

**PROJECT ANNOUNCEMENT**

Post Date: 05.31.2024

Submittal Deadline: 06.14.2024

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Project Title: Region 3 New Rutherford County Maintenance Complex

Facility Name: Region 3 - Middle TN

City: Nashville

County: Davidson

SBC Project No.:

Agency: Tennessee Department of Transportation

Maximum Allowable Construction Cost (MACC): \$13,650,000.00

Development Manager: Grant, Steven

Agency Representative: Hampton, Ken

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**Project Description:**

Construct a new maintenance building, salt bin, brine operations building, storage and equipment sheds, and all required related work.

**Designer Scope:**

Provide design services for a new County Maintenance Complex with full civil, architectural, structural, mechanical, plumbing, electrical, life safety and technology engineering, as well as interior design services and all required related site work.

Additional information about the project can be found in the project's program document included as a part of this announcement.

**Special Design Requirements:**

N/A

Note: All information previously made available to consultants, by the State, and all information supplied by consultants to the State, relating to the subject project, will be made available to any potential respondents. Potential respondents desiring to review these documents can submit a request to [STREAMDesigner.Interest@TN.gov](mailto:STREAMDesigner.Interest@TN.gov).

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Anticipated SBC Approval Date: 07.11.2024

Anticipated ESC Designer Selection Date: 07.22.2024

Anticipated Designer NTP Date: 02.02.2025

Anticipated Project Bid Date: 06.01.2026



# TENNESSEE DEPARTMENT OF TRANSPORTATION

Programming Study for  
Prototypical County Maintenance Complex  
Murfreesboro, Rutherford County, Tennessee  
SBC# 529/000-02-2019-04



06 May 2024 - Phase III

BAUER ASKEW

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## PROJECT DESCRIPTION

Construct a new maintenance building, salt bin, brine operations building, equipment sheds, and all required related work.

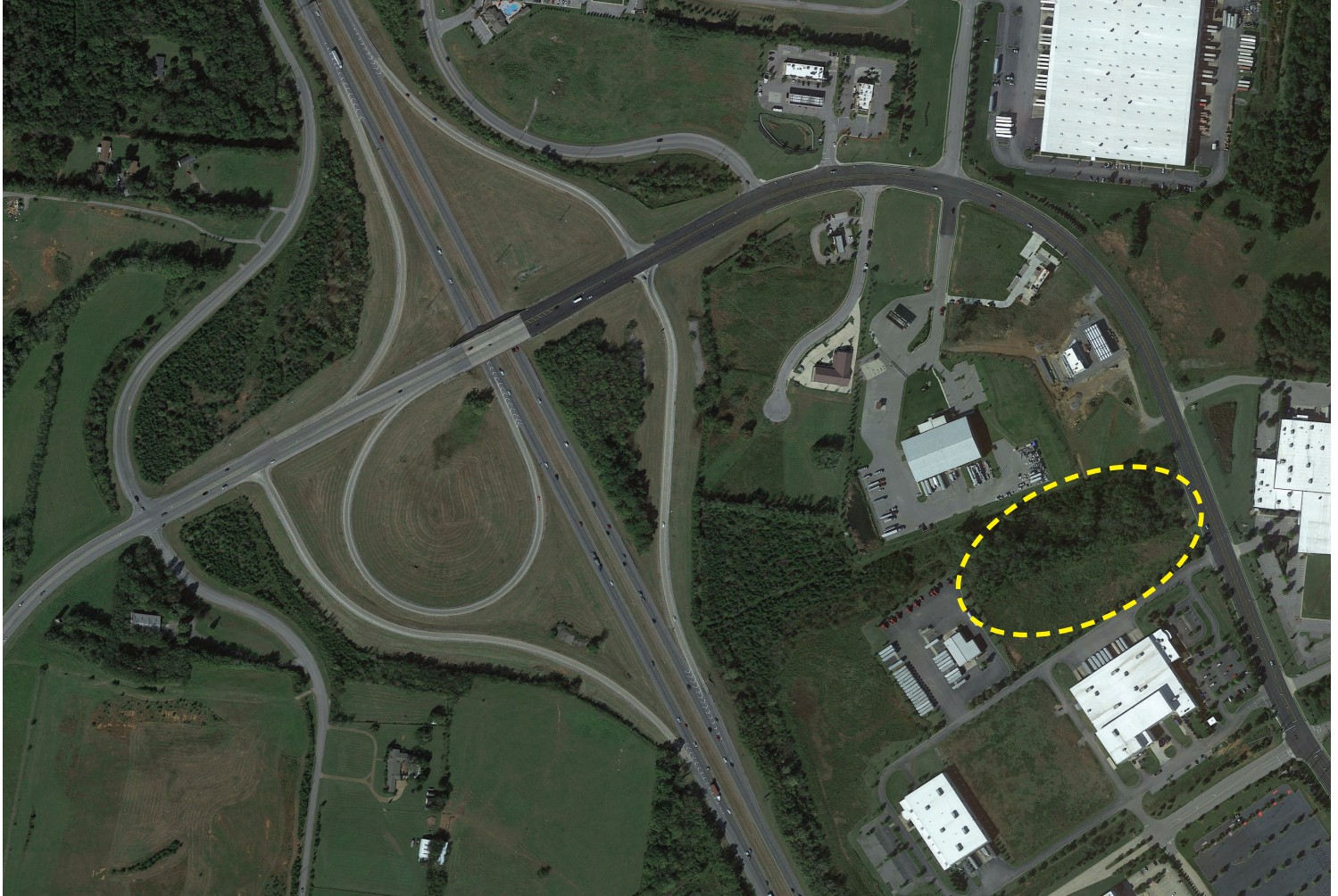
## PROGRAM OBJECTIVES

Providing a new maintenance complex will enhance agency operations with contemporary building operations, administration, and technology allowing to properly serve staff and customers.

## STATEMENT OF NEED

The maintenance system of the state has not grown with the population for decades and requires substantial upgrades to provide service for the future.

## EXISTING GOOGLE EARTH IMAGE





# OBSERVATION SUMMARY NARRATIVE

## OVERVIEW

The Programming Study Design Team met with TDOT and STREAM representatives on 20 October 2023 to discuss programming needs for a New County Maintenance Complex at Rutherford County. The meeting took place at the existing proposed site located at 1800 Joe B Jackson Pkwy, Murfreesboro, Tennessee and included the following participants:

Steven Grant, Development Manager	STREAM
Jamie Waller, Director of Maintenance/Asset Management	TDOT
Ken Hampton, Capital Projects	TDOT
Leo Hagewood, Field Services	TDOT
Grant Heintzman, Field Services Manager	TDOT
Hunter Dykes, Operations District Supervisor	TDOT
Angie Beason, Enterprise Sr. Project Manager	STS
JC Elder, Architect	BAA

## MEETING NOTES

### RUTHERFORD COUNTY

#### *Existing Conditions*

The project site is located at 1800 Joe B Jackson Pkwy, Murfreesboro, Tennessee and is currently undeveloped. There is city water and sewer available at the site, as indicated on the survey for the property. Additionally, electrical and telecommunications are also available on site. There are stormwater management features present on the current site, including drainage swales and a dry pond area. The site will be access by a shared driveway to the south of the property. A portion of the site is cleared currently, while approximately half of the site was densely vegetated. TDOT noted their crews would be clearing the vegetation from the site over the next few weeks.

#### *Site Visit Notes*

TDOT provided a conceptual site layout for the property. This layout includes both a Phase I (immediate programming study) and Phase II (future programming study). The Phase I programming study is to include a pull-thru equipment shed with 3-4 bays, and TDOT is to provide images and plans for a typical structure. Additionally, this project will include standard drawings for Salt and Brine Operations, for which TDOT will provide standard drawings. Additionally, the project will include a County Maintenance shed and equipment and storage sheds, all which TDOT will provide standard drawings and images to the Design Team. Included in the scope of this study is an equipment shed, which will include space for dump trucks and have electrical service in each bay. The anticipated size for each shed will be 40' deep and 240' wide, with 10 bays each at 24'. Two separate equipment sheds will be needed for this site.

The objective for this study is to create a prototype project to allow for building options within future sites for the TDOT County Maintenance Complexes.

- The HELP Complex is not part of this programming effort. The HELP program elements will be programmed next year.
- Murfreesboro will have specific requirements in fencing and architectural materials.
- Phase I scope should include fencing and back entry
- TDOT is to provide the following information to develop this programming study:
  - Topo survey of property
  - Cost information on previous buildings
  - A Plat for the property
  - Images and plans for equipment sheds



Existing site conditions at Rutherford County



Existing site conditions at Rutherford County



Existing site conditions at Rutherford County



Existing site conditions at Rutherford County



Existing site conditions at Rutherford County

## OBSERVATION SUMMARY NARRATIVE

- Sanitary Sewer, water, gas, and electrical are all available for the site
- Storm water: there is currently an existing pond on the corner of the plat, but the drainage of the lot goes to the opposite side
- Existing drive will need to be upgraded to Heavy-Duty, if it is not already
- WiFi is needed at the County Maintenance Building as well as the future HELP building
- WiFi connection needs to allow for five people connecting at most
- Site Lighting + Cameras will need to be considered in programming scope
- Automatic Gates will be required and potentially utilize app-based operation system.
- Landscape budget needs to be healthy for Murfreesboro requirements.



Existing site conditions at Rutherford County



Existing site conditions at Rutherford County



Existing site conditions at Rutherford County



Existing site conditions at Rutherford County



Existing site conditions at Rutherford County



# OBSERVATION SUMMARY NARRATIVE

## RUTHERFORD COUNTY

### Existing Condition Images



Existing site conditions at Rutherford County



Existing site conditions at Rutherford County



Existing site conditions at Rutherford County



Existing site conditions at Rutherford County



Existing site conditions at Rutherford County



Existing site conditions at Rutherford County



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## RECOMMENDATION SUPPORTING A SOLUTION

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### EXECUTIVE SUMMARY

The scope of work for this project will entail the construction of a new County Maintenance Complex on an existing TDOT Facility property in Rutherford County, TN. This site will hold the potential for various building types, including a County Maintenance Building/Office, a Maintenance Storage Building (enclosed), Equipment Sheds (open), Salt and Brine sheds, and a wash bay. All structures are detailed in the following pages and based upon recent TDOT prototypes. Full mechanical, electrical, fire suppression and plumbing systems will be provided for the Maintenance Building. Electrical and plumbing will be provided, as required, for other structures on the site.

The new Maintenance Storage building is proposed as a prefabricated metal building for equipment storage space with enclosed garage bays, as needed. The new Equipment Sheds will be constructed as open Metal Buildings, one offering a pass-through structure with the other being closed on one side of the building (see pages 12 - 14).

### SITE INFORMATION / ANALYSIS

The proposed location for both the new County Maintenance Complex is to be located on a new, undeveloped site, located at 1800 Joe B Jackson Pkwy, Murfreesboro, Tennessee. Some reconfiguration of existing site conditions will be required. Existing stormwater easements and structures, as well as environmental easements are indicated and should be considered as part of final design. Utilities are to be installed to the new buildings where necessary.

### ENERGY REQUIREMENTS

There are no specific sustainability requirements beyond the State of Tennessee High Performance Building Requirements. The current adopted energy code is the 2018 IECC.

### CODE REQUIREMENTS

Both the new shed and storage buildings are assumed to be Type II-B construction. All new construction will be required to meet the current building codes adopted by the State Fire Marshal and local authorities.

### LICENSING / CERTIFICATION / ACCREDITATION REQUIREMENTS

The Design Team was not made aware of any licensing/certification/accreditation requirements.

### POTENTIAL ADDITIONAL FUTURE NEEDS

A future Phase II is planned for a HELP building complex on the Eastern portion of the site, as detailed in the initial concept sketch provided by TDOT.

### DETAILED PROGRAM INFORMATION

See following Pages

### EQUIPMENT DESCRIPTION, SIZE AND CRITERIA

See following Pages

### EXISTING CONDITIONS

See following Pages

### PROGRAM DOCUMENT

See following Pages

### CONSTRUCTION PHASING NARRATIVE

It is not anticipated that any phasing would be necessary for this project.

