

MICHIGAN STATE  
U N I V E R S I T Y

INFRASTRUCTURE PLANNING AND FACILITIES  
PLANNING, DESIGN AND CONSTRUCTION

December 18, 2024

TITLE OF PROJECT: Electrical Distribution – Farm Ln Duct Bank Extension – Red Cedar to Farm Ln/Wilson Rd – Phase 1

PROJECT ISSUE DATE: December 2, 2024

PROJECT NUMBER: CP23036

ADDENDUM NO: 2

GENERAL

This Addendum is issued prior to receipt of Proposals to amend the Contract Documents identified as Electrical Distribution – Farm Ln Duct Bank Extension – Red Cedar to Farm Ln/Wilson Rd – Phase 1. Except as otherwise specifically mentioned, the general character of the work required by this Addendum shall be the same as originally specified, and all incidentals required in connection with the work hereinafter described shall be included even though not specifically mentioned. When an item is mentioned with additional specifications given, reference shall be made to the original specifications.

Drawing(s) accompanying this Addendum include: CP23036 – Electrical Distribution – Farm Ln Duct Bank Extension Red Cedar to Farm Ln/Wilson Rd – Phase 1

G-001 Cover

G-002 General Notes

G-003 Vault Details

G-004 Standard Details 1

G-005 Standard Details 2

G-006 SESC Notes and Details

C-100 Duct Bank Plan Profile Sta 00+00 to 11+00

C-101 Duct Bank Plan Profile Sta 11+00 to 20+50

C-102 Duct Bank Plan Profile Sta 20+50 to 28+00

C-103 Duct Bank Plan Profile Connections

C-500 Maintenance of Traffic Plan – Stage 1 - NIC

C-501 Maintenance of Traffic Plan – Stage 2

C-502 Maintenance of Traffic Plan – Stage 3 - NIC

C-503 Maintenance of Traffic Plan – Stage 4 - NIC

C-504 Maintenance of Traffic Plan – Stage 5 - NIC

C-505 Maintenance of Traffic Plan – Stage 6 - NIC

No drawings accompany this Addendum

TRADES – N/A

ITEM NO.            DESCRIPTION

1.            Attachment: General Requirements – Section 011000 Summary
2.            Attachment: General Requirements – Section 013000 Administrative Requirements

3. Attachment: Special Provision for Maintaining Traffic
4. Attachment: Pre-bid Meeting Minutes

## DIVISION 1 - GENERAL REQUIREMENTS

### SECTION 011000 - SUMMARY

#### PART 1 - GENERAL

##### 1.1 SUMMARY OF WORK

###### A. Work Under This Contract

1. This Contract encompasses the furnishing of all labor, materials, services, equipment, and insurance to complete the following as shown on drawing and specified herein:
  - a. Construct approximately ~~1,365~~ ~~2,225~~ feet of ~~primarily~~ 12x5” and 3x6” concrete encased electrical duct system, including ~~4~~ ~~7~~ concrete manholes/vaults, from intersection of Trowbridge Rd/Red Cedar Rd, east along Trowbridge Rd, ~~and north along Farm Ln~~ to intersection of Trowbridge Rd/Farm Ln ~~Wilson Rd~~.
  - b. Construct approximately ~~60~~ ~~690~~ feet of concrete encased electrical connector duct, ~~including 1 concrete manhole/vault, at Trowbridge Rd/Red Cedar Rd, at Trowbridge Rd/Farm Ln, and Farm Ln/Wilson Rd.~~
  - ~~c. Construct approximately 150 feet of concrete encased communication duct, including 1 concrete manhole/vault, across Farm Ln at Wilson Rd.~~
2. Any premium time necessary to complete this project as scheduled, shall be included in the Base Bid.
3. All pertinent requirements of the Invitation to Bidders, Instructions to Bidders, and General Conditions shall form a part of these specifications and the Contractor shall consult them in detail for instructions pertaining to the work in the following divisions.

###### B. Work Performed Under Separate Contracts

1. The following will be provided by the Owner or by others under separate contracts:
  - a. Tie-back, pruning, removal and/or transplanting of existing plantings.
  - b. All topsoil supply and install, including fine grading, seeding, and mulching.
  - c. As-built Site Survey
    - 1) The Contractor shall notify the Project Representative when new underground utility installation starts, or when existing utilities are exposed, to allow the Project Representative to coordinate with IPF Facility Information Services for documentation.

