

East Sedona Water Storage Tank, Booster Pump Station and Related Appurtenances

Conditional Use Permit Package

April 2018





**East Sedona Water Storage Tank,
Booster Pump Station and Related Appurtenances**

City of Sedona
Planning and Zoning Commission
Resubmittal

April 10, 2018

Project: Arizona Water Company - East Sedona Water Storage Tank and Booster Pump Station
Project
55 Bell Rock Trail, City of Sedona
APN 401-33-031 (029T, 029V, 029W and 029Y)

Dear Planning and Zoning Commission

Arizona Water Company (Company) has received your comments dated February 15, 2017; and attached are responses to the comments including the following supporting documentation:

- 1- City of Sedona comments and responses
- 2- Citizen Participation Plan
- 3- Material from public meetings and citizens comments
- 4- Updated Project Report with appendices and revised conceptual drawings
- 5- Drainage report with appendices

We would like to reiterate the Company's commitment to complying with the City of Sedona's planning and design guidelines and Land Development Code.



Water Works Engineers, LLC

A handwritten signature in blue ink that reads "John H. Matta".

John H Matta, PE
Principal

PZ17-00001 (CUP, DEV)

CURRENT PLANNING COMMENTS

1. COMMENT: A public hearing for this project will be scheduled after all comments are addressed and additional information provided. If there are any areas requiring clarification or additional information, please schedule a meeting with staff.

Response - Noted

2. COMMENT: Please ensure that changes made based on the following comments are reflected on all applicable pages.

Response - Noted

3. COMMENT: Various sections of the Sedona Land Development Code (SLDC) are referenced in these comments. The SLDC can be found online at <http://www.codepublishing.com/AZ/Sedona/ldc.html>.

Response - Noted. The referenced standards were reviewed during the development of the package. We believe that we have met the applicable requirements and we will continue to reference the Code as required.

4. Letter of Intent (LOI):

- a) Please describe how access to and from the site will be managed.

Response - Access to the site is planned from SR 179 via Cathedral Rock Trail and then heading northerly to Bell Rock Trail. Paragraph 3.1.1 is updated to reflect this information.

- b) On the provided Plant List (Appendix D), please include the total number of plants of each species proposed. Please ensure the trees and shrubs meet the plant selection requirements of SLDC 910.05.D regarding percentages of native and evergreen plants. Refer to the Plant List in the Design Review Manual for information on which plants are considered native (available online: <http://www.sedonaz.gov/home/showdocument?id=25027>).

Response – Updated plant list and quantities are shown in revised Drawing L-101 and L-102.

- c) Please indicate what types and decibel levels of noise may be realized with this operation and how that noise will be mitigated.

Response - The pump and motors will be specified to produce 80 dba at 3 ft from the equipment. The building wall design will reduce the dba by 50 dba. At the property boundary, the dba level is estimated between 30 and 35 dba. In addition, the doors will be padded to mitigate noise.

- d) Not all letters of serviceability listed in the LOI are provided in the packet. Please provide all required letters.

Response - Letters from APS and Century Link were provided and will address electrical and communication. No additional utilities are needed for the site.

- e) Page 14 states that “The primary water supply will be from groundwater wells including wells xx and xx.” Please identify “xx”.

The well numbers have been included in the report.

5. Site Plans:

- a) Please provide a roof plan showing top of parapet elevations and 2 foot contours.

Response - A roof plan is added to the drawing set.

6. Landscaping Plan:

- a) Please indicate all existing trees over 2 inches DBH, providing canopy size and species, those trees to be removed clearly marked. All other trees to be preserved must be protected, with construction envelope fencing shown clearly on plans.

Response - Landscaping plan is updated to show the construction envelope (Limit of Disturbance).

- b) Please include the location of all trees and landscaped areas, as indicated in the LOI.

Response – The Landscape Plans (L-102) have been updated to show the type, location and quantities of the existing and proposed plants. The Landscape Plan is also showing Planting Notes and Restoration and Revegetation Notes.

- c) COMMENT: Please ensure that all plants chosen meet the following minimum planting requirements: Trees must be 8 feet in height and trunk diameter of 2 inches, shrubs must be a minimum of 2 feet in height.

Response - Please refer to notes (List of Trees) on Landscape Plan (L-102). Tree size shown is 8 feet high with minimum 2" caliper.

7. The application packet is missing the following items:

- a) Exterior Materials Board: Samples of all proposed exterior paints or stains with LRV indicated, and samples of roof and all other exterior materials.

Response – Construction material and proposed colors/paints are included in a material board in the drawing set.

- b) Lighting Plan: The LOI states that new lighting will be used. Please submit the required lighting plan. The lighting plan must be in compliance with SLDC 911 (Outdoor Lighting), including a site plan, lumen calculations, and cut sheets for all new lighting fixtures.

Response - A lighting plan and light fixture cut sheets are included in the revised drawing set.

- c) Sign Plan: The LOI states that limited signage will be used, beyond exempt signs such as address and informational signs. If any nonexempt signs are to be used, a complete sign plan must be provided.

Response - Nonexempt signed will not be used for this site. A signage plan (A-103) is added to the drawing set.

8. Prior to scheduling a public hearing, the applicant will need to provide Staff with their Citizen Participation Report. For requirements regarding what needs to be included in the report, please refer to SLDC 408: Citizen Review Process.

Response – A public participation plan is attached.

9. Potential Fees: The following fees are provided as a rough estimate of what may be due. Fees are subject to change and a final determination of fees due will be made at the time of building permit issuance.

