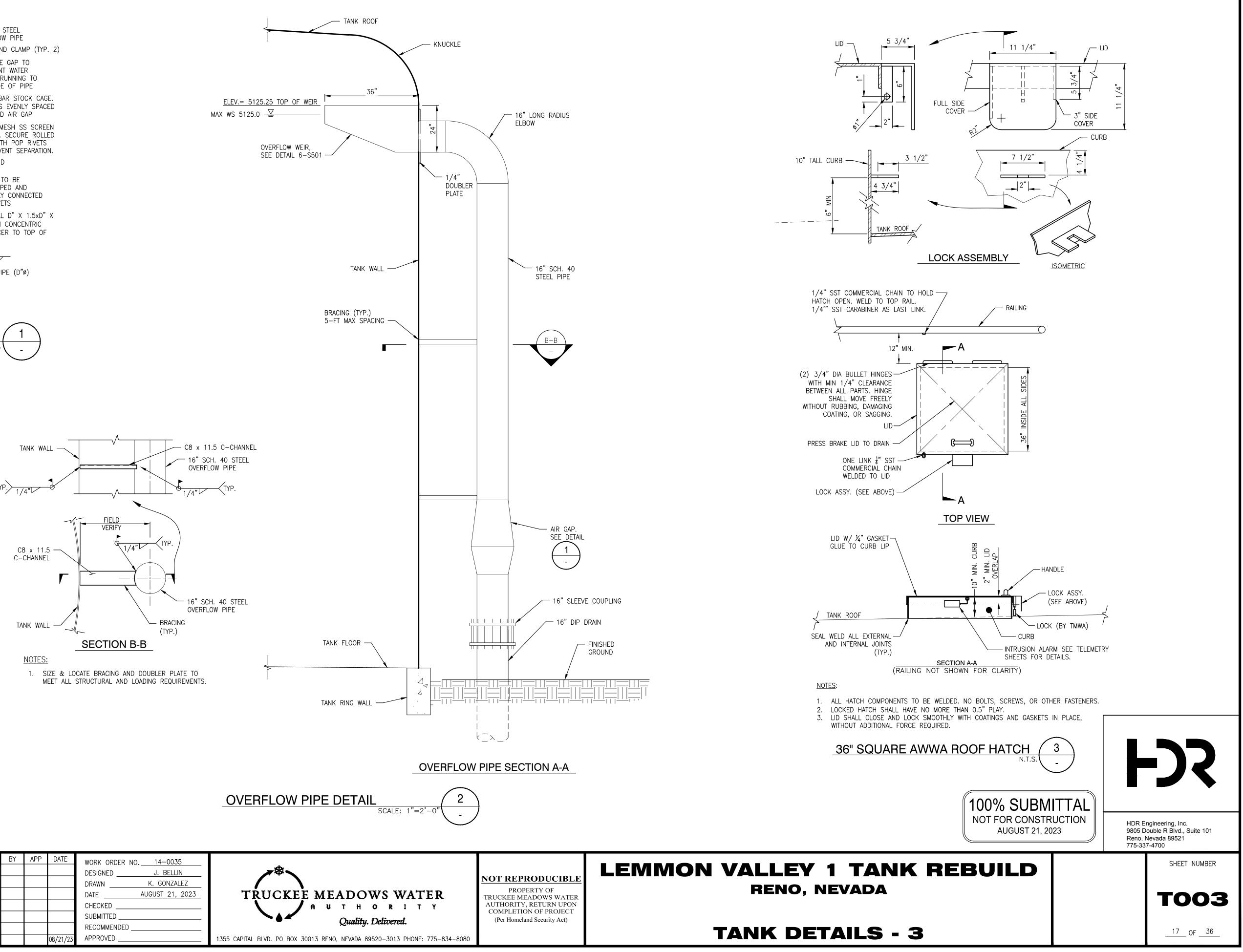
PROPOSED MATERIAL LIST							
NO.	DESCRIPTION	TOTAL QTY.	SPECIFICATIONS				
1	FLAT BAR, 3/8" x 2" x 28" LG.	1	SS304				
2	HEX NUT, 3/4" HEAVY	1	A307				
3	FLAT BAR, 1/4" x 2" x 44 1/2" LG.	1	SS304				
4	CLEVIS ROD END w/ THREADED ROD 3/8" x 12" w/(3) NUTS	1	SS304				
5	ANGLE, 3" x 3" x 3/8" x 2" LG.	2	A36				
6	HALF RING, 5/16" x 2 1/4"	1	SS18-8				
$\overline{7}$	PLATE, 1" x 8 1/2" x 9'-8 1/4" LG. ROLLED TO 36" I.D.	1	A573-70				
8	40 x 32 FLARED & DISHED HEAD, 3/8" x 32" DISH RAD, 4" FLANGE	1	A36				
9	ROUND BAR, 3/4" DIA. LENGTH AS REQUIRED w/ 3" NC T.O.E.	1	SS304				
(10)	SQUARE TUBE SUPPORT, 3" x 3" x 1/4" x 42" LG.	1	A500				
11	3/4" HEAVY FLAT WASHER	1	A307				
(12)	PIPE, 1" x STD. WT. x 3" LG.	1	SS304				
(13)	BOLT, 1/2"-13 NC x 1 1/2" LG. w/ NYLOCK NUT & WASHER	2	SS304				
(14)	NYLON ISOLATING KIT	2	NYLON				
(15)	FLAT BAR END CAP, 2 1/2" x 1/4" x 2 1/2" LG.	2	A36				
(16)	RING GASKET x 1/4" 60 DUROMETER-HARDNESS	1	NSF-61 EPDM				
(17)	STD. AWWA TANK NAMEPLATE (ONE PER TANK) RIVET TO MOUNTING PLATE	1	SS304				
(18)	MANWAY DOOR HANDLE, $\emptyset 1/2$ " ROD x 6" x 4"	1	SS304				
(19)	NUT SECURITY COVER, HHS 3 x 3 x 1/4" x 3" LG.	1	SS304				
NUME	NUMBER REQUIRED IS PER MANWAY (EXCLUDING ITEM 17, WHICH IS PER TANK).						





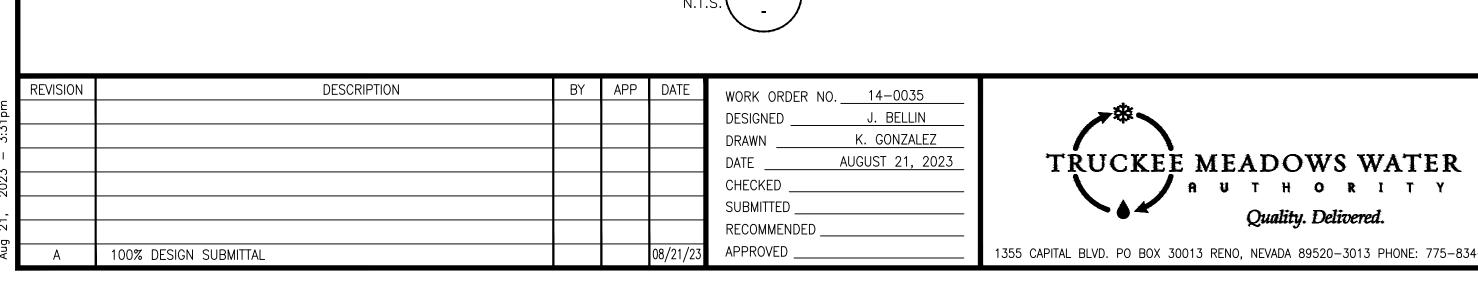


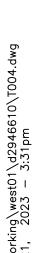


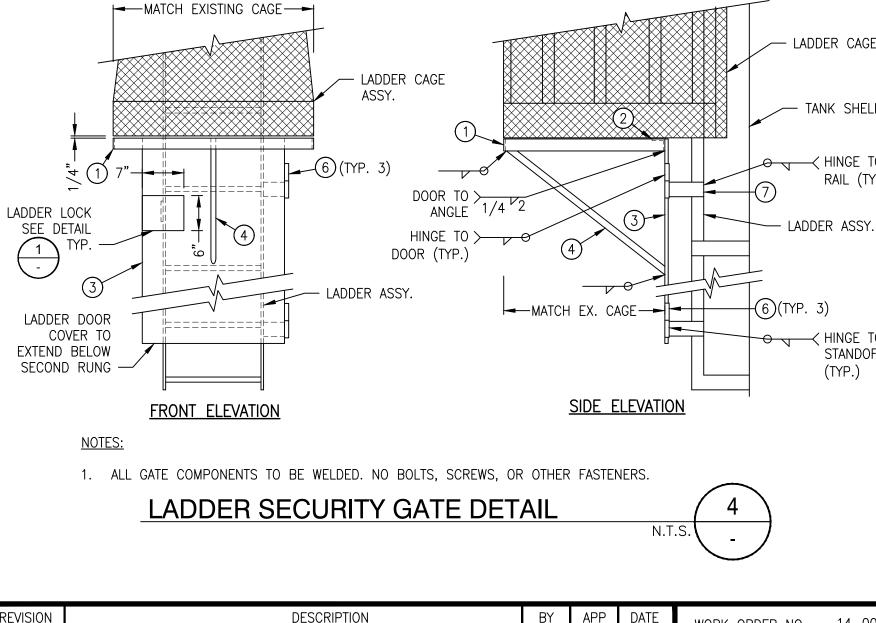


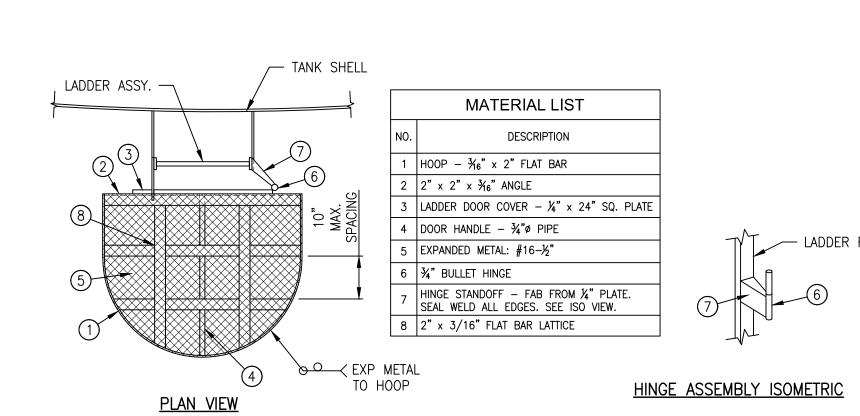
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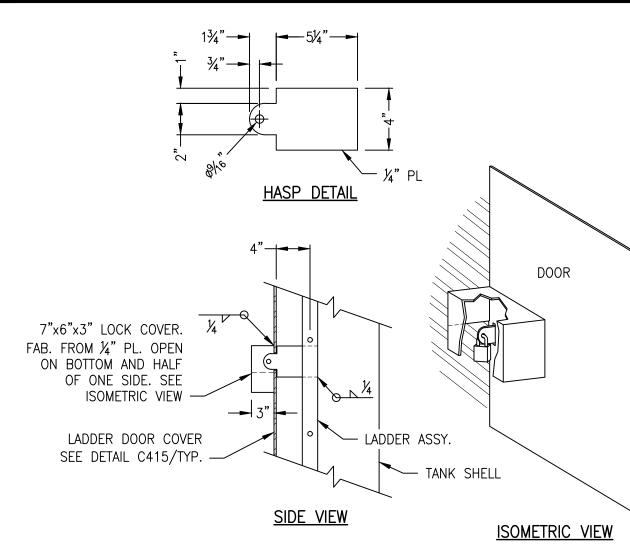


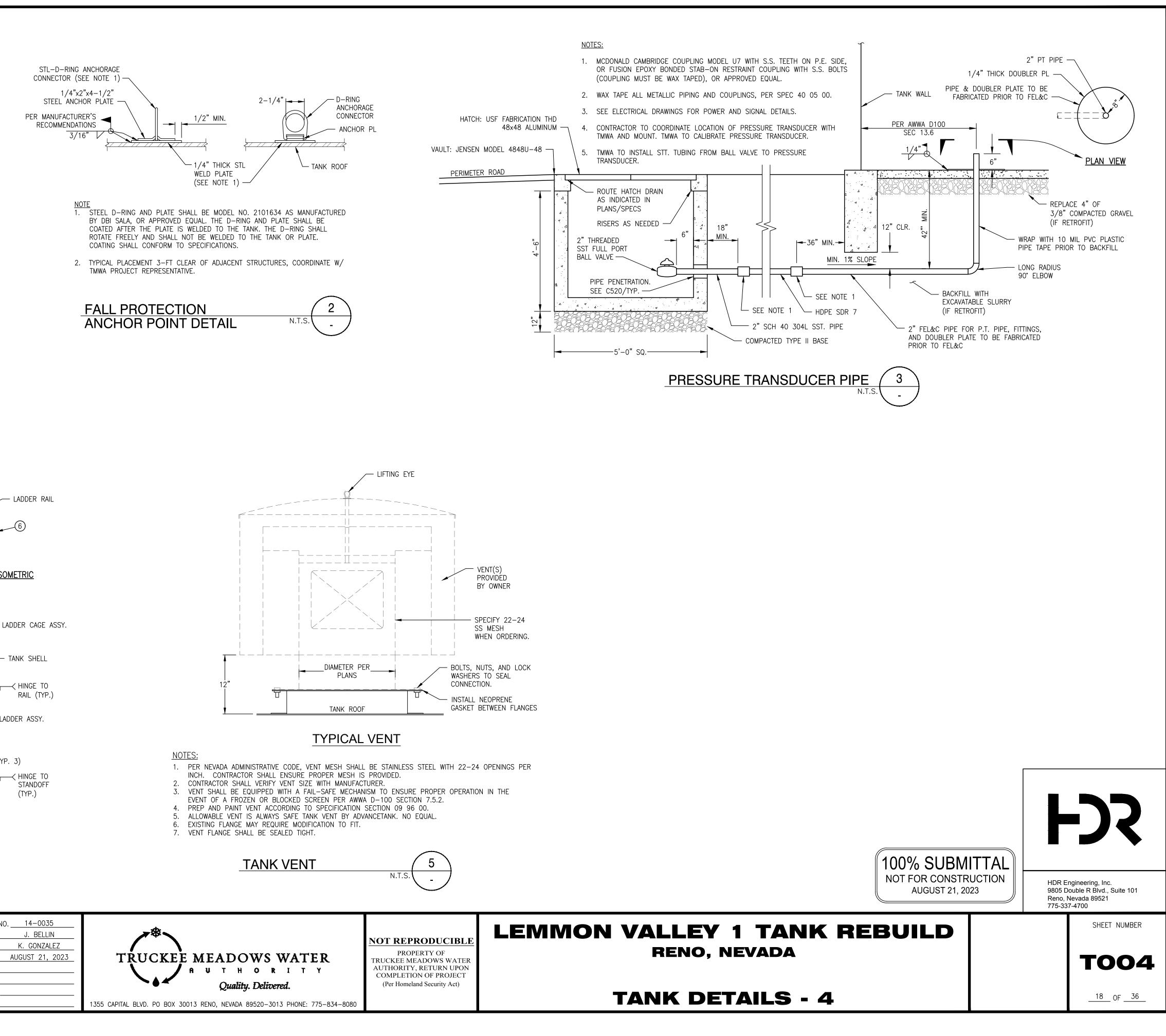


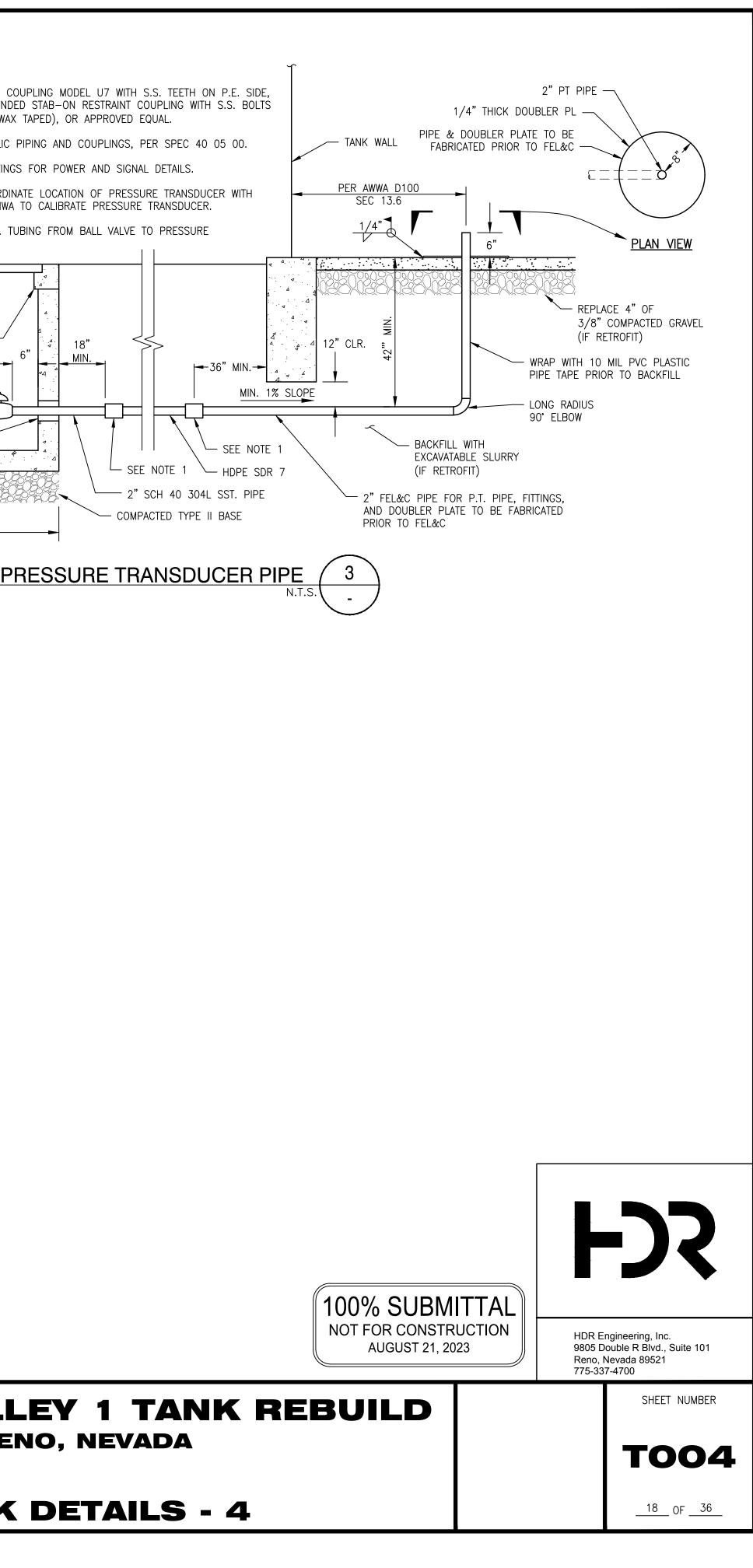


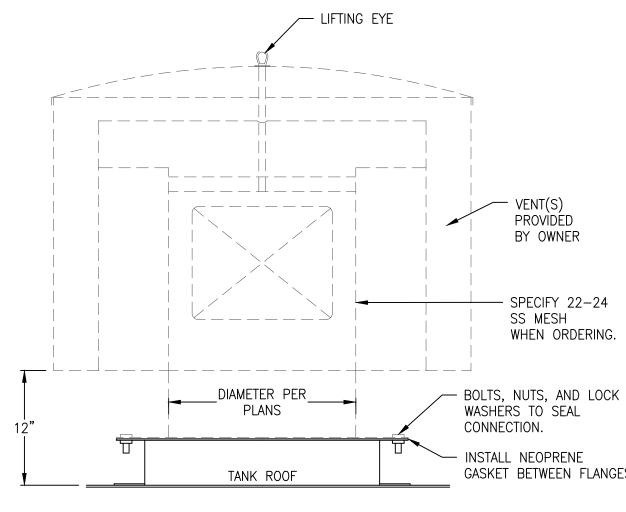


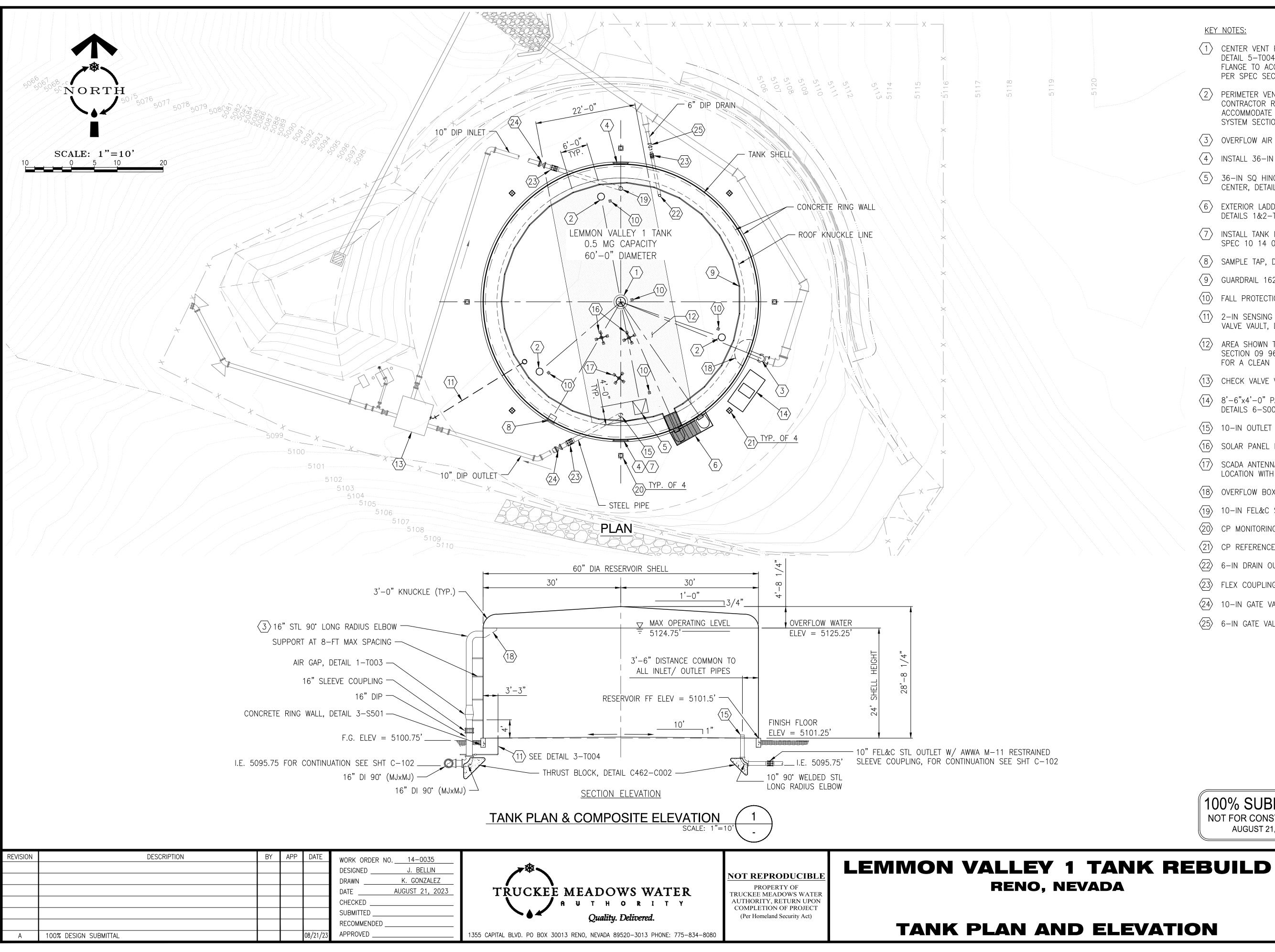












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_ 1355 CAPITAL BLVD.
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KEY NOTES:

- CENTER VENT PROVIDED BY TMWA, 24-IN DIAMETER, DETAIL 5-T004. CONTRACTOR RESPONSIBLE TO FABRICATE FLANGE TO ACCOMMODATE VENTS. APPLY COATING SYSTEM PER SPEC SECTION 09 96 00.
- $\langle 2 \rangle$  PERIMETER VENT PROVIDED BY TMWA, 18-IN DIAMETER. CONTRACTOR RESPONSIBLE TO FABRICATE FLANGE TO ACCOMMODATE VENTS. DETAIL 5-TO04. APPLY COATING SYSTEM SECTION 09 96 00.
- $\langle 3 \rangle$  OVERFLOW AIR GAP, DETAIL 1-T003.
- $\langle 4 \rangle$  INSTALL 36-IN DIA MANWAY, DETAIL 1-T002.
- 5 36-IN SQ HINGED ROOF HATCH W/ LOCK BOX FACING TANK CENTER, DETAIL 3-T003.
- $\langle 6 \rangle$  EXTERIOR LADDER ASSEMBLY W/ SAFETY CAGE, DETAILS 1&2-T001.
- $\langle 7 \rangle$  INSTALL TANK NAMEPLATE PER DETAIL 1–T002 AND SPEC 10 14 00.
- $\langle 8 \rangle$  SAMPLE TAP, DETAIL 3-T002.
- $\langle 9 \rangle$  GUARDRAIL 162–LF, DETAIL 1–S002.
- $\langle 10 \rangle$  FALL PROTECTION ANCHOR POINT, DETAIL 2-T004.
- $\langle 11 \rangle$  2-IN SENSING PIPE TO PRESSURE TRANSDUCER IN CHECK VALVE VAULT, DETAIL 3-T004.
- $\langle 12 \rangle$  AREA SHOWN TO RECEIVE A NON-SLIP COATING. REFER TO SECTION 09 96 00 OF THE SPECIFICATIONS. TAPE EDGE FOR A CLEAN LINE.
- $\langle 13 \rangle$  CHECK VALVE VAULT, DETAIL A-COO4.
- $\langle 14 \rangle$  8'-6"x4'-0" PAD FOR RTU AND BATTERY, DETAILS 6-S002 AND 1-E501.
- $\langle 15 \rangle$  10-IN OUTLET WITH SILT STOP, DETAIL 2-T002.
- $\langle 16 \rangle$  SOLAR PANEL MAST, DETAIL 3–E500.
- $\langle 17 \rangle$  SCADA ANTENNA MAST, DETAIL 3-E500. COORDINATE LOCATION WITH TMWA.
- $\langle 18 \rangle$  OVERFLOW BOX, DETAIL 2-T003.
- $\langle 19 \rangle$  10–IN FEL&C STEEL INLET.
- $\langle 20 \rangle$  CP MONITORING STATION, SEE SHT CP500.
- $\langle 21 \rangle$  CP REFERENCE CELL, SEE SHT CP500.
- $\langle 22 \rangle$  6-IN DRAIN OUTLET.
- $\langle 23 \rangle$  FLEX COUPLING W/ M11 RESTRAINT HARNESS.
- (24) 10-IN GATE VALVE (MJ×MJ).
- $\langle 25 \rangle$  6-IN GATE VALVE (MJ×MJ).