- 2) The Project Representative shall coordinate with IPF Facility Information Services for an As-built Survey upon completion of exterior improvements and utilities.
2. Coordinate pickup of the following site-related, owner-provided materials from Beaumont Supply at 4080 Beaumont Rd., Lansing, MI 48910, phone: (517) 643-6253 (Hours of operation are May 1st – October 31st 6am-4pm Monday – Friday excluding university holidays. November 1st – up until the Thanksgiving Holiday 6am-230pm Monday -Friday and following Thanksgiving Holiday – April 30th 5am-130pm to accommodate for snow) Extended hours are available with a minimum 24-hour notice. Contractor is responsible for transporting materials to the jobsite.
    - a. Soil Erosion and Sedimentation Control (SESC) materials: (removed and retained by Owner at end of permit)

- 1) Erosion eels

C. Work Sequence

1. The Substantial construction completion date for this project is as specified in the Advertisement for Bids.

1.2 WORK RESTRICTIONS

A. Owner Occupancy

1. Unless otherwise stated, University buildings will continue to function and remain occupied during the construction process.
2. On every project involving new construction, additions or alterations to existing facilities, M.S.U. requires the ability of a person with physical disabilities to independently get to, enter, and use the site, facility, building or element. In no way shall a site, building or facility be restricted to individuals with disabilities, due to alterations or construction, which would normally be made accessible to individuals with no disabilities. Alternate routes for all new and alterations of existing facilities shall incorporate the latest federal, state and local barrier free standards and include temporary access accommodations for individuals with disabilities.

B. Use of Site

1. There shall be a pre-construction site walk-thru with the Project Representative to clarify and discuss limitations and concerns prior to construction.



2. Construction fence

- a. Along the south side of Trowbridge Rd ~~and applicable turf areas such as the west side of Parking Lot 47,~~ install a heavy duty orange safety fence (polyethylene/polypropylene) system including heavy duty 6-foot safety fence posts and fasteners such as zip ties to secure fencing to posts spaced approximately 10 feet apart on both sides of the trench allowing for construction operations; ‘move fence’ as duct bank construction progresses.
- b. Along/across HMA/concrete surfaces, install 6-foot tall temporary metal fence panes with anchor block/weight base and ‘move fence’ as necessary allowing construction operations; ‘move fence’ as duct bank construction progresses.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION (Not Used)

END OF SECTION 011000

## **SECTION 013000 - ADMINISTRATIVE REQUIREMENTS**

### **PART 1 - GENERAL**

#### **1.1 PROJECT MANAGEMENT AND COORDINATION**

##### **A. Project Meetings**

1. Project meetings may be called as deemed necessary by the Project Manager.

##### **B. Project Scope Documentation**

1. The Contractor shall use PlanGrid for coordination of changes in the field, punch list items, and potential use for plan review comments.

##### **C. Project Coordination**

1. The Contractor is ultimately responsible for coordination to complete all work shown on drawings and specified herein independent of the location of the work on drawings and within the specifications. The arrangement of work within the specification into Divisions and Sections shall be considered as given for convenience of reference only and shall not be held to conform to jurisdictional rules which may prevail in any particular trade. It shall be the responsibility of the Contractor to so arrange or group items of work under a particular trade to conform to the prevailing customs of that trade and best interest of the Owner. Specific items of work will be performed by specific subcontractors or workmen when so specified herein or subsequently deemed necessary by the Project Representative to produce competent results.
2. The Contractor shall lay out the work and be responsible for all lines and measurements of the work. Before ordering material or executing work the Contractor shall obtain field measurements and prepare the work to fit conditions properly.
3. The Contractor will be held responsible for any error resulting from his/her failure to verify the figures shown on the drawing before laying out the work.
4. No extra charge will be allowed on account of slight variations between field dimensions and dimensions given on the drawings.

##### **D. Mechanical and Electrical Coordination**

###### **1. Connection to Existing Equipment**

- a. The Contractor shall make arrangements with Planning, Design and Construction, through the Project Representative, before connecting to existing facilities. Unless otherwise noted, if interruption of service is required it shall be done at the convenience of the Owner.

## 1.2 CONSTRUCTION PROGRESS DOCUMENTATION

### A. Construction Schedule Development/Coordination Responsibilities.

1. A simple bar chart construction schedule shall be prepared by the Contractor and initially submitted to the Owner prior to or at the first Pre-Construction Meeting.
2. The Construction Schedule shall include, without limitation, milestones, shop drawing submittals with time allowed for Owner approval, procurement and construction of all major items of work, depicted in weekly increments.
3. The Contractor shall submit updates to the Construction Schedule on no less than a monthly basis and shall submit updates with each Application for Payment, as required by paragraph 3.10 of the Conditions of the Contract.
4. The Contractor shall coordinate its work with the Owner and other Subcontractors and shall cooperate with other Subcontractors by utilizing orderly progress toward completion in accordance with the work scheduled.