- a) Development Impact Fees: Development Impact Fees will be determined by the Director at the time of building permit submittal. If the site is determined to be a Commercial use, the fees would be \$3.37/square foot. If the site is determined to be an Industrial use, the fees would be

\$0.98/square foot. Based on the use of the buildings and the site, a combination of these fees may be charged.

Response - Noted

- b) Storm Drainage Fees: This property is located in the Oak Creek Wash and is not charged for drainage fees at this time.

Response - Noted

- c) Sewer Capacity Fees: These fees will be determined based on use. Please contact Ryan Mortillaro at (928) 203-5091 or rmortillaro@sedonaaz.gov in Engineering Services for an estimate of potential fees.

Response - A sewer connection will not be required for this site

SEDONA COMMUNITY PLAN COMMENTS

Conclusion:

The Sedona Community Plan does not directly address standards for water and other utility infrastructure. The Land Development Code and the Conditional Use Permit review process are intended to address Community Plan policies such as the preservation of scenic views relative to new development. Staff believes that this proposal is taking steps to address these policies in their intent to place most of the water tank underground and to maintain the natural condition of the site as much as possible.

Response - Thank you for confirming that the proposed design will address the City open space policy

ENGINEERING COMMENTS

For the next level of review:

1. Please provide a preliminary drainage report. Provide detention for the 2, 10, 25, and 100-year events if the development will increase runoff by ≥ 1 CFS.

Response – A Preliminary Drainage Report is attached

2. Reservoir overflow should flow into a swale or ponding to reduce drainage erosion impact.

Response – The overflow piping and drainage box are added with a rock apron downstream to reduce drainage erosion impact. Please refer to revised Drawing C-101 and Drawing C-201.

3. The City of Sedona sewer easement on this parcel does not match existing easement.

Response – Exhibit corrected per information obtained from City of Sedona. See revised Drawing G-101.

Prior to Issuance of Building Permit:

4. Applicant shall follow the City of Sedona Land Development Code in its entirety.

Response – Noted - Applicant will follow the City of Sedona Land Development Code.

5. For projects involving grading of more than 5,000 cubic yards, a haul plan, a dust control plan, a topsoil reutilization plan, a stormwater pollution prevention plan, and a traffic control plan shall be required. Each must be acceptable to and approved by the City Engineer. (LDC 806.2.1)

Response - Noted – In case the project grading involves more than 5,000 cubic yards, the listed plans will be submitted with the Building Permit Application

6. Provide Final Grading and Drainage Plans. The Site Plan shall meet the requirements of LDC Section 803.

Response - Final Grading and Drainage Plans will be submitted with the Building Permit Application

7. Provide the Final Drainage Report.

Response – Noted – Final Drainage Report will be submitted with the Building Permit Application.

8. Applicant shall provide a Storm Water Pollution Prevention Plan. SWPPP measures shall be in place prior to the start of construction (LDC Article 8). Storm water quality measures shall also comply with City of Sedona Code requirements (City Code Chapter 13.5)

Response – Noted. This requirement will be adhered to.

9. Applicant shall follow the City of Sedona Land Development Code in its entirety.

Response – Noted. The Applicant is and will follow the City of Sedona Land Development Code in its entirety.

SEDONA FIRE DISTRICT

1. Premises-identification shall be clearly posted prior to final occupancy. Numbers shall be visible and legible from the street. Number colors shall be contrasting to their background. Provide proper address numbers including suite numbers.

Response - The address information will be displayed to comply with this comment and other City requirements. The building is a single facility and does not include multiple suites. A signage plan (A-103) is added to the drawings.

2. All buildings shall be provided with UL listed or equivalent portable fire extinguishers. Fire extinguishers shall be installed in accordance with the National Fire Protection Association's pamphlet #10, "Standard for Portable Fire Extinguishers" the 2002 edition. The travel distance to any fire extinguisher shall not exceed 75 feet from any point in a building.

Response – A Fire Plan (A-104) is added to the drawings including this requirement.

3. Extinguishers shall be classified at least 2A10BC or greater, containing at least 5 pounds of dry chemical agent. Units shall be serviced and tagged by a reputable fire extinguisher company prior to the unit being displayed for use. Provide a unit near each exit on each floor.

Response - Location of fire extinguishers is added to the Fire Control Plan. Notes are added to the floor plan (A-104) to capture the fire sprinkler types.

4. Section 903.2: All commercial buildings hereafter constructed shall be equipped with an approved automatic fire sprinkler system. Systems shall be installed in accordance with the National Fire Protection Association's pamphlet #13R, "Standard for the Installation of Sprinkler Systems in Residential Occupancies up to and Including Four Stories in Height" the 2002 edition. Plans, specifications and hydraulic calculations shall be submitted to this office for review prior to installation. A framing inspection will not be conducted until a set of sprinkler plans is approved. This installation requires a separate construction permit through this office.

Response – Noted. A Fire Control Plan is added to the drawing set. The Fire Control Plan shows fire sprinklers in the pump room and chemical room. A dry agent fire system is proposed in the electrical room.

5. Section 508.1: An approved water supply capable of supplying the required fire-flow shall be provided. Fire hydrants shall be installed in accordance with the local water purveyor and as required by this office. Hydrants shall be situated on at least six-inch mains, eight-inch if dead-end.

Response – This facility will be used to improve the water supply needed for fire mitigation and can supply and receive water from the water distribution system. The water line connecting this facility to the distribution system will be used to supply water to the fire sprinkler system in the building.