### DESIGNER'S SCOPE OF WORK

The Designer's scope of work for the Project is as follows:

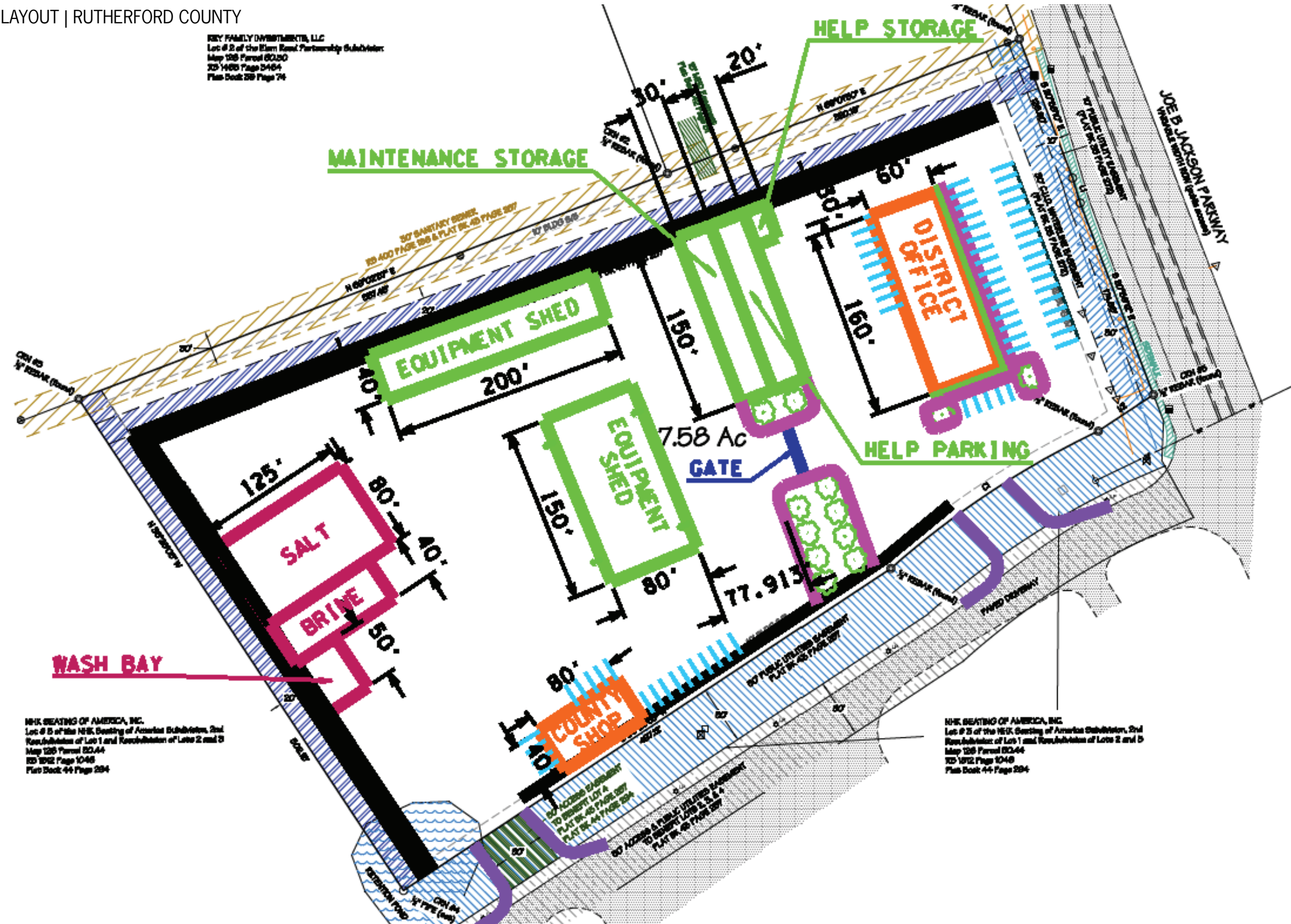
Provide design services for a new County Maintenance Complex with full civil, structural, mechanical, plumbing, electrical, life safety and technology engineering, as well as interior design services and all required related site work.



# RECOMMENDATION SUPPORTING A SOLUTION

PROGRAM DOCUMENT

INITIAL CONCEPT LAYOUT | RUTHERFORD COUNTY



REY FAMILY INVESTMENTS, LLC  
Lot # 2 of the Elm Road Partnership Subdivision,  
Map 128 Parcel 00250  
XD 1483 Page 2484  
Plan Book 28 Page 74

HEK BEATING OF AMERICA, INC.  
Lot # 5 of the HEK Beating of America Subdivision, 2nd  
Re-subdivision of Lot 1 and Re-subdivision of Lots 2 and 3  
Map 128 Parcel 00444  
XD 1512 Page 1048  
Plan Book 44 Page 284

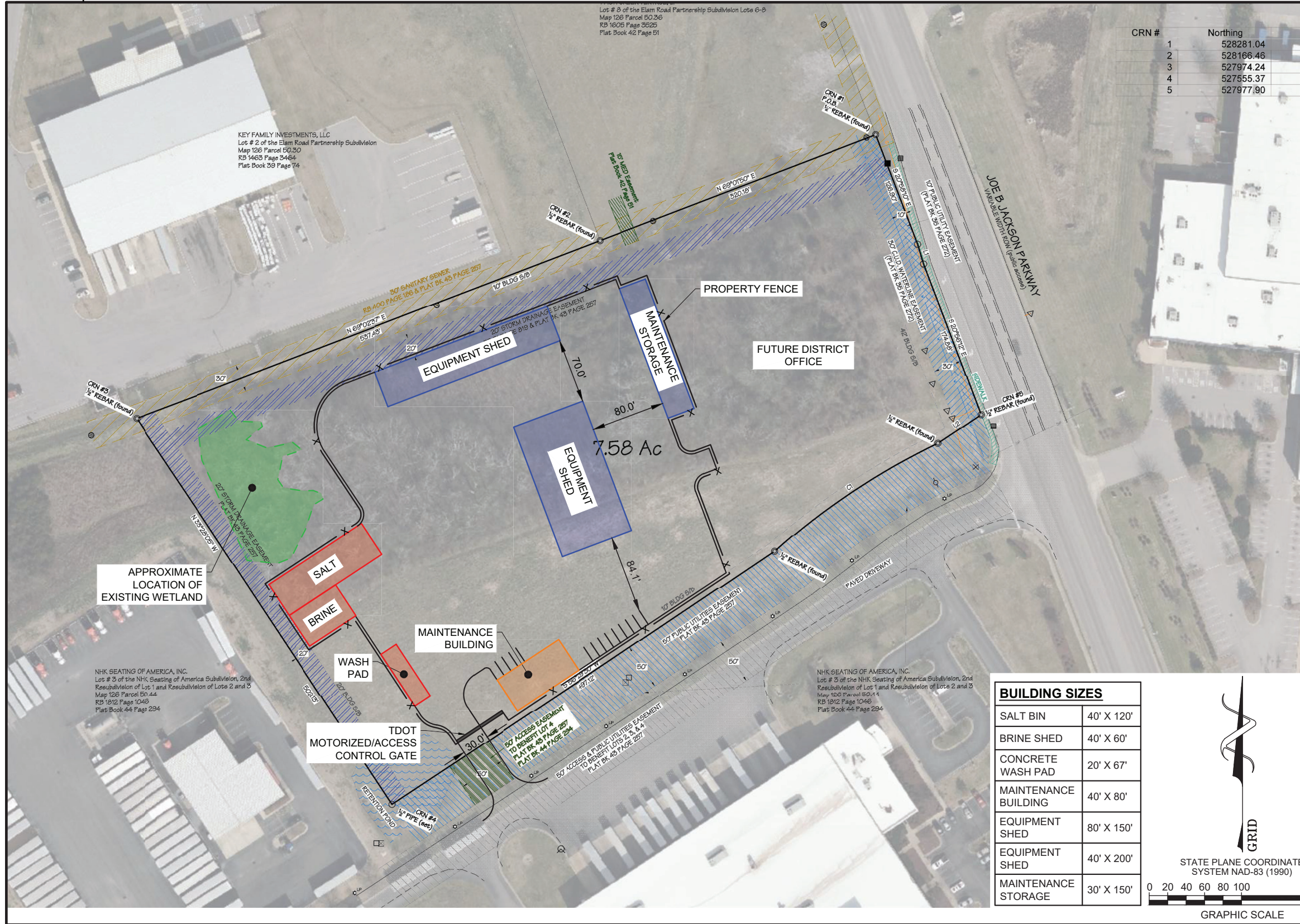
HEK BEATING OF AMERICA, INC.  
Lot # 2 of the HEK Beating of America Subdivision, 2nd  
Re-subdivision of Lot 1 and Re-subdivision of Lots 2 and 3  
Map 128 Parcel 00444  
XD 1512 Page 1048  
Plan Book 44 Page 284



RECOMMENDATION SUPPORTING A SOLUTION

PROGRAM DOCUMENT

CONCEPTUAL SITE PLAN | RUTHERFORD COUNTY



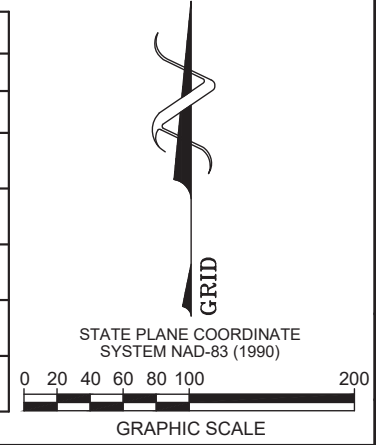
CRN #	Northing
1	528281.04
2	528166.46
3	527974.24
4	527555.37
5	527977.90

**BCA**  
BARGE CIVIL  
ASSOCIATES

6606 CHARLOTTE PIKE, STE 210,  
NASHVILLE, TN 37209  
615.356.9911 • BCAcivil.com

**PRELIMINARY SITE PLAN**  
**TDOT MAINTENANCE FACILITY**  
**1800 JOE B JACKSON PARKWAY**  
**MURFREESBORO, TENNESSEE 37127**

BUILDING SIZES	
SALT BIN	40' X 120'
BRINE SHED	40' X 60'
CONCRETE WASH PAD	20' X 67'
MAINTENANCE BUILDING	40' X 80'
EQUIPMENT SHED	80' X 150'
EQUIPMENT SHED	40' X 200'
MAINTENANCE STORAGE	30' X 150'



**EX-1**

BCA JOB NO. 2260-50



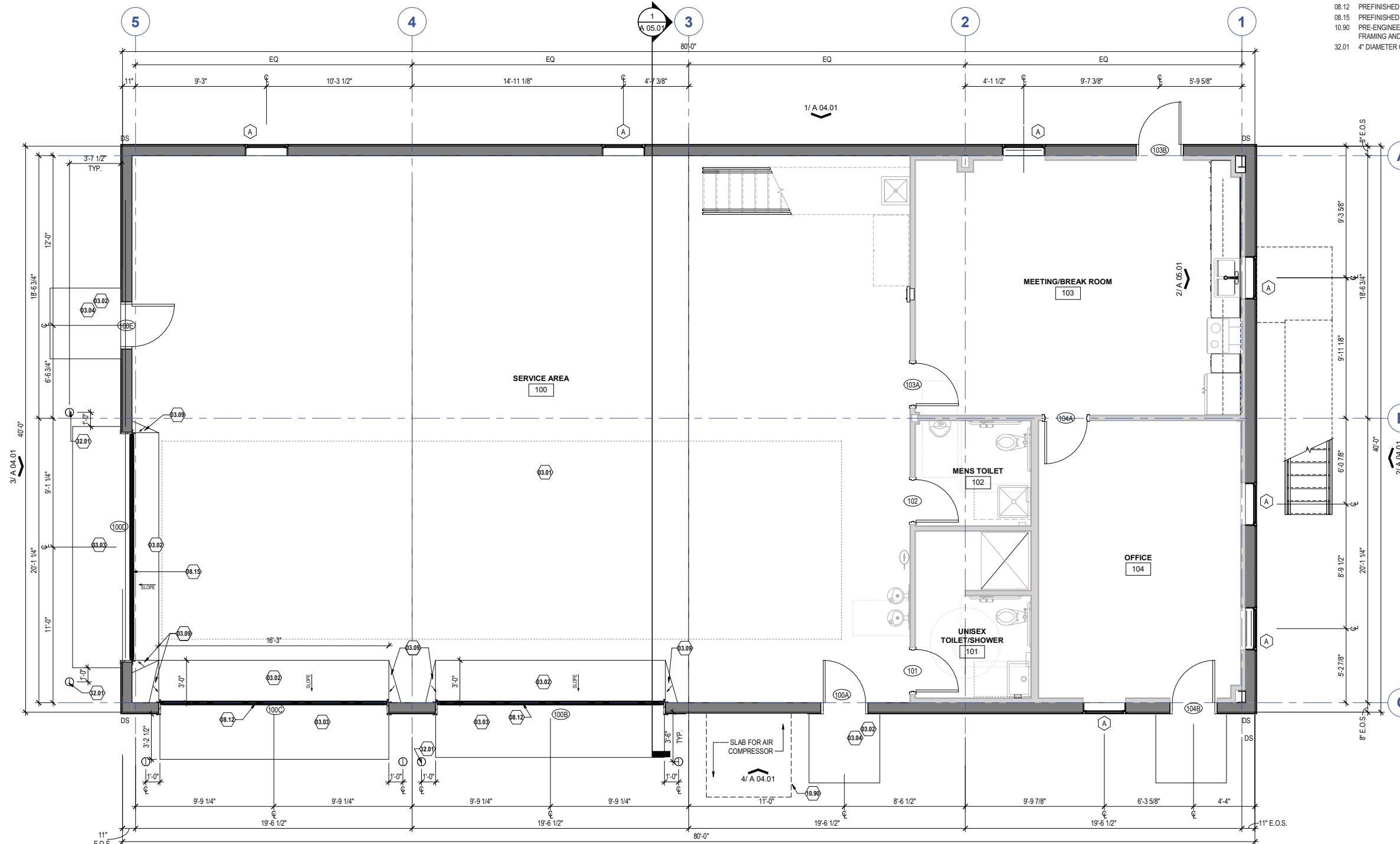
# RECOMMENDATION SUPPORTING A SOLUTION

## PROGRAM DOCUMENT

### CONCEPTUAL BUILDING PLAN | PROTOTYPICAL MAINTENANCE BUILDING (PROVIDED BY TDOT)

## KEYNOTE SCHEDULE

- ⬢ DENOTED BY A NUMBER ENCLOSED INSIDE A HEXAGON. ONLY NOTES APPLICABLE TO THIS SHEET ARE SHOWN.
- 03.01 CONCRETE SLAB-ON-GRADE OVER VAPOR BARRIER OVER COMPACTED SUBGRADE, SLOPE TO DRAIN; REF STRUCTURAL
- 03.02 SLOPE CONCRETE TO DRAIN TOWARDS EXTERIOR; EXTEND SLOPE INTO BUILDING TO PREVENT PONDING AND INFILTRATION AT INTERIOR OF DOORS.
- 03.03 4'-0" D CONCRETE APRON; REF CIVIL
- 03.04 5'-0" x 5'-0" CONCRETE STOOP; REF CIVIL
- 03.09 CUT SLAB TO SLOP TOWARDS OUTSIDE
- 08.12 PREFINISHED METAL OVERHEAD SECTIONAL DOOR W/ MOTOR OPERATOR
- 08.15 PREFINISHED METAL OVERHEAD COILING DOOR W/ MOTOR OPERATOR
- 10.90 PRE-ENGINEERED CANOPY, WITH FINISH TO MATCH WINDOWS. SUSPEND CANOPY BACK TO FRAMING AND SECURE. CANOPY BY METAL BUILDING MANUFACTURER, REF. SPECS
- 32.01 4" DIAMETER CONC. FILLED STEEL BOLLARDS, TYP.