## 1.3 SUBMITTALS

### A. Submittal Schedule

1. Concurrently with the development of the Contractor's Construction Schedule, the Contractor shall prepare a complete schedule of submittals. Submit the initial Submittal Schedule along with the Construction Schedule, at, or prior to, the Pre-Construction Conference.
  - a. Coordinate the Submittal Schedule with the list of subcontracts, Schedule of Values, and the list of products, as well as the Contractor's Construction Schedule.
  - b. Prepare the schedule in chronological order. Provide the following information:
    - 1) Scheduled date for the first submittal
    - 2) Related section number or specification number
    - 3) Submittal category (Shop Drawing, Product Data, Calculations, Test Results or Samples).
    - 4) Name of the subcontractor
    - 5) Scheduled date for resubmittal
    - 6) Scheduled date for completion of the A/E's review

2. Distribution: Following the Owner’s response to the initial submittal, print and distribute copies to the Project representative, A/E, Owner, subcontractors, suppliers and other parties required to comply with the submittal dates indicated. Keep copies at the Project Site at all times.
    - a. When revisions are made, distribute to the same parties and post at the same locations. Delete parties for distribution when they have completed their assigned portion of the Work and are no longer involved in construction activities.
  3. Schedule Updating: Revise the schedule after each meeting or activity where revisions have been recognized or made. Issue the updated schedule concurrently with the report of each meeting, or as requested by the Project Representative.
- B. Submittals are required for, but are not limited to, each of the following. The Contractor should refer to each of the following referenced sections for additional requirements of each submittal. All submittals are to be processed electronically using Unifier.
1. GENERAL SUBMITTALS  
Section 012000 for Contract Breakdowns  
Section 013000 for Safety Documentation
  2. AS-BUILT DRAWINGS  
As-built Drawings are required as specified in Section 017000.
  3. CERTIFICATES OF INSPECTION  
Certificates of Inspection are required as specified in Section 017000.  
015000 for Soil Erosion and Sedimentation Control Inspection
  4. OPERATION AND MAINTENANCE DATA  
Operation and maintenance data is required as specified in Section 017000.
  5. GUARANTEES  
Guarantees are required as specified in Section 017000.
  7. SHOP DRAWINGS  
Shop drawings are required as specified in Section 013000 for the following items:
    - a. Section 015000 for SESC measures
    - b. Section 071326 for waterproofing
    - ~~c. Section 321216 for HMA pavement~~
    - ~~d. Section 321313 for concrete pavement~~
    - ~~e. Section 321613 for concrete curb and gutter~~

~~f. Section 321723 for pavement markings~~

g. Section 337119 for electrical and communication vaults, manholes, covers, conduit

C. Shop Drawings

1. The Shop Drawing will be identified by job name, date, Contractor name and name of person reviewing for compliance with Contract Documents. Shop Drawings are drawings, diagrams, schedules and other data specifically prepared by the Contractor to illustrate some portion of the Work for which submittals are required by the Contract Documents. The purpose of their submittal is to demonstrate the way by which the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents.
2. The Contractor shall review for compliance with the Contract Documents, approve and submit to the Owner/Architect/Engineer all Shop Drawings required by the Contract Documents. Submittal shall be with reasonable promptness and in such sequence as to cause no delay in the Work or in activities of the Owner or their separate Contractors. Submittals which are not marked as reviewed for compliance with the Contract Documents and approved by the Contractor may be returned by the Owner/Architect/Engineer without action.
3. By approving and submitting Shop Drawings the Contractor represents that the Contractor has determined and verified materials, field measurements and field construction criteria related thereto, or will do so, and has checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.
4. The Owner/Architect/Engineer will review and approve or take other appropriate action on the Shop Drawings submitted by the Contractor only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. Review of Shop Drawings is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents. The Owner/Architect/Engineer's review shall not constitute approval of safety precautions or, unless otherwise stated by the Owner/Architect/Engineer, of any construction means, methods, techniques, sequences or procedures. The Owner/Architect/Engineer's approval of a specific item shall not indicate approval of an assembly of which the item is a component.