100% SUBMITTAL

NOT FOR CONSTRUCTION

AUGUST 21, 2023



HDR Engineering, Inc. 9805 Double R Blvd., Suite 101 Reno, Nevada 89521 775-337-4700

### SHEET NUMBER

**T100** 

<u>19</u> OF <u>36</u>

### **GENERAL NOTES**

- 1) NO WALL SHALL BE CONSTRUCTED ON AN UNSTABLE SLOPE. IF IT IS DETERMINED IN THE FIELD THAT THE EXISTING SLOPE IS NOT STABLE, THE SLOPE MI APPROVED ALTERNATE). THE CONTRACTOR IS RESPONSIBLE FOR STABILITY DURING CONSTRUCTION.
- 2) PERMANENT BMP'S SHALL BE DESIGNED AND INSTALLED TO CONVEY STORM WATER TO PROPERLY DESIGNED STORM WATER CONTROL SYSTEMS, AND PROV TO PREVENT STORM WATER RUNOFF FROM UNDERCUTTING BASE OF RETAINING WALLS.
- EROSION CONTROL MEASURES WILL REQUIRE MAINTENANCE OVER THE LIFETIME OF THE DEVELOPMENT AND SHOULD BE CONSIDERED A PRIMARY MAINTENA
- CONSTRUCTION OBSERVATION AND INSPECTIONS:
  - a. THE OWNER'S QUALIFIED INSPECTION FIRM SHALL VERIFY THE MATERIALS SUPPLIED BY THE CONTRACTOR MEET ALL THE REQUIREMENTS OF THE PROPER INSTALLATION OF THE SYSTEM.
  - b. THE CONTRACTOR'S FIELD CONSTRUCTION SUPERVISOR SHALL HAVE DEMONSTRATED EXPERIENCE AND BE QUALIFIED TO DIRECT ALL WORK AT THE
- 5) GENERAL DEFINITIONS:
  - c. SEGMENTED RETAINING WALL UNITS: DRY-STACKED COLUMN OF CONCRETE UNITS THAT CREATE THE MASS OF A CONVENTIONAL SEGMENTED RET AND RW-3.
  - d. UNIT DRAINAGE FILL: FREE-DRAINING, COARSE GRAINED AGGREGATES PLACED IN THE CORES AND BETWEEN THE SRW UNITS EXTENDING A MINIMU OF THE SRW UNITS . REFER TO TABLE 1 FOR GRADATION REQUIREMENTS). UNIT DRAINAGE FILL SHALL BE FREE OF ORGANIC, CLAY, OR OTHER DELE
  - REINFORCED SOIL: COMPACTED SOIL (REFER TO TABLE 3) CONFINED BY/BETWEEN GEOGRID REINFORCEMENT APPLICABLE TO REINFORCED SRW e. TREATED AS A SINGLE HOMOGENOUS ZONE CONTRIBUTING TO THE MASS AND WIDTH OF THE STRUCTURE; THEREFORE, 100% COVERAGE FOR EACH RW-2 AND RW-3 FOR ADDITIONAL INFORMATION.
  - EMBEDMENT TRENCH: TRENCH EXCAVATED AT BASE OF RETAINING WALL FOR LEVELING PAD CONSTRUCTION.
  - LEVELING PAD: LEVEL SURFACE CONSTRUCTED USING COMPACTED TYPE 2, CLASS B AGGREGATE BASE (2012 STANDARD SPECIFICATIONS FOR PU THE WEIGHT OF THE DRY-STACKED COLUMN OF SRW UNITS OVER A WIDER FOUNDATION AREA AND PROVIDE WORKING SURFACE DURING CONSTRUC
  - h. FOUNDATION SOIL: SOIL MASS DIRECTLY UNDERLYING THE RETAINING WALL SECTION.
  - i. WALL EMBEDMENT : DEPTH OF SRW BELOW THE FINISHED GRADE ELEVATION. THE EMBEDMENT DEPTH SHALL BE A MINIMUM OF 2 FEET FOR FROST
  - EXPOSED HEIGHT: PORTION OF SRW ABOVE THE FINISHED GRADE ELEVATION
  - k. TOTAL WALL HEIGHT: WALL EMBEDMENT + EXPOSED HEIGHT

### **CONSTRUCTION NOTES**

- 6) EMBEDMENT TRENCH CONSTRUCTION SHALL INCLUDE:
  - a. SUBGRADE SOILS SHALL BE PREPARED IN ACCORDANCE WITH THE PROJECT GEOTECHNICAL INVESTIGATION REPORT
  - b. REMEDIAL EARTHWORK (IF REQUIRED) SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT GEOTECHNICAL INVESTIGATION REPORT.
- 8) LEVELING PAD CONSTRUCTION SHALL INCLUDE
  - a. A MINIMUM 6 IN. THICK LAYER OF COMPACTED TYPE 2, CLASS B AGGREGATE BASE (SSPWC) COMPACTED TO AT LEAST 95% RELATIVE COMPACTION LEVEL BEARING PAD ON WHICH TO PLACE THE FIRST COURSE OF CONCRETE SRW UNITS.
  - b. THE LEVELING PAD SHALL EXTEND LATERALLY A MINIMUM OF 6 INCHES IN FRONT OF AND BEHIND THE SRW.

9) SEGMENTED RETAINING WALL (SWR) PLACEMENT

- a. ALL MATERIALS SHALL BE INSTALLED AT THE PROPER ELEVATION AND ORIENTATION AS SHOWN IN THE WALL DETAILS ON THE CONSTRUCTION PLAN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. THE DRAWINGS SHALL GOVERN IN ANY CONFLICT BETWEEN THE TWO REQ "SEGMENTAL RETAINING WALL INSTALLATION GUIDE" AND SEGMENTAL RETAINING WALL UNIT MANUFACTURER'S WRITTEN INSTRUCTIONS.
- b. UNITS WITH CHIPPED, DAMAGED, SPALLING, OR STAINED FACES SHALL NOT BE PLACED IN THE RETAINING WALL
- FIRST COURSE OF UNITS SHALL BE PLACED ON THE LEVELING PAD AT THE APPROPRIATE LINE AND GRADE. ALIGNMENT AND LEVEL SHALL BE CHEC ARE IN FULL CONTACT WITH THE LEVELING COURSE AND PROPERLY SEATED.
- d. TAMP UNITS INTO BASE LEVELING PAD AS NECESSARY TO BRING TOPS OF UNITS INTO A LEVEL PLANE. PLACE UNITS FOR FULL LENGTH OF WALL. PROPERLY ALIGNED AND LEVEL.
- e. FOR SUBSEQUENT UNITS, REMOVE EXCESS FILL AND DEBRIS FROM TOP OF UNITS IN COURSE BELOW. PLACE UNITS IN FIRM CONTACT, PROPERLY AL
- PLACE THE FRONT OF THE BLOCKS SIDE-BY-SIDE. DO NOT LEAVE GAPS BETWEEN ADJACENT UNITS. LAYOUT OF CORNERS AND CURVES **RECOMMENDATIONS.**
- c. INSTALL SHEAR/CONNECTING DEVICES PER MANUFACTURER'S RECOMMENDATIONS. VERTICAL SETBACK SHALL MEET THE REQUIREMENTS ON THE DE
- d. MAXIMUM HORIZONTAL GAP BETWEEN ERECTED UNITS SHALL BE ≤ 1/2 INCH (13 MM).
- e. PLACE AND COMPACT DRAINAGE FILL WITHIN AND BEHIND WALL UNITS. PLACE AND COMPACT BACKFILL SOIL BEHIND DRAINAGE FILL. FOLLOW STRUCTURE BACKFILL.
- f. PRIOR TO PLACEMENT AND COMPACTION OF UNIT DRAINAGE FILL, BACKFILL MAXIMUM STACKED VERTICAL HEIGHT OF SRW UNITS SHALL NOT EXCEI 10) SRW UNIT SHEAR CONNECTORS (FIBERGLASS REINFORCEMENT PINS):
  - a. PINS SHALL BE CAPABLE OF HOLDING THE GEOGRID IN THE PROPER DESIGN POSITION.
  - b. REINFORCEMENT PINS SHALL BE 1/2-INCH (12 MM) DIAMETER THERMOSET ISOPTHALIC POLYESTER RESIN PULTRUDED FIBERGLASS REINFORCEMEN
  - c. FLEXURAL STRENGTH IN ACCORDANCE WITH ASTM D4476: 128,000 PSI (882 MPA) MINIMUM.
  - d. SHORT BEAM SHEAR IN ACCORDANCE WITH ASTM D4475: 6,400 PSI (44 MPA) MINIMUM
- 11) UNIT DRAINAGE FILL AND BACK-OF-WALL DRAINAGE:
  - a. UNIT DRAINAGE FILL SHALL MEET THE REQUIREMENTS OF TABLE 1 AND BE A MINIMUM ONE CUBIC FOOT OF DRAINAGE FILL FOR EACH SQUARE FOOT b. BACK-OF-WALL DRAINS (WHERE DETAILED) SHALL CONSIST OF 4" DIAMETER SLOTTED OR PERFORATED PVC DRAIN PIPE OR APPROVED ALTERNATE. THE DRAIN PIPE SHALL BE INSTALLED IN GENERAL
  - ACCORDANCE WITH THE MANUFACTURERS' RECOMMENDATIONS AND SLOPED AT LEAST 1% TO DRAIN TO DAYLIGHT SECTION. ALL DRAINAGE PIPES SHALL BE DAYLIGHTED, IN NO CASE SHALL A BACK-DRAIN DEAD-END INTO THE BACK OF WALL.
  - c. DAYLIGHTED DRAINAGE LATERALS SHALL BE SPACED AT MAXIMUM 50 FT SPACING ALONG THE WALL FACE. A RODENT GRADE SHALL BE USED ON ALL DAYLIGHTED PIPE ENDS.
  - d. A SEPARATION GEOTEXTILE SHALL BE PLACED BETWEEN THE RETAINED BACKFILL AND/OR REINFORCED SOIL AND DRAIN ROCK INTERFACE. THE GEOTEXTILE SHALL BE NON-WOVEN MEETING THE REQUIREMENTS OF TABLE 2 (SEPARATION GEOTEXTILE MINIMUM STRENGTH AND HYDRAULIC PROPERTIES).

12) REINFORCED SOIL BACKFILL SHALL MEET THE SPECIFICATIONS OF TABLE 3. PLACEMENT OF REINFORCED SOIL AND RETAINED BACKFILL SHALL

- a. BE IN COMPACT LIFTS SUCH THAT DISTURBANCE OF THE SRW ALIGNMENT DOES NOT OCCUR. OVER-COMPACTION OF RETAINED BACKFILL DURING RETAINING WALL CONSTRUCTION SHALL BE AVOIDED. HEAVY CONSTRUCTION EQUIPMENT SHALL NOT BE USED FOR PLACING AND/OR COMPACTING BACKFILL ADJACENT TO THE RETAINING WALL, AND SHOULD BE KEPT A MINIMUM OF THREE FEET OR AT A DISTANCE DETERMINED BY A 1H:1V SLOPE AWAY FROM THE BASE OF THE WALL, WHICHEVER IS GREATER.
- REINFORCED SOIL SHALL BE PLACED, SPREAD AND COMPACTED IN SUCH A MANNER THAT MINIMIZES THE DEVELOPMENT OF SLACK IN THE GEOGRID AND INSTALLATION DAMAGE. b.
- REINFORCED SOIL AND RETAINED BACKFILL SHALL BE PLACED AND COMPACTED IN LIFTS NOT TO EXCEED 6 INCHES WHERE HAND COMPACTION IS USED, OR 8 10 INCHES WHERE HEAVIER COMPACTION EQUIPMENT IS USED. LIFT THICKNESS SHALL BE FIELD ADJUSTED TO ENSURE DENSIFICATION IS REALIZED THROUGHOUT THE ENTIRE LIFT THICKNESS.ONLY LIGHTWEIGHT HAND-OPERATED EQUIPMENT SHALL BE ALLOWED WITHIN 3 FEET FROM THE TAIL THE MODULAR CONCRETE UNITS.
- REINFORCED SOIL AND RETAINED BACKFILL SHALL BE COMPACTED TO AT LEAST 90% RELATIVE COMPACTION BASED ON ASTM D1557. MOISTURE CONDITIONING PRIOR TO PLACEMENT IS RECOMMENDED TO ENSURE THE MOISTURE CONTENT OF THE BACKFILL MATERIAL IS UNIFORMLY DISTRIBUTED THROUGHOUT EACH LAYER AT ±2% OF OPTIMUM.
- e. CONSTRUCTION EQUIPMENT SHALL NOT BE OPERATED DIRECTLY THE GEOGRID REINFORCEMENT. A MINIMUM FILL THICKNESS OF 6 INCHES IS REQUIRED PRIOR TO THE USE OF CONSTRUCTION VEHICLES OVER THE GEOGRID. VEHICLE TURNING SHALL BE KEPT TO A MINIMUM TO PREVENT DISPLACEMENT THE FILL AND DAMAGE TO THE GEOGRID.
- f. AT THE END OF EACH DAY'S OPERATION, THE CONTRACTOR SHALL SLOPE THE LAST LIFT OF REINFORCED SOIL AND RETAINED BACKFILL AWAY FROM THE WALL UNITS TO DIRECT RUNOFF AWAY FROM

	WALL FACE. THE CONTRACTOR SHALL NOT ALLOW SURFACE RUNG	OFF FROM ADJACENT AREAS TO ENTER THE W	VALL CONSTRUCTION SITE.					
MUST FIRST BE STABILIZED (I.E. MSE, SOIL NAILING OR	13) CAP BLOCK PLACEMENT							
OVIDE EROSION PROTECTION AT THE TOE OF THE WALL	<ul> <li>THE CAP BLOCK AND/OR TOP SRW UNIT SHALL BE BONDED TO (HTTPS://SRWPRODUCTS.COM/PRODUCTS/ADHESIVES/SUPERIOR-S PLACEMENT.</li> </ul>							
	14) REFER TO THE PROJECT GEOTECHNICAL INVESTIGATION REPORT (CME, 202	23) FOR ADDITIONAL SITE PREPARATION AND	FILL PLACEMENT RECOMMENDATIONS.					
ENANCE OBJECTIVE.	15) GEOGRID INSTALLATION (REFER TO SHEETS RW-2 AND RW-3 FOR ADDITION							
	a. SHALL BE PERFORMED IN GENERAL ACCORDANCE WITH THE MANU	·	N-					
HE SPECIFICATION. THIS INCLUDES ALL SUBMITTALS AND	<ul> <li>b. GEOGRID SHALL BE ORIENTED WITH THE HIGHEST STRENGTH AXIS</li> </ul>		ν.					
THE SITE.								
	c. GEOGRID REINFORCEMENT SHALL BE PLACED AT THE STRENGTHS	,						
RETAINING WALL (SRW). REFER TO DETAIL SHEETS RW-2	d. THE GEOGRID SHALL BE LAID HORIZONTALLY ON COMPACTED BAC THE GEOGRID SHALL BE PULLED TAUT AND ANCHORED PRIOR TO E	BACKFILL PLACEMENT ON THE GEOGRID.						
MUM LATERAL DISTANCE OF 12-INCHES BEHIND THE TAIL								
f. PLACE SOIL REINFORCEMENT IN HORIZONTAL JOINTS OF RETAINING WALL WHERE INDICATED AND ACCORDING TO SOIL-REINFORCEMENT MANUFACTURER'S WRITTEN INSTRUCTIONS.				RER'S WRITTEN INSTRUCTIONS.				
RW SYSTEMS. SRW UNITS AND REINFORCED SOILS ARE ACH REINFORCED LAYER IS REQUIRED. REFER TO SHEET	g. EMBED REINFORCEMENT WITHIN SRW UNITS PER MANUFACTUR MANUFACTURERS' RECOMMENDATIONS BEFORE PLACING FILL.	ER RECOMMENDATIONS AND STRETCH TIGH	HT OVER COMPACTED BACKFILL. ANC	HOR SOIL REINFORCEMENT TO SRW PER BLOCK				
	h. PLACE ADDITIONAL SOIL REINFORCEMENT AT CORNERS AND CURV IN THESE ZONES MAY RESULT IN UNSATISFACTORY PERFORMANCE		NFORCEMENT REFER TO DETAILS ON SH	EET RW-2. FAILURE TO PROPERLY PLACE GEOGRID				
PUBLIC WORKS CONSTRUCTION), USED TO DISTRIBUTE RUCTION.	16) RECOMMENDED SPECIAL INSPECTION REQUIREMENTS:							
	h. EMBEDMENT TRENCH AND LEVELING PAD: PERIODIC, INCLUDES FIE	LD DENSITY TESTING OF BOTH PREPARED SL	JBGRADE AND LEVELING PAD.					
ST PROTECTION.	i. DRAIN INSTALLATION: PERIODIC VISUAL OBSERVATION							
ST PROTECTION.	j. GENERAL WALL CONSTRUCTION, DRAINAGE FILL, AND COMPACTIO	N OF BACKFILL: CONTINUOUS FOR GEOGRID F	REINFORCED WALLS, PERIODIC OBSERV	ATION FOR GRAVITY WALLS.				
	17) RELATIVE DENSITY AND MOISTURE CONTENT REQUIREMENTS FOR PLACEN	TIVE DENSITY AND MOISTURE CONTENT REQUIREMENTS FOR PLACEMENT OF THE LEVELING PAD AND REINFORCED SOIL AND RETAINED BACKFILL IS INCLUDED IN TABLE 4 ON SHEET RW-1						
	18) CME'S RETAINING WALL DESIGN INCLUDES A SNOW LOAD OF 31 PSF. DESIGN TOTAL WALL HEIGHT. ALTERNATIVELY, IF FOUNDATION LOADS ARE NOT S RETAINING WALL. THE "ZONE OF INFLUENCE" SHALL BE APPROXIMATED STRUCTURE FOUNDATION (E.G., "ZONE OF INFLUENCE"). IF THIS ASSUMPTIC	SUFFICIENTLY OFFSET , BUILDING FOUNDATIO BY A 1 VERTICAL BY 1 HORIZONTAL (1V:1)	ONS SHALL BE DEEPENED TO REMOVE H) PROJECTION LINE (DOWNWARD ANE	LOADING FROM THE ZONE OF INFLUENCE OF THE O OUTWARD) FROM THE EXTERIOR EDGE OF THE				
	19) SRW UNIT COLOR AND FINISH SHALL CONFORM TO THE PROJECT SPECIFIC	ATIONS.						
	20) IF A CONFLICT IN THE PROJECT SPECIFICATIONS AND THE SRW PLAN		ISTRUCTION MATERIALS ENGINEERS. I	NC. TO PROVIDE ADDITIONAL GUIDANCE AND/OR				
	RECOMMENDATIONS.							
ON. THE RESULTING LEVELING COURSE SHALL BE FIRM,		TABLE 1 : GRADATION REQUIREMENTS FOR	R UNIT DRAINAGE FILL					
	SIEVE SIZE		PERCENT	PASSING				
	1 IN			00				
	3/4 IN			-100				
ANS. THE SRW UNITS SHALL BE INSTALLED IN GENERAL	NO. 4			-60				
EQUIREMENTS. PLACE UNITS ACCORDING TO NCMA'S	NO. 40			-50				
	NO. 200		0	-5				
ECKED IN ALL DIRECTIONS TO ENSURE THAT ALL UNITS	* SEE GENERAL NOTES 5d, SHEET RW-2 AND RW-3 FOR ADDITION	AL INFORMATION						
IEGNED IN ALL DIRECTIONS TO ENSURE THAT ALL UNITS	TABLE 2	: SEPARATION GEOTEXTILE MINIMUM STRENG	GTH AND HYDRAULIC PROPERTIES					
LL. PLACE UNITS IN FIRM CONTACT WITH EACH OTHER,	TRAPEZOID TEAR STRENGTH (ASTM I	) 4533)	80	LBS				
,,, ,	PUNCTURE STRENGTH (ASTM D 4	833)	80 LBS					
ALIGNED AND DIRECTLY ON COURSE BELOW.	GRAB STRENGTH (ASTM D 4632	)	200	LBS				
S SHALL BE IN ACCORDANCE WITH MANUFACTURER'S	BURST STRENGTH (ASTM D 3786	زز	250	) PSI				
	MINIMUM PERMITTIVITY (ASTM D 4	491)	>0.2	SEC				
DETAIL SHEETS.	APPARENT OPENING SIZE (ASTM D	4751)	<0.2	5 MM				
		TABLE 3: SPECIFICATIONS FOR REINFOR						
W WALL ERECTION AND DRAINAGE FILL CLOSELY WITH	SIEVE SIZE							
	4-INCH			00				
CEED THREE COURSES OR 4 FEET, WHICHEVER IS LESS.	2.5 INCH			00				
	NO. 40			-50				
	NO. 200							
ENT PINS WITH THE FOLLOWING REQUIREMENTS:			ANGLE (%)					
	45	34°		25				
	ASTM TEST METHODS D6913, D4318, D3080							
		TABLE 4 : MINIMUM RELATIVE DENSITY REQU	IREMENTS (ASTM D1557)					
	MATERIAL TYPE	MATERIAL SPECIFICATION	MINIMUM RELATIVE DENSITY	ACCEPTABLE MOISTURE CONTENTS				
OOT OF WALL FACE.	LEVELING COURSE TYPE 2, CLASS	B AGGREGATE BASE (SECTION 200.00-1 OF	95%	±2 % OF OPTIMUM				
		2012 SSPWC)	0070					

	TABLE 4 : MINIMUM RELATIVE DENSITY F
MATERIAL TYPE	MATERIAL SPECIFICATION
LEVELING COURSE	TYPE 2, CLASS B AGGREGATE BASE (SECTION 200.00-1 ( 2012 SSPWC)
REINFORCED SOIL	REFER TO TABLE 3 (SHEET RW-1)
RETAINED BACKFILL	IN-PLACE NATIVE ONSITE SOIL/BEDROCK

GENERAL GUIDANCE FOR TEMPORARY CUT SLOPES [OSHA PART 1926, VOLUME 54, NUMBER 209 OF THE SOIL OR DESCRIPTION ROCK TYPE NATURAL SOLID MINERAL MATTER THAT CAN BE EXCAVATED WITH VERTICAL SIDES AND REMAIN INTACT WHILE EXPOSED. IT IS USUALL STABLE SANDSTONE. DETERMINING WHETHER A DEPOSIT IS OF THIS TYPE MAY BE DIFFICULT UNLESS IT IS KNOWN WHETHER CRACKS EXIST A BEDROCK FROM THE EXCAVATION. COHESIVE SOILS WITH AN UNCONFINED COMPRESSIVE STRENGTH OF 1.5 TONS PER SQUARE FOOT (TSF) (144 KPA) OR GREATER. EXAM SILTY CLAY, SANDY CLAY, CLAY LOAM AND, IN SOME CASES, SILTY CLAY LOAM AND SANDY CLAY LOAM. (NO SOIL IS TYPE A IF IT IS FISSI TYPE A PREVIOUSLY BEEN DISTURBED, IS PART OF A SLOPED, LAYERED SYSTEM WHERE THE LAYERS DIP INTO THE EXCAVATION ON A SLOPE HAS SEEPING WATER.

COHESIVE SOILS WITH AN UNCONFINED COMPRESSIVE STRENGTH GREATER THAN 0.5 TSF (48 KPA) BUT LESS THAN 1.5 TSF (144 KPA). GRAVEL; SILT; SILT LOAM; PREVIOUSLY DISTURBED SOILS UNLESS OTHERWISE CLASSIFIED AS TYPE C; SOILS THAT MEET THE UNCONF TYPE B REQUIREMENTS OF TYPE A SOILS BUT ARE FISSURED OR SUBJECT TO VIBRATION; DRY UNSTABLE ROCK; AND LAYERED SYSTEMS SLOI

(ONLY IF THE MATERIAL WOULD BE CLASSIFIED AS A TYPE B SOIL). COHESIVE SOILS WITH AN UNCONFINED COMPRESSIVE STRENGTH OF 0.5 TSF (48 KPA) OR LESS. OTHER TYPE C SOILS INCLUDE GRAN SUBMERGED SOIL, SOIL FROM WHICH WATER IS FREELY SEEPING, AND SUBMERGED ROCK THAT IS NOT STABLE. ALSO INCLUDED IN TH LAYERED GEOLOGICAL STRATA. 3H:2V SYSTEM WHERE THE LAYERS DIP INTO THE EXCAVATION OR HAVE A SLOPE OF FOUR HORIZONTAL TO ONE VERTICAL (4H:1V) OR GREATER. TYPE C WHERE SOILS ARE CONFIGURED IN LAYERS, I.E., WHERE A LAYERED GEOLOGIC STRUCTURE EXISTS. THE SOIL MUST BE CLASSIFIED ON THE BASIS OF THE SOIL CLASSIFICATION OF THE WEAKEST SOIL LAYER. EACH LAYER MAY BE CLASSIFIED INDIVIDUALLY IF A MORE STABLE LAYER LIES BELOW A LESS STABLE LAYER, I.E., WHERE A TYPE C SOIL RESTS ON TOP OF STABLE ROCK.