**1 FIRST FLOOR - CORE AND SHELL**



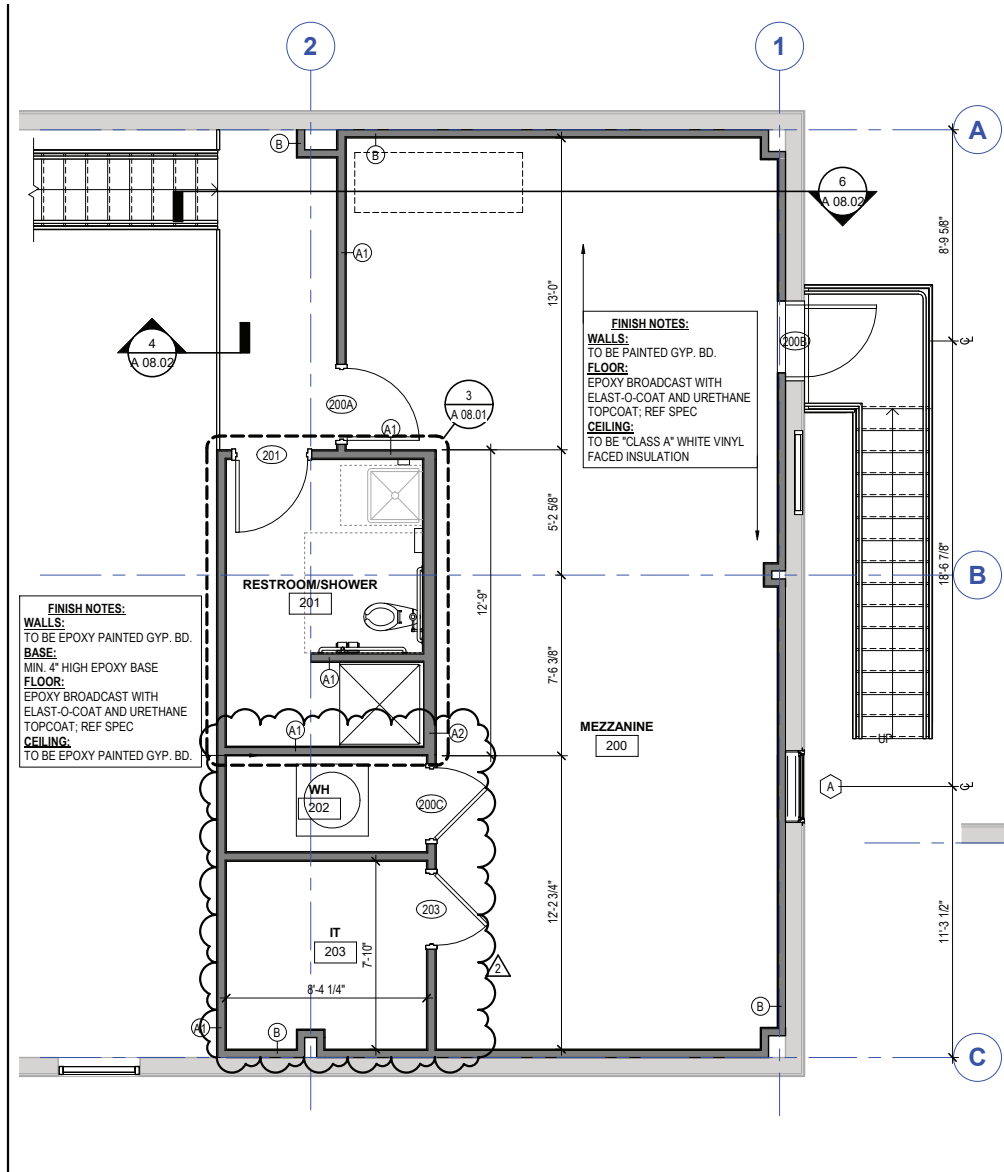
# RECOMMENDATION SUPPORTING A SOLUTION

## PROGRAM DOCUMENT

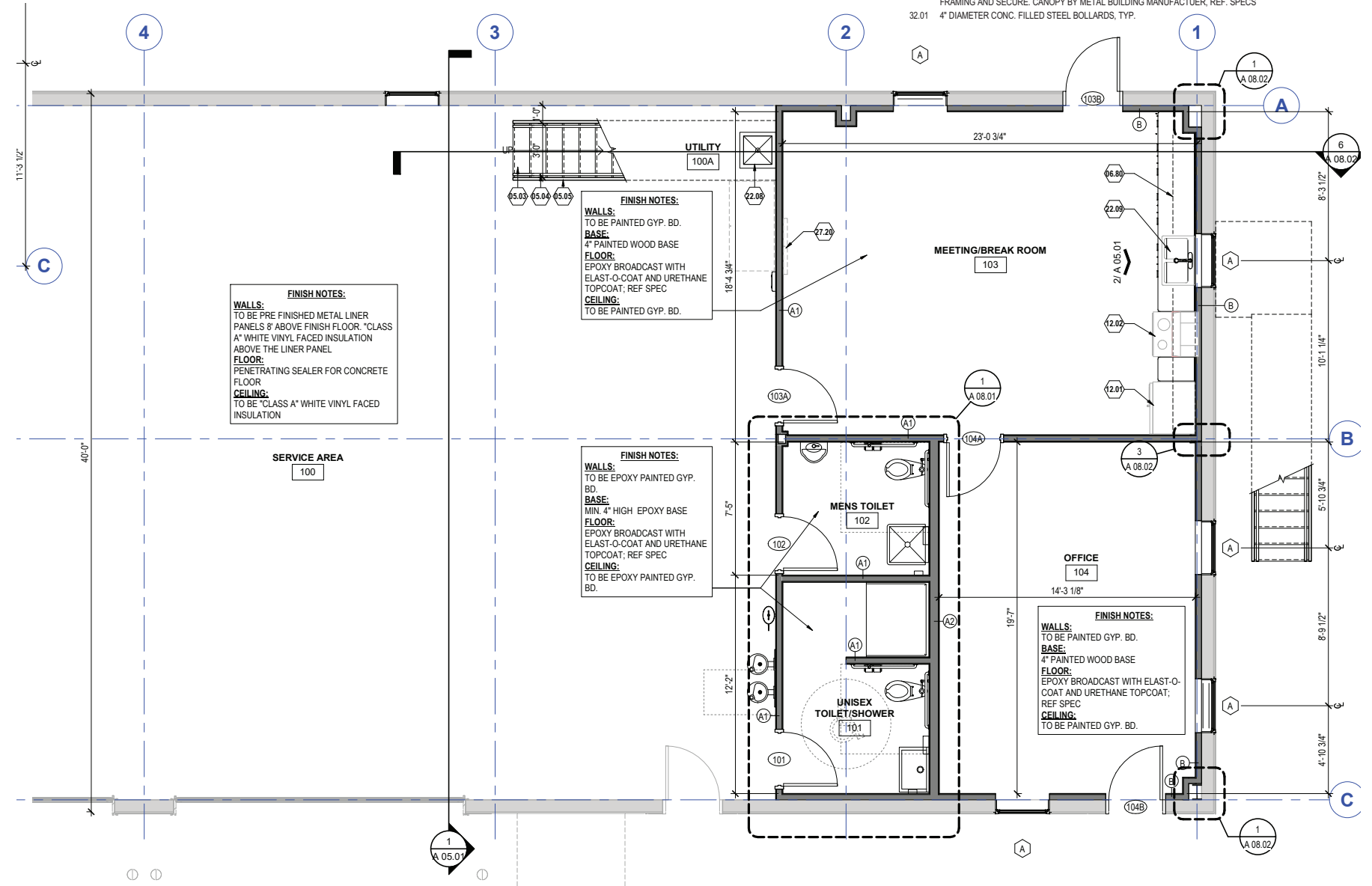
### CONCEPTUAL BUILDING PLAN | PROTOTYPICAL MAINTENANCE BUILDING (PROVIDED BY TDOT)

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- 32.01 4" DIAMETER CONC. FILLED STEEL BOLLARDS, TYP.



**MEZZANINE PLAN**



**FIRST FLOOR PLAN**

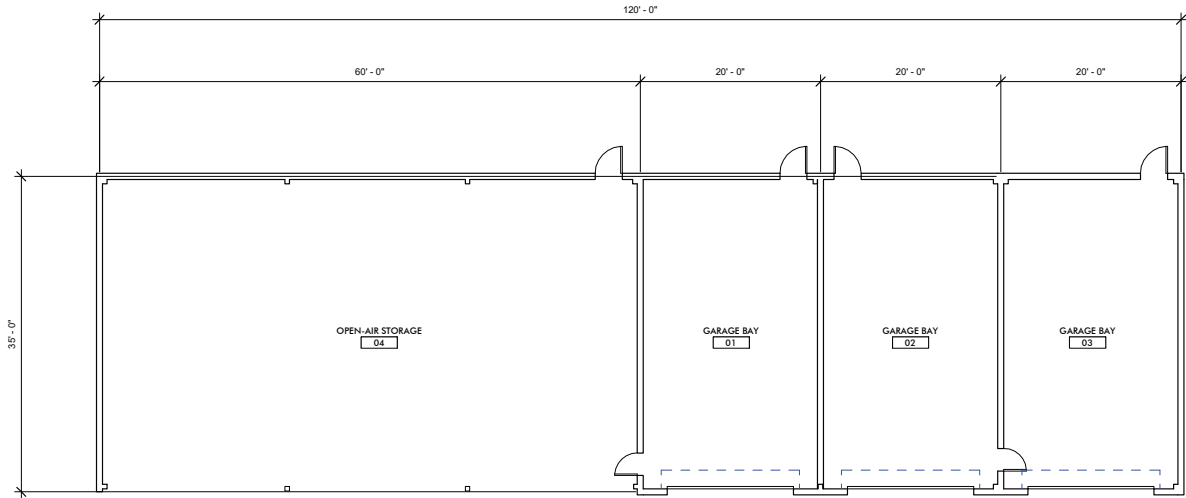




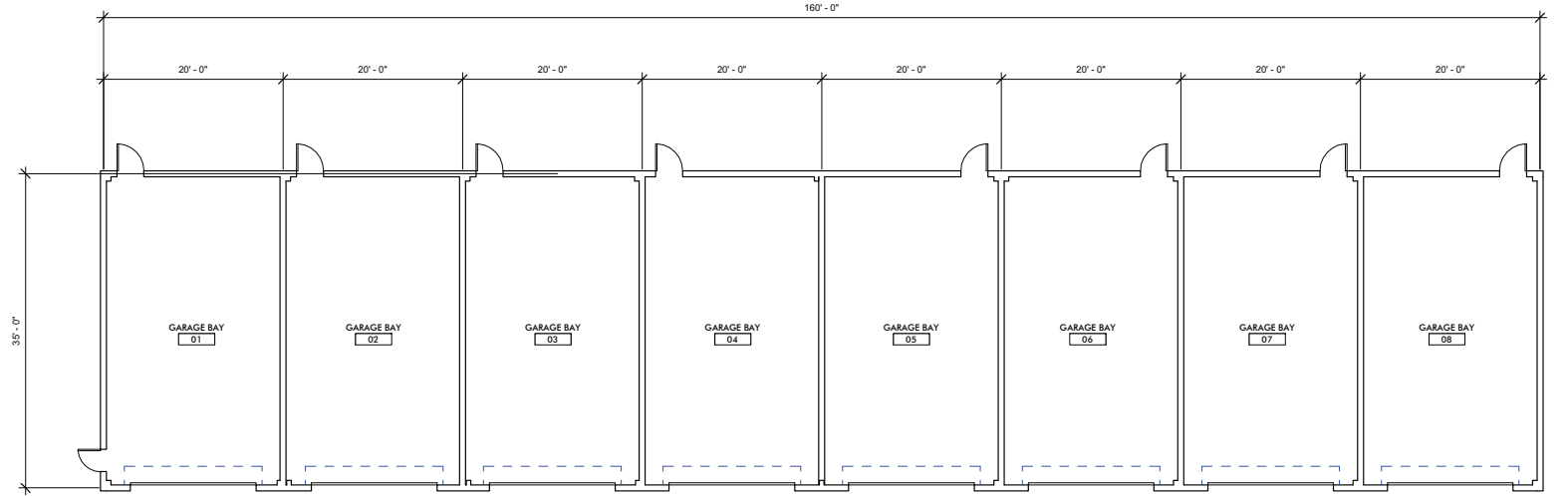
RECOMMENDATION SUPPORTING A SOLUTION

PROGRAM DOCUMENT

CONCEPTUAL BUILDING PLAN | PROTOTYPICAL MAINTENANCE STORAGE



FLOOR PLAN | 3/64" = 1' - 0"