6. Section 506.1: All buildings equipped with automatic fire sprinklers, fire alarms or commercial kitchen cooking fire suppression systems shall be provided with an approved KNOX key box. This box is available for online purchase through the Knox Company, <http://www.knoxbox.com/store/Knox-Box-3200-Series.cfm>. The minimum unit is a Knoxbox 3200 series.

Response - A Knox box is shown on the drawing (A-104) and will be provided in accordance with provided information

7. These comments shall not be meant to exclude any applicable fire code requirements adopted by the Sedona Fire District or other regulatory agencies. The adopted fire code is based on the 2003 edition of the International Fire Code with amendments as approved by the Arizona State Fire Marshal.

Response - Noted

8. All inspections required by the fire code shall be scheduled with this office including a final inspection upon completion of work. It is your responsibility to provide proof of fire inspections to the City of Sedona, Community Development Department, prior to a certificate of occupancy being issued. Copies of fire inspection reports are left on site with the requesting contractor.

Response - Noted

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Conceptual Design Report April 2018





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.....FEMA Flood Insurance Rate Map (FIRM)

Appendix B

Appendix C Geotechnical Reports

..... Plant Palette

Appendix D

Appendix E “Will Serve” Letters

1 INTRODUCTION

Arizona Water Company recently completed a water masterplan for the east Sedona area to address water demands, water supply sources, storage, and booster pump station requirements. The masterplan recommended the East Sedona Water Facility to provide water storage and a pumping facility. The selected site is located at the intersection of W Mallard Dr and Hwy 179 as shown in Figure 1 below.

Figure 1 Vicinity Map



The site will include the following major facilities:

- Water storage tank with 1.5 million gallon (Mgal) maximum capacity
- Booster station with pumping flow ranging between 350 and 3000 gallons per minute (gpm)
- Ancillary Facilities

2 SITE DESIGN

The East Sedona Water facility site layout was planned with careful attention to the City of Sedona requirements for open space, integration with the surrounding properties and preserving the

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delicate nature in Sedona. Refer to Appendix A for the conceptual design drawings depicting the overall site layout, elevations and landscaping drawings.

As stated in the City of Sedona site planning guidelines, the proposed layout is developed to preserve the physical characteristics of the site and the contextual influences of the surrounding area as much as possible. Key physical site attributes that were identified, analyzed, and considered in the planning process include:

- Topography, existing landforms and significant rock outcrops, with slope areas over 25% highlighted.
- Existing vegetation and trees, especially areas that have been minimally disturbed.
- Soil properties and depth to bedrock.
- Existing watercourses, floodway and flood plain areas, and drainage patterns.
- Important site features that are either potential amenities or hazards.
- View corridors and prominent views from points surrounding the site as well as from the site.

Key contextual influences that were identified, analyzed, and considered in the planning process include:

- Land use and site organization in relation to building form, character and scale of existing and proposed development.
- Sensitivity and nature of adjoining land uses.
- Location of property boundaries and setbacks.
- Location of adjacent roads, driveways, off-street vehicular connections, pedestrian ways, access points and easements.
- Existing structures and other built improvements.
- Other features of the site and/or surrounding area that may be impacted by or may impact the proposed development.

2.1 SITE DESIGN AND PLANNING PRINCIPLES

As indicated by the City guide manual, the principal goal of site design and planning is to sensitively fit the built environment into the natural environment with minimal disturbance to the natural ecosystem.

- The proposed design will locate the tank below the finished grade and restore the site to its pre-construction conditions except for the superstructure which will include the pump room, electrical room and chemical area. The superstructure concept is developed to blend with the surrounding residential, rural aspect of the area.
- Site grading is developed to maintain the existing contours as much as possible including the existing drainage ways while keeping the top of the tank below grade or 2 to 3 ft above



grade. Finished floor elevations of the building and parking areas will transition with the grades of the site.

- Existing vegetation and mature trees will be restored to pre-existing conditions where applicable.
- The tank is located below grade and top of tank and the building are sited to take advantage of the natural topography of the site so that the apparent mass and bulk of large structures can be reduced.
- Site design will be influenced and guided by significant site features, such as rock outcrops, washes and prominent views enjoyed by key locations within the public realm.
- The existing disturbed easement and access roads were kept and their use maximized.
- Natural features and vegetation are preserved wherever possible, rather than removed and replaced.

2.2 ARRANGEMENT OF SPACES

Successful site planning requires the arrangement of outdoor spaces and buildings in ways intended to create attractive and functional spaces for people’s relaxation, business or pleasure. As stated in the City’s guidelines, site designs should respond to local contextual influences and to the design and layout of adjoining developments. Applicable elements that were coordinated with adjacent sites include:

- Shared driveways for accessing adjoining streets – the proposed design uses the existing driveway to access the site.
- Linkages/continuation of open space systems – a perimeter wall will not be provided to allow for the landscaped areas and natural areas to integrate with the surrounding landscape.
- Perimeter open space and landscape buffer zones – to blend in with the surrounding properties.
- Areas and access for refuse collection – will be coordinated with the access driveway.
- Drainage and detention facilities – will be designed to take advantage of the site natural drainage.
- Shared utility easements.

The site arrangement also took into consideration the setback requirements stated in Table 1.

Table 1 Minimum Setback Requirements

Description	Value
Front	25 feet
Side	25 feet
Rear	25 feet



2.3 VIEWSHED ANALYSIS

Due to the value and importance of scenic beauty in the Sedona area, an essential project goal is to preserve, where feasible, existing views important to neighboring properties. The project also considered the probable impact of the proposed superstructure on future potential building and developments. The project team evaluated the views from the site and into the site as stated below:

- Views from within the site are not critical due to the function of the site. The design identified open views to surrounding landscape and red rock formations.
- Views into the site were considered more critical and identified the area corridors from which the new development could be seen. The site plan is developed to minimize visual impact and identify possible mitigating measures such as locating the tank below grade.