## 1.4 SPECIAL PROCEDURES

### A. Constructor Safety Requirements

1. MIOSHA regulations apply to all university projects. Each constructor is responsible for ensuring compliance with “all applicable requirements” that govern their work, including any additional regulations, interpretations, clarifications, and consensus standards incorporated therein by reference.
2. MSU-specific safety requirements are published in the Constructor Safety Requirements Manual. The most current version of this manual is available at <http://www.ehs.msu.edu/contractors>. Constructors will be held to the version of the manual in effect at the time of contract execution.
3. Requirements specific to work at Michigan State University generally fall into one of two categories:
  - a. Administrative Requirements, such as but not limited to communication, planning, documentation, submittals, notifications, reporting, and inspections.
  - b. Safety Requirements unique to work at MSU, such as but not limited to Control of Hazardous Energy/Lock Out Tag Out, Confined Space, Electrical, Excavations, Fall Protection, Hot Work, etc.
4. Constructor shall submit a Site-Specific Safety Plan or work under an existing Area-Specific Safety Plan where allowed, as described in the MSU Contractor Safety Requirements Manual.

### B. Hazardous Materials

1. If the Contractor suspects a material, preexisting or newly discovered, within the scope of this project to be a hazardous material such as, asbestos, lead, polychlorinated biphenyl or any other potentially hazardous material, that has not already been identified and/or in the scope of work for the Contractor to abate, notify the Project Representative immediately. Do not impact or disturb the material in question until it has been determined to either be non-hazardous, included in the original scope of work, or until other arrangements can be made with the project representative and the MSU Department of Environmental Health and Safety (EHS).

2. Due to the age of buildings on the Michigan State University campus, all coated surfaces shall be assumed to contain lead-based paint. This includes but is not limited to any type of paint, primer, coating, lacquer, or varnish on any building component. Proper precautions must be taken to ensure that workers and building occupants are not exposed to airborne lead concentrations at or above the OSHA Action Level (AL) of 30 ug/m<sup>3</sup>.
3. If work will be conducted on any coated surface at MSU, the contractor must submit to the Department of Environmental Health and Safety (EHS) and Infrastructure Planning and Facilities Project Representative current proof of appropriate detailed written lead work plan in accordance with 29 CFR § 1926.62 (Michigan Part 603). This submittal will include proof of training, written respirator program, and negative exposure assessments from projects with similar conditions at a minimum. Contractors performing work on campus must follow the provisions of the MSU Lead Management Program from EHS.
4. Any work that impacts Lead shall comply with the provisions of the MSU EHS Lead Management Plan.
5. Any work that impacts Asbestos shall comply with the provisions of the MSU EHS Asbestos Management Plan.

#### 1.5 Requests for Information

- A. Requests for Information (RFI's) shall be processed within PlanGrid, using the RFI business process in the [IPF PlanGrid Standardization Guide](#). Failure to complete the tasks within the PlanGrid time frames shall not be a basis for a delay claim.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION (Not Used)

END OF SECTION 013000

**SPECIAL PROVISION  
FOR  
MAINTAINING TRAFFIC**

**a. Description.** This special provision consists of requirements and restrictions to maintain traffic on Trowbridge Rd, ~~Red Cedar Rd~~, and Farm Ln on the Michigan State University (MSU) campus, in the city of East Lansing, Ingham County.

**b. General.** Maintain traffic throughout the project in accordance with the MDOT 2020 Standard Specifications for Construction, typicals, and supplemental specifications in the contract and as described on the plans for this project.

**c. Construction Influence Area (CIA).** The CIA includes the right-of-way of the following roadways, within the approximate limits described below:

1. On Trowbridge Rd from approximately ~~Harrison Rd~~ **Chestnut Rd** to Farm Ln, ~~on Red Cedar Rd from Trowbridge Rd to Shaw Ln~~, and on Farm Ln from **Wilson Rd** to Service Dr ~~to Shaw Ln~~.

2. In addition, the CIA includes the right-of-way of any designated detour route or alternate route, intersecting roads, and ramps adjacent to the work zone for a distance of approximately 1/4 mile in advance of the work zone or as far as the construction or detour signing extends. The roads include but are not limited to Wilson Rd, ~~Harrison Rd~~, Service Rd, and ~~Bogue St~~ **Red Cedar Rd**.

**d. Traffic Restrictions.** Maintain traffic in accordance with the Maintaining Traffic Typicals contained herein, except as noted below. Changes or adjustments to the Maintaining Traffic Typicals may be necessary to fit field conditions, subject to approval of the Engineer or as determined by the Engineer.