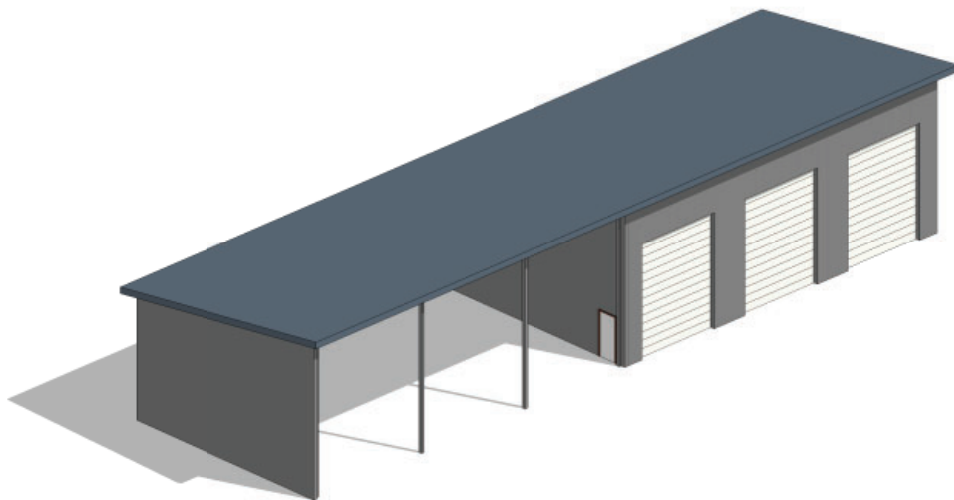
FLOOR PLAN | 3/64" = 1' - 0"



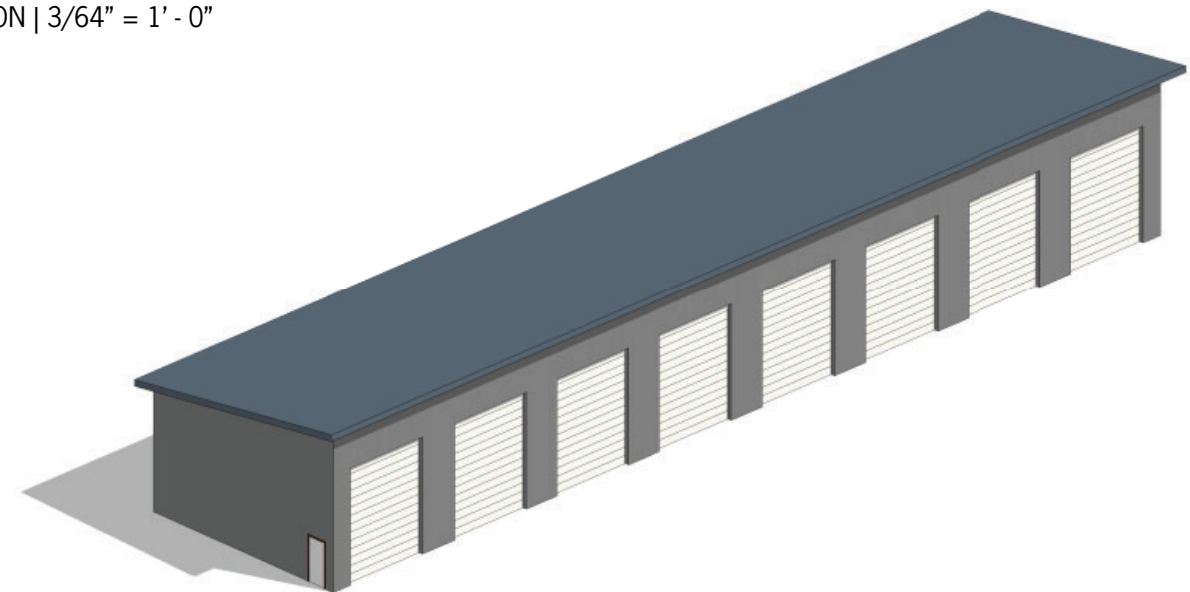
ELEVATION | 3/64" = 1' - 0"



ELEVATION | 3/64" = 1' - 0"



ITERATION 01 | ENCLOSED GARAGE BAYS + OPEN-AIR STORAGE

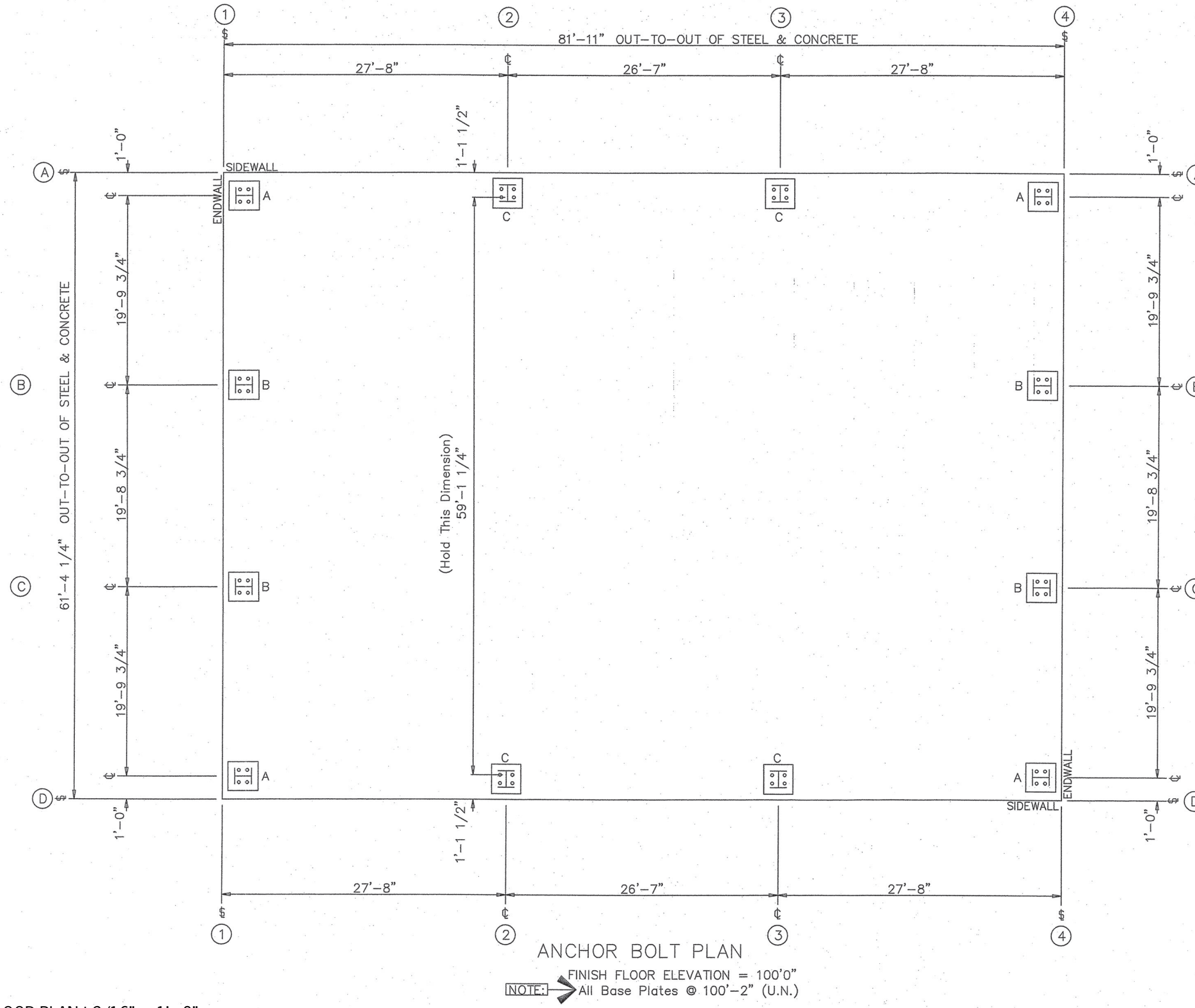


ITERATION 02 | ENCLOSED GARAGE BAYS

RECOMMENDATION SUPPORTING A SOLUTION

PROGRAM DOCUMENT

CONCEPTUAL BUILDING PLAN | PROTOTYPICAL EQUIPMENT SHED - PASS THROUGH (PROVIDED BY TDOT)



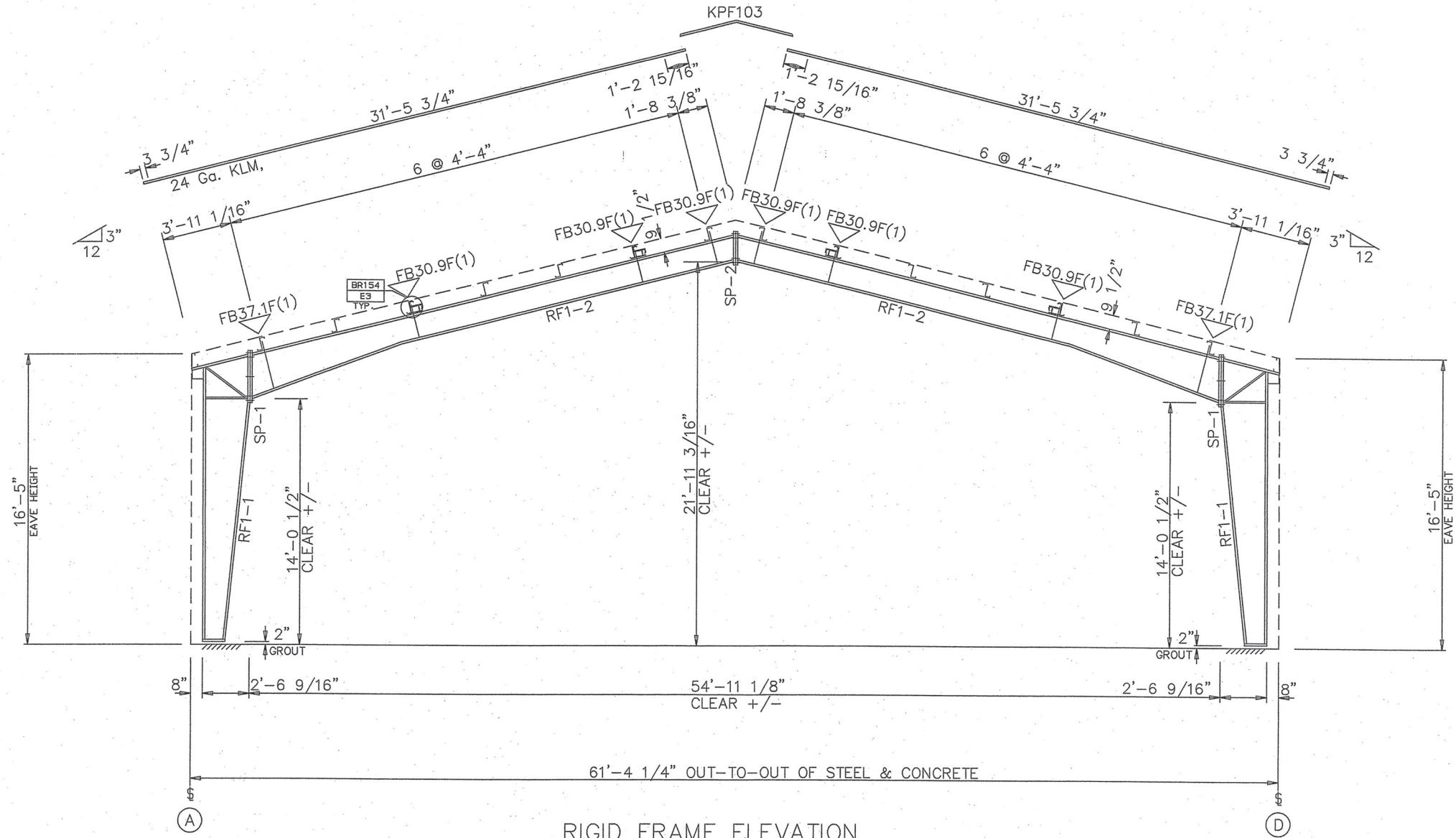
FLOOR PLAN | 3/16" = 1' - 0"