2.4 SENSITIVITY TO HISTORICAL SITES, STRUCTURES AND ROADWAYS

This criterion is not applicable to this site. The existing lot does not contain any historical structures or buildings.

2.5 COMMUNITY CONTEXT

The proposed building is consistent with the profile and architecture encouraged by the City which avoids flat surfaces and uses “projected” shapes to enhance the architectural character of the proposed building.

2.6 DRAINAGE WAY DESIGN

The tank and building are located to preserve the existing drainage courses in their natural pre-construction conditions. Specific consideration was given to the following:

2.6.1 FLOOD ZONE

The Water Facility Site is located outside of the 100-year flood zone. Refer to Appendix B showing FEMA flood zone map of the area.

2.6.2 DRAINAGE WAYS

The drainage design within the site will be based on the City of Sedona drainage requirements. The existing site grade slopes to the northwest corner. This flow pattern will be preserved. Soil stabilization, when needed, will be performed using native rocks from the excavation performed at the site. The rocks will be laid in naturally shaped areas where the drainages are most prone to erosion along the northwest area of the site. The site area will be stabilized by preserving vegetative cover with permanent landscaping, which should be installed in a timely manner to prevent rapid runoff, erosion, and downstream siltation.



2.6.3 STORM WATER DETENTION BASINS

The proposed site grading elevations will be similar to the existing site grading. The site grade will generally slope from the east to the northwest corner with storm water managed via surface runoff. An onsite retention basin is not required, however, a retention basin and storm water manhole/sump pump will be provided.

2.6.4 SOIL EROSION AND SEDIMENTATION CONTROL

The proper control of sedimentation and management of soil erosion on construction sites is very important in Sedona. Recommended erosion and sedimentation control practices will be specified to manage soil erosion and control sedimentation during construction:

- Preservation of existing trees and natural vegetation on the site where feasible.
- Installation of perimeter fencing using for example, silt fences that are trenched in and backfilled.
- Rock dams or straw bales are suggested in concentrated flow locations such as ditches or swales.
- Erosion control blankets
- Straw mulch
- Temporary or permanent seeding with native grasses or wild flowers
- Rip rap on steep slopes
- Placement of crushed rock or gravel on job site access driveways to control mud and dirt on public roads.

2.6.5 GEOTECHNICAL INVESTIGATION

Reference Appendix C for the site's geotechnical investigation.

2.7 BUILDING PLACEMENT AND ORIENTATION

2.7.1 PROPOSED BUILDING AND STRUCTURES

The building will be planned to blend with the surrounding residential properties. The building will include a pump room, a chlorine storage and feed room and an electrical room.

2.7.2 ARCHITECTURAL CHARACTER AND BUILDING FORM

Texture of the blocks and integral color requirements will be selected to match, to the greatest extent possible, the theme of the adjacent properties. Preliminary selection includes:

1. Floor: sealed concrete slab

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2. Exterior building walls: 8” concrete masonry unit with foam block filler, painted at interior, 3/4” stucco over vapor barrier over 1” rigid insulation
3. Interior walls: 8” concrete masonry unit with foam block filler, painted both sides
4. Roof: foam roof on 1/2” exterior board on metal deck on steel bar joists with batt insulation and scrim.
5. Doors: painted hollow metal doors + frames
6. Windows: painted hollow metal frames with 1” insulated glass
7. Louvers: painted hollow metal frames with metal blades
8. Overhead doors: painted insulated steel doors
9. Landscape walls: stacked rock salvaged from the site

2.7.2.1 Pump Room

The pump room will house four pumps, hydropneumatics tank and associated piping. Roof hatches will be provided above each pump to facilitate pump removal. Refer to the conceptual design drawing for the pump room layout.

2.7.2.2 Chemical Room

The chemical storage and feed system will be housed indoor and will include a spill containment area. Table 2 presents the onsite chemical storage design criteria.

Table 2 Chemical Facility Design Criteria

Parameter	Value
Design Code	2012 IBC and 2012 IFC as adopted and amended by the City of Sedona
Use and Occupancy Classification	Factory Group, F-1
Sodium Hypochlorite	12.5% (Liquid)
Storage Location	Shade Structure

Refer to the conceptual design drawing for chemical storage and feed facility layout.

2.7.2.3 Electrical Room

The electrical equipment (e.g. 2500A main switch board, VFDs and motor starters) for the booster pump station, and ancillary equipment will be housed in an air conditioned electrical room. Table 3 presents the electrical room design criteria. Refer to the design drawings for electrical room layout.



Table 3 Electrical Room Design Criteria

Parameter	Value
Design Code	2012 IBC, 2006 IFC and 2011 NEC as adopted and amended by the City of Sedona
IBC Use and Occupancy Classification	Factory Group, F-1
NEC Clearance Requirement for Electrical Panel	4 feet minimum
Construction Type	CMU Construction rate as 4-hour fire walls
Fire Mitigation	Fire Sprinklers

Site electrical service will be provided by Arizona Public Service (APS) company. The three phase service entrance will feed the booster pumps and support systems. The SES line up, located in the electrical room will include a metering section, a transfer switch, and a distribution section. The main switchboard (SWBD) will provide feeders (LSI Breakers etc.) to four Booster Pumps standalone VFD, redundant air compressors, air conditioning units, lighting panel (LP) and separate instrument power panel (IP). All booster pumps will be VFD operated. Each Booster Pump will be provided with a standalone drive panel located in the electrical room.