- 1. Utilize the following Maintaining Traffic Typicals:
  - A. 100-GEN-KEY
  - B. 101-GEN-SPACING-CHARTS
  - C. 102-GEN-NOTES
  - ~~D. 110-TR-NFW-2L~~
  - ~~E. 112-TR-CLT~~
  - F. 123-NFW-1LC-(R)
  - ~~G. 130-CLT-1-(CLT)~~
  - ~~H. 133-CLT-1LC-(L)~~



- I. 137-CLT-SHIFT-0LC
- J. 203-FW-1LC-(R)

2. Do not work, deliver material, or close lanes during the holiday periods as defined in Table 1.

**Table 1: 2025 Holiday Periods**

| Holiday          | Start Date and Time          | End Date and Time           |
|------------------|------------------------------|-----------------------------|
| Memorial Day     | 3:00 p.m. Friday, May 23rd   | 6:00 a.m. Tuesday, May 27th |
| Independence Day | 3:00 p.m. Thursday, July 3rd | 6:00 a.m. Monday, July 7th  |

3. When a lane is closed, place channelizing devices at cross streets and major drives to form a radius that clearly defines the approaches to the through and turning traffic.

4. Maintain access to all driveways as directed by the Engineer unless prior agreements are made with the respective property owners.

**e. Traffic General.**

1. For any lane open to traffic, provide a minimum lane width of 11 feet with 2 feet of shy distance on both sides unless identified otherwise on plans.

2. Place lane closures and traffic regulation operations only in areas as shown on the plans unless otherwise directed by the Engineer.

3. Prior to opening any lanes, remove, by sweeping all accumulated debris that has collected within the closed lane/shoulder.

4. A speed reduction will not be used.

5. Protect the work area at the end of each day. Close all open access points on the project to traffic with Type III barricades or other devices approved by the Engineer.

6. The Contractor will be responsible for notifying emergency services, transit agencies, law enforcement and schools prior to any lane closures, detours, or major traffic shifts. In addition, the Contractor will be responsible for working with and complying with any coordination that is necessary with MSU, City of East Lansing and emergency services, transit agencies, law enforcement and schools.

7. Obtain all necessary permits from MSU and local governments within areas of jurisdiction, including noise/dust ordinance waivers when required, prior to placing construction signing on roads.

8. Remove all temporary traffic control devices from right-of-way during any shut down periods unless needed for directly maintaining or channelizing traffic. No additional payment will be made for removal and/or redeployment of these devices except for in the case of an approved extension of time.

9. Once work is initiated that includes any lane restrictions, that work must be continued daily until completed. A lack of work activity for more than 3 days will require the removal of lane closures at no expense to the project.

**~~f. Traffic Regulator Control.~~**

~~1. Place the arrow panel, signs, and channelizing taper for the traffic regulator operation at locations approved by the Engineer for adequate visibility by oncoming traffic.~~

~~2. Crossroads must remain open to traffic at all times. Use intermediate traffic regulators at each intersection approach and commercial driveways within the closure limits, as directed by the Engineer. Use traffic regulator control as directed by the Engineer for cross street traffic while paving through intersections.~~

~~3. Follow the [Michigan Traffic Regulator's Instruction Manual](#) for operations at signalized intersections. Contact MSU and the City of East Lansing or applicable maintaining agency prior to work on traffic signals. Only the maintaining agency may make changes to the traffic signal controllers.~~

**g. Stage Construction.** Maintain traffic in accordance with the restrictions listed in section d. Traffic Restrictions and the sequence of operations contained herein. Use of an alternate traffic control plan is subject to review and approval by the Engineer.

~~4. Stage 1.~~

~~A. Construction~~

~~(1) Duct bank construction across EB and WB Trowbridge Rd south of Red Cedar Rd and across Trowbridge Rd east of Red Cedar Rd.~~

~~(2) Restore roadway with 6" aggregate surface.~~

~~(3) Replace curb & gutter, sidewalk, and sidewalk ramps.~~

~~B. Maintenance of Traffic~~

~~(1) Close EB and WB Trowbridge Rd on the east side of Chestnut Rd.~~

~~(2) Close NB and SB Red Cedar Rd on south side of west entrance to Ramp 5/Parking Lot 102 (Trowbridge Ramp); maintain west access to Ramp 5/Parking Lot 102 (Trowbridge Ramp).~~

~~(3) Close Trowbridge Rd on west side of south entrance to Ramp 5/Parking Lot 102 (Trowbridge Ramp) with soft closure at Farm Ln; maintain south access to Ramp 5/Parking Lot 102 (Trowbridge Ramp).~~

~~(4) Close bike lanes and sidewalks.~~

~~(5) Complete Stage 1 work prior to starting Stage 2 work.~~

## 2. Stage 2.

### A. Construction

(1) Duct bank construction along south side of Trowbridge Rd (outside of roadway) from Red Cedar Rd to Farm Ln.