RECOMMENDATION SUPPORTING A SOLUTION

PROGRAM DOCUMENT

CONCEPTUAL BUILDING PLAN | PROTOTYPICAL EQUIPMENT SHED - PASS THROUGH (PROVIDED BY TDOT)



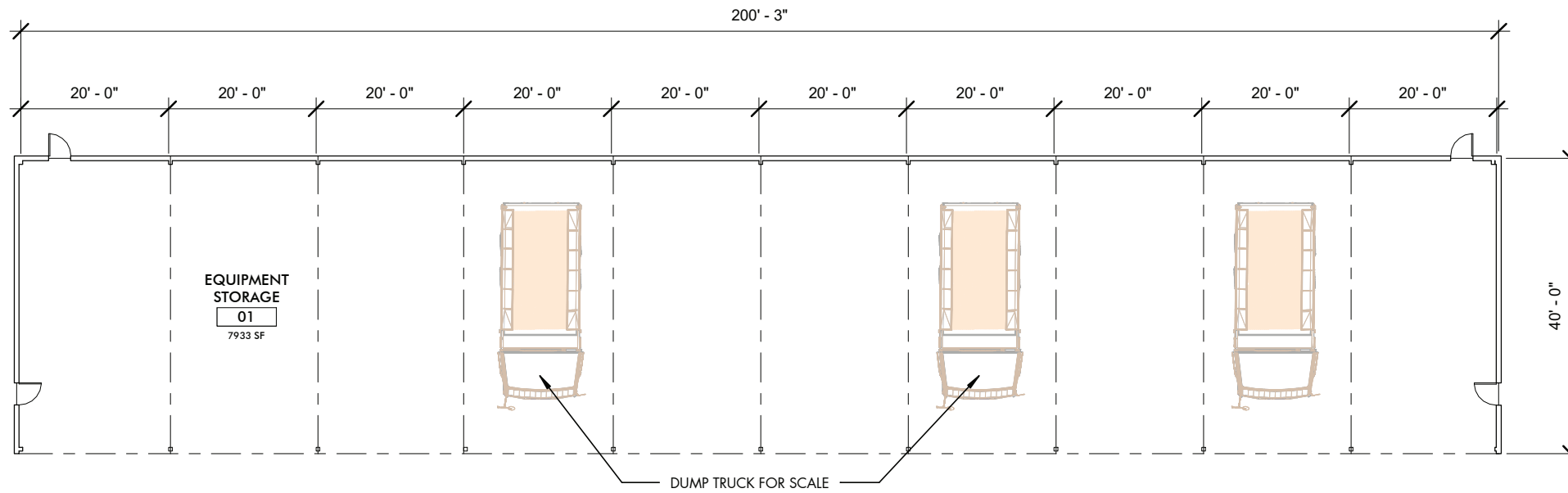
RIGID FRAME ELEVATION  
FOR FRAME LINE 2 3

ELEVATION | 3/16" = 1' - 0"

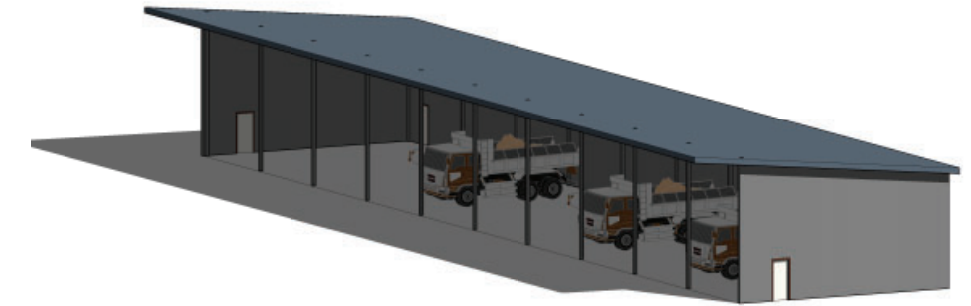
# RECOMMENDATION SUPPORTING A SOLUTION

PROGRAM DOCUMENT

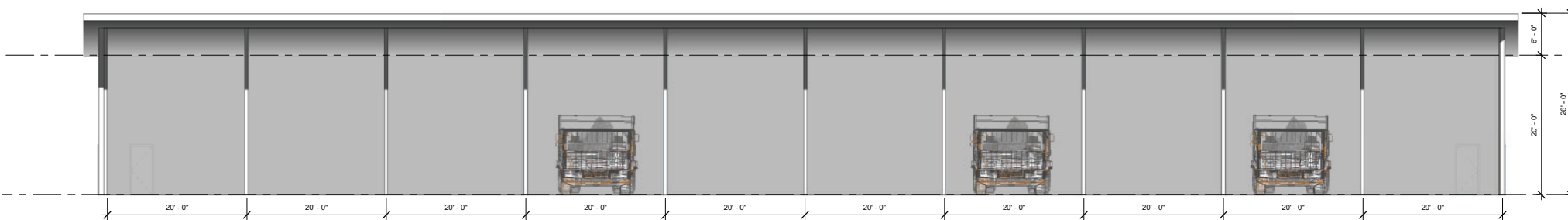
CONCEPTUAL BUILDING PLAN | PROTOTYPICAL EQUIPMENT SHED - ONE-SIDED



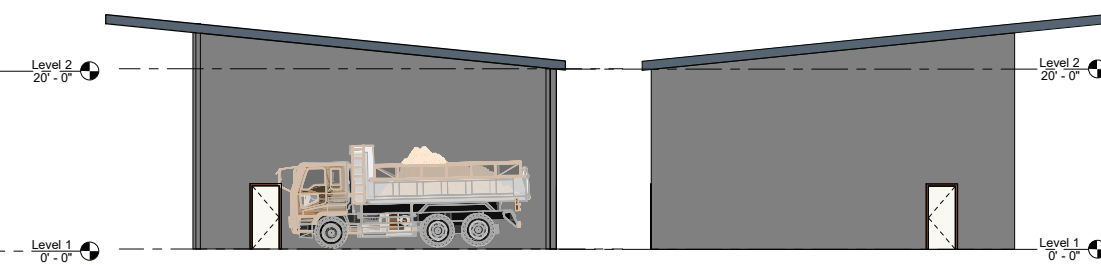
FLOOR PLAN | 3/64" = 1' - 0"



3D VIEWS | NTS



ELEVATIONS | 3/64" = 1' - 0"



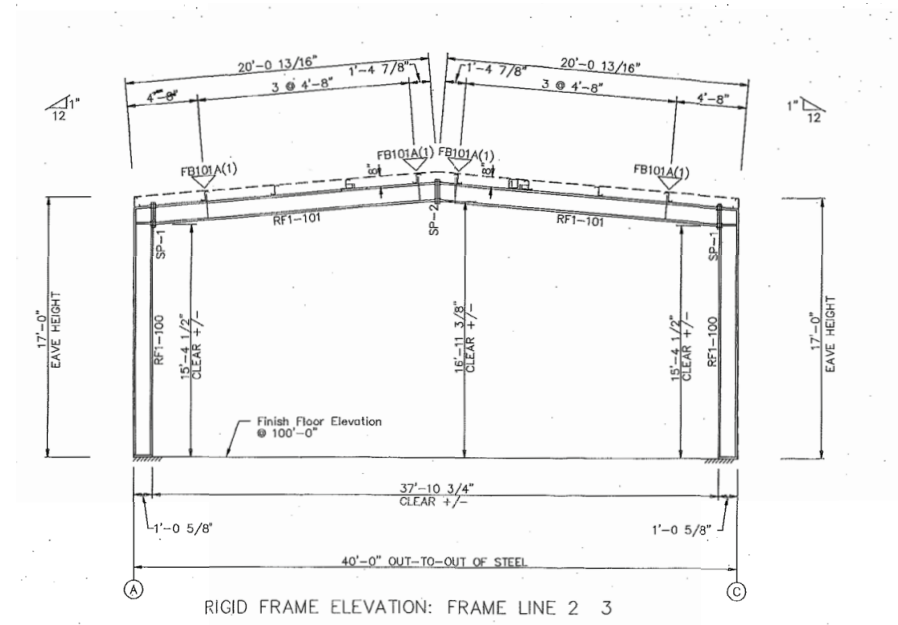
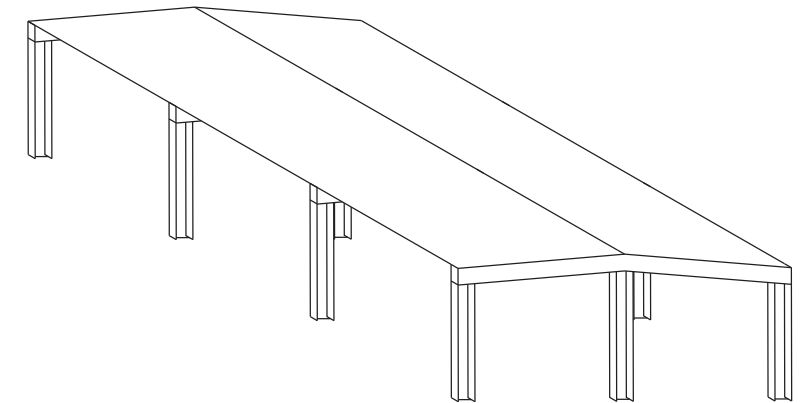
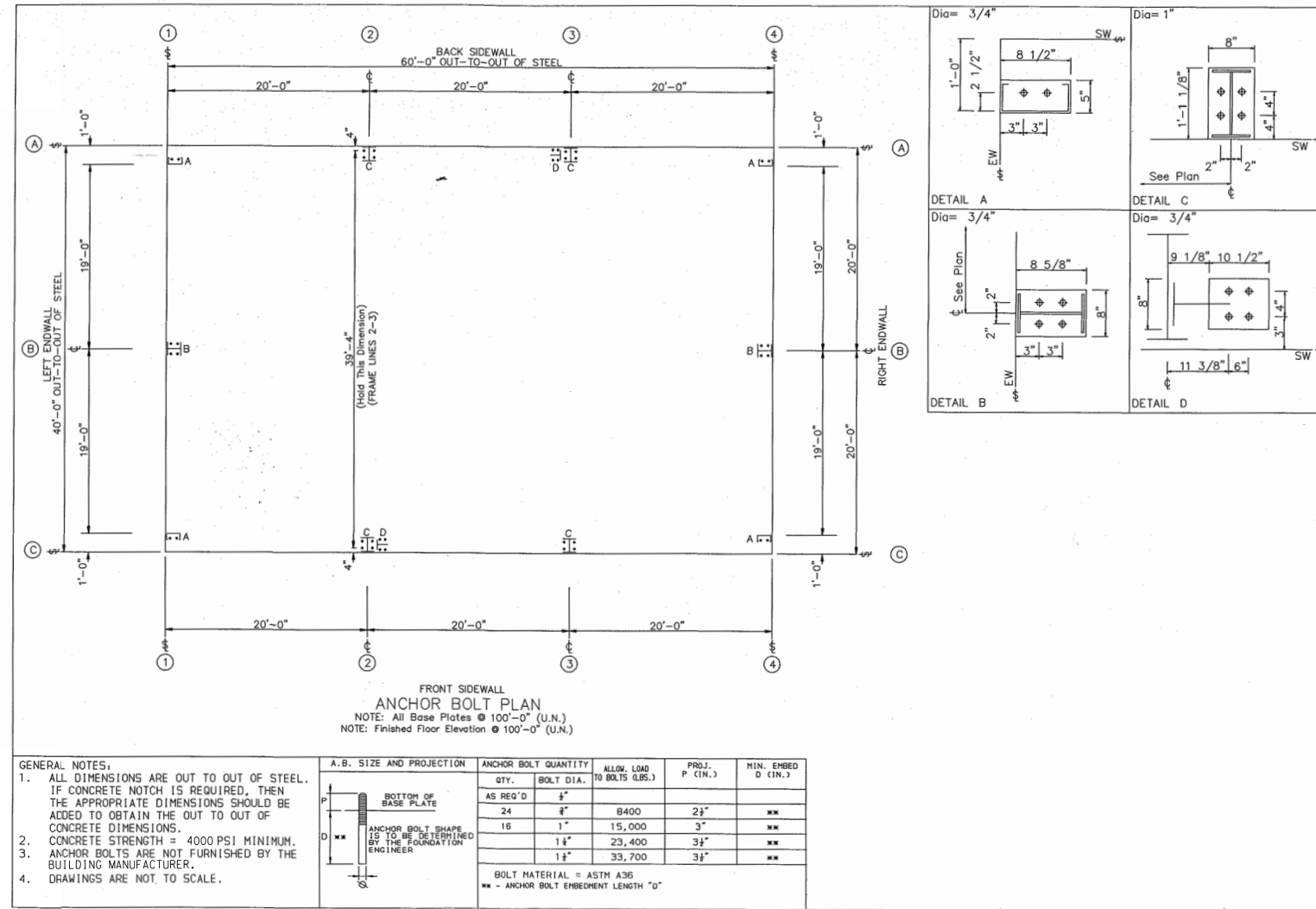