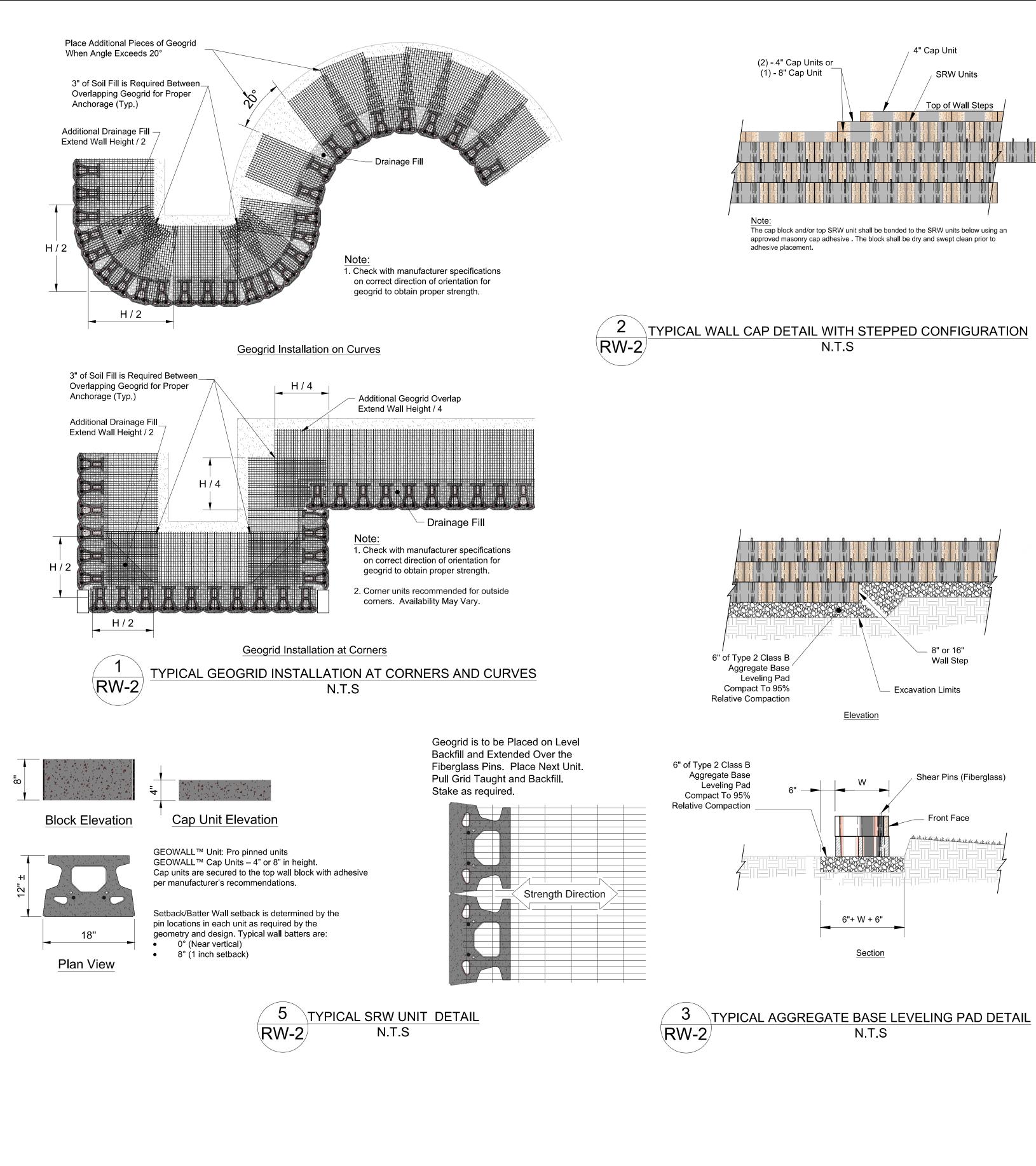
\* REFER TO PROJECT GEOTECHNICAL INVESTIGATION REPORT FOR ADDITIONAL INFORMAITON

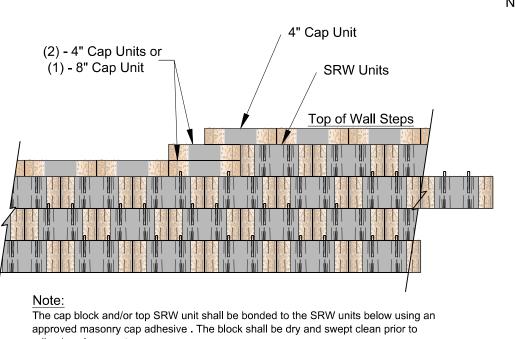
Л	95%	±2 % OF OPTIMUM					F
	90%			±2 % OF	OPTIMUM		
	90% {**REQUIRED FOR FILL ONLY**}			±2 % OF	OPTIMUM		
FE	EDERAL REGISTER (TABLE B-1, OCTOBER	31, 1989)]					
		A		MUM VABLE RY SLOPE			
	IDENTIFIED BY A ROCK NAME SUCH AS GRANITE OR D WHETHER OR NOT THE CRACKS RUN INTO OR AWAY	Vert	ical	90°	Stella A. Digitally signed by Stella A. Hardy Date: 2023.04.03		
SUI	PLES OF TYPE A COHESIVE SOILS ARE OFTEN: CLAY, RED, IS SUBJECT TO VIBRATION OF ANY TYPE, HAS F 4 HORIZONTAL TO 1 VERTICAL (4H:1V) OR GREATER,	OR 3H:	4V	53°	Hardy 08:33:33 -07'00'		
IFIN	AMPLES OF OTHER TYPE B SOILS ARE: ANGULAR IED COMPRESSIVE STRENGTH OR CEMENTATION NG INTO THE TRENCH AT A SLOPE LESS THAN 4H:1V	1H:	1V	45°	STELLA A. HARDY Etc. 96/80/2023	•	
	AR SOILS SUCH AS GRAVEL, SAND AND LOAMY SAND S CLASSIFICATION IS MATERIAL IN A SLOPED, LAYEREI				THE ALL HOUSE	1	

34°

DATE SIGNED: 04/03/202

SHEET

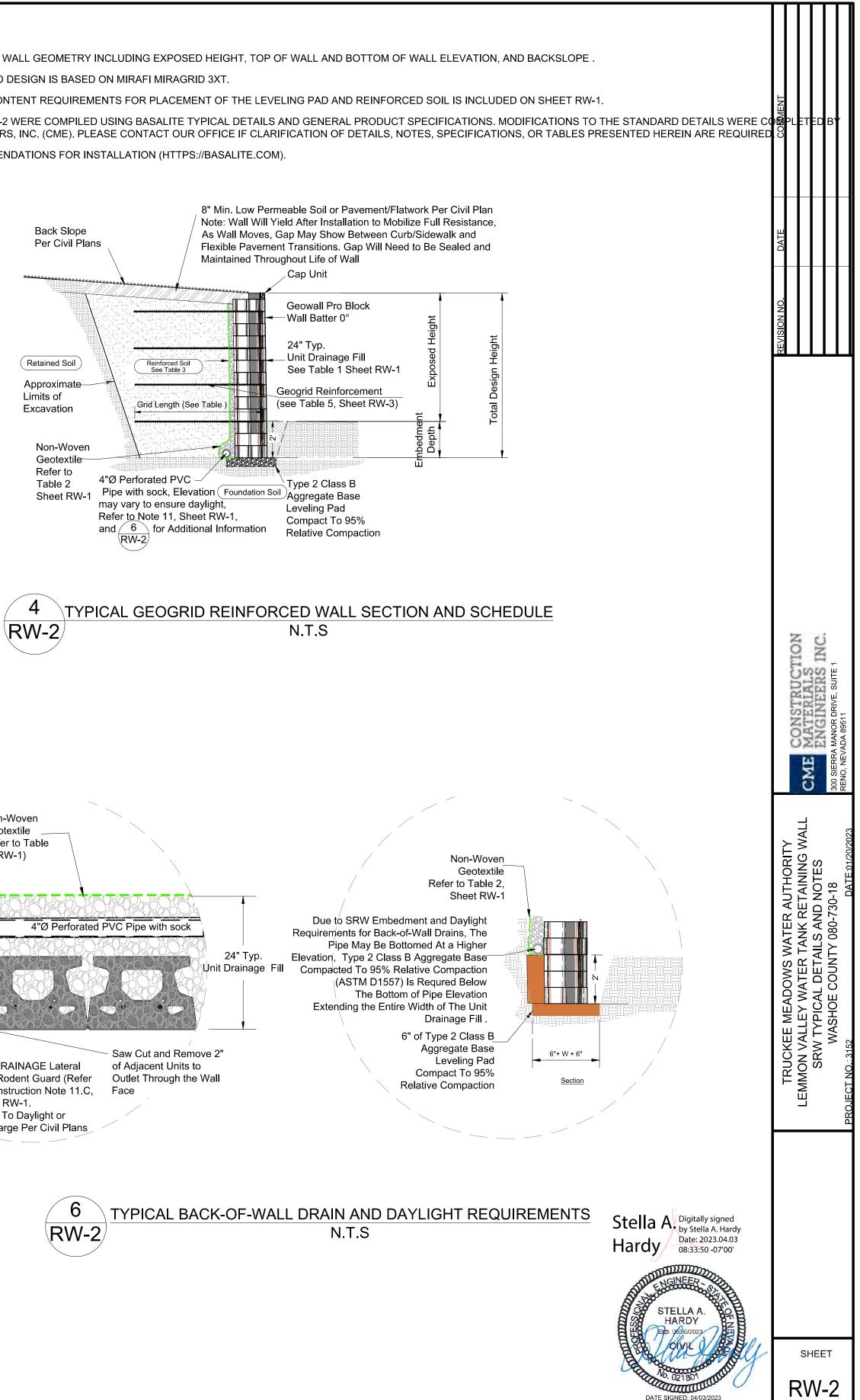


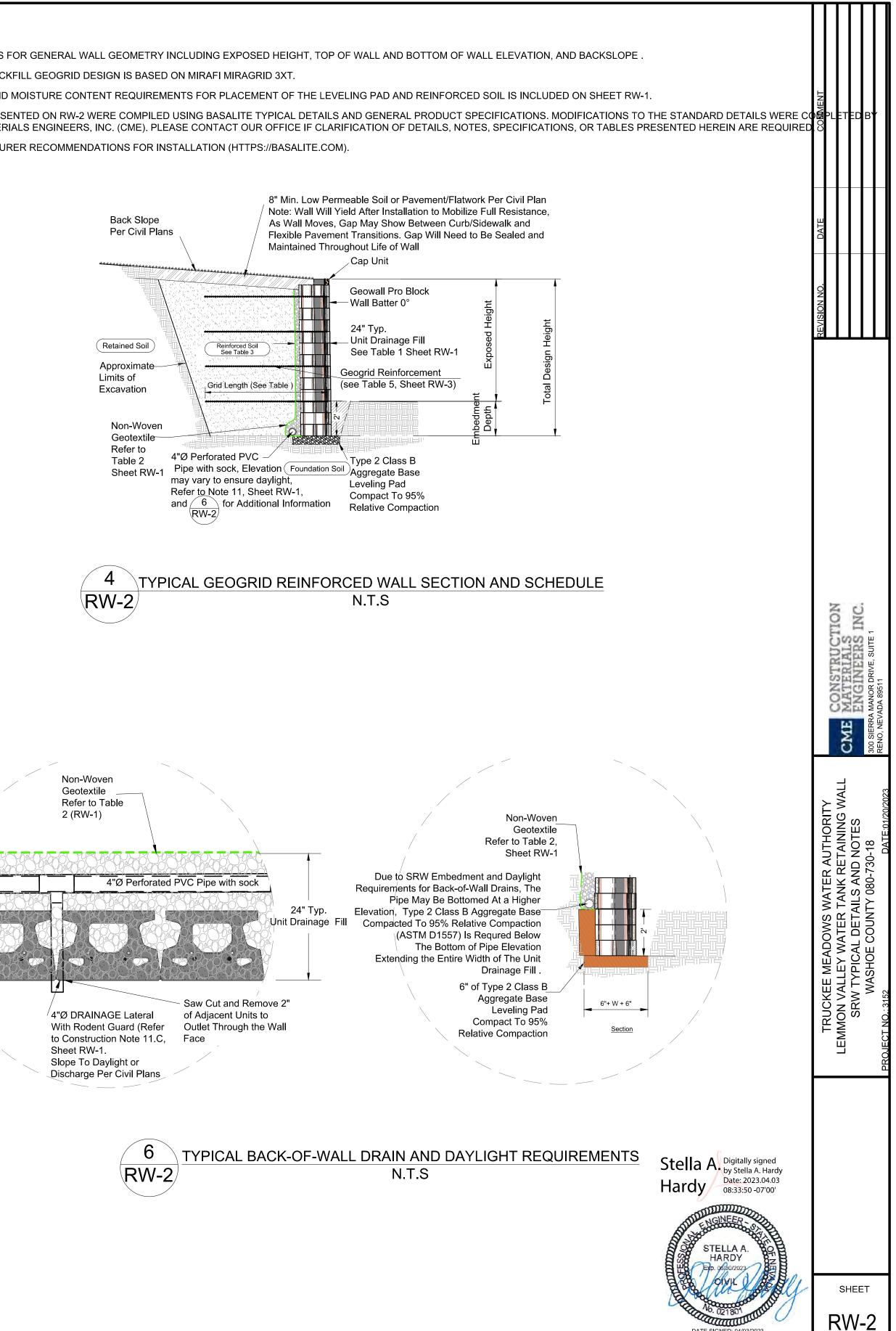


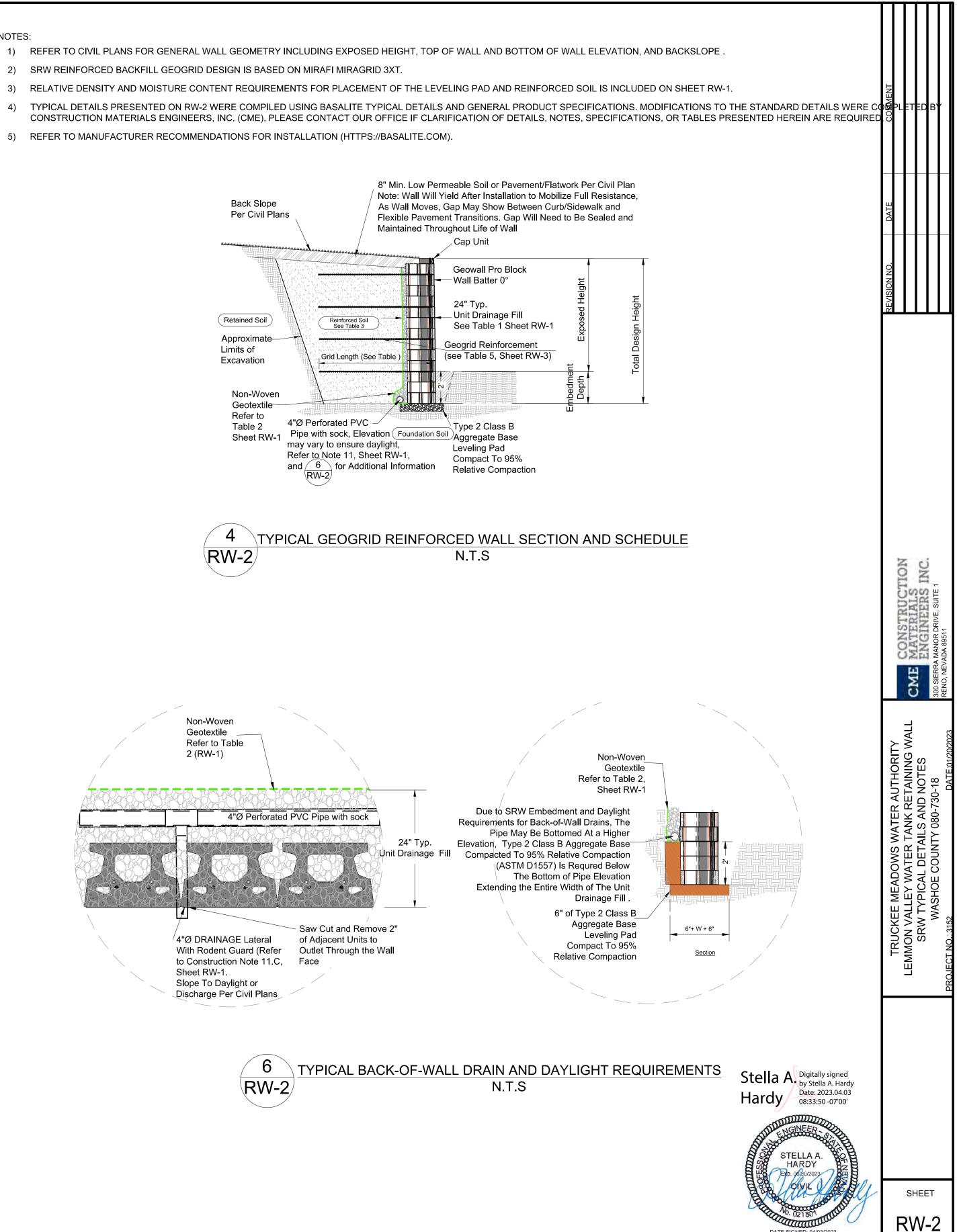


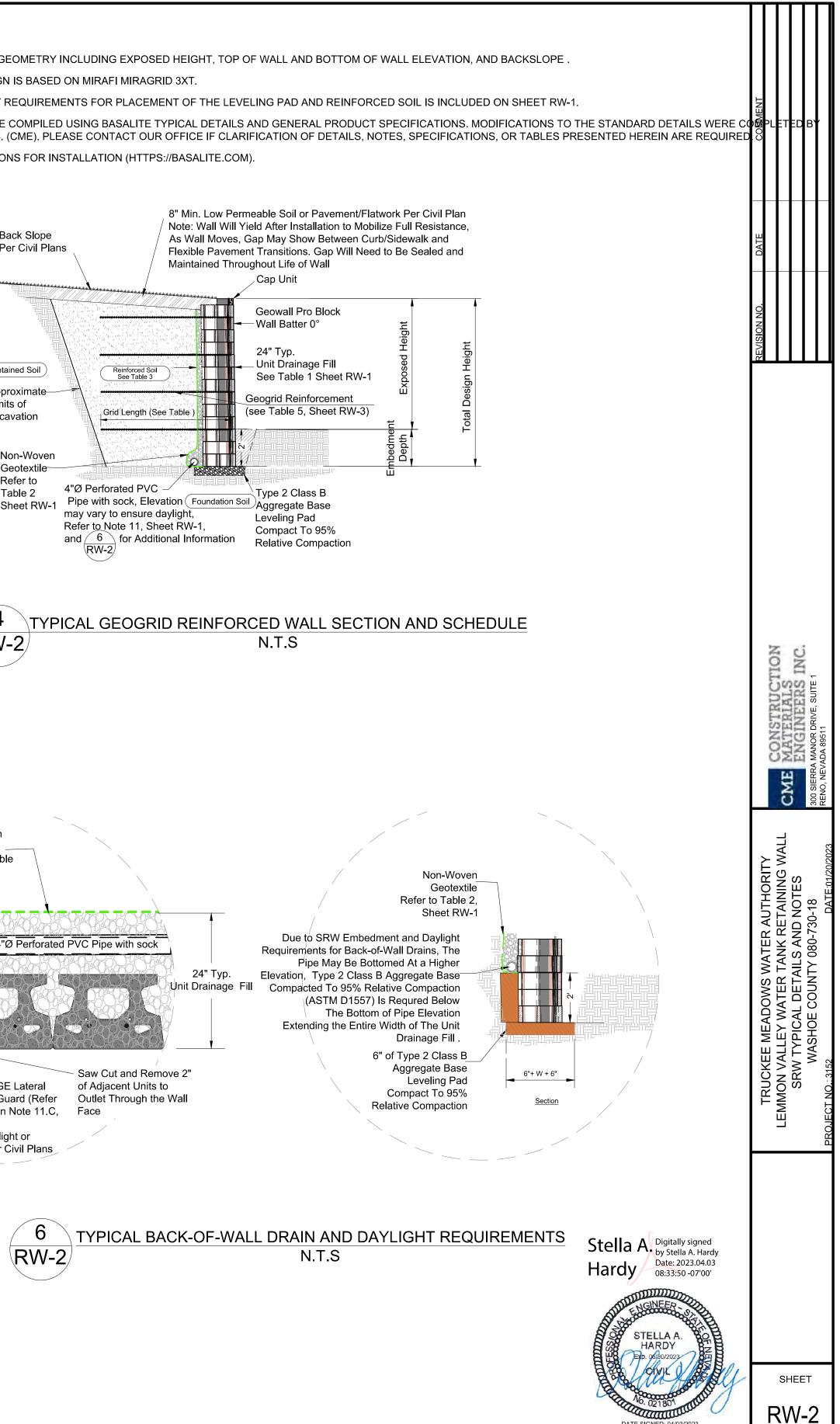
- SRW REINFORCED BACKFILL GEOGRID DESIGN IS BASED ON MIRAFI MIRAGRID 3XT

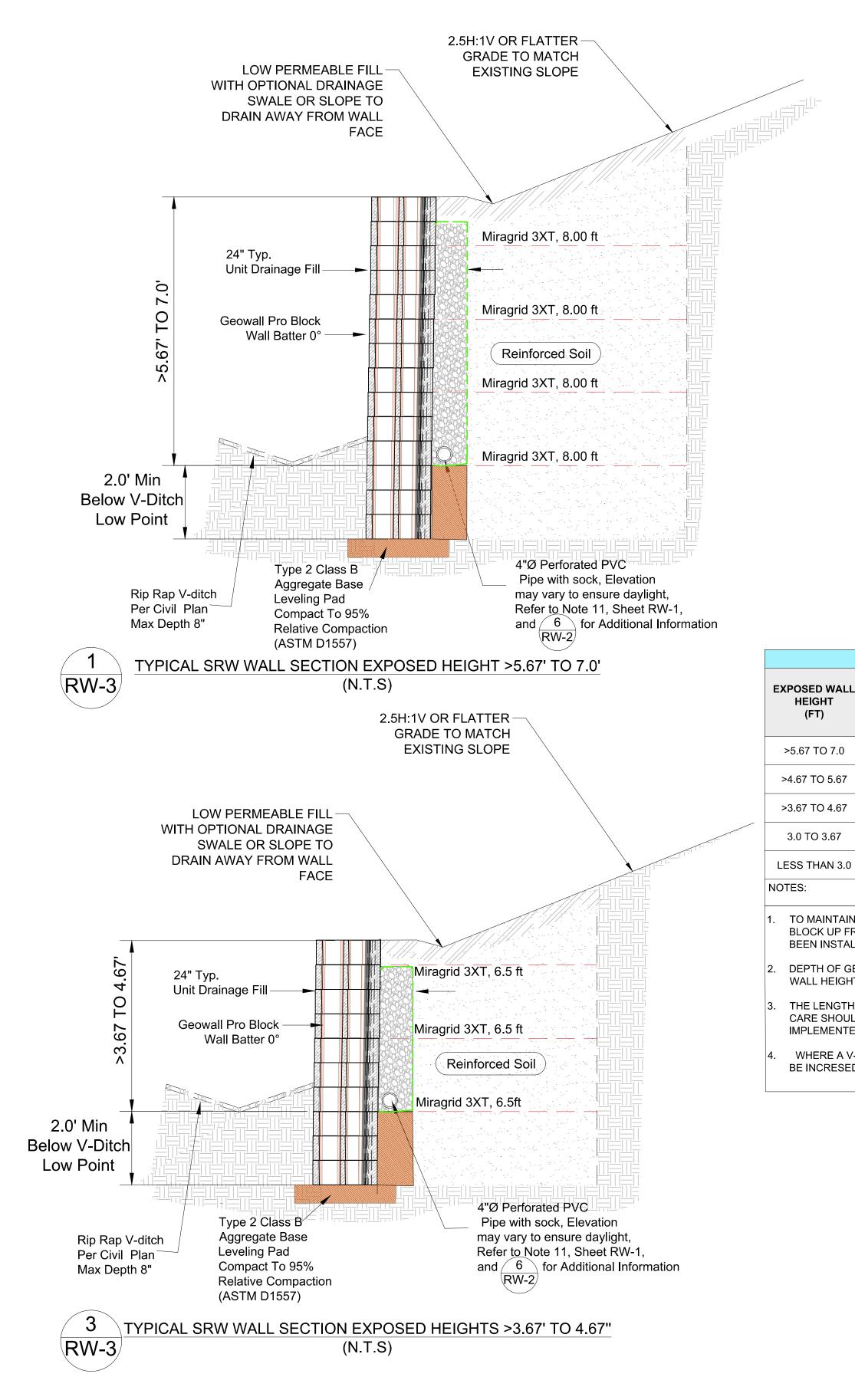
- 5) REFER TO MANUFACTURER RECOMMENDATIONS FOR INSTALLATION (HTTPS://BASALITE.COM).