~~(2) Replace any removed curb and gutter.~~

### B. Maintenance of Traffic

(1) Close EB lane and maintain traffic in accordance with MDOT 137-CLT-SHIFT-0LC maintaining traffic typical.

(2) Close outside right turn lane at Farm Ln.

(3) Close EB bike lane **along Farm Ln.**

~~(4) Complete Stage 2 work prior to starting Stage 3 work.~~

**(5) Close outside right turn lane at Trowbridge Rd while completing adjacent work.**

**(6) Close SB bike lane and SB outside lane along Farm Ln while completing adjacent work.**

## ~~3. Stage 3.~~

### ~~A. Construction~~

~~(1) Duct bank construction across west half of Farm Ln, at crossings south of Trowbridge Rd and south of Wilson Rd.~~

~~(2) Restore roadway with 6" aggregate surface.~~

~~(3) Replace curb & gutter, sidewalk, and sidewalk ramps.~~

### ~~B. Maintenance of Traffic~~

~~(1) Concurrent part width closure of Farm Ln from Wilson Rd to south of Trowbridge Rd.~~

~~(2) Maintain northbound Farm Ln traffic and bike lane. Close left turn lane and bag south facing left turn lane signal heads at Trowbridge Rd and Wilson Rd. Close and detour south bound Farm Ln traffic. Detour route will be from Wilson Rd to Harrison Rd to Service Dr.~~

~~(3) Close sidewalks as needed.~~

~~(4) Complete Stage 3 work prior to starting Stage 4 work.~~

#### ~~4. Stage 4.~~

##### ~~A. Construction~~

~~(1) Duct bank construction across east half of Farm Ln, at crossings south of Trowbridge Rd and south of Wilson Rd.~~

~~(2) Restore roadway with 6" aggregate surface.~~

~~(3) Replace curb & gutter, sidewalk, and sidewalk ramps.~~

##### ~~B. Maintenance of Traffic~~

~~(1) Concurrent part width closure of Farm Ln from Wilson Rd to south of Trowbridge Rd.~~

~~(2) Maintain southbound Farm Ln traffic and bike lane. Close left turn lane. Close and detour north bound Farm Ln traffic. Detour route will be Service Dr to Bogue St to Wilson Rd.~~

~~(3) Close sidewalks as needed.~~

~~(4) Complete Stage 4 work prior to starting Stage 5 work.~~

#### ~~5. Stage 5.~~

##### ~~A. Construction~~

~~(1) Duct bank construction along Parking Lot 47/Greenhouse Parking Lot 53 (Employee Permit Parking) on east side of Farm Ln from Trowbridge Rd to Wilson Rd.~~

~~(2) Restore parking lot with 6" aggregate surface.~~

~~(3) Replace curb & gutter, sidewalk, and sidewalk ramps.~~

~~B. Maintenance of Traffic~~

- ~~(1) Close Parking Lot 47.~~
- ~~(2) Close sidewalk between Farm Ln and Parking Lot 47.~~
- ~~(3) Utilize daytime single outside lane closures along NB Farm Ln.~~

~~6. Stage 6.~~

~~A. Construction~~

- ~~(1) Duct bank construction across access drive to Greenhouse Parking Lot 53 (Employee Permit Parking).~~
- ~~(2) Restore roadway with 6" aggregate surface.~~
- ~~(3) Replace curb & gutter, sidewalk, and sidewalk ramps.~~

~~B. Maintenance of Traffic~~

- ~~(1) Close Greenhouse Parking Lot 53, close bike lanes and sidewalks.~~
- ~~(2) Closure is limited to two weekend periods.~~
- ~~(3) Greenhouse Parking Lot 53 access must be provided during the week.~~

~~7. Stage 7.~~

~~A. Construction~~

- ~~(1) Reconstruct removed roadway and parking lot pavement.~~
- ~~(2) Replace permanent pavement markings.~~

~~B. Maintenance of Traffic~~

- ~~(1) Utilize daytime single lane closures and traffic regulators to replace roadway crossings at the Trowbridge Rd/Red Cedar Rd intersection. MDOT maintaining traffic detail 10-TR-NFW-2L, 112-TR-CLT and 203-FW-1LG (R).~~
- ~~(2) Utilize daytime lane shifts to complete any required road work along Trowbridge Rd. MDOT maintaining traffic typical 137-CLT-SHIFT-0LG.~~
- ~~(3) Utilize daytime single lane closures to replace roadway crossings along Farm Ln. MDOT maintaining traffic typical 123-NFW-1LG (R) and 133-CLT-1LG (L).~~
- ~~(4) Close Parking Lot 47 to replace parking lot pavement.~~