# RECOMMENDATION SUPPORTING A SOLUTION

## PROGRAM DOCUMENT

### CONCEPTUAL BUILDING PLAN | PROTOTYPICAL SALT + BRINE (PROVIDED BY TDOT)

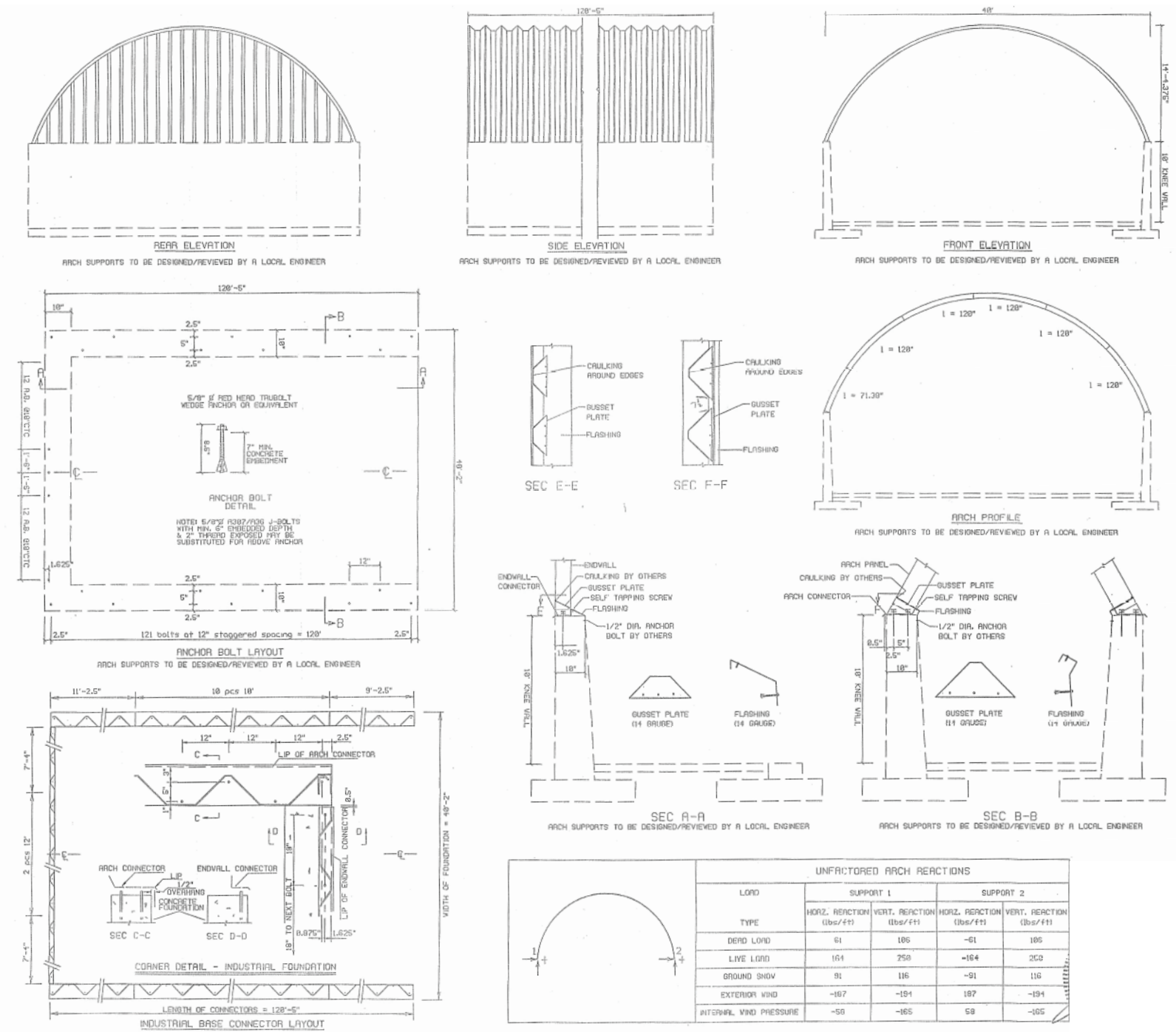
40 FT. x 60 FT.  
SALT BRINE METAL SHEDS



# RECOMMENDATION SUPPORTING A SOLUTION

## PROGRAM DOCUMENT

### CONCEPTUAL BUILDING PLAN | PROTOTYPICAL SALT + BRINE (PROVIDED BY TDOT)

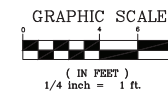
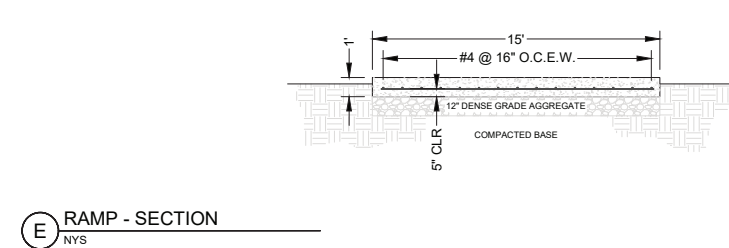
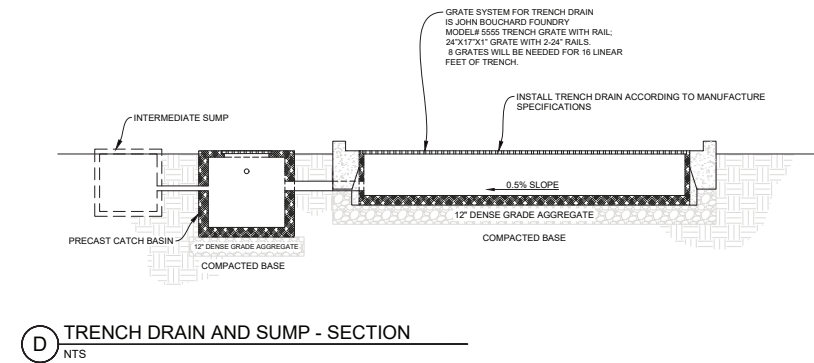
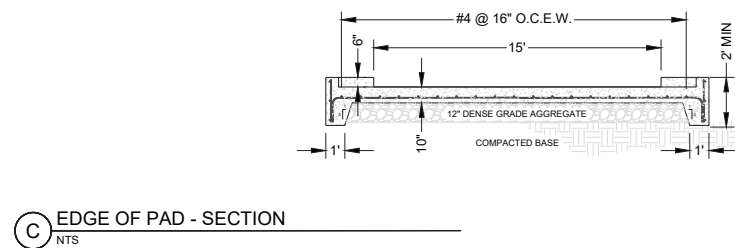
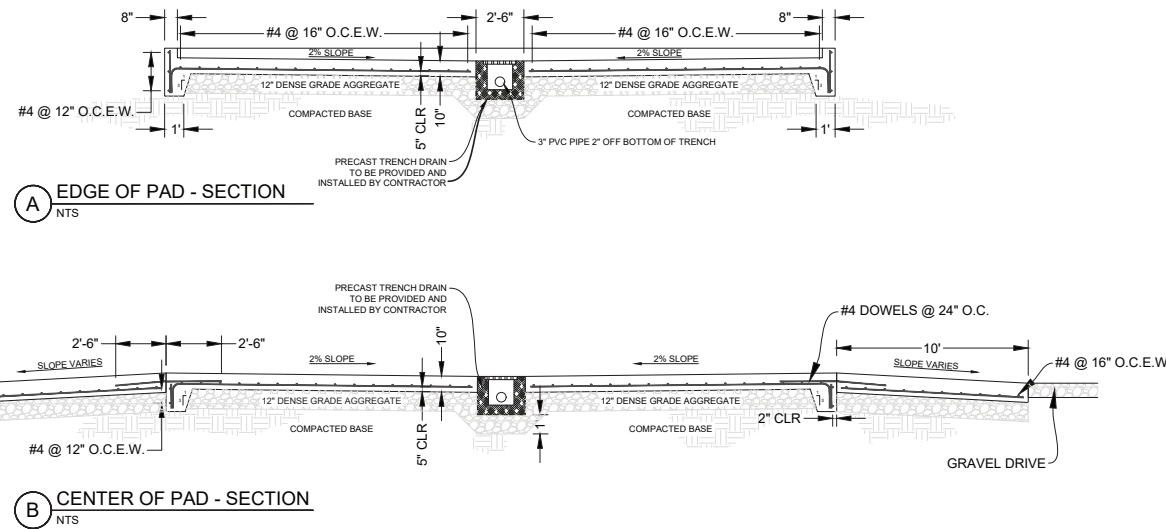
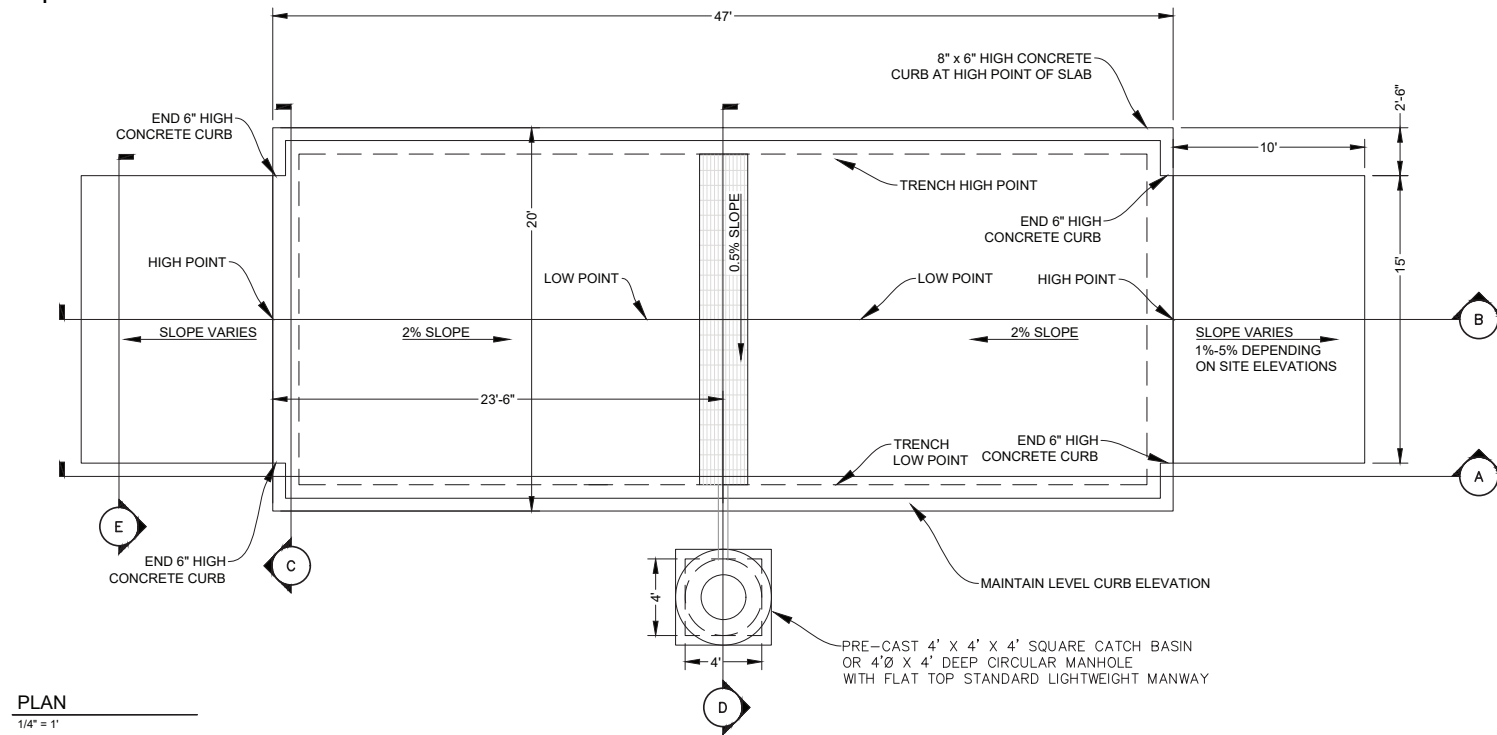




# RECOMMENDATION SUPPORTING A SOLUTION

## PROGRAM DOCUMENT

### CONCEPTUAL BUILDING PLAN | PROTOTYPICAL WASH BAY (PROVIDED BY TDOT)



#### NOTES:

##### SITE PREPARATION

1. PRIOR TO INSTALLATION EACH AREA WILL BE CLEARED OF ALL TOP SOIL, VEGETATION AND DEBRIS, AND UNDESIRABLE MATERIAL. FOR BIDDING PURPOSES, THE SURFACE AREA SHALL BE EXCAVATED TO A MINIMUM OF 12 INCHES BELOW GROUND SURFACE FOR PLACEMENT OF DENSE GRADED AGGREGATE. CONTRACTOR MAY BE REQUIRED TO EXCAVATE MORE OR LESS SUBGRADE DEPENDING ON SITE CONDITIONS.
3. THE EXPOSED SUBGRADE FOR THE SITE SHALL BE PROOF-ROLLED IN THE PRESENCE OF ENSAFE REPRESENTATIVE. THE PROOF-ROLLING IS REQUIRED TO ASSURE A FIRM FOUNDATION FOR THE BASE MATERIAL BELOW THE SLAB AREA. PROOF ROLLING SHALL BE ACCOMPLISHED USING A DUMP TRUCK (MINIMUM WEIGHT 30,000 POUNDS). ANY SOFT AREAS SHOWING EXCESSIVE PUMPING SHALL BE BROKEN UP TO A DEPTH OF 12-INCHES, DRIED, THOROUGHLY RE-ROLLED AND COMPACTED OR IF NECESSARY EXCAVATED AND REPLACED WITH STRUCTURAL FILL MATERIAL.
4. IF EXCAVATION OF SOFT AREAS IS REQUIRED, EXCAVATION SHALL BE OVER SIZED 1-FOOT HORIZONTALLY BEYOND THE EDGE OF THE STRUCTURE FOR EACH FOOT OF EXCAVATION AS REQUIRED BY ENSAFE REPRESENTATIVE.
5. STRUCTURAL FILL SHALL BE COURSE AGGREGATE, GRADE A OR B, NUMBER 67 OR 57 PER TDOT SPECIFICATION.
6. STRUCTURAL FILL SHALL BE PLACED IN 6-INCH LIFTS AND COMPACTED USING A VIBRATORY ROLLER.
7. PROPER EROSION CONTROL PREVENTION SHALL BE TAKEN BASED ON SITE CONDITION. TDOT APPROVED SILT FENCE OR STRAW WATTLES SHOULD BE PLACED AROUND SITE BEFORE CONSTRUCTION ACTIVITIES BEGIN AND REMAIN UNTIL SITE STABILIZES POST CONSTRUCTION.