In addition, a lightening protection system of air terminals, down conductors and buried grid bonding cabling shall be included in the design per NFPA 780 (2011 Edition).

The Water Facility will be controlled by an onsite Ethernet PLC/HMI based control system (Master Control Panel, MCP-001) with local and remote monitoring by the City of Sedona SCADA system.

3 RELATIONSHIP TO ADJACENT DEVELOPMENTS

The proposed building is developed to show that the contextual influences of neighboring properties have been considered. The various building segments are configured to break up the “urban strip-like” character of Sedona’s commercial corridors. The proposed building is located to minimize impact on existing roadways and reduce visual impact. The drawings and models developed show the neighboring buildings and site features. Specific consideration is given to the following:

- Aligned circulation
- Building placement will allow for interconnected access driveways.
- The open spaces and landscaped areas will connect visually with the adjacent sites.

3.1 RELATIONSHIP TO THE PUBLIC REALM

The proposed building will follow the surrounding pattern which is residential properties and will preserve the “no fence” arrangement. Specific consideration is given to the following:



3.1.1 SITE ACCESS

Access to the site is planned from SR 179 via Cathedral Rock Trail then northwest to Castle Rock Trail, followed by heading northerly to Chimney Rock Trail then Bell Rock Trail. The existing driveway accessing the site from the south will be the main site access. Table 1 presents the site access requirements and design criteria.

Table 4 Site Access Requirements and Design Criteria

Parameter	Value
Design Code	2012 IFC as adopted and amended by the City of Sedona
Design Vehicle (Fire Truck)	WB-50
Access Driveway Width	20 feet minimum
Site Access Road Construction	Match existing drive

3.1.2 TRAFFIC STUDY

The East Sedona Water Facility will mostly be remotely operated. The traffic to the water facility will be limited to Company operation staff and delivery vehicles. Estimated number of trips to the site by the operation staff could be up to one trip per week. Estimated number of trips for delivery vehicles (e.g. sodium hypochlorite delivery) is approximately once per month.

3.1.3 BUILDING ENTRIES

Building entries are easily identifiable and are visible from the public realm. The building entries are placed to accommodate automobile or pedestrian approaches as well. The building will be recessed to allow for vehicular parking and avoid obstructing the access driveway.

3.1.4 PUBLIC SPACE

The building is situated to provide a strong visual and pedestrian relationship. Parking is provided in front of the building, adjacent to the landscaped area.

3.1.5 PARKING

Building use and occupancy is limited to one or two operators performing routine weekly inspection. The parking space provided will be able to accommodate up to three vehicles which exceeds the normal daily needs.

3.1.6 PARKING AREA DESIGN AND LANDSCAPING

The parking area is designed to integrate with the proposed landscaping. The parking spaces are nestled within the landscaping retaining walls.



3.1.7 EXTERIOR LIGHTING

Facility area lighting will be provided for site security and safety with minimal impact on surrounding properties. A Lighting Plan and light fixture cut sheets are included in the drawing set. Lighting criteria for the site are as follows:

1. Specific lighting levels (indoors and outdoors) shall be per the latest published version of the Illuminating Engineering Society (IES) of North America Handbook.
2. Interior lighting will utilize fluorescent, compact fluorescent, metal halide, high intensity discharge and be high efficiency rated.
3. Exterior lighting will be "Dark Sky Compliant with photometric control, motion control and/or hand/off/auto switches. The facility will utilize High Pressure Sodium HID or Metal Halide HID lamps. Lamps to be high efficiency rated.
4. Switch-controlled local task lighting will be provided in critical operations areas, and where night time maintenance or repairs may be necessary.
5. Lighting for building entrances will be wall-mounted lighting fixtures.
6. Emergency lighting will either be in the form of separate, wall-mounted fixtures, or by the use of emergency battery packs and ballasts in-ceiling or wall-mounted lighting fixtures.

3.1.8 SIGNAGE

The site will have limited signage with the exception of address signs and chemical decal posted at the facility doors. A Signage Plan is included with the drawings.

3.1.9 SERVICE AREAS, LOADING ZONES AND REFUSE ENCLOSURES, MECHANICAL AND ELECTRICAL EQUIPMENT

Service areas are not needed for this facility since the equipment is provided indoor with adequate accessibility. It is expected that the amount of refuse generated will be less than a typical residential property, hence residential refuse bins will be located indoor and will follow the routine residential refuse collection schedule.

The electrical service entrance will be located indoor with the transformer located along the eastern boundary of the property. The building mechanical equipment will be located at grade and will be screened by the landscaping. In case roof, mounted equipment is used, it will be screened by the building parapet.



3.1.10 FENCES AND WALLS

The site design will not include property perimeter fencing.

3.1.11 SOUND ATTENUATION

The mechanical and electrical equipment (pump and motors) will be specified to generate a noise level of less than 80 dba at 3 ft from equipment. The building walls and roofing system will be designed to reduce the noise levels between 30 and 35 dba at the property boundary.

4 ARCHITECTURAL CHARACTER AND BUILDING FORM

Texture of the blocks and integral color requirements will be selected to match, to the greatest extent possible, the theme of the adjacent properties. Preliminary selection includes:

1. Floor: sealed concrete slab
2. Exterior building walls: 8" concrete masonry unit with foam block filler, painted at interior, 3/4" stucco over vapor barrier over 1" rigid insulation
3. Interior walls: 8" concrete masonry unit with foam block filler, painted both sides
4. Roof: foam roof on 1/2" exterior board on metal deck on steel bar joists with batt insulation and scrim.
5. Doors: painted hollow metal doors + frames
6. Windows: painted hollow metal frames with 1" insulated glass
7. Louvers: painted hollow metal frames with metal blades
8. Overhead doors: painted insulated steel doors
9. Landscape walls: stacked rock salvaged from the site

The building has been located on the site to screen activity, and minimize neighborhood interference once constructed. Similarly, roof equipment will be screened by parapet walls.