~~(5) Utilize daytime lane closures and lane shifts to replace roadway pavement crossing at Greenhouse Parking Lot 53 access driveway. MDOT maintaining traffic typical 130-CLT-1(CLT) and 137-CLT-SHIFT-OLC.~~

~~**h. Detours.**~~

~~1. Do not detour traffic until all proposed contract work on the detour route is completed, inspected, and approved by the Engineer.~~

~~2. Signs should be on both sides of the roadway when the work is taking place on a boulevard section.~~

**i. Pedestrian or Non-Motorized Facilities.**

1. Maintain all facilities in accordance with The Americans with Disability Act (ADA) requirements and the Public Rights-of Way Accessibility Guidelines (PROWAG). Provide facilities equivalent to or better than the route a person would have encountered prior to construction activities.

2. Close and detour any sidewalk ramps and crosswalk areas to pedestrian traffic that is impacted by the work. Cover pedestrian signal heads when the crosswalk or ramp is affected.

3. Keep sidewalk areas clear of any equipment or materials at all times the sidewalks are open to pedestrian traffic.

**j. Earthwork and Excavation.**

1. Restore undercuts or excavations in the work areas within 3 feet of the active traffic lanes to no steeper than a 1 on 4 slope from the edge of the roadway at the end of each work day. If this condition is not met, provide a nighttime closure.

2. Delineate excavated areas located within 3 feet of traffic with channelizing devices at 25 feet spacing along the excavated area or as shown on the maintaining traffic plans.

3. Use protective fencing to protect open excavations within the work zone during non-working hours.

**k. Traffic Control Devices.** Ensure all traffic control devices are in accordance with the MMUTCD and must meet the “acceptable” criteria as defined in the ATSSA publication entitled “Quality Guidelines for Temporary Traffic Control Devices and Features” at the time of initial deployment and after each major stage change.

1. During non-working periods, place applicable advance signs and channelizing devices at specific locations, as directed by the Engineer, at no additional cost.

2. Notify the Engineer 24 hours in advance of when traffic control devices are being delivered to the project site, to allow for initial inspection of devices to take place.

3. Remove from the project site all traffic control devices (including detour signing) no longer needed for a particular operation and equipment for construction within 14 calendar days of reopening the shoulder/lane/roadway.

4. Channelizing Devices.

A. Ensure all devices have sufficient ballast to prevent moving or tipping. If moving or tipping occurs, place additional ballast, as directed by the Engineer, at no additional cost. No more than two ballasts are allowed on each channelizing device.

B. Do not use caution tape on this project.

C. Space channelizing devices at 25 feet spacing for tapers and tangents or tighter as directed by the Engineer.

5. Temporary Signs.

A. W20-1 (ROAD WORK AHEAD) signs are included to be placed on all intersecting or adjacent roads where construction activities may be encountered.

B. Fabricate, install, and remove temporary sign overlays on existing signs in accordance with Sign, Type B, Temp, Prismatic, Furn. Attach the overlay in accordance with subsection 812.03.D.2 of the Standard Specifications for Construction.

**I. Traffic Signals.**

1. Prior to each stage, cover any signal indications or overhead signing in conflict with traffic movements during that stage. Methods of covering signs and signal indications require approval by the Engineer before placement.

**m. Temporary Pavement Markings.**

1. Remove conflicting pavement markings, pavement markings in taper/transition areas and other markings as directed by the Engineer, for operations occupying a location longer than 3 days. Durable markings in these areas should be covered rather than be removed.

2. Quantities for temporary tape to be placed during paving operations are based on the MDOT PAVE 900 Series standard plans.

3. When Type R or NR tape is used, ensure that all temporary pavement markings adhere to the pavement surface until permanent markings are installed.