##### CONCRETE FORMS

1. PROPOSED ELEVATIONS SHALL BE ESTABLISHED AND MARKED IN THE FIELD PRIOR TO PLACEMENT OF CONCRETE.
2. REBAR SHALL CONSIST OF #4 STEEL IN COMPLIANCE WITH ASTM A615 GRADE 60. REBAR WILL BE PLACED AT ON CENTERS AS SPECIFIED. REINFORCEMENT BARS SHALL BE TIED USING WIRE WRAP IN ACCORDANCE WITH APPLICABLE ASTM STANDARDS & LATEST EDITION OF CRSI RECOMMENDED PRACTICE FOR PLACING REINFORCEMENT BARS.

##### PLACEMENT OF CONCRETE

1. CONCRETE SHALL CONSIST OF A MIX DESIGN FOR 4000 POUNDS PER SQUARE INCH WITHIN 28 DAYS. ENSAFE REPRESENTATIVE WILL BE RESPONSIBLE FOR COLLECTION AND TESTING OF CONCRETE CYLINDERS.
2. CONCRETE SHALL BE MIXED, PLACED AND CURED AS PER ACI 318-99.
3. CONTRACTOR SHALL VIBRATE CONCRETE ALONG FORMED EDGES TO MINIMIZE VOIDS (HONEYCOMB). VOIDS WILL BE INSPECTED BY ENSAFE REPRESENTATIVE AND REPAIRED BY CONTRACTOR.
4. CONCRETE SHALL BE BROOM FINISHED.
5. IMMEDIATELY AFTER REMOVING FORMS, ABOVE GRADE SURFACES SHALL BE DAMPENED AND RUBBED WITH A NO. 16 CARBORUNDUM STONE OR EQUIVALENT TO CREATE A UNIFORM SURFACE PASTE. CONTINUE RUBBING TO REMOVE ALL FORM MARKS AND SURFACE IRREGULARITIES PRODUCING A SMOOTH SURFACE. APPLY A BROOM FINISH TO ALL RUBBED AREAS.

# RECOMMENDATION SUPPORTING A SOLUTION

## CIVIL ENGINEERING DESIGN NARRATIVE

The Tennessee Department of Transportation (TDOT) have identified two locations to construct new Maintenance Centers, one in Anderson County and the other in Rutherford County.

### *DEMOLITION AND PROTECTION*

At each of the locations, selective demolition is anticipated. All demolition debris shall be disposed of off-site at a permitted waste facility. Care should be taken to protect existing infrastructure that is to remain. The contractor shall erect construction fencing or other boundaries to protect infrastructure to remain.

### *PROPOSED IMPROVEMENTS*

At each location a new maintenance building, new equipment shed(s), new wash bay, new salt storage shed, and new brine storage shed are anticipated.

### *SITE ACCESSIBILITY*

Accessible routes shall be constructed from automobile and truck parking areas to the new maintenance building.

### *PARKING*

Parking needs are unique to each site; however, each site would require approximately 15 striped parking spaces adjacent to the maintenance building. The following table outlines the assumed paving section until confirmed by a geotechnical engineer:

	Base Stone (in.)	Binder (in.)	Surface (in.)
Truck Access Drives and Parking Spaces	10	3	1.5

### *EROSION CONTROL*

A stone construction entrance and silt fencing will be installed prior to any grading operations. During grading operations, maintenance of the construction entrance is critical to ensure debris is not tracked off the project site and onto site roads. Site erosion should be maintained through a series of best management practices including silt fence, erosion eels, waddles, check dams, inlet and outlet protection. Graded areas should be stabilized within 14 days of achieving subgrade. Temporary seed and straw in disturbed areas will likely be warranted until final grading is completed. Erosion control matting should be utilized on all slopes 5:1 and steeper. A concrete wash out area should be designated on site during construction and the area should be protected with silt fence.

Each proposed development will likely disturb more than one (1) acre and will therefore be required to file a Stormwater Pollution Prevention Plan (SWPPP) and Notice of Intent (NOI) with the state for coverage under the TDEC NPDES construction general permit.

### *SITE GRADING AND DRAINAGE*

The proposed buildings will be slab on grade and roof runoff is proposed to be collected and piped through an underdrain system discharging at an appropriate location away from the building. Each site shall adhere to the local municipality with regards to stormwater quality and quantity controls.

### *SITE UTILITIES*

Both sites have access to water and sewer facilities near the project sites. Connection to public utilities should be coordinated with the appropriate utility service providers.



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## RECOMMENDATION SUPPORTING A SOLUTION

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### MECHANICAL, ELECTRICAL, PLUMBING DESIGN NARRATIVE

#### PLUMBING SYSTEMS

##### MAINTENANCE BUILDING -

###### *DOMESTIC WATER*

The building is to be served by the city water service, with a 2" line (max demand 56-gpm) protected by a reduced pressure backflow preventer. The domestic hot water is to be generated by a commercial high recovery 50-gal electric tank storage water heater with one building thermostatic mixing valve. The water heater is to be in the conditioned mezzanine level. The hot water is to be distributed at 110 degrees F to the fixtures with a recirculation system to all fixture groups. The domestic piping, cold, hot, and recirculation, shall be copper and insulated per code. Backflow preventers to be provided for all equipment connections. Shutoff valves will be provided on all branch lines to isolate fixtures and equipment. Shock absorbers will be provided at all flush valve fixtures. A non-freeze hydrant is to be provided on each side of the building and two within the workshop space. The water closets and urinals are to be flush valves.

###### *SANITARY SEWER*

The sanitary waste and vent system, serving all the plumbing fixtures and equipment, is to discharge to the sanitary sewer system with a 4" main sewer line.

###### *DRAINAGE*

The Service Area is to have a single trench drain located in the center of each maintenance bay and pit that is routed to a sand & oil separator.

###### *TOOL AIR*

The Service Area is to be hard piped with air quick disconnects, including two air hose drops to be located in between the service bays at each end. The air compressor is to be pad mounted exterior to the building at the front under a canopy.

#### HVAC SYSTEMS

##### MAINTENANCE BUILDING -

###### *SPACE CONDITIONING*

The Breakroom, Mezzanine, & Office spaces are to be conditioned by R-32 High efficiency PTAC heat pump units with fresh air provisions. The Breakroom is to have a unit capable of 14.5-MBH of cooling & heating. The Mezzanine is to have two units each capable of 12.0-MBH of cooling & heating. The Office is to have a unit capable of 12.0-MBH of cooling & heating. The Service Area is to be tempered with four (4) 7-kW electric resistance unit heaters. Each of the restrooms are to be tempered with a 1-kW commercial fan-forced wall electrical heater with integral thermostats.

###### *VENTILATION*

The Breakroom and the Restrooms are to be ventilated with ceiling cabinet fans which are to operate with the lighting. The Breakroom is to have a fan capable of providing 150-cfm of exhaust and vented through the wall of the building. Each of the restrooms is to have a fan capable of providing 80-cfm of exhaust.

The Service Area is to have a barometric damper intake on one end of the shop with a wall mount exhaust fan capable of achieving 8 ACH (~5,000-cfm) at the opposite end controlled by a local HOA switch. In automatic mode the exhaust fan is to operate based on alarm from a local CO/HO2 detector. This fan is intended to provide summer cooling ventilation and general exhaust in the ON position.

The Breakroom residential style range is to have a light commercial exhaust hood UL-507 listed complete with UL-300A listed fire suppression system. The hood is to be sidewall exhaust through the exterior wall of the breakroom.

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## RECOMMENDATION SUPPORTING A SOLUTION

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### MECHANICAL, ELECTRICAL, PLUMBING DESIGN NARRATIVE

#### HVAC SYSTEMS

##### EQUIPMENT SHED -

###### *SPACE CONDITIONING*

Enclosed bay(s) required to be tempered due to storage requirements are to be provided a single 10-kW electric resistance unit heaters to be mounted from the ceiling with integral thermostat.

#### ELECTRICAL SYSTEMS

Electrical utility services to the proposed location of Rutherford County TDOT Maintenance Facility are provided by Middle Tennessee Electric Membership Corporation (MTEMC) headquartered in Murfreesboro, TN. Where possible, existing primary services that extend along Joe B. Jackson Pkwy and equipment shall be reused at the discretion of MTEMC. An existing pad-mounted utility switch was observed during the Phase I Assessment and shall require coordination with MTEMC for utilization of underground service. The utility provider shall determine the size and/or locations of services to be modified to facilitate construction of the new multi-building facility.

The electrical utility design intent shall be utilization of the MTEMC utility switch to extend services to the TDOT Maintenance Facility. An additional switch(es) shall be required to extend primary electrical services to multiple structures (Maintenance Building, Equipment Shed/Wash Bay, and Brine Shed/Salt Storage Bin) as well as property site lighting separately metered. Medium voltage utility transformers (pad- or pole-mounted) shall be provided for each building service with secondary conducted installed per MTEMC standards.

In general, commercial grade outlet devices, switches, disconnects, and equipment shall be utilized throughout the facility. Equipment located outside shall be rated for the environment in which it is installed. Lighting (interior and exterior) shall be LED-type for efficacy, longevity, and reduced maintenance. Exterior site and area lighting shall utilize a combination of building mounted LED floodlights and wall-pack fixtures with dusk-to-dawn photocell controls. Site lighting owned and maintained by MTEMC shall be explored to maximize safety and coverage at the property.

##### MAINTENANCE BUILDING -

The new Maintenance shall be provided with a 200A-208Y/120V, 3-phase, 4-wire service. Underground electrical service conductors shall extend to a service disconnect (an C/T enclosure per MTEMC standards) at the building near the location to house the electrical distribution equipment (utility meter and panelboard(s)). The service conductors shall extend down the exterior and terminate at the service disconnect, utility consumption meter, and extend to panelboard(s). Equipment load requirements within the building shall be comprised of HVAC units, water heater, 208V/230V shop outlets, welder, air compressor, kitchen equipment, lighting, and general power outlets.

The building shall be utilized in two separate capacities: office/administrative area and workshop/outdoor spaces. Office equipment shall be typical workstations, copier/scanner, conference room, and break/kitchen appliances (range, refrigerator, microwave, dishwasher, ect.). Workshop equipment shall include general power outlets, multiple 208V/230V provisions for welder(s) and equipment, overhead electric cord reels, air compressor, powered roll-up doors, and other miscellaneous items. General power outlets and lighting shall be provided for the outdoor open shed. Building HVAC and plumbing equipment shall include a split systems, multi-zone VRF system, various electric heaters, ventilation systems, and commercial water heater.

New telecommunications utility services shall be installed from an approved provider per STS requirements. As needed, new telecommunication services shall be coordinated with the local provider and extended to the new building location.

Exterior site and area lighting shall utilize a combination of new building mounted LED floodlights and wall-pack fixtures with dusk-to-dawn photocell controls. Supplemental site lighting shall be installed at utility riser poles.



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## RECOMMENDATION SUPPORTING A SOLUTION

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### MECHANICAL, ELECTRICAL, PLUMBING DESIGN NARRATIVE

#### ELECTRICAL SYSTEMS

##### EQUIPMENT SHED & WASH BAY -

A new 200A-208Y/120, 3-phase, 4-wire metered service shall be coordinated with MTEMC and extended to the new Equipment Shed structure. The shed shall serve as a storage and maintenance area for heavy trucks and equipment and provided with dedicated GFCI duplex outlets at each column support. Outlets shall be utilized for battery chargers, tools, shop lights, general use, etc. Outlets located in the non-enclosed areas shall be provided with protective weatherproof, in-use covers. The service sizing shall be such that 208V/230V outlets can be installed for welders, air compressors, or larger equipment if required. Enclosed storage bays shall have motorized doors with disconnect with one bay shall having an electric unit heater (10kW) installed.

Lighting shall be provided under the shed with LED fixtures suitable for a maintenance workshop environment. Fixtures intended to illuminate the exterior and area shall be mounted to the shed structure.