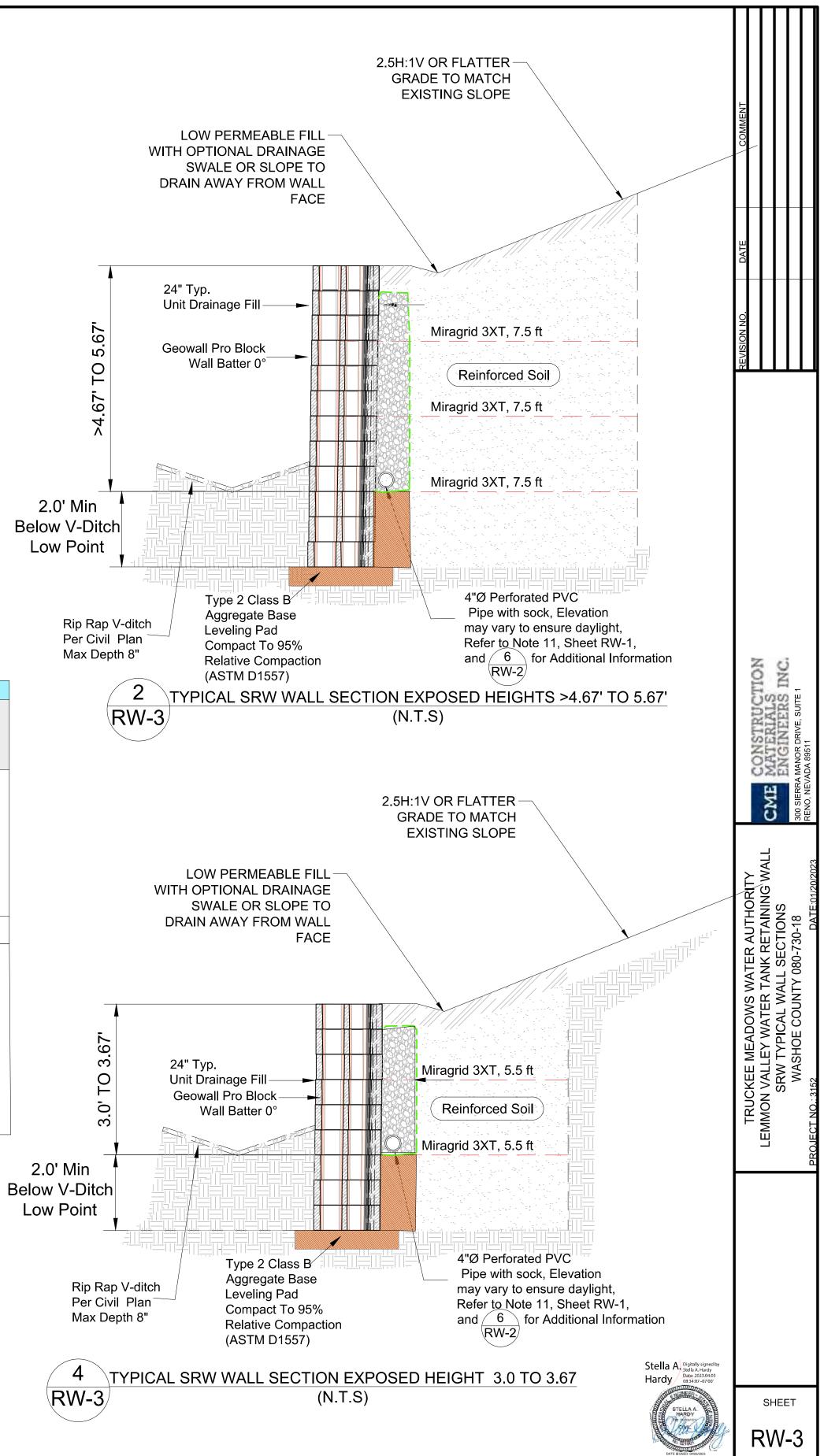
GEOGRID

VERTICAL

SPACING

(FT)

**GRID TYPE** 



### GEOGRID LAYER ELEVATIONS MINIMUM NUMBER OF GEOGRID BACKSLOPE GEOGRID FROM TOP OF EMBEDMENT ANGLE LEVELING PAD LAYERS LENGTH (FT) (FT)

 TABLE 5: GEOGRID REINFORCEMENT SCHEDULE

TOTAL WALL

HEIGHT

INCLUDING

EMBEDMENT

(FT)

>8.3 TO 9.67	FLATTER	4	2.0, 4.0, 6.0, 8.0	8.0		
>7.3 TO 8.3	2.5H:1V OR FLATTER	3	2.0, 4.0, 6.0	7.5		
>6.3 TO 7.3	2.5H:1V OR FLATTER	3	2.0, 4.0, 6.0	6.5	MIRAFI 3XT	2.0
5.67 TO 6.3	2.5H:1V OR FLATTER	2	2.0, 4.0	5.5		
LESS THAN 5.67	2.5H:1V OR FLATTER	1	2.0	4.5		
-	>7.3 TO 8.3 >6.3 TO 7.3 5.67 TO 6.3	>8.3 TO 9.67         FLATTER           >7.3 TO 8.3         2.5H:1V OR FLATTER           >6.3 TO 7.3         2.5H:1V OR FLATTER           5.67 TO 6.3         2.5H:1V OR FLATTER           LESS THAN 5.67         2.5H:1V OR	>8.3 TO 9.67       FLATTER       4         >7.3 TO 8.3       2.5H:1V OR FLATTER       3         >6.3 TO 7.3       2.5H:1V OR FLATTER       3         5.67 TO 6.3       2.5H:1V OR FLATTER       2         LESS THAN 5.67       2.5H:1V OR       1	>8.3 TO 9.67       FLATTER       4       2.0, 4.0, 6.0, 8.0         >7.3 TO 8.3       2.5H:1V OR FLATTER       3       2.0, 4.0, 6.0         >6.3 TO 7.3       2.5H:1V OR FLATTER       3       2.0, 4.0, 6.0         >6.3 TO 7.3       2.5H:1V OR FLATTER       3       2.0, 4.0, 6.0         5.67 TO 6.3       2.5H:1V OR FLATTER       2       2.0, 4.0         LESS THAN 5.67       2.5H:1V OR       1       2.0	>8.3 10 9.67       FLATTER       4       2.0, 4.0, 6.0, 8.0       8.0         >7.3 TO 8.3       2.5H:1V OR FLATTER       3       2.0, 4.0, 6.0       7.5         >6.3 TO 7.3       2.5H:1V OR FLATTER       3       2.0, 4.0, 6.0       6.5         5.67 TO 6.3       2.5H:1V OR FLATTER       2       2.0, 4.0       5.5         LESS THAN 5.67       2.5H:1V OR       1       2.0       4.5	>8.3 TO 9.67         FLATTER         4         2.0, 4.0, 6.0, 8.0         8.0           >7.3 TO 8.3         2.5H:1V OR FLATTER         3         2.0, 4.0, 6.0         7.5           >6.3 TO 7.3         2.5H:1V OR FLATTER         3         2.0, 4.0, 6.0         6.5           >6.3 TO 7.3         2.5H:1V OR FLATTER         3         2.0, 4.0, 6.0         6.5           5.67 TO 6.3         2.5H:1V OR FLATTER         2         2.0, 4.0         5.5           LESS THAN 5.67         2.5H:1V OR         1         2.0         4.5

TO MAINTAIN 100% LAYER COVERAGE FOR GEOGRID PLACEMENT, 1ST LAYER OF GEOGRID MUST BE PLACED AT THE TOP INTERFACE OF THE 3RD BLOCK UP FROM THE LEVELING COURSE AND CONTINUE AT 2 FOOT VERTICAL INTERVAL SPACINGS UNTIL THE TOTAL NUMBER OF LAYERS HAVE BEEN INSTALLED.

DEPTH OF GEOGRID EMBEDMENT WILL VARY BASED ON TOP OF WALL ELEVATION AND BLOCK SIZE. CALCULATIONS SUPPORT MAXIMUM EXPOSED WALL HEIGHT OF UP TO 7.0 FEET

THE LENGTH OF GEOGRID REINFORCEMENT VARIES BY WALL HEIGHT TO LIMIT THE NEED FOR UNNECESSARY CUT ALONG THE BEDROCK SLOPE. CARE SHOULD BE TAKEN DURING CONSTRUCTION TO ENSURE THE APPROPRIATE LENGTHS OF GEOGRID REINFORCEMENT HAVE BEEN IMPLEMENTED INTO THE DESIGN. IN NO CASE SHALL THE GEOGRID LENGTHS BE LESS THAN THE MINIMUM PRESENTED ON THE PLAN SET.

WHERE A V-DITCH OR SWALE WILL BE LOCATED WITHIN 5 FEET LATERALLY OF THE BASE OF THE WALL, THE DEPTH OF WALL EMBEDMENT SHALL BE INCRESED IN DEPTH EQUAL TO THE DEPTH OF THE V-DITCH OR SWALE.

### GENERAL STRUCTURAL NOTES (GSN)

	ERAL		
G1.	SCOPE THE NOTES ON THIS SHEET AND THE STANDARD STRUC AND APPLY TO THE ENTIRE PROJECT WHETHER SPECIFIC EXCEPT WHERE THERE ARE SPECIFIC INDICATIONS TO TH STRUCTURAL SHEETS. IF THERE ARE QUESTIONS, THEY STRUCTURAL ENGINEER AND ANSWERED IN WRITING PRICE	CALLY HE C( SHALL	CALLED OUT OR NOT, ONTRARY ON THE BE SUBMITTED TO THE
G2.	<ul> <li><u>APPLICABLE SPECIFICATIONS AND CODES</u></li> <li>A. 2018 INTERNATIONAL BUILDING CODE (IBC 2018) WITTHE CODE REFERENCED STANDARDS AND WITH NORT</li> <li>B. 2016 MINIMUM DESIGN LOADS AND ASSOCIATED CRITTOTHER STRUCTURE (ASCE 7–16)</li> <li>C. 2014 BUILDING CODE REQUIREMENTS FOR STRUCTURE</li> <li>D. 2016 STEEL CONSTRUCTION MANUAL, 15TH ED (AISCE)</li> <li>E. 2011 WELDED CARBON STEEL TANKS FOR WATER STRUCTURE</li> </ul>	THERN TERIA Ral C 360	I NEVADA AMENDMENTS. FOR BUILDINGS AND ONCRETE (ACI 318–14)
G3.	<ul> <li>C. WIND:</li> <li>1. ULTIMATE WIND SPEED:</li> <li>2. ALLOWABLE STRESS WIND SPEED:</li> <li>3. EXPOSURE:</li> <li>4. IMPORTANCE FACTOR:</li> <li>4. STRUCTURE IS ENCLOSED.</li> </ul>		= 15 PSF = 135 MPH = 104 MPH = C = 1.15
	<ul> <li>D. SEISMIC:</li> <li>1. WELDED CARBON STEEL WATER STORAGE TANK: <ul> <li>a. OCCUPANCY CATEGORY:</li> <li>b. IMPORTANCE FACTOR:</li> <li>c. SITE CLASS:</li> <li>d. SPECTRAL RESPONSE ACCELERATION:</li> <li>e. SPECTRAL RESPONSE ACCELERATION:</li> <li>f. SPECTRAL RESPONSE COEFFICIENT:</li> <li>g. SPECTRAL RESPONSE COEFFICIENT:</li> <li>h. SEISMIC DESIGN CATEGORY:</li> <li>i. ANALYSIS PROCEDURE:</li> </ul> </li> </ul>	SDS	= IV = 1.50 = C = 1.456 = 0.495 = 1.165 = 0.495 = D = AWWA D100
	<ul> <li>E. SNOW LOAD:</li> <li>1. GROUND SNOW LOAD:</li> <li>2. EXPOSURE FACTOR:</li> <li>3. THERMAL FACTOR:</li> <li>4. ROOF SLOPE FACTOR:</li> <li>5. IMPORTANCE FACTOR:</li> </ul>	Ce Ct Cs Is	= 31 PSF = 0.9 = 1.0 = 1.0 = 1.2

G4. <u>SAFETY</u>

SAFETY AND STRUCTURE STABILITY DURING CONSTRUCTION ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. STRUCTURES HAVE BEEN DESIGNED TO RESIST CODE FORCES AS A COMPLETED STRUCTURE. THE TANK SHELL SHALL BE SHORED AS REQUIRED TO RESIST CODE FORCES AT ALL TIMES DURING CONSTRUCTION. PROVIDE STIFFENERS AROUND ANY TEMPORARY ACCESS OPENING CUT INTO THE SHELL.

### G5. <u>SPECIAL INSPECTIONS</u>

SPECIAL INSPECTIONS ARE REQUIRED IN ACCORDANCE WITH CHAPTER 1 AND CHAPTER 17 OF THE IBC. PAYMENT FOR THESE INSPECTIONS IS NOT THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL PROVIDE FOR FULL ACCESS TO THE WORK BY THE SPECIAL INSPECTOR AND SHALL PROVIDE FOR THESE INSPECTIONS IN THE CONSTRUCTION SCHEDULE IN ACCORDANCE WITH THE CITY OF RENO REQUIREMENTS. A STATEMENT OF RESPONSIBILITY SHALL BE SUBMITTED UNDER SEPARATE COVER WITH THE PERMIT APPLICATION AS REQUIRED UNDER IBC SECTION 1704. SPECIAL INSPECTIONS ARE REQUIRED FOR THE FOLLOWING WORK: A. TANK COATING SYSTEM

- B. STRUCTURAL WELDING
- C. CONCRETE

G6. <u>STANDARD STRUCTURAL DETAILS</u> THE STANDARD STRUCTURAL DETAILS DEPICT TYPICAL DETAILING TO BE USED ON THIS PROJECT. CONDITIONS NOT EXPLICITLY SHOWN ON THE DRAWINGS SHALL BE MADE SIMILAR TO THE STANDARD STRUCTURAL DETAILS SHOWN. OBTAIN APPROVAL OF THE ENGINEER IN WRITING FOR SIMILAR CONDITIONS PRIOR TO CONSTRUCTION.

G7. <u>CONFLICTS</u> IN CASES WHERE CONFLICTS OCCUR BETWEEN THE DRAWINGS AND SPECIFICATIONS, THE MOST STRINGENT REQUIREMENTS SHALL APPLY FOR BID PURPOSES, UNLESS OTHERWISE RESOLVED IN WRITING DURING THE BID PHASE.

G8. <u>GEOTECHNICAL</u> THE FOLLOWING NON-CONTRACTUAL GEOTECHNICAL REPORT WAS DEVELOPED FOR THIS PROJECT AND IS THE BASIS OF THE STRUCTURAL DESIGN: NAME OF GEOTECHNICAL FIRM: CONSTRUCTION MATERIALS ENGINEERS, INC. ADDRESS: 300 SIERRA MANOR DRIVE, SUITE 1, RENO, NEVADA 89511 REPORT NUMBER: 3152 REPORT DATE: FEBRUARY 1, 2023 A. ALLOWABLE NET SOIL BEARING PRESSURE = 4500 PSF (SUSTAINED LOADS) ROOO DEE (MIND (EEEMIC LOADE)

	= 6000 PSF (WIND/SEISMIC LOADS
B. ACTIVE LATERAL EARTH PRESSURE	= 35 PSF
C. PASSIVE LATERAL EARTH PRESSURE	= 300 PSF
D. COEFFICIENT OF FRICTION	= 0.48

G9. <u>TANK FOUNDATION</u>

SUBGRADE PREPARATION BELOW TANK AND CONCRETE RINGWALL SHALL BE PER THE RECOMMENDATIONS IN THE GEOTECHNICAL REPORT REFERENCED ABOVE. BACKFILL BELOW TANK INSIDE OF CONCRETE RINGWALL TO 8 INCHES MINIMUM THICKNESS WITH AB COURSE CONFORMING TO ASTM C33, SIZE #7 AND COMPACTED TO 95% DENSITY IN ACCORDANCE WITH ASTM D698 AND 4 INCHES MINIMUM FINAL THICKNESS OF OILED SAND.

REVISION	DESCRIPTION	BY	APP	DATE	WORK ORDER NO14-0035	
					DESIGNED R. WRIGHT	
					DRAWN R. WRIGHT	· · · · ·
					DATE AUGUST 21, 2023_	TŘU
					CHECKED J. NERVIG	
					SUBMITTED	
					RECOMMENDED	
A	100% DESIGN SUBMITTAL			08/21/23	APPROVED	1355 CAPITAL BLVD

<u>STEEL</u>

- S1. DESIGN STRENGTHS: SQUARE OR RECTANGULAR HSS: Fy=46 KSI PIPE: ALL OTHER PLATES AND SHAPES: fy=36 KSI
- S2. <u>DIMENSIONS</u> AND BACKS OF CHANNELS AND ANGLES UNO.
- S3. ELEVATIONS
- S4. WHEN FILLET WELD SIZE IS NOT INDICATED, PROVIDE MAXIMUM WELD SIZE BASED
- S5. CONFORM TO AISC 360, STEEL CONSTRUCTION MANUAL.

<u>CONCRETE</u>

- C1. <u>DESIGN STRENGTHS:</u> f'c = 4,000 PSI fy = 60,000 PSI
- C2. <u>CONCRETE COVER</u> REINFORCING AS FOLLOWS: CONCRETE DEPOSITED AGAINST EARTH: ALL OTHER: SEE DRAWINGS FOR EXCEPTIONS
- REINFORCING PLACEMENT REQUIREMENTS.
- SHOWN ON DRAWINGS.
- STRUCTURAL ENGINEER.

$\cap$		
G	NL	

Fy=35 KSI

TO CENTERLINES OF COLUMNS AND BEAMS, TOP SURFACES OF BEAMS AND TUBES

TOP OF STEEL REFERS TO TOP SURFACE OF MEMBER OR FLANGE UNO.

ON MATERIAL THICKNESS IN ACCORDANCE WITH AISC AND AWWA SPECIFICATIONS.

UNLESS OTHERWISE NOTED OR SHOWN, PROVIDE CONCRETE COVER FOR 3 IN

C3. ALL DETAILING, FABRICATION, AND ERECTION OF REINFORCING BARS, UNLESS OTHERWISE NOTED, SHALL BE IN ACCORDANCE WITH THE CURRENT EDITION OF THE ACI MANUAL OF STANDARD PRACTICE. SEE SPECIFICATIONS FOR ADDITIONAL

2 IN

C4. PROVIDE 3/4 IN CHAMFERS AT ALL EXPOSED EDGES. NOT ALL CHAMFERS MAY BE

C5. ABSOLUTELY NO WELDING OF REINFORCING BARS OR USING HEAT TO BEND REINFORCING BARS SHALL BE ALLOWED WITHOUT SPECIFIC APPROVAL FROM THE

ARCHITECT/ENGINEER GA A/E GALV ANCHOR BOLT AR ADDL ADDITIONAL GEN ADH ADHESIVE GR AFF GRTG ABOVE FINISH FLOOR AFG ABOVE FINISH GRADE ALUM ALUMINUM H1E ANC ANCHOR H2E APRX APPROXIMATE ΗС HDR APVD APPROVED ARCH ARCHITECTURAL ΗK HORIZ BC BOTTOM CHORD HP BLDG BUILDING ΗS BLKG BLOCKING HSS ВМ BEAM HT BOL BOLLARD BOT BOTTOM ID ΒP BASE PLATE BRG BEARING IN BTB BACK TO BACK INFO BTW BETWEEN INT INV CHANNEL SHAPE CHD CHORD JST CIP CAST-IN-PLACE CONSTRUCTION JOINT CJ CONTINUOUS JOINT PENETRATION CJP CENTERLINE CL CLJ CONTROL JOINT КB CLR CLEAR KLF CONCRETE MASONRY UNIT СМИ KSI COL CONC COLUMN CONCRETE CONN CONNECTION LAD CONST CONSTRUCTION LB CONT CONTINUOUS CTC CTR CENTER TO CENTER LG CENTER LIN CY CUBIC YARD LLH LLV DEEP LNG DBA DEFORMED BAR ANCHOR LOC DBL DOUBLE DEMO DEMOLITION LWC DIA DIAMETER DIAG DIAGONAL MAX DIM DIMENSION MBR DIST DISTANCE МС DEAD LOAD MCJ DT DOUBLE TEE MECH DTL DETAIL MFR DWG DRAWING MIN DWL MISC DOWEL ML EAST EACH ΕA ECC ECCENTRIC NIC EACH FACE NOM NTS EXPANSION JOINT EJ ELEVATION EL ELEC ELECTRICAL OC ENGR ENGINEER OD EQ OF EQUAL EQUIP EQUIPMENT ОН EACH SIDE OPNG FS EACH WAY OPP FW EWEF EACH WAY, EACH FACE ovhg FACH WAY. TOP AND BOTTOM EWTB PAR EXP EXPANSION EXST EXISTING DOF PCLJ FAB FABRICATOR PEN FD FLOOR DRAIN PEMB FDTN FOUNDATION ΡL FINISHED GRADE PLBG FG FIG FIGURE PLF FIN FINISH FLR FLOOR FACE OF CONCRETE, FACE OF CURB FOC PS FRAME PSF FR FRP FIBERGLASS REINFORCED PLASTIC PSI FΤ ΡT FEET, FOOT FTG PVC FOOTING FV FIELD VERIFY QTY

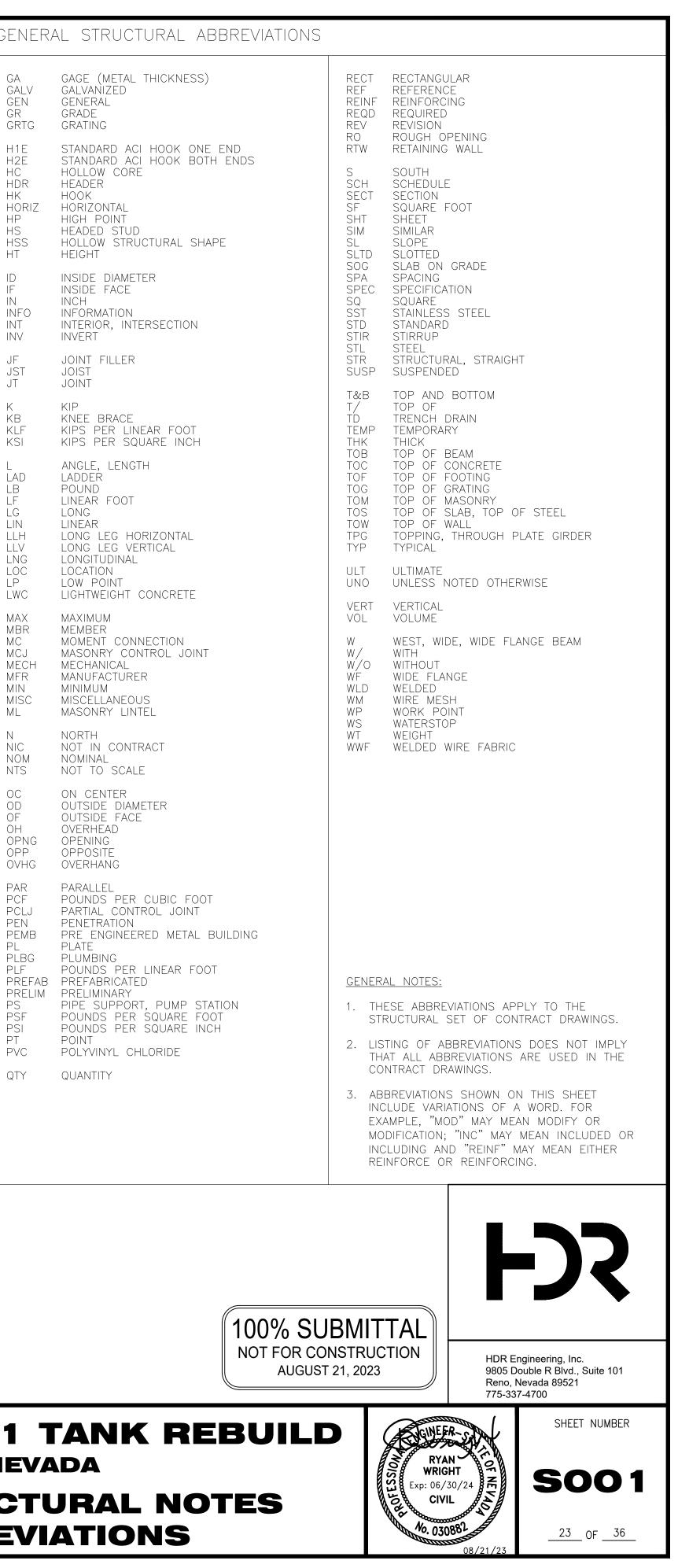


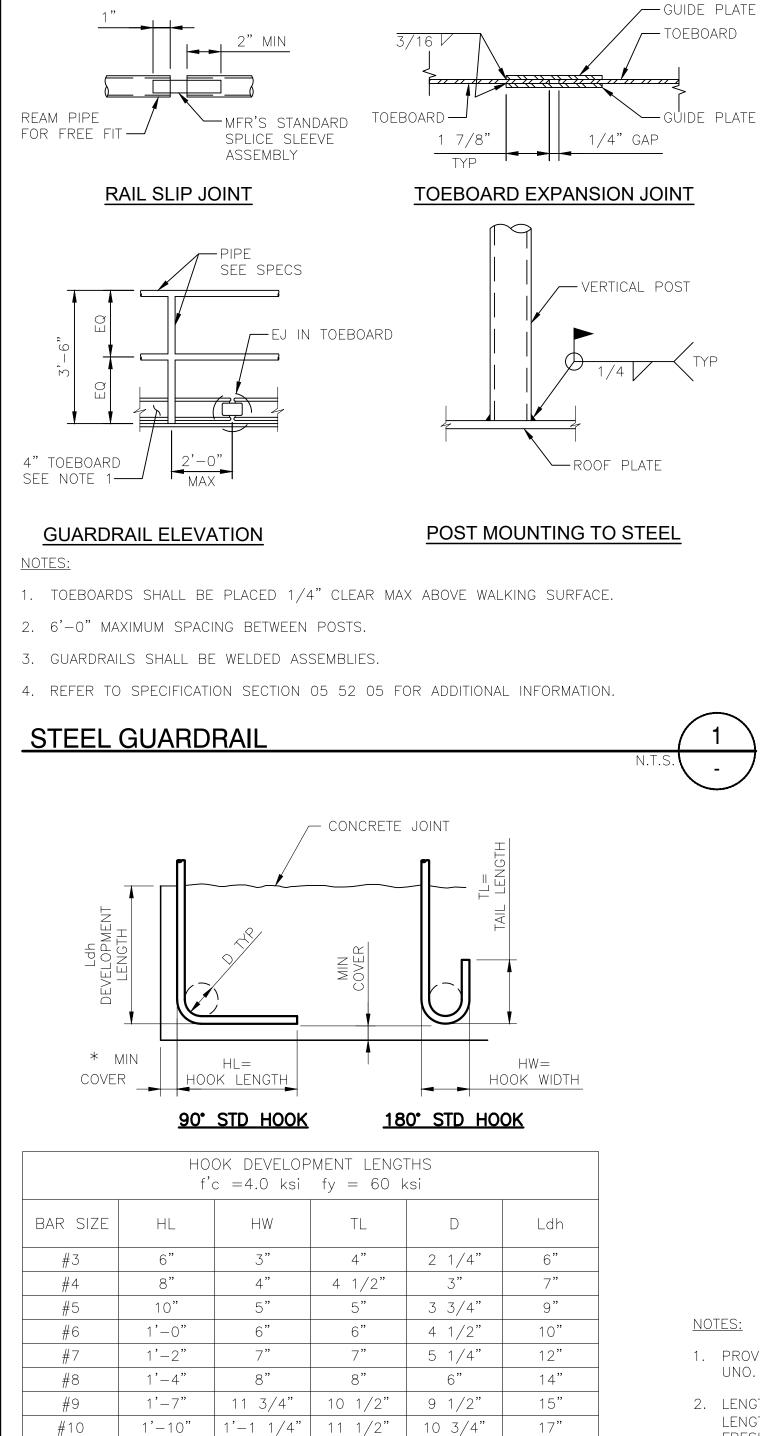
NOT REPRODUCIBL

PROPERTY OF TRUCKEE MEADOWS WATER AUTHORITY, RETURN UPON COMPLETION OF PROJECT (Per Homeland Security Act)

LEMMON VALLEY 1 TANK REBUILD **RENO, NEVADA** 

# **GENERAL STRUCTURAL NOTES** AND ABBREVIATIONS





NOTES:

#11

1. PROVIDE MINIMUM HOOK DEVELOPMENT LENGTHS PER TABLE UNO.

1'-2 3/4"

**REINFORCING HOOK SCHEDULE** 

2'-0"

2. ALL HOOKS SHOWN ON THE DRAWINGS SHALL BE STANDARD HOOKS UNO.

1'-1"

12"

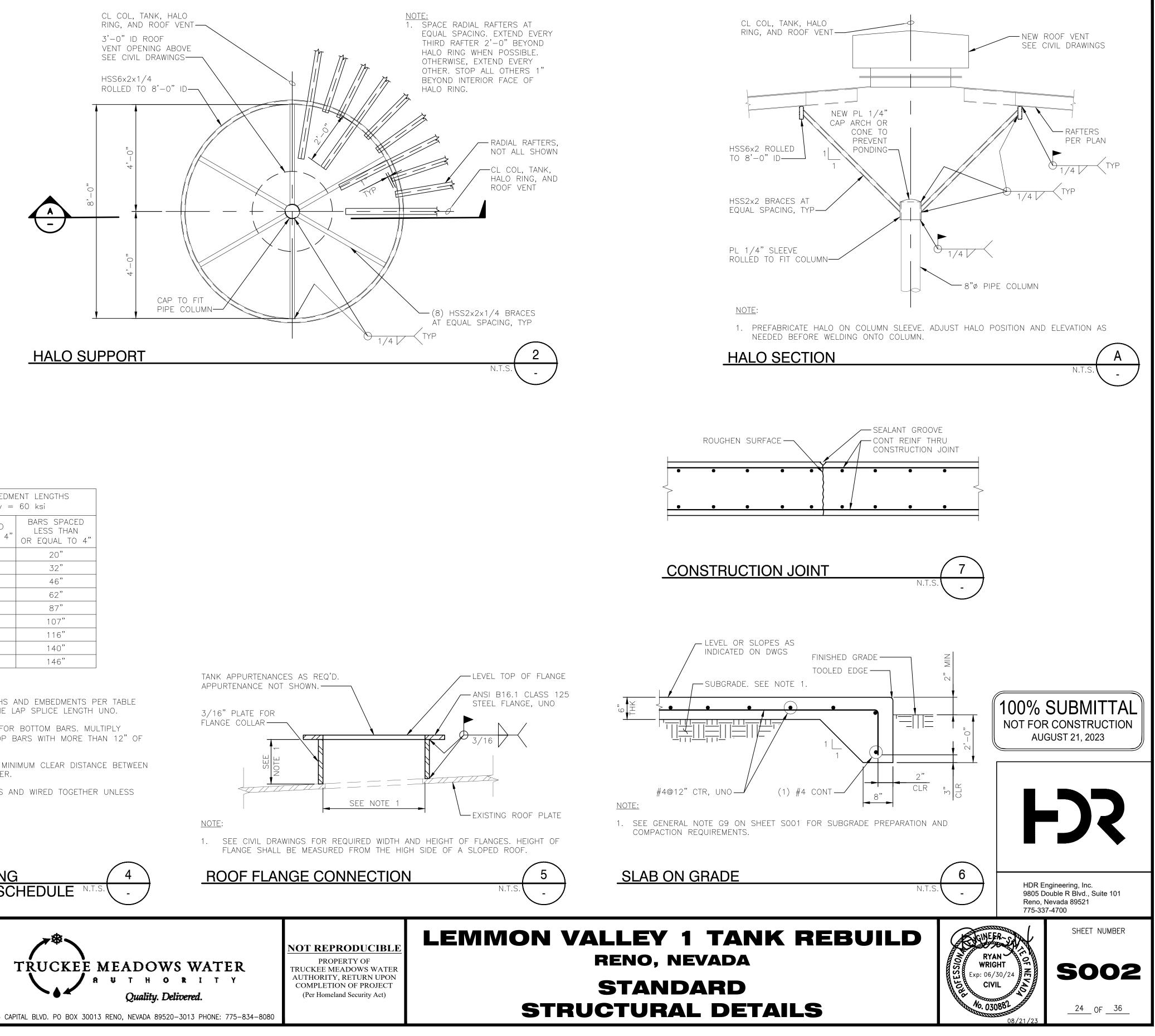
19"

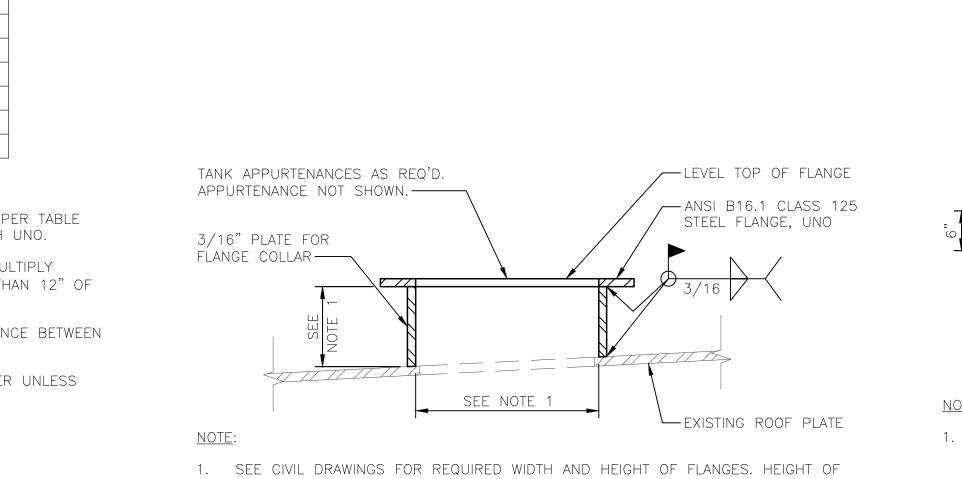
g/we: 2023

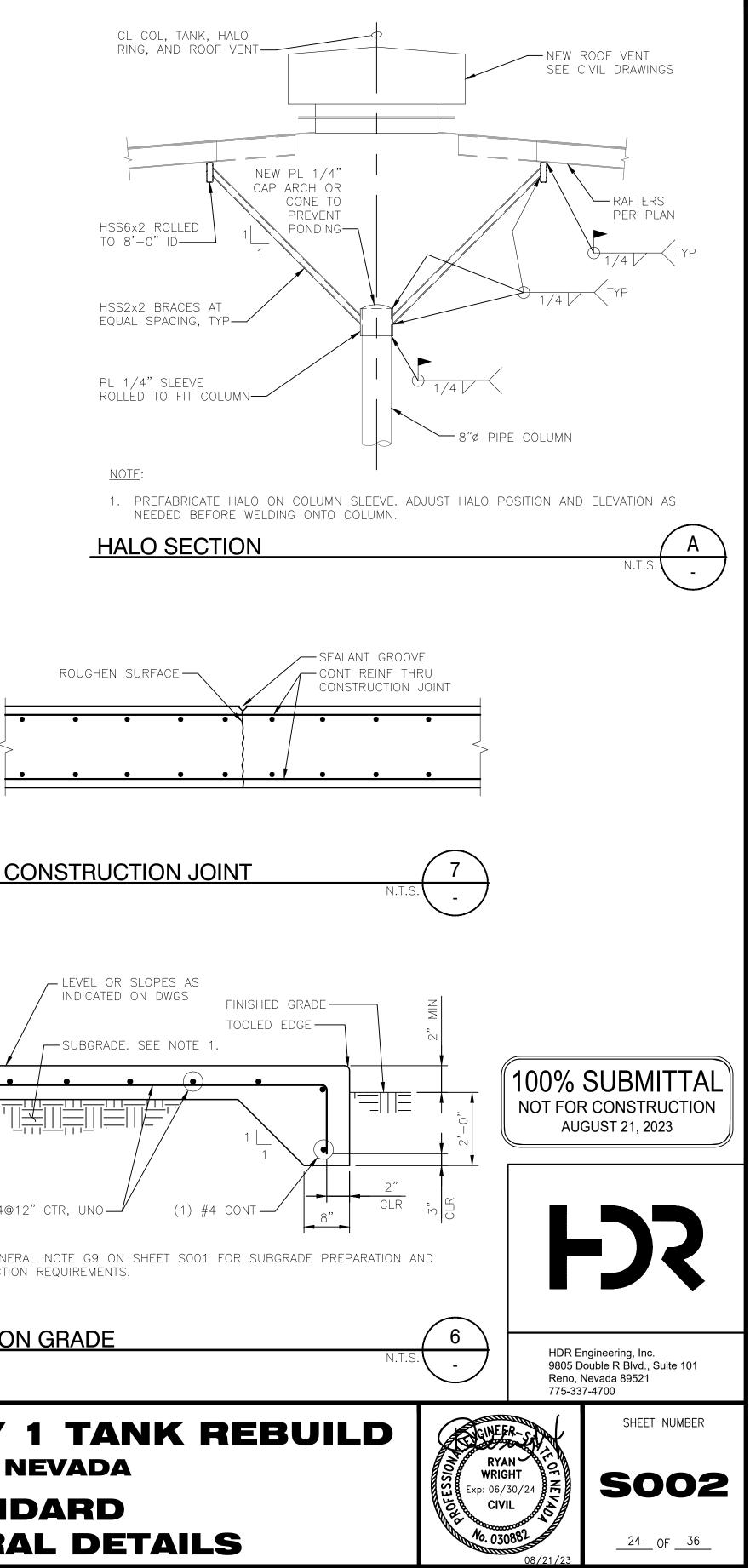
		$\bigcirc$					
REVISION	DESCRIPTION	BY	APP	DATE	WORK ORDER NO. 14-0	035	
					DESIGNED R. WR		
					DRAWN R. WR	RIGHT	
					DATE AUGUST 2	21, 2023	
					CHECKED J. NE	RVIG	
					SUBMITTED		
					RECOMMENDED		
A	100% DESIGN SUBMITTAL			08/21/23	APPROVED		1355

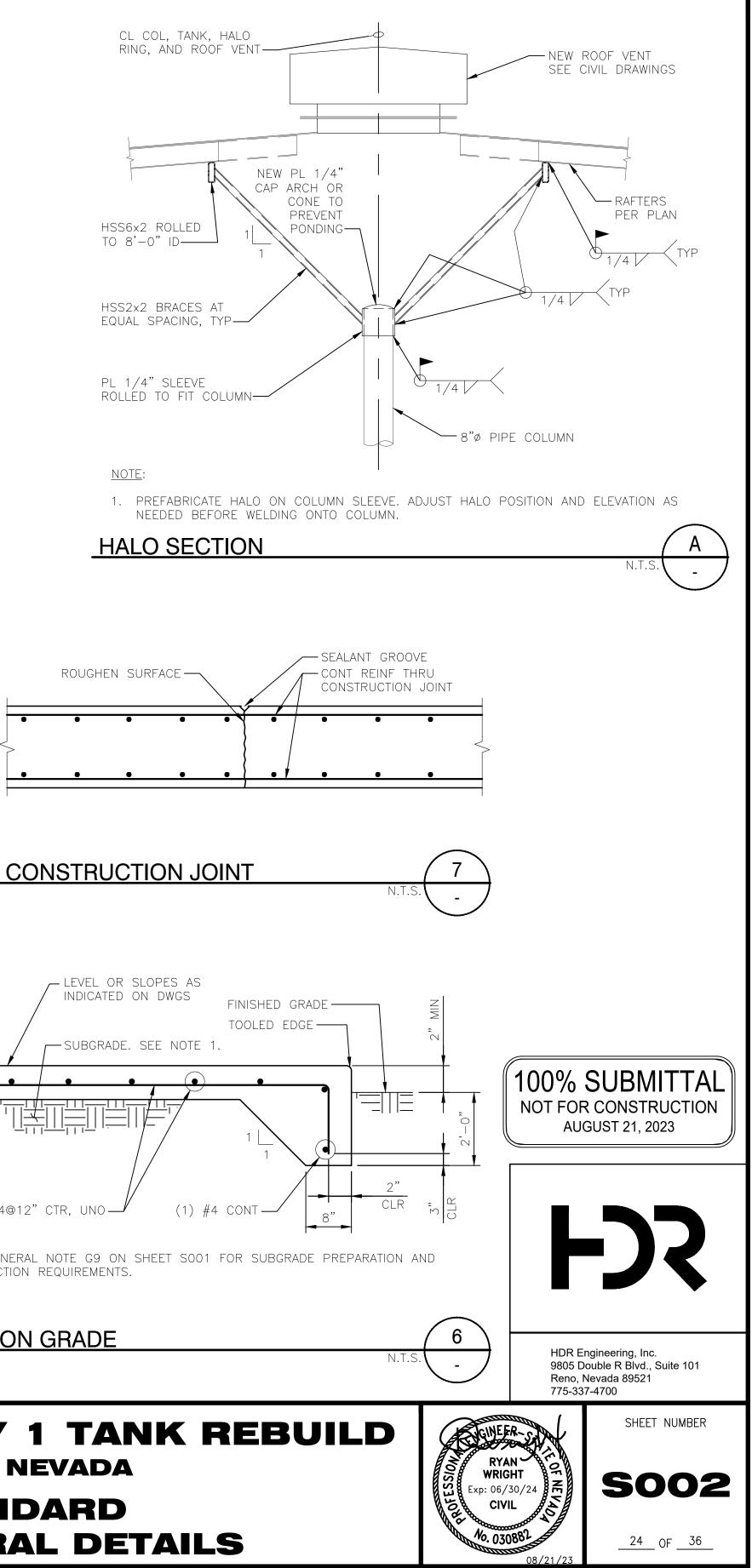
LAP SPLICE AND EMDEDMENT LENGTHS f'c = 4.0 ksi fy = 60 ksi BARS SPACED BARS SPACED BAR less than SIZE GREATER THAN 4" OR EQUAL TO 4" #3 20" 14" #4 19" 32" #5 29" 46" #6 39" 62" #7 55" 87" #8 69" 107" #9 76" 116" #10 97" 140" #11 120" 146"

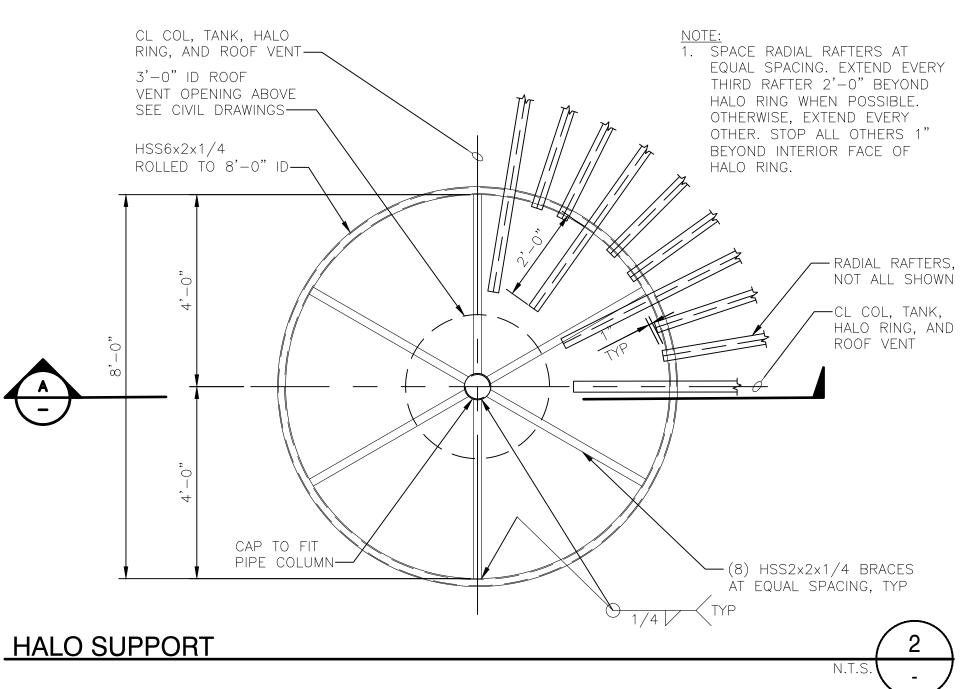
- 1. PROVIDE MINIMUM LAP SPLICE LENGTHS AND EMBEDMENTS PER TABLE UNO. EMBEDMENT LENGTH EQUALS THE LAP SPLICE LENGTH UNO.
- 2. LENGTHS SHOWN IN THE TABLE ARE FOR BOTTOM BARS. MULTIPLY LENGTHS BY 1.3 FOR HORIZONTAL TOP BARS WITH MORE THAN 12" OF FRESH CONCRETE CAST BELOW.
- 3. BAR SPACING AT LAP SPLICE IS THE MINIMUM CLEAR DISTANCE BETWEEN LAPPED BARS PLUS ONE BAR DIAMETER.
- 4. ALL SPLICES TO BE CONTACT SPLICES AND WIRED TOGETHER UNLESS OTHERWISE APPROVED BY ENGINEER.
- CONCRETE REINFORCING LAP AND EMBEDMENT SCHEDULE



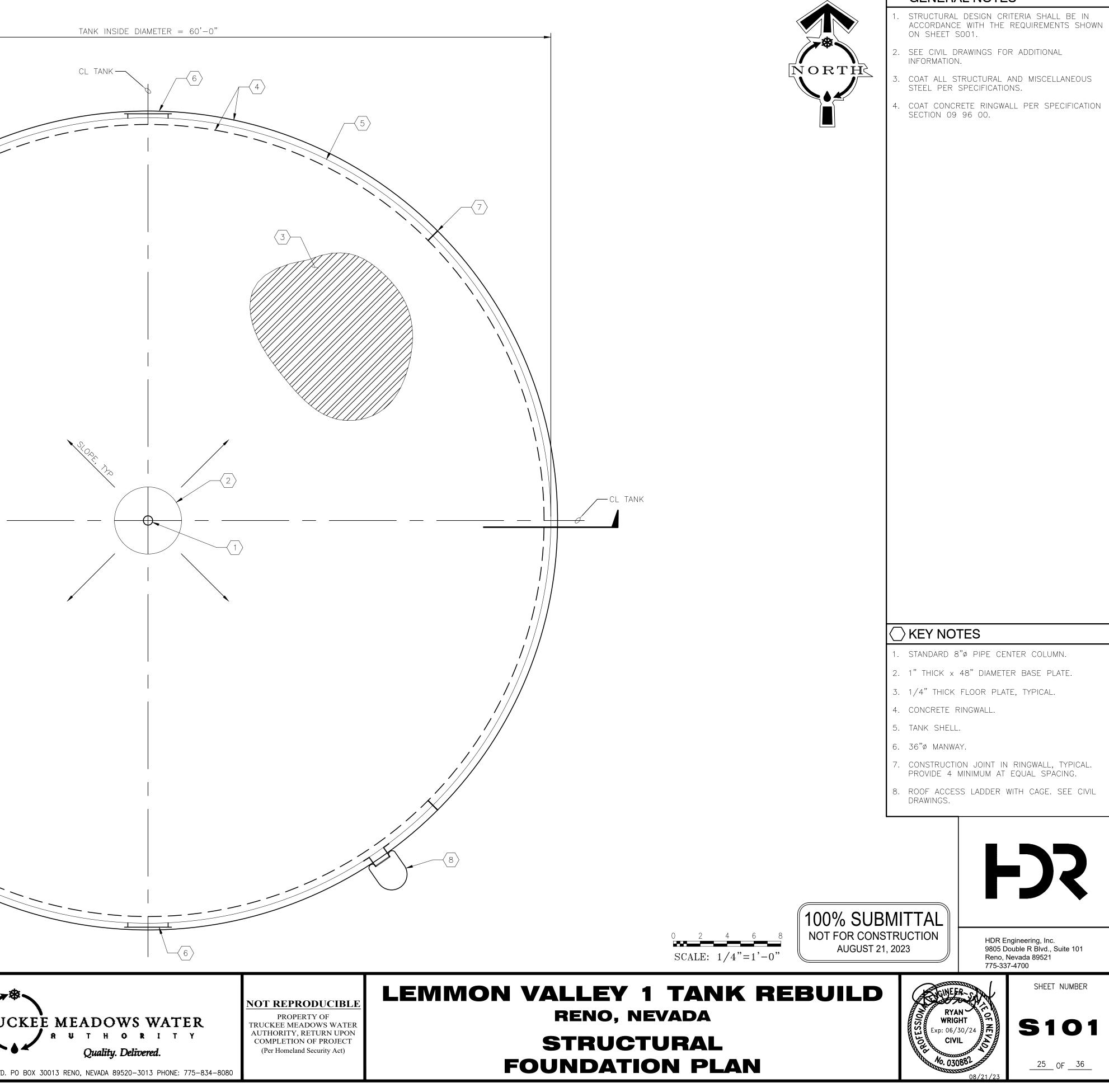






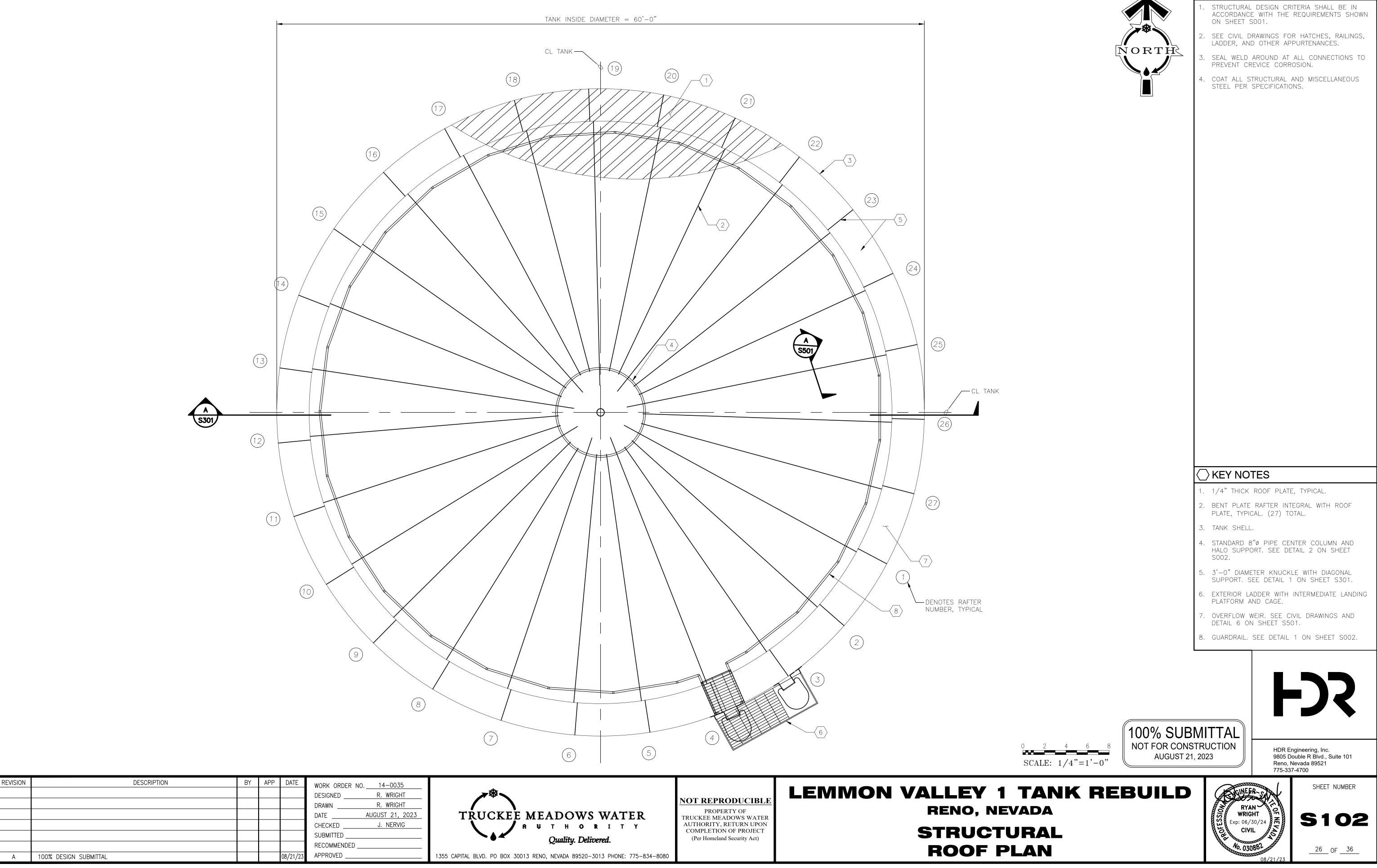


REVISION	DESCRIPTION	BY	APP	DATE	WORK ORDER NO14-0035	
					DESIGNED R. WRIGHT	
					DRAWN R. WRIGHT	
					DATE AUGUST 21, 2023_	TŘUG
					CHECKED J. NERVIG	
					SUBMITTED	
					RECOMMENDED	
А	100% DESIGN SUBMITTAL			08/21/23	APPROVED	1355 CAPITAL BLVD.