Following Sedona's Architectural guidelines, the building mass is broken up as much as possible to minimize the scale of the building, while recessing into the revegetated greenery of the site.

Simple construction methods are used to define the enclosure for the pump equipment, and have been chosen to balance function with a varied, but reserved expression.

The preliminary building materials are chosen to complement adjacent housing and to respect Sedona's natural character.



Refer to attached drawings for additional information.

5 LANDSCAPE

The landscape and site design for the East Sedona Water Storage Tank, Booster Pump Station and Related Appurtenances project meets and exceeds the Development Standards found in Article 9 of the SLDC, and the approval criteria listed in Section 401.06 of the Land Development Code.

Proposed improvements meet the following specific standards and criteria:

The proposed development is carefully integrated into the natural environment through site placement and orientation, the selection of materials and the massing and heights of structures. Disturbance to view corridors is minimal and existing vegetation is preserved to the greatest extent possible. The natural topography of the site will be maintained through the careful placement of structural stone retaining walls intended to blend into the landscape. Drainage, known wildlife habitat and natural features are preserved and protected to the greatest extent possible.

The proposed landscaping for the development is intended to restore the existing landscape to an enhanced natural condition that is indistinguishable from the surrounding landscape in form, color, species etc. The landscape will be enhanced in the sense that species endemic to the area will be planted in locations and massings to provide maximum screening. Exterior lighting will be reserved to that necessary for operations and life safety- no decorative or ornamental lighting will be used. Pedestrian and vehicular circulation is designed to work with the topography and disturb as little of the site as possible.

Vehicular ingress, egress, internal traffic circulation, off street Parking facilities, loading and service areas and solid waste collection facilities are designed to promote public safety and convenience.

The proposed development has been located on the site to minimize removal of existing trees. Removal of trees required for building and infrastructure will be performed in accordance with all guidelines and requirements outlined in section 909- TREES.

Trees that are to be preserved in place will be protected during construction and construction limits will be strictly adhered to and enforced.

All trees that are designated to remain in place on site that are removed or damaged for any reason during construction will be replaced with like species in accordance with requirements.

Trees will be used throughout the site to soften the lines of the building and structures, and to blend it with the surrounding natural terrain. The proposed tree plan will meet or exceed all requirements outlined in section 909-F.

**East Sedona Water Storage Tank,
Booster Pump Station and Related Appurtenances**



The proposed landscape for the development will restore the site to and enhanced natural condition through a careful and deliberate revegetation process. The landscape will:

1. Preserve and enhance the natural environment and aesthetic qualities of the city by restoring the site with native vegetation.
2. Preserve and enhance the appearance, character and value of surrounding properties by not intruding on them visually or competing with view corridors.
3. Minimize the visual impacts of developed parking areas by screening with native vegetation.
4. Minimize the negative impacts of erosion and prevent runoff of eroded material into the storm system through careful grading and the use of swales and berms to encourage passive water harvesting and storm water management.
5. Minimize noise and air pollution through screening using native trees.
6. Promote water conservation through the exclusive use of native and low water-use plant species

Native vegetation will be used to

1. Separate vehicular and pedestrian areas
2. Screen site lighting
3. Soften building mass
4. Provide continuity in the landscape between adjacent development and undisturbed areas
5. Complement the visual effect of the building
6. Provide continuity in the landscape from the street
7. Promote energy conservation through shade and cooling of the building
8. Minimize heat island effect through the use of permeable surfaces

Site Grading will be used to reduce noise pollution and surface runoff through the use of depressed landscaped areas such as bio-swales and vegetated swales for passive rainwater harvesting.

Additional details of the landscape plan and plant palette are included in the Landscape drawings and Plant Palette list included in Appendix D.



6 DESIGN STANDARDS AND PERMITTING

6.1 DESIGN STANDARDS

The design will follow the City of Sedona design requirements in addition to complying with ADEQ and Coconino County requirements. The following lists the design standards and codes applicable to the project.

1. Arizona Department of Environmental Quality Bulletin 10
2. 2012 Building Code (2012 IBC) as adopted and amended by the City of Sedona
3. 2012 Fire Code (2012 IFC) as adopted and amended by the City of Sedona
4. 2012 Mechanical Code (2012 IMC) as adopted and amended by the City of Sedona
5. 2011 National Electric Code (2011 NEC) as adopted and amended by the City of Sedona
6. American Water Works Association (AWWA) Standards
7. Hydraulic Institute (HI) Standards

6.2 REGULATORY PERMIT COORDINATION

Table 5 lists the permits required for the facility:

Table 5 List of Permits

Agency	Permit
City of Sedona	Building Permit
	Fire Permit
	Site Plan and Landscaping permit
	Civil Grading and Drainage Permit
ADEQ	Approval to Construct for: Water Booster Station Storage Tank Disinfection System
	Approval of Construction and Certificate of Construction

6.3 AGENCY COORDINATION

The site will require services from the City of Sedona and various agencies and private companies as listed below. The design will be coordinated with these organizations to incorporate their design standards, required permits and services. “Will Serve” letters have been received and are attached in Appendix E.