The adjacent wash-bay structure shall be provided with a 100A-208Y/120V, 3-phase, 4-wire feeder from the Equipment Shed electric service panel. Building HVAC and plumbing equipment shall include 25-ton VAV package heat pump, mini-split system, large electric heaters (15kW), ventilation systems, and commercial water heater.

No telecommunications services are anticipated to be provided at the Equipment Shed or Wash Bay.

##### BRINE SHED & SALT STORAGE BIN -

The adjacent wash-bay structure shall be provided with a 100A-208Y/120V, 3-phase, 4-wire metered service shall be coordinated with MTEMC and extended to the new Brine Shed/Salt Storage Bin area. Equipment installed at these locations shall be listed for exposure and resistance to hypersaline environments to prolong utilization.

Lighting shall be provided within the Brine Shed and under the Storage Bin (as required) with LED fixtures suitable for high salt concentrations.

No telecommunications services are anticipated to be provided at the Equipment Shed or Wash Bay.

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## SCHEDULES AND OPINION OF PROBABLE COST

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Design + Construction Durations by Phase

### ANTICIPATED DURATION FOR DESIGN PHASE

The proposed design schedule is as follows:  
Pre-Design/Program Verification/Survey – 60 Days  
Schematic Design – 90 Days  
Design Development – 120 Days  
Construction Documentation – 150 Days  
Permitting/Fire Marshal Review – 60 Days  
Bidding/Negotiation – 60 days  
Total Duration – 540 Days

### ANTICIPATED DURATION FOR CONSTRUCTION PHASE

The proposed Construction Schedule is 548 days (18 months).

### PROBABLE COST SUMMARY

The projected Bid Target for the New TDOT County Maintenance Complex in Rutherford County is \$17,263,797.

Please refer to the following pages for additional details.



# SCHEDULES AND OPINION OF PROBABLE COST

Opinion of Probable Cost					3-May-24
TDOT County Maintenance Complex - Rutherford County					
	Quan.	\$/unit	unit	Cost	Remarks
<b>TOTAL PROBABLE CONSTRUCTION COST</b>				<b>\$ 17,263,797</b>	
<b>General Requirements</b>				<b>\$ 7,332,876</b>	
<b>Trades subtotal</b>				<b>\$ 9,930,921</b>	
General Conditions		7.7%		\$ 764,681	
General Requirements		1.75%		\$ 173,791	
Bond, Bus. License Fee & Ins.		1.5%		\$ 150,950	
Permits and fees	\$50,000	100.00%		\$ 50,000	
Other General Conditions		0.5%		\$ 49,655	Final Clean up, Testing
<b>Construction Subtotal</b>				<b>\$ 11,119,998</b>	
Construction Contingency (CMGC)		10.0%		\$ 1,112,000	
Escalation - July 2026		20.0%		\$ 2,224,000	10% per year
Fee		5.00%		\$ 556,000	
<b>Construction Total</b>				<b>\$ 15,011,997</b>	
Design Contingency		10.0%		\$ 1,501,200	
Estimating Contingency		5.0%		\$ 750,600	
<b>Probable Construction Cost</b>				<b>\$ 17,263,797</b>	
<b>Maintenance Building</b>				<b>\$ 889,275</b>	
Previous Bid on Prototype	3,200	237.52	sf	\$ 760,064	info provided by TDOT
Escalation to Present Day - 2024				\$ 129,211	Original Bid - Dec 2022; 17% calculated inflation (10% per year inflation)
<b>Wash Bay</b>				<b>\$ 187,600</b>	
Wash Bay with structured covering	1,340	140.00	sf	\$ 187,600	extrapolation from similar data
<b>Equipment Shed</b>				<b>\$ 1,800,000</b>	
Metal Building w/ Slab on Grade Concrete Slab	8,000	225.00	sf	\$ 1,800,000	Based upon previous cost information for similar projects
<b>Equipment Shed - Pass Thru</b>				<b>\$ 2,580,000</b>	
Metal Building w/ Slab on Grade Concrete Slab	12,000	215.00	sf	\$ 2,580,000	Based upon previous cost information for similar projects
<b>Maintenance Shed</b>				<b>\$ 1,125,000</b>	
Fully Enclosed Metal Building w/ Slab on Grade Concrete Slab and Sectional OH Doors	4,500	250.00	sf	\$ 1,125,000	Based upon previous cost information for similar projects
<b>Salt Bin</b>				<b>\$ 691,031</b>	
Previous Bid on Prototype	4,800	128.54	sf	\$ 616,992	info provided by TDOT
Escalation to Present Day - 2024				\$ 74,039	Original Bid - May 2023; 12% calculated inflation (10% per year inflation)
<b>Brine Bin</b>				<b>\$ 345,516</b>	
Previous Bid on Prototype	2,400	128.54	sf	\$ 308,496	interpolated from info provided by TDOT

## SCHEDULES AND OPINION OF PROBABLE COST

TDOT County Maintenance Complex - Rutherford County					
	Quan.	\$/unit	unit	Cost	Remarks
Escalation to Present Day - 2024				\$ 37,020	Original Bid - May 2023; 12% calculated inflation (10% per year inflation)
<b>Electrical - Site</b>				<b>\$ 60,000</b>	
Basic Electrical	1	60,000	ls	\$ 60,000	Refer to ICT Estimate
<b>Communications - Site</b>				<b>\$ 147,500</b>	
Site Infrastructure	1	97,500	ls	\$ 97,500	Refer to ICT Estimate
Basic Cabling	1	50,000	ls	\$ 50,000	allowance - pending STS
<b>Earthwork</b>				<b>\$ 301,250</b>	
	1	301,250	ls	\$ 301,250	Refer to BCA Estimate
<b>Exterior Improvements</b>				<b>\$ 1,531,500</b>	
Pavement, Curbs, Gates and Fencing	1	1,531,500	ls	\$ 1,531,500	Refer to BCA Estimate
Additional Landscaping at Perimeter	1	75,000	ls	\$ 75,000	Perimeter Landscaping to meet City of Murfreesboro requirements
<b>Utilities</b>				<b>\$ 272,250</b>	
	1	272,250	ls	\$ 272,250	Refer to BCA Estimate



# SCHEDULES AND OPINION OF PROBABLE COST

## TDOT Maintenance Facility - Rutherford County Opinion of Probable Costs

5.3.24

### Mobilization & Erosion control

Mobilization	1 ls	\$ 5,000.00	\$ 5,000.00
Misc. demolitiion	1 ls	\$ 7,500.00	\$ 7,500.00
Clearing	2.75 ac	\$ 5,000.00	\$ 13,750.00
Erosion Control	1 ls	\$ 7,500.00	\$ 7,500.00
Temporary Fencing	2000 lf	\$ 10.00	\$ 20,000.00

**\$ 53,750.00**

### Grading/Prep

Earthwork	4.75 ac	\$ 50,000.00	\$ 237,500.00
Unsuitable Soils	1 ls	\$ 10,000.00	\$ 10,000.00

**\$ 247,500.00**

### Storm Drainage

15" to 30" RCP	150 lf	\$ 150.00	\$ 22,500.00
Catch Basins/Curb Inlets	8 ea	\$ 2,500.00	\$ 20,000.00
Headwall	4 ea	\$ 3,500.00	\$ 14,000.00
Stormwater Management	1 LS	\$ 75,000.00	\$ 75,000.00

**\$ 131,500.00**

### San. Sewer

4" PVC San. Sewer	450 lf	\$ 125.00	\$ 56,250.00
Cleanouts	2 ea	\$ 750.00	\$ 1,500.00

**\$ 57,750.00**

### Water

2" Domestic Water Meter	1 ea	\$ 5,000.00	\$ 5,000.00
2" Backflow Preventor	1 ea	\$ 8,500.00	\$ 8,500.00
2" PVC Domestic Line	700 lf	\$ 100.00	\$ 70,000.00

# SCHEDULES AND OPINION OF PROBABLE COST

I. C. THOMASSON ASSOCIATES, INC.  
PRICING SHEET

FILE NO. 240313

JOB NAME: TDOT Maintenance Facility - Rutherford County  
WORK: Electrical  
BY: Chad Buckallew

SHEET 1 OF 3

DATE 05/03/24

MATERIAL	QUANTITY	MATERIAL PRICE	PER	MATERIAL EXTENSION	LABOR UNIT	PER	LABOR EXTENSION
Electrical Service (Disconnect, Meter, Feeder)	-	-	-	-	-	-	-
Maintenance Building	1	\$7,500.00	EA	\$7,500.00	\$10,000.00	EA	\$10,000.00
Equipment Shed	1	\$7,500.00	EA	\$7,500.00	\$10,000.00	EA	\$10,000.00
Brine Shed / Salt Storage Bin	1	\$7,500.00	EA	\$7,500.00	\$10,000.00	EA	\$10,000.00
Wash-Bay Panelboard / Feeder (from Eq. Shed)	1	\$4,000.00	EA	\$4,000.00	\$3,500.00	EA	\$3,500.00
Receptacles & Outlets							
Maintenance Building	1	\$25,000.00	LS	\$25,000.00	\$20,000.00	LS	\$20,000.00
Equipment Shed / Wash Bay	1	\$12,000.00	LS	\$12,000.00	\$10,000.00	LS	\$10,000.00
Brine Shed / Salt Storage Bin	1	\$8,500.00	LS	\$8,500.00	\$7,500.00	LS	\$7,500.00
Lighting Fixtures (Interior / Exterior)	1	\$25,000.00	LS	\$25,000.00	\$15,000.00	LS	\$15,000.00
Lighting Controls & Switches	1	\$5,500.00	LS	\$5,500.00	\$6,500.00	LS	\$6,500.00
Misc. Power (Range, Welder, Air Comp., etc.)	10	\$1,750.00	EA	\$17,500.00	\$1,500.00	EA	\$15,000.00
HVAC Power (PTAC, Exhaust, & Heaters)	8	\$1,750.00	EA	\$14,000.00	\$1,500.00	EA	\$12,000.00
Safety Switches	15	\$1,500.00	EA	\$22,500.00	\$1,000.00	EA	\$15,000.00
Telecommunications Utility	1	\$5,000.00	LS	\$5,000.00	\$12,500.00	LS	\$12,500.00
Telecommunications Rough-in	1	\$10,000.00	LS	\$10,000.00	\$15,000.00	LS	\$15,000.00
Security System	1	\$10,000.00	LS	\$10,000.00	\$7,500.00	LS	\$7,500.00
<b>TOTALS</b>				\$181,500.00			\$169,500.00
							\$351,000.00

PRICING SHEET

FILE NO. 240313

JOB NAME: TDOT Maintenance Facility - Rutherford County  
WORK: Plumbing  
BY: Erik Lundquist

SHEET 2 OF 3

DATE 05/03/24

MATERIAL	QUANTITY	MATERIAL PRICE	PER	MATERIAL EXTENSION	LABOR UNIT	PER	LABOR EXTENSION
Waste & Vent	1	\$8,512.00	LS	\$8,512.00	\$4,576.00	LS	\$4,576.00
Domestic Water Piping	1	\$4,096.00	LS	\$4,096.00	\$2,880.00	LS	\$2,880.00
Compressed Air System (Compressor & Piping)	1	\$22,650.00	LS	\$22,650.00	\$8,420.00	LS	\$8,420.00
Piping Insulation	1	\$1,577.60	LS	\$1,577.60	\$1,364.80	LS	\$1,364.80
Hot Water Heater (50-gal)	1	\$7,350.00	LS	\$7,350.00	\$856.00	LS	\$856.00
Plumbing Fixtures	1	\$18,048.00	LS	\$18,048.00	\$3,520.00	LS	\$3,520.00
Shop Trench Drains	1	\$33,856.00	LS	\$33,856.00	\$1,088.00	LS	\$1,088.00
<b>TOTALS</b>				\$96,089.60			\$22,704.80
							\$118,794.40

PRICING SHEET

FILE NO. 240313

JOB NAME: TDOT Maintenance Facility - Rutherford County  
WORK: Mechanical  
BY: Erik Lundquist

SHEET 3 OF 3

DATE 05/03/24

MATERIAL	QUANTITY	MATERIAL PRICE	PER	MATERIAL EXTENSION	LABOR UNIT	PER	LABOR EXTENSION
PTAC 1.5-ton	1	\$2,230.00	EA	\$2,230.00	\$580.00	EA	\$580.00
PTAC 1.0-ton	3	\$1,630.00	EA	\$4,890.00	\$480.00	EA	\$1,440.00
Wall Heaters	1	\$2,100.00	LS	\$2,100.00	\$450.00	LS	\$450.00
Unit Heaters Equipment Bay	1	\$950.00	EA	\$4,450.00	\$268.00	EA	\$480.00
Unit Heaters Shop	1	\$7,750.00	LS	\$7,750.00	\$720.00	LS	\$720.00
Exhaust - General	1	\$1,260.00	LS	\$1,260.00	\$460.00	LS	\$460.00
Exhaust - Shop	1	\$7,120.00	LS	\$7,120.00	\$980.00	LS	\$980.00
Hood Kitchen	1	\$3,680.00	LS	\$3,680.00	\$680.00	LS	\$680.00
T & B	1	\$0.00	LS	\$0.00	\$6,800.00	LS	\$6,800.00
<b>TOTALS</b>				\$26,360.00			\$10,570.00
							\$36,930.00

2950 KRAFT DRIVE - SUITE 500