### **GENERAL NOTES**

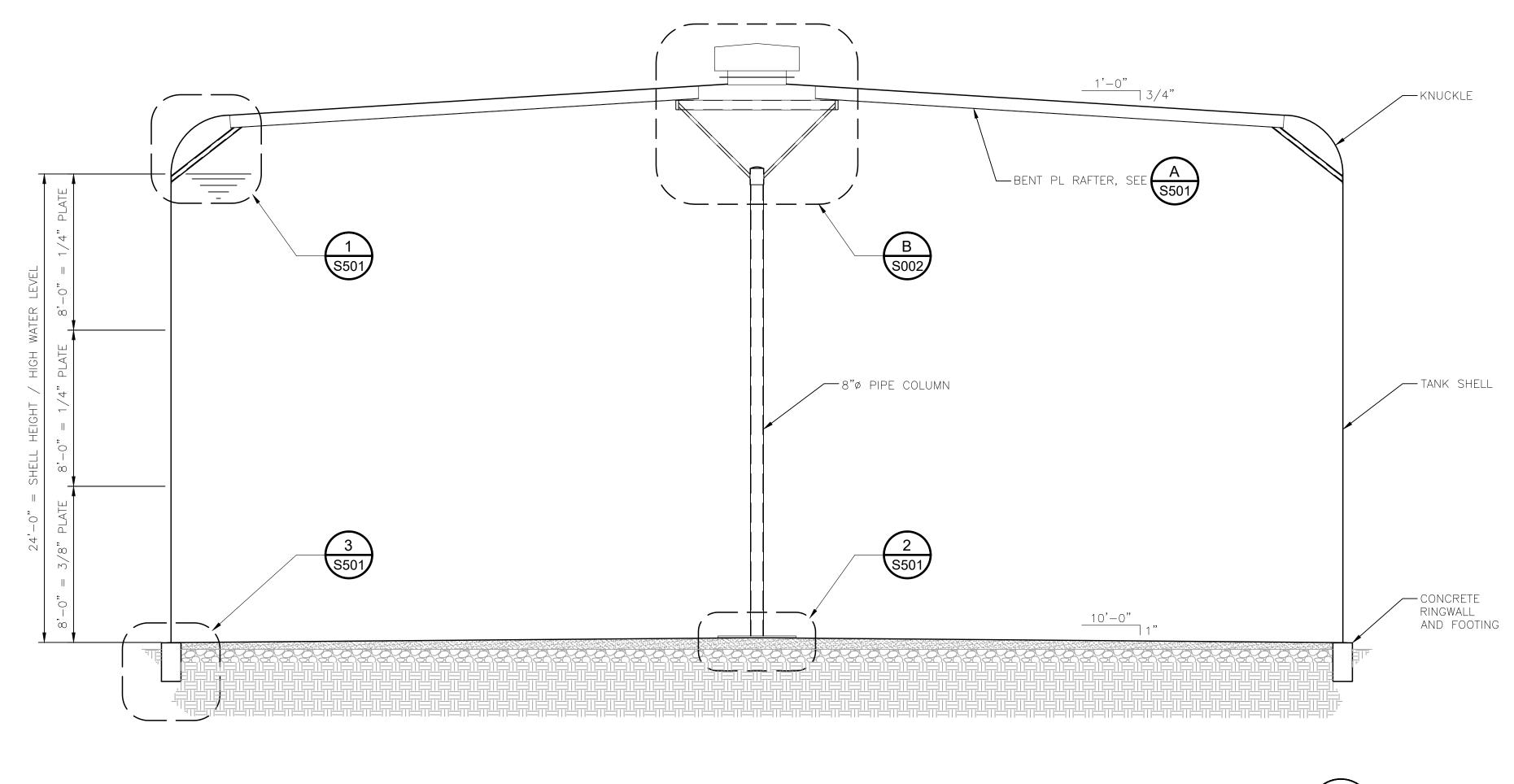


REVISION	DESCRIPTION	BY	APP	DATE	WORK ORDER NO. 14-0035	
					DESIGNED R. WRIGHT	
					DRAWN R. WRIGHT	
					DATE AUGUST 21, 2023	TRUC
					CHECKED J. NERVIG	
					SUBMITTED	
					RECOMMENDED	
A	100% DESIGN SUBMITTAL			08/21/23	APPROVED	1355 CAPITAL BLVD. F



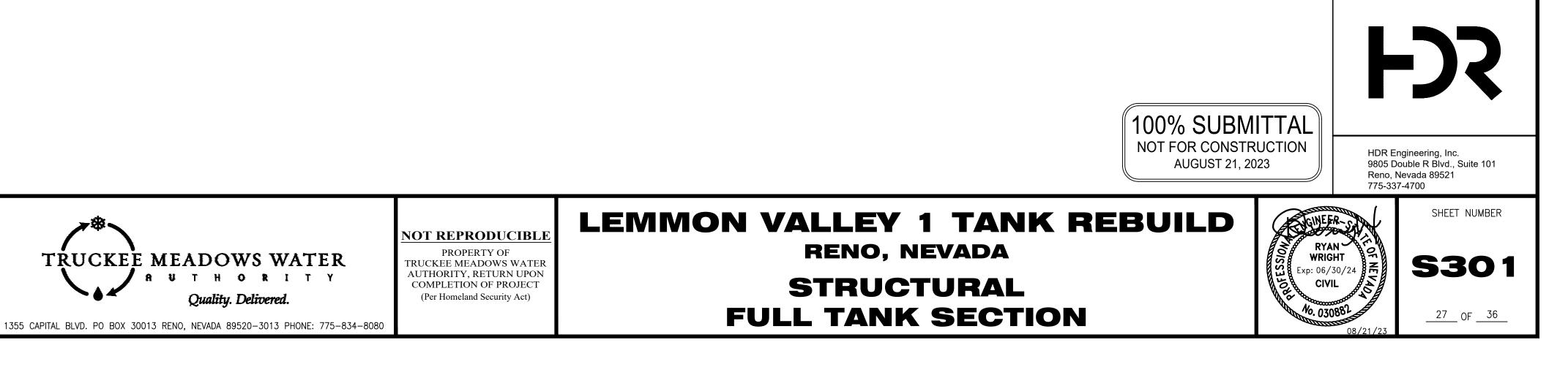


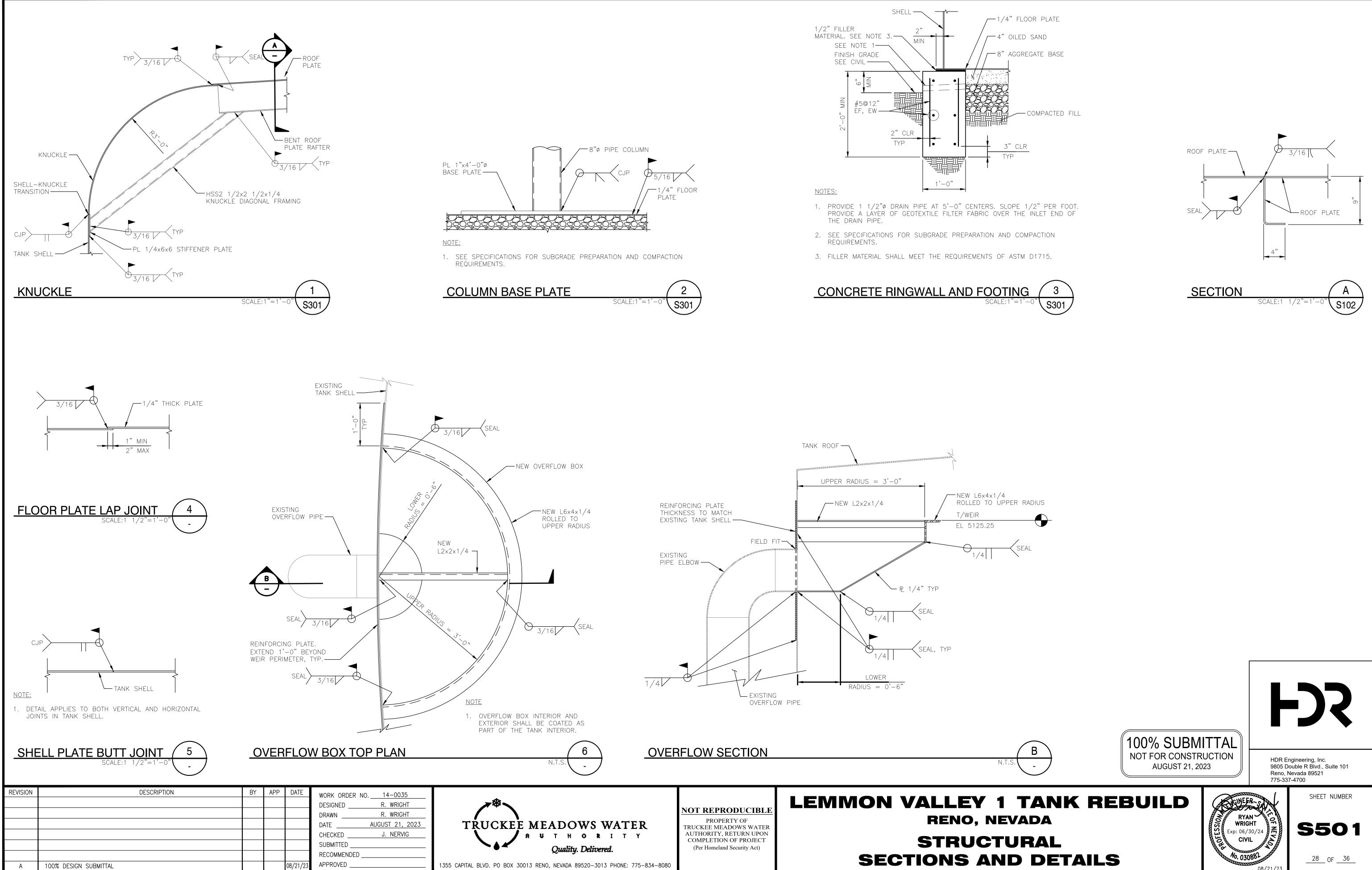
### **GENERAL NOTES**

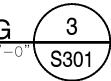


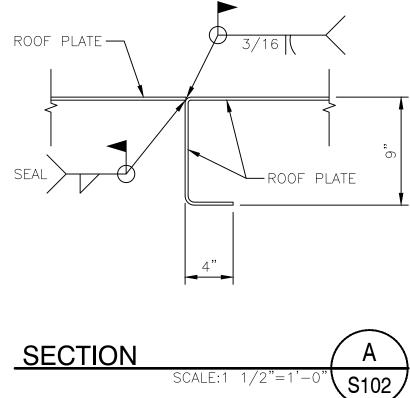
FULL TANK SECTION

SCALE:1/4"=1 S101









$\binom{0}{0}$	OR o x 100AF 80AT 3P	LOW – VOLTAGE CIRCUIT BREAKER (CB). RATINGS AND NO. OF POLES AS SHOWN. WHEN SPECIFIC TYPE IS REQUIRED, X INDICATES	TYPE.			100 KVA	NON-MOTOR LOAD WIT	TH DESIGN KVA, KW, OR AMP		NORMALLY OPEN NORMALLY CLOSE
		<u>TYPES:</u> MCCB – MOLDED CASE ICCB – INSULATED CASE LVP – LOW – VOLTAGE POWER			-		CONTROL POWER TRAN	NSFORMER (CPT)		FIELD WIRING EX
	<b>—</b> 1.	MCP – MOTOR CIRCUIT PROTECTOR (RATING PER CONNECTED LOAD)				35-	VOLTAGE TRANSFORME	R (VT OR PT)		<u>TYPES:</u> E – ELEC M – MEC
C	Bh	SEPARATELY MOUNTED CIRCUIT BREAKER; SEE ELECTRICAL ONE – LINE DIAGRAM OR SCHEDULE DESCRIPTION	FOR			ŧ	CURRENT TRANSFORME	ER (CT)	HAND AUTO	K – KEY 3 POSITION SELE
GF	FP	GROUND FAULT PROTECTION				DMP	DIGITAL METERING PAC	KAGE	<u> </u>	OTHERWISE NOTE
— 5	2	MEDIUM – VOLTAGE CIRCUIT BREAKER			[	RTM	RUN TIME METER			NORMALLY OPEN UNLESS OTHERWI
	⊐⊢ )	FUSE, SIZE, AND NUMBER OF FUSES AS NOTED			_	<u> </u>	GROUND			NORMALLY CLOSE UNLESS OTHERWI
	-	FUSED CUTOUT, CURRENT RATING, FUSE SIZE, AN NUMBER OF POLES AS NOTED								INDICATING LIGHT PUSH TO TEST II
		FUSIBLE SWITCH, CURRENT RATING, FUSE SIZE, A QUANTITY AS NOTED NON-FUSED SWITCH, CURRENT RATING, AND NUM			Г	<u> </u>	LIGHTNING ARRESTER			COLOR LENS COLORS:
	~	POLES AS NOTED	MDER OF		L	SPD	LOW VOLTAGE SURGE I	PROTECTIVE DEVICE		R – RED G – GREEN B – BLUE
		DISCONNECT OR DRAWOUT CONNECTION MAGNETIC MOTOR STARTER AND					ELECTRICAL CONNE	CTION	Z	ELECTRICAL MONI
		SEPARATELY MOUNTED COMBINATION MAGNETIC M STARTER	IOTOR			' ₹-∕∕- 0R —	NO ELECTRICAL CONNE	ECTION		<u>TYPES</u> : WHM – UTILITY N REQUIREM
		MOTOR CONTROLLER AND SEPARATELY MOUNTED MOTOR CONTROLLER WITH CIRCUIT PROTECTION AND DISCONNECT	SHORT							AS – CURRENT AM – AMP METE WM – WATT MET
		MOTOR STARTER AND CONTROLLER SUBSC A – MAGNETIC STARTER NEMA SIZE	CRIPTS:		(SV)	OR o-/-o	SOLENOID VALVE			VS – VOLT SENS VM – VOLT METH
		B – STARTER TYPE	2)			X Y	CONTROL/RELAY COIL; Y INDICATES LOOP NO TYPES:			CONTROL PANEL EQUIPMENT
		NONE – FULL VOLTAGE NON–REVERSING (FVNR FVR – FULL VOLTAGE REVERSING 2S – TWO SPEED RVAT – REDUCED VOLTAGE AUTO TRANSFORMER	,			_	CR – CONTROL RELAY DP – DEFINITE PURPC	DSE RELAY		CONTROL PANEL PROVIDED WITH A
		C – CONTROL DIAGRAM OR CONTROLS	X				LC – LIGHTING CONTA M – MOTOR STARTER PC – PHOTO CELL TC – TIME CLOCK			JUNCTION OR PL
		SCHEDULE NUMBER (IF REQUIRED) D – CONTROLLER TYPE VFD – VARIABLE FREQUENCY DRIVE					TC – TIME CLOCK TD – TIME DELAY REL TR – TIMING RELAY	_AY		PANELBOARD (25
Γ	$\sim$	SS – SOLID STATE			0	$\succ^{\circ}$		DELAY RELAY CONTACT WITH TIME TER COIL IS ENERGIZED		PANELBOARD (LE
		MOTOR CONTROLLER			o	To		IE DELAY RELAY CONTACT WITH ING AFTER COIL IS ENERGIZED		CONTROL CENTER INDICATED
	$\sim$	THERMAL OVERLOAD ELEMENT			0	$\rightarrow$		DELAY RELAY CONTACT WITH TIME FTER COIL IS DE-ENERGIZED	ζZ Υ Υ	CEILING/PENDANT
0 		THERMAL OVERLOAD RELAY CONTACT				Ť		IE DELAY RELAY CONTACT WITH NG AFTER COIL IS DE-ENERGIZED	HZZ X	WALL-MOUNTED
	<u>-</u>	DISCONNECT OR SAFETY SWITCH, 30A, 3P, NON- UNLESS OTHERWISE NOTED	FUSED			•	NORMALLY OPEN TEMP		ZOXY	CEILING/PENDANT
	$\overline{}$					°/	CLOSE ON RISING TEM	IPERATURE	₽ <u></u> Y X Y	WALL-MOUNTED
7 1/2	OR HP	MOTOR WITH DESIGN HORSEPOWER (WHEN INDICATED)			0	5	NORMALLY CLOSED TEN OPEN ON RISING TEMP		z C X Y	CEILING/PENDANT
					0		NORMALLY OPEN FLOW CLOSE ON INCREASING		Z <b></b> _X Y	WALL-MOUNTED NORMAL/EMERGE
	G	GENERATOR			0	To	NORMALLY CLOSED FLO OPEN ON INCREASING		X Y X	DOUBLE-FACED( DIRECTIONAL ARR PLANS
0	10	TRANSFER SWITCH, CURRENT RATING, AND NUMBER OF POLES AS NOTED			0	°℃	NORMALLY OPEN LEVEI CLOSE ON RISING LEV			SINGLE—FACED C DIRECTIONAL ARR
	D ATS	ATS – AUTOMATIC MTS – MANUAL			0	To	NORMALLY CLOSED LEV OPEN ON RISING LEVE			PLANS AREA OR ROADW
		TRANSFORMER			0	Z	NORMALLY OPEN PRES CLOSE ON INCREASING			<u>LIGHTING FIXTU</u> X – INDICATES F
		$\triangle$ 3-PHASE, 3-WIRE DELTA CONNECTIO $\searrow$ 3-PHASE, 4-WIRE GROUNDED WYE	N			T	NORMALLY CLOSED PR OPEN ON INCREASING	RESSURE SWITCH,		FIXTURE SC Y — INDICATES ( z — INDICATES (
		SWITCHBOARD OR PANELBOARD; NAME, VOLTAGE,			0	$\checkmark^{\circ}$	NORMALLY OPEN LIMIT CLOSE ON REACHING I	SWITCH,	X Y	EMERGENCY LIGH SHOWN
LP1 208/ 3ø,	120V	NUMBER OF WIRES WHEN INDICATED	FHASE,		o		NORMALLY CLOSED LIN OPEN ON REACHING L	<i>I</i> IT SWITCH,	Ψ×	EMERGENCY LIGH
							CI EN UN REACHING E			
REVISION		DESCRIPTION	BY	APP	DATE	WORK ORDER NO. DESIGNED	14–0035 A. RAGNEV	<b>ノ<sup>後</sup>へ</b>		
							R.J. GONZALVO AUGUST 21, 2023	TRUCKEE ME	ADOWS WA	TER
						CHECKED SUBMITTED		A U	т н о к I Quality. Delivered.	
A	100% DESIGN SUBN	/ITTAL			08/21/23	RECOMMENDED APPROVED		1355 CAPITAL BLVD. PO BOX 30013 REN		NE: 775-834-8080

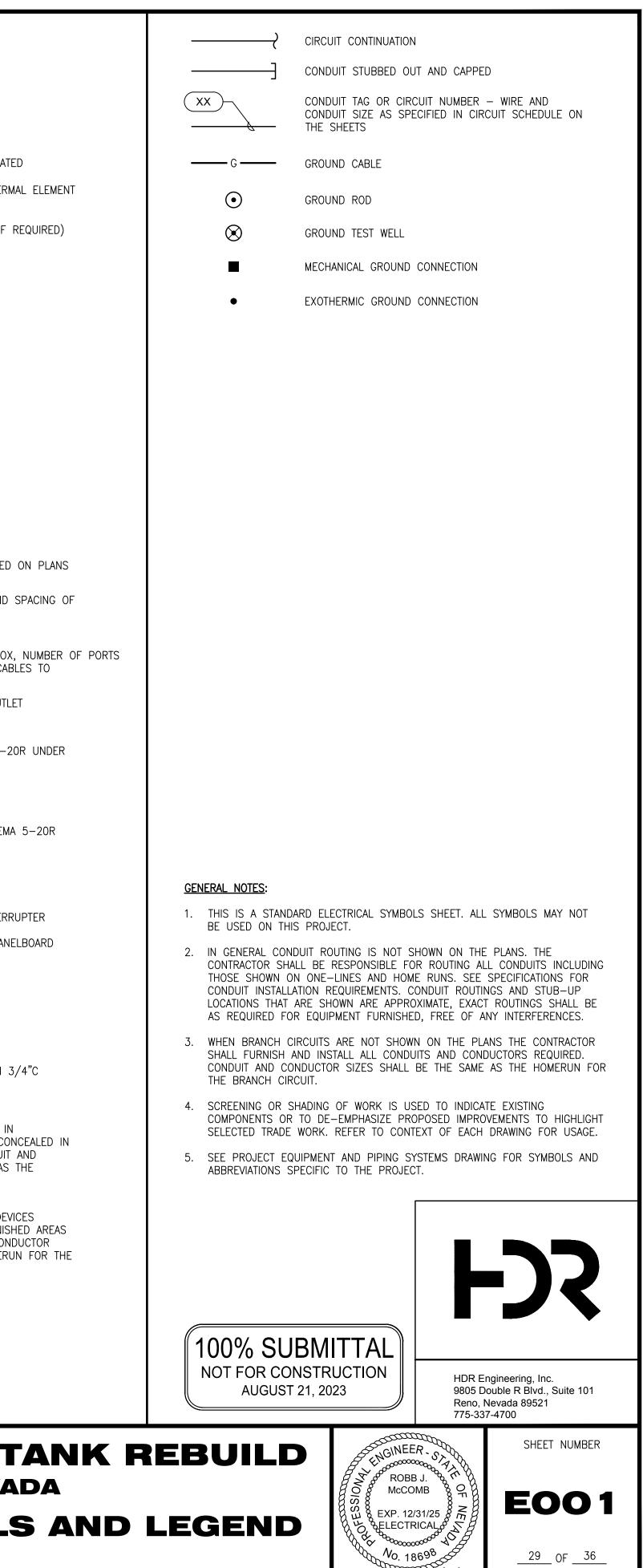
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W, OR AMP		NORMALLY OPEN CONTACT (N.O.)	PC	PHOTOCELL
	<u>–</u> N–	NORMALLY CLOSED CONTACT (N.C.)	\$ <sup>×</sup>	TOGGLE SWITCH
	00	FIELD WIRING EXTERNAL TO CONTROL PANEL	Υ×	<u>SUBSCRIPTS:</u> X – INDICATES TYPE
		INTERLOCK; X INDICATES TYPE		NONE – SINGLE POLE 3 – THREE–WAY
		<u>TYPES:</u> E – ELECTRICAL		4 – FOUR-WAY HP – TOGGLE SWITCH, HORSEPOWER RATI
	OFF	M — MECHANICAL K — KEY		K – KEY SWITCH TE – MANUAL MOTOR STARTER W/ THERM P – PILOT LIGHT
	HAND AUTO	3 POSITION SELECTOR SWITCH, MAINTAINED CONTACTS; UNLESS		L – LIGHTED HANDLE Y – INDICATES CONTROLLING SWITCH (IF
	<u> </u>	OTHERWISE NOTED, 2-POSITION SIMILAR	Т	TRANSFORMER
		NORMALLY OPEN PUSHBUTTON, MOMENTARY CONTACT	CS	CONTROL STATION
		UNLESS OTHERWISE NOTED NORMALLY CLOSED PUSHBUTTON, MOMENTARY CONTACT	HS	HAND SWITCH
		UNLESS OTHERWISE NOTED	SS	SELECTOR SWITCH
		INDICATING LIGHT, X INDICATES LENS COLOR	РВ	PUSHBUTTON
		PUSH TO TEST INDICATING LIGHT, X INDICATES LENS COLOR	IC	INSTRUMENTATION/CONTROL DEVICE
Ē		<u>LENS COLORS:</u> R – RED Y – YELLOW	HA	HATCH ALARM
		G – GREEN W – WHITE A B – BLUE – AMBER	MS	MOTION SENSOR
	Z	ELECTRICAL MONITORING DEVICE	VC	VALVE CONTROL
		<u>TYPES</u> : WHM – UTILITY WATT–HOUR METER PER UTILITY	PT	PRESSURE TRANSMITTER
		REQUIREMENTS AS – CURRENT SENSOR	LS	LEVEL SWITCH
		AM — AMP METER WM — WATT METER	H	SPECIAL-PURPOSE RECEPTACLE AS DEFINED
		VS – VOLT SENSOR VM – VOLT METER		PLUG-IN RECEPTACLE STRIP, QUANTITY AND RECEPTACLES AS NOTED OR SPECIFIED
<u>-</u> ,		CONTROL PANEL INTEGRAL OR PROVIDED WITH ASSOCIATED EQUIPMENT		TELECOMMUNICATIONS OUTLET JUNCTION BOX SHOWN, RUN EQUAL NUMBER OF CAT 6 CAE
		CONTROL PANEL WITH DISCONNECT SWITCH INTEGRAL OR PROVIDED WITH ASSOCIATED EQUIPMENT		COMMUNICATIONS BACKBOARD FLOOR MOUNTED TELECOMMUNICATIONS OUTL
	J	JUNCTION OR PULL BOX		JUNCTION BOX
		PANELBOARD (250V TO 600V)	⊨⊕××	QUAD–DUPLEX RECEPTACLE, TWO NEMA 5–2 COMMON COVER PLATE
NTACT WITH TIME		PANELBOARD (LESS THAN 250V)	₩	DUPLEX RECEPTACLE, NEMA 5-20R
RGIZED CONTACT WITH		ELECTRICAL EQUIPMENT ENCLOSURE: SWITCHBOARD, MOTOR CONTROL CENTER, CONTROL PANEL, OR OTHER EQUIPMENT AS INDICATED	× Y	FLOOR MOUNTED DUPLEX RECEPTACLE, NEMA
NTACT WITH TIME	ζζ X Y	CEILING/PENDANT-MOUNTED LED LUMINAIRE	ιθ <sub>γ</sub>	SIMPLEX RECEPTACLE, NEMA 5–20R SUBSCRIPTS:
ENERGIZED	HZZ Y	WALL-MOUNTED LED LUMINAIRE		<ul> <li>X – INDICATES TYPE</li> <li>GFCI – GROUND FAULT CIRCUIT INTERF</li> <li>WP – WATERPROOF</li> <li>Y – INDICATES CIRCUIT NUMBER FROM PANE</li> </ul>
DE-ENERGIZED	z o x	CEILING/PENDANT-MOUNTED LED FIXTURE		PEDESTAL
	ℤ <u>♀</u> □Х <sub>Υ</sub>	WALL-MOUNTED LED FIXTURE	•	CONDUIT TURNING UP
4;	z C X	CEILING/PENDANT-MOUNTED LED FIXTURE		CONDUIT TURNING DOWN
		NORMAL/EMERGENCY WALL-MOUNTED LED FIXTURE		HOME RUN TO PANEL, 2 #12, 1 #12G IN 3
	<b>≥2</b> ≤ X Y	NORMAL/EMERGENCY		UNLESS OTHERWISE NOTED
	X Y Y	DOUBLE—FACED CEILING OR WALL—MOUNTED EXIT LIGHT; DIRECTIONAL ARROWS (IF REQUIRED) AS INDICATED ON PLANS		CIRCUIT RUN BETWEEN DEVICES EXPOSED IN NON-ARCHITECTURALLY FINISHED AREAS; COI ARCHITECTURALLY FINISHED AREAS. CONDUIT
	$\bigotimes_{Y}^{X}$ $H \bigotimes_{Y}^{X}$	SINGLE—FACED CEILING OR WALL—MOUNTED EXIT LIGHT; DIRECTIONAL ARROWS (IF REQUIRED) AS INDICATED ON PLANS		CONDUCTOR SIZES SHALL BE THE SAME AS HOMERUN FOR THE CIRCUIT.
	► Q <sup>×</sup> <sub>Y</sub>	AREA OR ROADWAY LIGHT – POLE–MOUNTED		CONDUIT RUN UNDERGROUND, BETWEEN DEV CONCEALED IN NON-ARCHITECTURALLY FINISI
		<u>LIGHTING FIXTURE SUBSCRIPTS:</u> X – INDICATES FIXTURE TYPE PER LIGHTING		OR UNDER FLOOR SLAB. CONDUIT AND CON SIZES SHALL BE THE SAME AS THE HOMERU
		FIXTURE SCHEDULE Y – INDICATES CIRCUIT NUMBER FROM PANELBOARD z – INDICATES CONTROLLING SWITCH (IF REQUIRED)		CIRCUIT.
	X Y	Z – INDICATES CONTROLLING SWITCH (IF REQUIRED) EMERGENCY LIGHT FIXTURE, 2 ATTACHED HEADS AS SHOWN		
	Υ×	EMERGENCY LIGHT, REMOTE MOUNTED HEAD		
**			EMMON	VALLEY 1 7