East Sedona Water Storage Tank, Booster Pump Station and Related Appurtenances

1. Electrical – Arizona Public Service (APS)
2. Water – Arizona Water Company
3. Sewer – Not needed
4. Storm Drain – City of Sedona
5. Fire – Sedona Fire District
6. Police – City of Sedona

7 WATER SYSTEM COMPONENTS

7.1 WELL WATER SUPPLY

The primary water supply will be from groundwater wells including Sedona #9 well, Sedona #2 well, Broken Arrow #10 well and Sky Mountain well. The wells are connected to the distribution system which will be used to fill and draw from the proposed tank.

7.2 TANK

The proposed tank will be constructed mostly below grade to eliminate any visual impact. The tank details are summarized Table 6.

Table 6 Tank Design Criteria

Parameter	Value
Tank Type	Pre-stressed, circular
Diameter Range	110 to 113 ft
Height Range	22 to 24 ft
Active Depth	20 ft
Maintenance/Dead Zone	2 ft
Freeboard	2 ft
Hatches	2

7.3 BOOSTER PUMP STATION

The booster pump station will be sized based on the maximum day demand plus fire flow or peak hour demand, whichever is larger. Table 7 presents the governing minimum firm capacity of the East Sedona Water Facility booster pump station.



Table 7 **Booster Pump Station Sizing**

Parameter	Value (gpm)
Governing Flow	3,000
Booster Pump 1	1,000
Booster Pump 2	1,000
Booster Pump 3	1,000
Booster Pump 4	1,000
Firm Capacity	3,000
Total Capacity	4,000

The estimated booster pump station operating pressure range was determined based on system modeling results and field observations. The operating pressure is expected to range between 100 and 150 psi. Table 8 presents the design criteria for the booster pumps.

Table 8 **Booster Pump Design Criteria**

Parameter	Low Pressure Zone
Pump Type	Vertical Turbine Pumps
Pump Size	1,000 gpm/TDH of 230 to 350 ft
Drive Type	Variable Frequency Drive (VFD)
Motor Size/Power	125 HP/460V/3 PH/ 60Hz
Pump Can Diameter	20 inches
Noise dba	80 dba at 3 ft

7.3.1 SURGE MITIGATION

A hydropneumatic tank will maintain the distribution system pressures and minimize the pump start/stop frequency. The hydropneumatic tank will be designed to absorb surge pressures experienced at the booster pump station. In addition, a surge anticipator valve on the booster pump station discharge will relieve surge pressures from the booster pump station discharge header. Table 9 presents the hydropneumatic tank design criteria.



Table 9 Hydropneumatic Tank Design Criteria

Parameter	Values
Design Standards	ASME Section VIII, Division 1
Design	Horizontal Above grade
Number of Hydropneumatic Tanks	1
Tank Volume	10,000 gallons
Tank Diameter	12 ft
Tank Length - (Shell length only)	12 feet
Pressure Class/Design Pressure Rating	200 psi
Air Recharge	Air Compressor
Pressure Relief and Surge Anticipator	Cla Val 52-01 or Equal

An air compressor system will recharge the air in the hydropneumatic tank and supply air for maintenance tools.

7.4 SODIUM HYPOCHLORITE STORAGE AND FEED FACILITY

Sodium hypochlorite (NaOCl) will be used for disinfection and to maintain a chlorine residual in the tank. A single feed point will be located at the tank fill line. The NaOCl storage tote or drum will be located indoor with a spill containment sized for the tote plus water volume produced by the fire sprinkler system. Table 10 presents the sodium hypochlorite storage and feed design criteria.

Table 10 Chemical Storage Design Criteria

Parameter	Values
Sodium Hypochlorite Target Dose	2 mg/l as Cl ₂
Concentration	12.5% liquid NaOCl
Tank Construction	Tote - HDPE
Storage	30 Days
Number of Tanks	1
NaOCl Volume	55 to 400 gallons

Table 11 presents the chemical metering pumps design criteria.

East Sedona Water Storage Tank,
Booster Pump Station and Related Appurtenances



Table 11 Chemical Feed Design Criteria

Parameter	Value
Metering Pump	Grundfos or equal
Power	120V/60Hz
Maximum Pump Turn Down	800:1
Maximum Pressure	30 psig
Flow Range	.06 gph – 2.4 gph



Appendix D Plant Palette

EAST SEDONA WATER STORAGE TANK AND BOOSTER STATION

Proposed Plant Palette
November 21, 2016

Chris Winters & Associates + **ARC** studios

820 north 3rd street : phx arizona 85004
tel 602 955 8088: fax 602 253 3606
email cw@cwadesign.com



landscape architecture urban design

EAST SEDONA WATER STORAGE TANK AND BOOSTER STATION

Plant Palette

Supply and install the following plant material. Landscape architect to field verify location prior to planting. All plant material to meet ANA specifications and be of sound health and appearance.