**NOT REPRODUCIBLE** 

PROPERTY OF TRUCKEE MEADOWS WATER AUTHORITY, RETURN UPON COMPLETION OF PROJECT (Per Homeland Security Act)

**RENO, NEVADA ELECTRICAL SYMBOLS AND LEGEND** 



11/1013

PHOTOVOLTAIC					EQUIPMENT S
POWER SOURCE	DC PHOTOVOLTA CIRCUIT CONTROLLER	NIC 2 R 2 I I I I I I I I I I I I I I I I I I I	V BATTERY ERGY STORAGE 2	ITEM #	EQUIF
SOLAR COMBINER BOX	20A 1P 24VDC RTU 2			1	RTU CABINET, FURNISHED BY TMWA AND IN FREE-STANDING, CONTINUOUS HINGED, FRO MAIN BREAKER, STATUS LIMIT SWITCH, AND ENGINEERING SCE-72EL3624FS ENCLOSURE E501.
				2	HATCH ALARM. INDUSTRIAL SURFACE MOUNT 4402A OR APPROVED EQUAL.
	<u>GENERAL NOTES</u> :			3	FLOAT SWITCH. NORMALLY CLOSED TETHER SJE RHOMBUS #20GMWENC. NO EQUAL.
	1. PHOTOVOLTAIC SOURCE CIRC PARALLEL – CONNECTED PV	MODULE RATED SHORT-	-CIRCUIT	4	JUNCTION BOX. 6"H X 6"W X 4"D, NEMA 4 HOFFMAN A664CHQRFG OR APPROVED EQUA
	CURRENTS MULTIPLIED BY 1 2. DC CIRCUIT BREAKER IS RA	TED NOT LESS THAN 12	25 PERCENT OF	5	PRESSURE TRANSMITTER. HONEYWELL #STG84L-E1G000-1-0-AHH-1
	THE MAXIMUM CURRENT CA 690.9(B)(1).	_CULATED IN 690.8(A)(1	)(1) PER NEC	6	JUNCTION BOX. 12"H X 12"W X 6"D, NEMA HOFFMAN A1212CHFL OR APPROVED EQUAL
	ONE LINE DIAG	GRAM		7	AMERESCO #200J-V SOLAR PANEL AND #1
	KEYNOTES:			8	SOLAR COMBINER BOX. 10.5"H X 4.5"W X MIDNITE MNPV3 AND TWO (2) MNEPV20 OR
	$\begin{array}{c} \hline 1 \end{array} \begin{array}{c} \text{CONNECT TWO AMERESCO} \\ \text{SOLAR COMBINER BOX.} \end{array}$	) 200J–V SOLAR PANEI	LS IN PARALLEL AT	9	VAULT FLOAT SWITCH PN#43980 (VAULT FL FLOAT SWITCH. GEMS LS-270 PN #43980.
	$\langle 2 \rangle$ provided and installer $\langle 3 \rangle$ provided by thwa. Inst			10	JUNCTION BOX. 6"H X 6"W X 4"D, NEMA 4 HOFFMAN A606CHFL OR APPROVED EQUAL.
	4 PHOTOVOLTAIC SYSTEM D SUITABLE FOR USE AS S 690.13(B).			11	JUNCTION BOX. 16"H X 14"W X 8"D, NEMA HOFFMAN A16148CHFL OR APPROVED EQUA
	030.10(0).			EQUIPMENT	SCHEDULE NOTES:
					CONTRACTOR SHALL BE RESPONSIBLE FOR PU QUIPMENT SCHEDULE UNLESS OTHERWISE NO
				AND	EQUIPMENT SCHEDULE IS INTENDED TO BE AS DETAILED INSTALLATION INSTRUCTIONS FOR EQ ATTENTION OF THE PROJECT REP. PRIOR TO
				3. THE (	CONTRACTOR SHALL PROVIDE A COMPLETE IN HE EQUIPMENT SCHEDULE INCLUDING SUPPOR
				4. THE (	CONTRACTOR SHALL PROVIDE, PULL, AND IDEN LAND WIRES AT RTU AND AT FIELD DEVICES.
				ALL T	CONDUITS ENTERING BOXES, PANELS, RTU, ET
					ED CONDUITS.
					RACTOR SHALL SUBMIT DESCRIPTIVE LITERATU RACTOR IS RESPONSIBLE FOR THEIR OWN MA
REVISION	DESCRIPTION	BY APP DATE	WORK ORDER NO		k _
			_ DESIGNEDA. RAGNEV DRAWNR.J. GONZALVO		
			DATEAUGUST 21, 2023 CHECKEDW. ETTLICH		CKEE MEADOWS WATER
			SUBMITTED RECOMMENDED		Quality. Delivered.
A 100% DESIGN SU	BMITTAL	08/21/2	3 APPROVED	1355 CAPITAL BLVD. P	0 BOX 30013 RENO, NEVADA 89520-3013 PHONE: 775-8

Quality. Delivered. 1355 CAPITAL BLVD. PO BOX 30013 RENO, NEVADA 89520-3013 PHONE: 775-834-8080

	EQUIPMENT SCHEDULE (ES)
5 #	EQUIPMENT DESCRIPTION
	RTU CABINET, FURNISHED BY TMWA AND INSTALLED BY CONTRACTOR. 36"W X 24"D X 72"H FREE-STANDING, CONTINUOUS HINGED, FRONT ACCESS ONLY, NEMA 4 STEEL CABINET WITH 20A 1P MAIN BREAKER, STATUS LIMIT SWITCH, AND "HELP" PUSH BUTTON CONTROLS. SAGINAW CONTROL & ENGINEERING SCE-72EL3624FS ENCLOSURE AND SCE-DS36N4 SHIELD, OR APPROVED EQUAL. SEE E501.
	HATCH ALARM. INDUSTRIAL SURFACE MOUNT SWITCH, SPDT, N.O., N.C. MAGNETIC-CONTACT GRI 4402A OR APPROVED EQUAL.
	FLOAT SWITCH. NORMALLY CLOSED TETHER FLOAT SWITCH. SJE RHOMBUS #20GMWENC. NO EQUAL.
	JUNCTION BOX. 6"H X 6"W X 4"D, NEMA 4X, 316 STAINLESS STEEL, HINGED DOOR. HOFFMAN A664CHQRFG OR APPROVED EQUAL.
	PRESSURE TRANSMITTER. HONEYWELL #STG84L-E1G000-1-0-AHH-11S-A-10A0-00-0000. NO EQUAL.
	JUNCTION BOX. 12"H X 12"W X 6"D, NEMA 4X, 316 STAINLESS STEEL, HANDRAIL MOUNTED. HOFFMAN A1212CHFL OR APPROVED EQUAL.
	AMERESCO #200J-V SOLAR PANEL AND #1X-SPM UNIMOUNTING BRACKETS. NO EQUAL.
	SOLAR COMBINER BOX. 10.5"H X 4.5"W X 3.5"D, NEMA 3R, ALUMINUM, UNIMOUNTING BRACKETS. MIDNITE MNPV3 AND TWO (2) MNEPV20 OR APPROVED EQUAL.
	VAULT FLOAT SWITCH PN#43980 (VAULT FLOOD INDICATION). NORMALLY CLOSED BRACKET MOUNTED FLOAT SWITCH. GEMS LS-270 PN #43980. NO EQUAL.
)	JUNCTION BOX. 6"H X 6"W X 4"D, NEMA 4X, 316 STAINLESS STEEL, HINGED DOOR. HOFFMAN A606CHFL OR APPROVED EQUAL.
	JUNCTION BOX. 16"H X 14"W X 8"D, NEMA 4X, 316 STAINLESS STEEL, HINGED DOOR. HOFFMAN A16148CHFL OR APPROVED EQUAL.

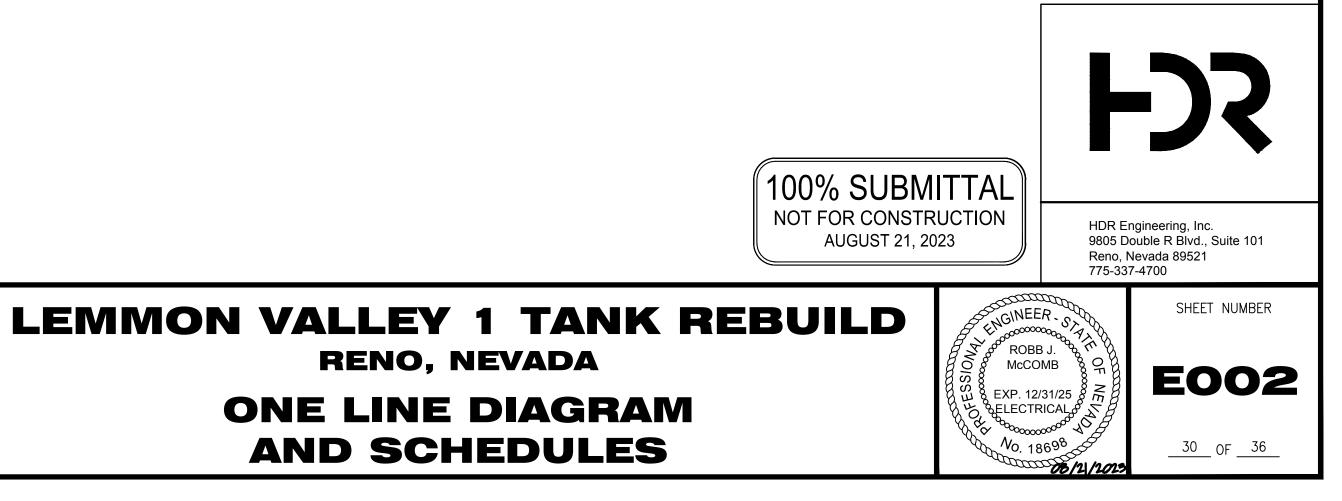
- HE CONTRACTOR SHALL BE RESPONSIBLE FOR PURCHASING AND INSTALLATION OF ALL EQUIPMENT SHOWN I EQUIPMENT SCHEDULE UNLESS OTHERWISE NOTED.
- HE EQUIPMENT SCHEDULE IS INTENDED TO BE AS COMPLETE AS POSSIBLE LESS STANDARD MATERIALS ND DETAILED INSTALLATION INSTRUCTIONS FOR EQUIPMENT. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE PROJECT REP. PRIOR TO BID.
- HE CONTRACTOR SHALL PROVIDE A COMPLETE INSTALLATION OF ALL EQUIPMENT AND DEVICES INDICATED THE EQUIPMENT SCHEDULE INCLUDING SUPPORTS AND OTHER INSTALLATION MATERIALS NEEDED.
- HE CONTRACTOR SHALL PROVIDE, PULL, AND IDENTIFY ALL WIRES AND CABLES. TMWA WILL TERMINATE ND LAND WIRES AT RTU AND AT FIELD DEVICES. CONTRACTOR SHALL PROVIDE SUFFICIENT LENGTHS FOR L TERMINATIONS.
- LL CONDUITS ENTERING BOXES, PANELS, RTU, ETC. SHALL BE INSTALLED WITH MYERS HUBS. CAP ALL NUSED CONDUITS.
- ONTRACTOR SHALL SUBMIT DESCRIPTIVE LITERATURE ON ALL EQUIPMENT AND MATERIALS TO BE USED. ONTRACTOR IS RESPONSIBLE FOR THEIR OWN MATERIAL QUANTITY TAKE-OFFS.

		CONDUIT AND CAB	LE SCHEDULE
TAG	CONDUIT SIZE	FILL	REMARKS
1	1"	#18 TSP (PRESSURE TRANSMITTER)	
I	1"	2#14, #14G (VALVE VAULT) 2#14 (VAULT FLOOD SWITCH)	
2	2"	PULLROPE	TURNS SHALL NOT EXCEED BEND RADIUS OF FUTURE ANTENNA CABLE. VERIFY ANTENNA CABLE WITH TMWA.
3	3/4"	2#14, #14G (TANK) 2#14 (FLOAT SWITCH)	
4	3/4"	PULLROPE	FUTURE LADDER ALARM
5	1"	2#14, #14G (TANK) 2#14 (FLOAT SWITCH) 2#14 (FUTURE LADDER ALARM)	FOR FUTURE LADDER ALARM, PROVIDE ADDITIONAL CONDUCTOR LENGTH TO REACH LADDER ALARM LOCATION AND COIL IN JUNCTION BOX ON TANK ROOF FOR FUTURE USE.
6	1"	2#10, #10G (SOLAR PANEL)	
7	3/4"	2#14, #14G (TANK)	
8	3/4"	#18 TSP (PRESSURE TRANSMITTER)	
9	3/4"	2#14, #14G (VAULT FLOOD SWITCH)	
10	3/4"	2#10, #10G (SOLAR PANEL)	

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PROPERTY OF

TRUCKEE MEADOWS WATER AUTHORITY, RETURN UPON COMPLETION OF PROJECT (Per Homeland Security Act)





# TRUCKEE MEADOWS WATER N U T H O R I T Y Quality. Delivered. TMWA STANDARD CONDUIT AND WIRING REQUIREMENTS

TABLE	26 00 00.A – CONDUIT REQUIREMENTS	5								
	Location	Power	Control	Analog, Communication	Data	Elbow Sweeps	Stub-ups, Exposed	Stub-ups, Concealed	Grounding System	Additional Details
	Outside/Wet locations	RGS	RGS	RGS	RGS	RGS	PVC-RGS	PVC-RGS	BD-RGS	
OSED	Wet locations. Vaults, pump stations and Well-houses or where subject to physical damage	RGS	RGS	RGS	RGS	RGS	PVC-RGS	PVC-RGS	BD-RGS	
EXP	Inside dry locations. (i.e. office areas)	EMT	EMT	EMT	EMT	EMT	PVC-RGS	PVC-RGS	EMT	
	Inside Chemical Rooms	PVC (sch. 40)	PVC (sch. 40)	PVC (sch. 40)	PVC (sch. 40)	PVC (sch. 40)	PVC (sch. 40)	PVC (sch. 40)		Other specified locations
ь.	Not in Traffic	PVC (sch. 40)	PVC (sch. 40)	PVC (sch. 40)	PVC (sch. 40)	PVC-RGS	PVC-RGS	PVC-RGS		
DIRECT BURY	In Traffic ENC-PVC		ENC-PVC	ENC-PVC	ENC-PVC	ENC-PVC-RGS	PVC-RGS	PVC-RGS		
0 8	Underneath Concrete Slabs	PVC (sch. 40)	PVC (sch. 40)	PVC (sch. 40)	PVC (sch. 40)	PVC-RGS	PVC-RGS	PVC-RGS PVC-RGS		
Δ	Concrete Encased Duct Bank	PVC (sch. 40)	PVC (sch. 40)	PVC (sch. 40)	PVC (sch. 40)	PVC-RGS	PVC-RGS	PVC-RGS		
CTE	In Slab	PVC (sch. 40)	PVC (sch. 40)	PVC (sch. 40)	PVC (sch. 40)	PVC-RGS	PVC-RGS	PVC-RGS	RGS	All in-slab RGS shall be tape
ROTE	In CMU Walls	PVC (sch. 40)	PVC (sch. 40)	PVC (sch. 40)	PVC (sch. 40)	PVC-RGS	PVC-RGS	PVC-RGS	PVC-RGS	wrapped with 10 mil tape or PVC-RGS shall be used.
РК	In Stud Walls	In Stud Walls EMT		ΕΜΤ	ΕΜΤ	EMT	EMT	ΕΜΤ	EMT	Coordinate max conduit size with structural documents
R	Rigid Galvanized Steel PVC C (RGS)	Coated Rigid Galvanized (PVC)	d Steel C-RGS) Bonded	Rigid Galvanized Steel	(BD-RGS) Electri	cal Metallic Tubing <b>(EN</b>	IT)	blyvinyl Chloride, sched (PVC, sc	L Concrete	Encased Polyvinyl Chloride (ENC-PVC)

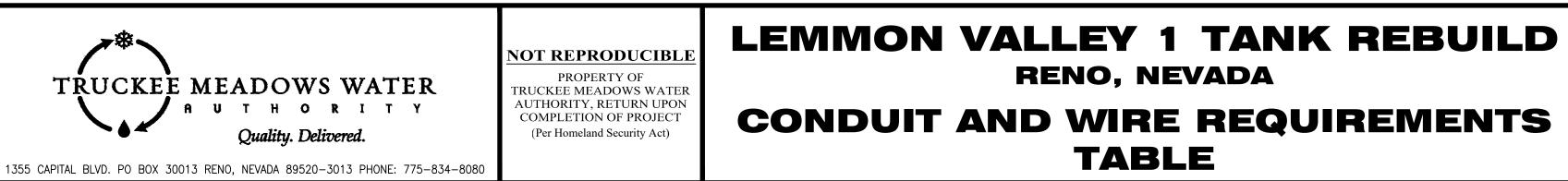
### TABLE 26 00 00.B – WIRING REQUIREMENTS

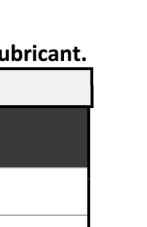
	Phase Code/ Letter	480 VAC Зф	110v-240VAC Зф	120-240VAC 1ф		Description	Туре	Wire Color	AWG	Other Conditions	Wire Color	Cable Type	Additional Notes:	
	Α	BR	BK				Control	YL						
	В	OR	RD (OR) if high L			AC	Neutral	WH/YL		Shielded Pair	Red/Black	Belden 1120A Wet location	All wires shall have an insulation rating 600V, stranded, copper. Tin coated is c Control wiring shall be type MTW/UL10	
	С	YL	BL				Ground	GN						
~	N	GY	WH	WH	oL	12 VDC	Positive	Red				Belden 5300FE Dry Location	Power Wiring shall be type XHHW	
WER	G	GR	GR	GR	NTRO		0V or (-)	Black	16 MTW					
PO	L1			ВК	CON		Ground	GN		ADDITIONAL SPECIAL REQUIREMENTS				
	L2			RD			Positive	BLUE		Variable Fi	equency Drives	VFD cables shall be rated for use in this application		
	AWG	size per load requirement per NEC			ŝ.	24 VDC	0V or (-)	WH/BL		Underwa	ter Cable Applica	ations	Submerged cables and connections shall b appropriate	
	Solar	Positive (RD	) Negative (BK)	Ground (GN)	Ground (GN)		Ground	GN						

	Brown	Orange	Yellow	Grey	Green	Black	Red	Blue	White	White/Blue	White/Yellow	Black/White	Red/Black
	(BR)	<b>(OR)</b>	<b>(YL)</b>	<b>(GY)</b>	<b>(GN)</b>	<b>(BK)</b>	<b>(RD)</b>	<b>(BL)</b>	<b>(WH)</b>	<b>(WH/BL)</b>	<b>(WH/YW)</b>	(BK/WH)	(RD/BK)
-													

DESCRIPTION REVISION APP DATE BY WORK ORDER NO. 14-0035 DESIGNED A. RAGNEV R.J. GONZALVO DRAWN DATE \_\_\_ AUGUST 21, 2023 W. ETTLICH CHECKED . SUBMITTED \_ RECOMMENDED APPROVED \_ 100% DESIGN SUBMITTAL

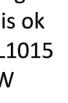
### Note: All threaded conduit to be assembled with conductive lubricant.

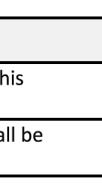


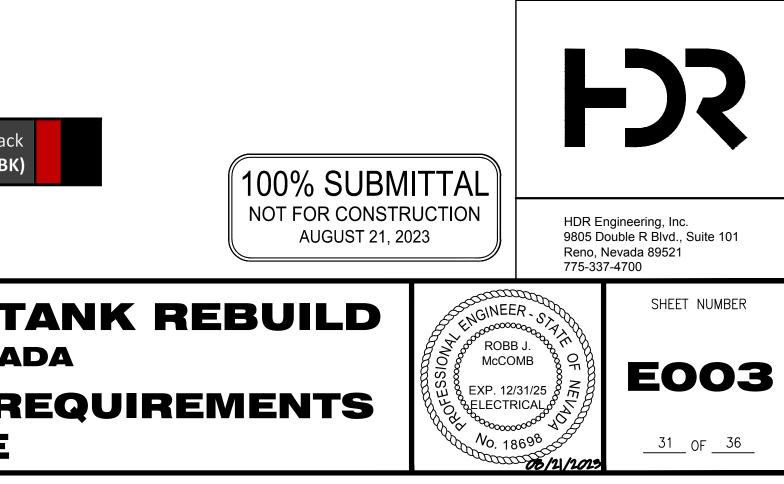


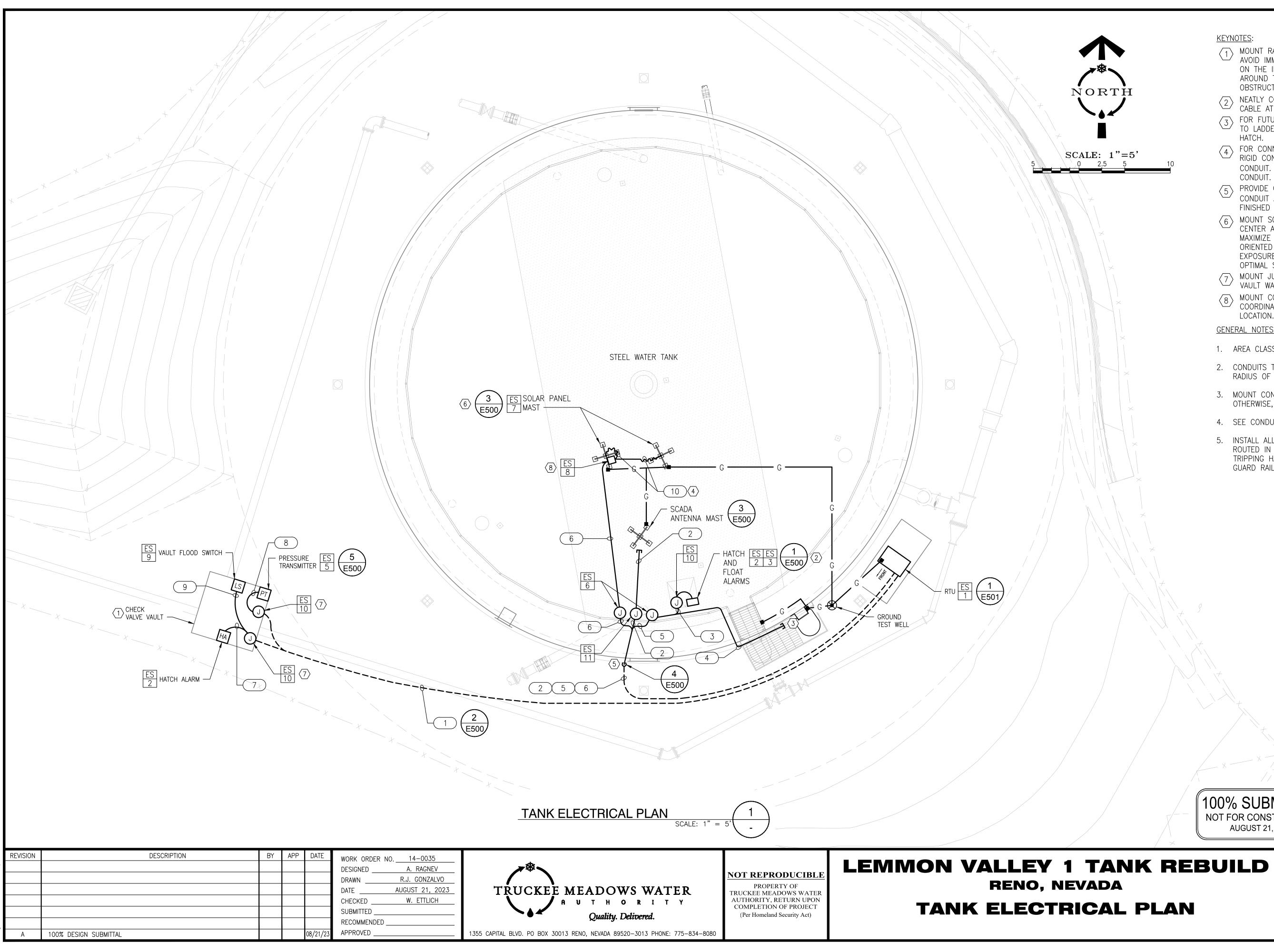












<u>KEYNOTES</u>:

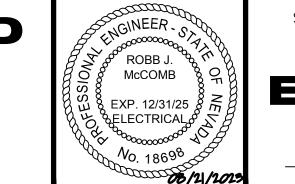
- (1) MOUNT RACEWAYS AND BOXES HIGH INSIDE VAULT TO AVOID IMMERSION. ROUTE ALL CONDUITS IN THE VAULT ON THE INNERSIDE OF THE VAULT WALL. ROUTE AROUND THE SIDES TO AVOID ANY CONDUITS OBSTRUCTING ACCESS, TYP.
- (2) NEATLY COIL AND SECURE EXCESS FLOAT SWITCH CABLE AT THE TERMINATION JUNCTION BOX.
- 3 FOR FUTURE LADDER HATCH ALARM. ROUTE CONDUIT TO LADDER HATCH AND CAP IMMEDIATELY ABOVE HATCH.
- (4)FOR CONNECTION TO SOLAR PANEL, TRANSITION FROM<br/>RIGID CONDUIT TO LIQUID TIGHT FLEXIBLE METAL CONDUIT. NOT EXCEEDING 3' LENGTH OF FLEXIBLE CONDUIT.
- 5 PROVIDE C-TYPE CONDULET ON EACH TANK RISER CONDUIT AS PULL-POINT AND MOUNT 3' ABOVE FINISHED GRADE.
- $\overline{(6)}$  MOUNT SOLAR PANEL MASTS AT LEAST 6' APART ON CENTER AND ALIGNED FROM EAST TO WEST TO MAXIMIZE SUN EXPOSURE. SOLAR PANELS SHALL BE ORIENTED SOUTH AND ANGLED FOR MAXIMUM EXPOSURE. COORDINATE ANGLE OF SOLAR PANEL FOR OPTIMAL SUN EXPOSURE ALL YEAR LONG.
- $\overline{\langle 7 \rangle}$  MOUNT JUNCTION BOXES ON THE SIDE OF THE VALVE VAULT WALL AS HIGH AS POSSIBLE, TYP.
- 8 MOUNT COMBINER BOX ON THE SOLAR PANEL MAST. COORDINATE IN THE FIELD FOR OPTIMAL MOUNTING LOCATION.