Tree	Size
Alnus oblongifolia	Standard
Arizona alder	24" box
Acer grandidentatum	Standard
Bigtooth Maple	24" box
Acer negundo	Standard
Box Elder	24" box
Acacia greggii	Standard
Catclaw acacia	24" box
Canotia holocantha	Standard
Crucifuxion thorn	24" box
Celtis reticulata	Standard
Netleaf hackerry	24" box
Chilopsis linearis	Standard
Desert willow	24" box
Cupressus arizonica	Standard
Arizona Cypress	24" box
Juglans major	Standard
Arizona Walnut	24" box
Juniperus deppeana	Standard
Alligator Juniper	24" box
Juniperus monosperma	Standard
One-seed Juniper	24" box
Juniperus osteosperma	Standard
Utah Juniper	24" box
Fraxinus velutina	Standard
Arizona Ash	24" box
Parkinsonia florida	Standard/ Multi
Blue Palo Verde	24" box
Platanus wrightii	Standard
Arizona Sycamore	24" box
Populus fremontii	Standard
Fremont Cottonwood	24" box
Prosopis veluntia	Standard
Vetvet Mesquite	24" box
Prunus virginiana	Standard
Common Chokecherry	24" box
Pinus edulis	Standard
Pinyon Pine	24" box
Pinus monophylla	Standard
Single leaf Pinyon	24" box

Pinus ponderosa	Standard
Ponderosa pine	24" box
Quercus arizonica	Standard
Arizona White Oak	24" box
Quercus emoryi	Standard
Emory Oak	24" box
Quercus gambelii	Standard
Gambel Oak	24" box
Quercus palmeri	Standard
Palmer (Dunn) Oak	24" box
Salix gooddingii	Standard
Goodding Willow	24" box
Sapindus saponaria	Standard
Western Soapberry	24" box

Plant Palette Continued

Shrubs

	Size
Arctostaphylos pungens	
Pointleaf manzanita	5 gallon
Atriplex canescens	
Four-wing Saltbush	5 gallon
Calliandra sp..	
Fairy Duster	5 gallon
Berberis fremontii	
Algerita	5 gallon
Cercocarpus montanus var. paucidentatus	
Hairy Mountain Mohogany	5 gallon
Cowania mexicana	
Cliffrose	5 gallon
Dalea formosa	
Feather Dalea	5 gallon
Eurotia lanata	
Winter-fat	5 gallon
Ephedra sp.	
Mormon Tea	5 gallon
Eschscholtzia mexicana	
Mexican Gold Poppy	5 gallon
Guara coccinea	
Scarlet Gaura	5 gallon
Krameria parvifolia	
Ranger Ratany	5 gallon
Larrea tridentata	
Creosote Bush	5 gallon
Minosa biuncifera	
Wait-a-Minute Bush	5 gallon
Parthenium incanum	
Mariola	5 gallon
Penstemon eatoni	
Eatoni Penstemon	5 gallon
Purshia subintegra	
Arizona Cliffrose	5 gallon
Quercus turbinella	
Shrub Live Oak	5 gallon
Sphaeralcea ambigua	
Globe mallow mixed color	5 gallon
Tequilia (Coldenia) canescens	
Shrubby Coldenia	5 gallon
Viguiera parishii (Deltoidea)	
Goldeneye	5 gallon

Ziziphus obtusifolia var. canescens Graythorn	5 gallon
Accents	Size
Agave parryi	
Century plant	5 gallon
Agave delumeteri	
Tonto basin agave	5 gallon
Dasyilirion wheeleri	
Desert Spoon	5 gallon
Fouquieria splendens	Seed grown 24"
Ocotillo	box
Nolina microcarpa	
Bear Grass	5 gallon
Opuntia leptocaulis	
Christmas Cactus cholla	5 gallon
Opuntia phaeacanthia	
Desert Prickly Pear	5 gallon
Yucca baccata	
Banana Yucca	5 gallon
Yucca elata	Specimen plant
Soaptree Yucca	24" box
Vines	Size
Vitis arizonica	
Arizona Grape	5 gallon



Appendix E “Will Serve” Letters

Darin Begay

From: Sandra.Finley@aps.com
Sent: Monday, December 5, 2016 11:44 AM
To: Darin Begay
Cc: Sandra.Finley@aps.com
Subject: 55 Bell Rock Tr - Will Serve

December 5, 2016

Darin Begay
Water Works Engineers
7580 N. Dobson Road #200
Scottsdale, AZ 85256

Re: 55 Bell Rock Tr, Sedona

Dear Mr. Begay,

The above referenced project is located in Arizona Public Service Company's electric service area. The Company extends its lines in accordance with the "Conditions Governing Extensions of Electric Distribution Lines and Services," Schedule 3, and the "Terms and Conditions for the Sale of Electric Service," Schedule 1, on file with the Arizona Corporation Commission at the time we begin installation of the electric facilities.

Application for the Company's electric service often involves construction of new facilities for various distances and costs depending upon customer's location, load size and load characteristics. With such variations, it is necessary to establish conditions under which Arizona Public Service will extend its facilities.

The enclosed policy governs the extension of overhead and underground electric facilities to customers whose requirements are deemed by Arizona Public Service to be usual and reasonable in nature.

Please give me a call at 928-646-8463 so that we may set up an appointment to discuss the details necessary for your project.

Thank you,



Sandy Finley

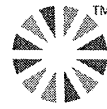
Sr. Customer Project Manager, Verde District
1250 E. State Route 89A, Cottonwood, AZ 86326 M.S. 4718

Tel (928)646-8463

sandra.finley@aps.com aps.com

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CenturyLink™

CenturyLink Engineering
500 S Calvary Way
Cottonwood, AZ 86326

December 5, 2016

Darin Begay
WW Engineers
Scottsdale, AZ

RE: 55 Bell Rock Trail, Sedona, AZ 86351

Darin,

The above mentioned property is located in a parcel located in Section 19, Township 17N and Range 6E in Coconino County.

In response to your "Service Availability" request for the above mentioned property, this letter is to acknowledge, the property is within the CenturyLink serving territory.

The tariff Rates and Regulations prescribed for service for this location are on file with your State Utilities Commission, and may be examined at your CenturyLink Business Office.

Sincerely,

Armen McNerlin
CenturyLink Engineer
500 S Calvary Way
Cottonwood, AZ 86326
office 928.634.2102
cell 928.821.4609