**GENERAL NOTES:** 

- 1. AREA CLASSIFICATION: OUTDOOR/WET.
- 2. CONDUITS TRAVERSING TANK KNUCKLE SHALL MATCH THE RADIUS OF THE KNUCKLE.
- 3. MOUNT CONDUITS TO GUARDRAIL WHEN POSSIBLE. OTHERWISE, MOUNT TO TANK PER DETAIL 4 ON E500.
- 4. SEE CONDUIT AND EQUIPMENT SCHEDULES ON E002.
- 5. INSTALL ALL CONDUITS ON THE TANK EXPOSED AND ROUTED IN THE SAME LOCATIONS TO AVOID AS MANY TRIPPING HAZARDS AS POSSIBLE, TYP. MOUNT BEHIND GUARD RAILS WHERE POSSIBLE.



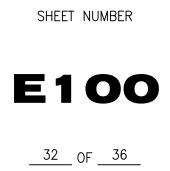
HDR Engineering, Inc. 9805 Double R Blvd., Suite 101 Reno, Nevada 89521 775-337-4700

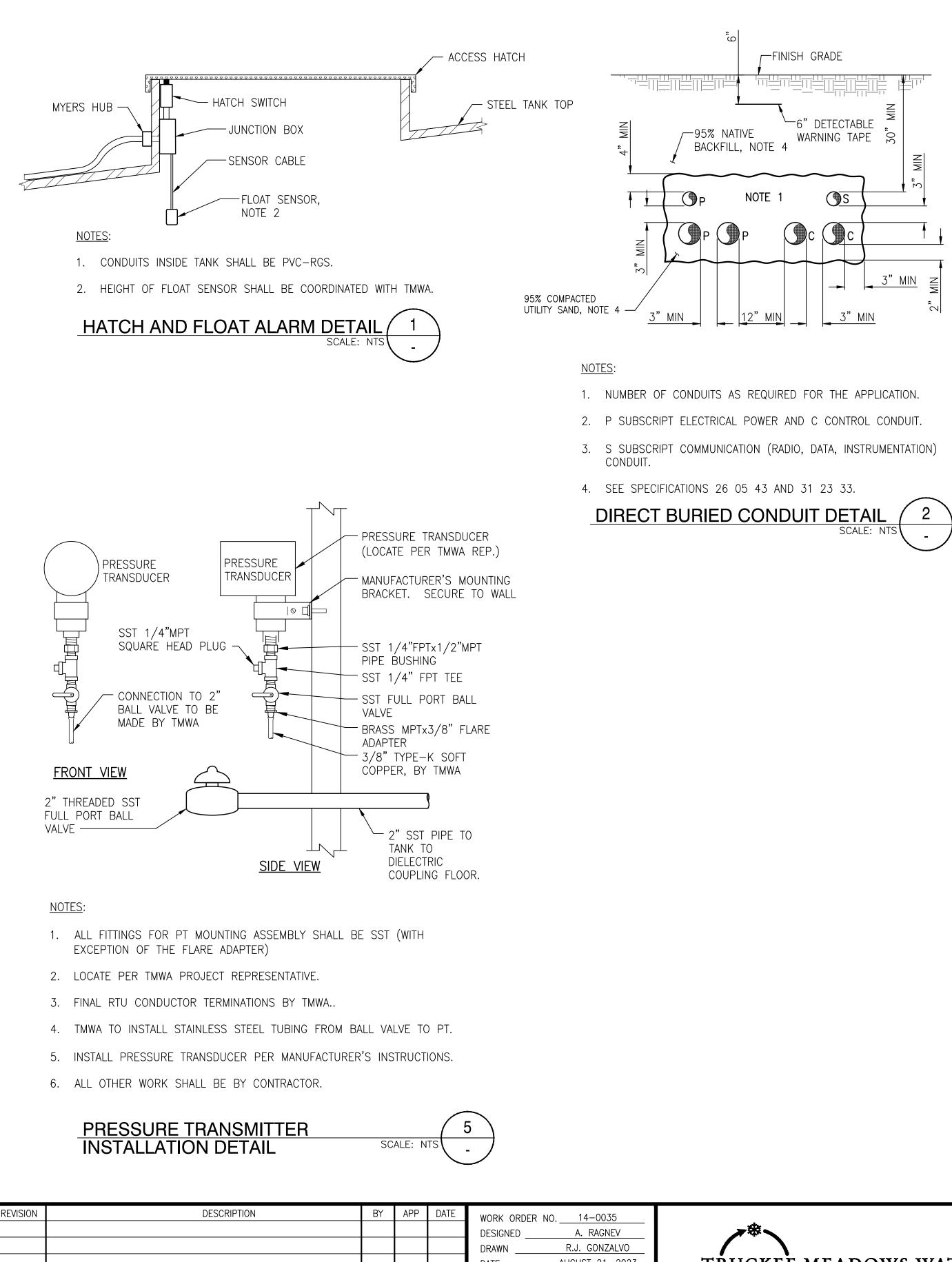


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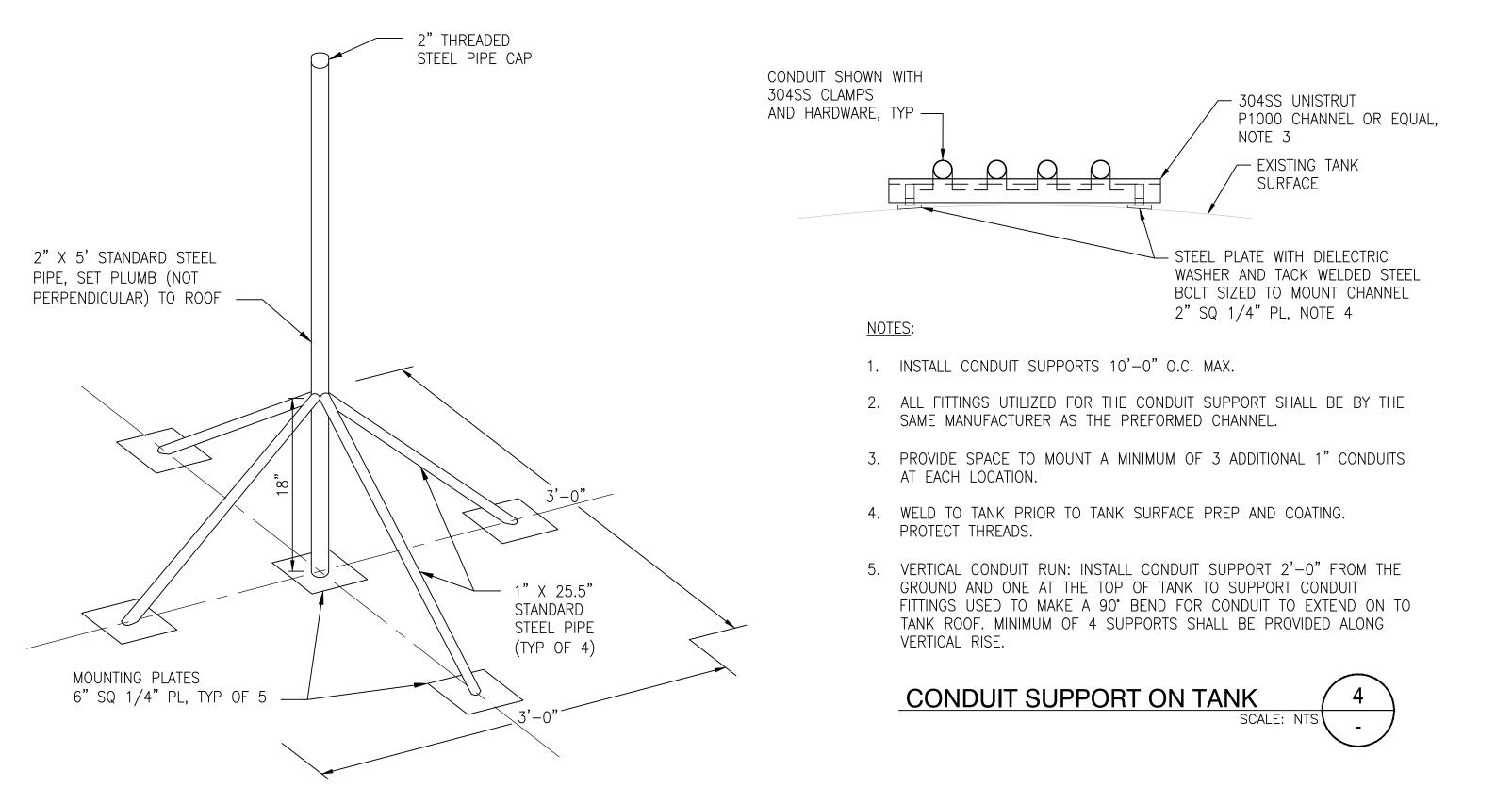
NOT FOR CONSTRUCTION

AUGUST 21, 2023





REVISION	Γ	ESCRIPTION	BY	APP	DATE	WORK ORDER	NO. 14-0035	
						DESIGNED	A. RAGNEV	
						DRAWN	R.J. GONZALVO	
						DATE	AUGUST 21, 2023	T I
						CHECKED	W. ETTLICH	
						SUBMITTED		
						RECOMMENDED	)	
А	100% DESIGN SUBMITTAL				08/21/23	APPROVED		1355 CAPITA



### NOTES:

- 1. TANK-TOP MASTS SHALL BE FABRICATED STEEL ASSEMBLIES WELDED TO THE TANK ROOF. COORDINATE WELDING OF MOUNTING PLATES TO OCCUR PRIOR TO TANK SURFACE PREP AND COATING. MAST SHALL RECEIVE SAME COATING AS TANK ROOF.
- 2. DIMENSIONS ARE NOMINAL. ADJUST AS NECESSARY TO MATCH CURVATURE OF TANK.

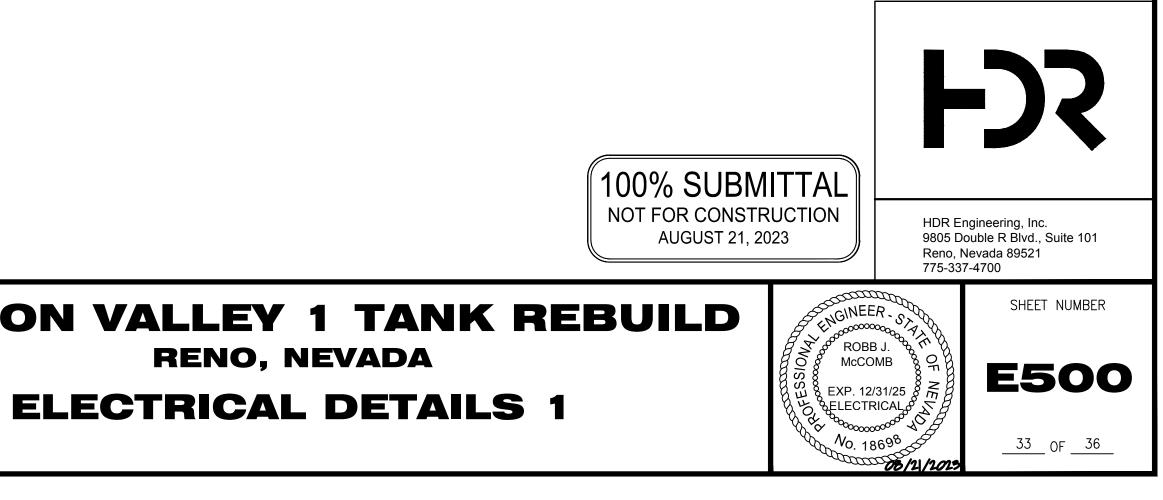
SOLAR PANEL AND ANTENNA MAST DETAIL 3

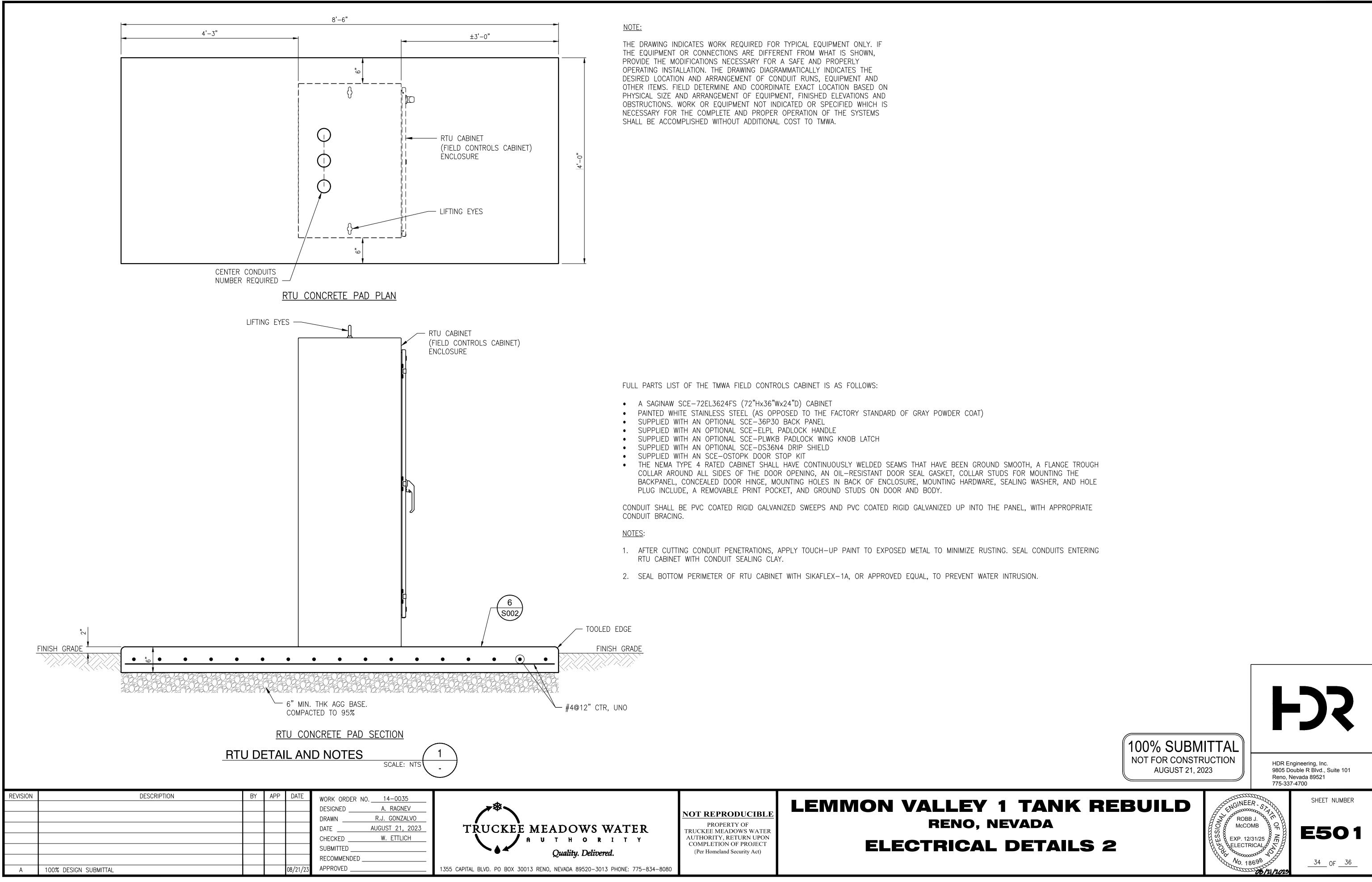


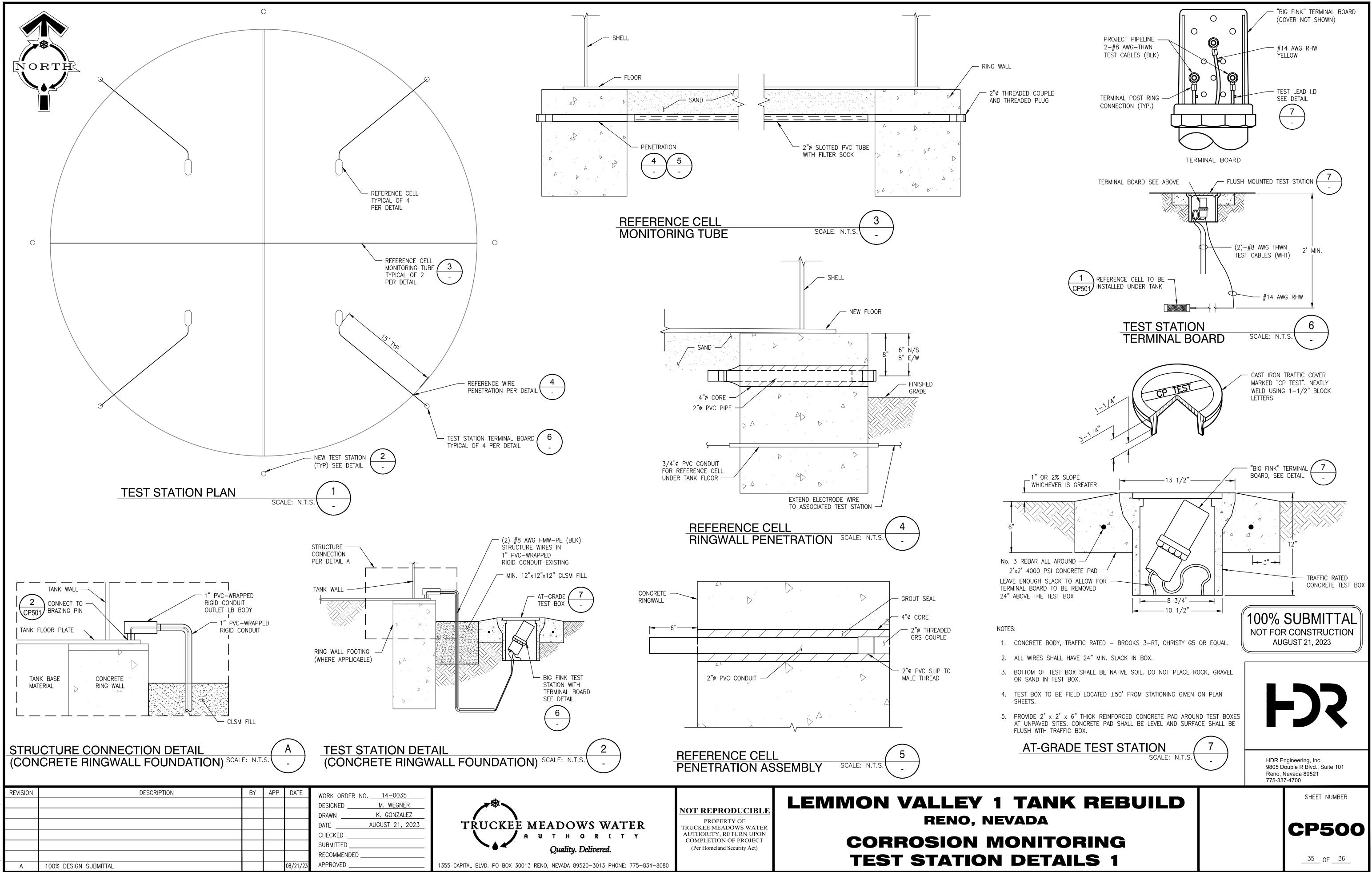
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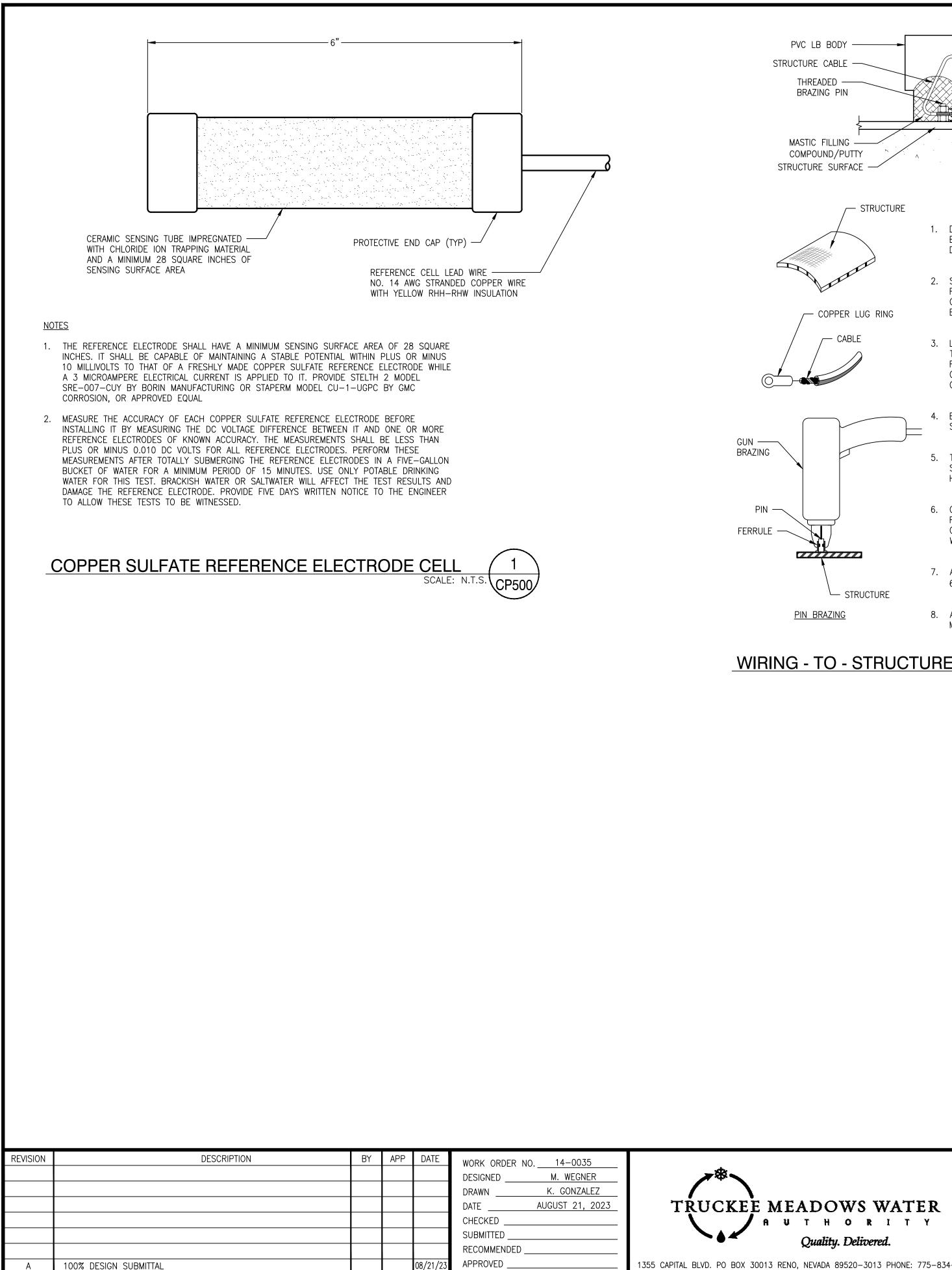
PROPERTY OF TRUCKEE MEADOWS WATER AUTHORITY, RETURN UPON COMPLETION OF PROJECT (Per Homeland Security Act)

# **LEMMON VALLEY 1 TANK REBUILD RENO, NEVADA**

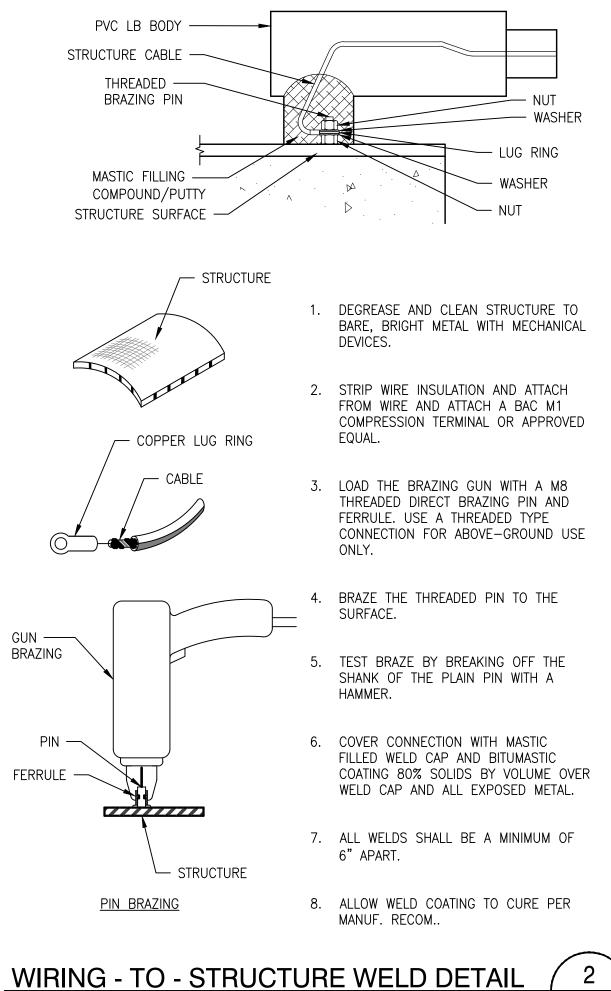








 1355	CAPITAL



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SCALE: N.T.S. CP500

PROPERTY OF TRUCKEE MEADOWS WATER AUTHORITY, RETURN UPON COMPLETION OF PROJECT (Per Homeland Security Act)

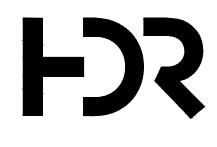
# **LEMMON VALLEY 1 TANK REBUILD RENO, NEVADA**

# **CORROSION MONITORING TEST STATION DETAILS 2**

BLVD. PO BOX 30013 RENO, NEVADA 89520-3013 PHONE: 775-834-8080







HDR Engineering, Inc. 9805 Double R Blvd., Suite 101 Reno, Nevada 89521 775-337-4700

SHEET NUMBER

**CP501** 

<u>36</u> OF <u>36</u>