4. Complete temporary pavement markings in each stage prior to shifting traffic as directed by the Engineer.

5. Replace all existing pavement markings that are removed for traffic control or obliterated during construction.

**n. Measurement and Payment.** No separate payment will be made for Maintaining Traffic, including the following activities:

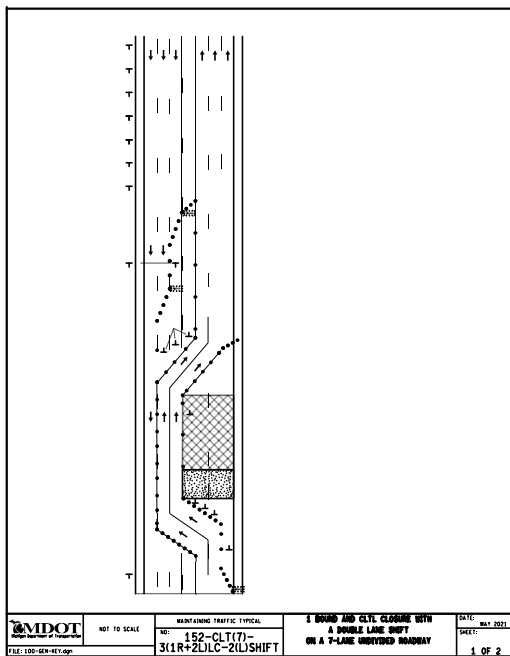
1. Transporting traffic control items from site to site.
2. Providing sufficient vehicles and staff to make changes as needed on site during work.
3. Providing sufficient vehicles and staff to remove closures from the roadway.
4. Providing additional traffic control devices required to expedite the construction for the convenience of the Contractor.



# TYPICAL NUMBER KEY

## CODES

|  |   |
|--|---|
| AB = ARROW BOARD<br>AW = ADVANCE WARNING<br>C = CLOSURE<br>CLT = CENTER LEFT TURN LANE<br>CROSS = CROSSOVER<br>CruSha = CRUSH AND SHAPE<br>EM = EARLY MERGE<br>EnR = ENTRANCE RAMP<br>ExR = EXIT RAMP<br>FW = FREEWAY<br>GEN = GENERAL INFORMATION<br>GORE = FREEWAY GORE AREA<br>IN = INSIDE<br>INT = INTERSECTION<br>L = LANE<br>(L) = LEFT<br>LC = LANE CLOSURE<br>LD = LONG DURATION | LO = LANE OPEN<br>O = OUTSIDE (LANE CLOSURE)<br>OUT = OUTSIDE OF SHOULDER<br>MID = MIDDLE OF INTERSECTION OR ROAD<br>NFW = NON-FREEWAY<br>PARK = PARKING LANE<br>PCMS = PORTABLE CHANGEABLE MESSAGE SIGN<br>(R) = RIGHT<br>ROLL = ROLLING ROADBLOCK<br>RUM = RUMBLE STRIP<br>SD = SHORT DURATION<br>SHL = SHOULDER CLOSURE<br>SIGN = SIGN<br>SP = SPECIAL<br>SPEED = SPEED<br>STA = STOPPED TRAFFIC ADVISORY<br>TR = TRAFFIC REGULATOR<br>TS = TEMPORARY SIGNAL<br>ZIP = ZIPPER MERGE |
|--|---|



- 100 - GENERAL NOTES
- 110 - TRAFFIC REGULATORS
- 120 - NON-FREEWAY
- 130 - CENTER LEFT TURN (CLT) LANES
- 140 - PARKING LANES
- 150 - CLT 7 LANE SECTIONS
- 160 - SIGNAL WORK
- 200 - FREEWAY CLOSURES
- 210 - FREEWAY LANE SHIFTS
- 220 - FREEWAY ENTRANCE RAMPS
- 230 - FREEWAY EXIT RAMPS
- 300 - ADVANCE WARNINGS
- 310 - CROSSOVER CLOSURE
- 320 - CRUSH AND SHAPE
- 340 - MERGE SYSTEMS
- 350 - GORE LOCATIONS
- 360 - ROLLING ROADBLOCK
- 4000 - MAINTENANCE
- 5000 - SURVEY

EXAMPLE TYPICAL

CODE: 152-CTL(7)-3(1R+2L)LC-2(L)SHIFT

152 - TYPICAL NUMBER

CTL(7) = CENTER LEFT TURN LANE, 7 LANES TOTAL.

3(1R+2L)LC = 3 LANES CLOSED, (1 RIGHT LANE AND 2 LEFT LANES).

2(L)SHIFT = 2 LANES SHIFTED TO THE LEFT.

NOT TO SCALE

|  |              |                             |                       |                        |
|--|--------------|-----------------------------|-----------------------|------------------------|
|  | NOT TO SCALE | MAINTAINING TRAFFIC TYPICAL | TYPICAL NUMBERING KEY | DATE:<br>DECEMBER 2021 |
|  |              | NO:<br>100-GEN-KEY          |                       | SHEET:<br>1 OF 2       |

FILE: 100-GEN-KEY.dgn

1 OF 1

**DISTANCE BETWEEN TRAFFIC SIGNS, "D"**

| "D"<br>DISTANCES | POSTED SPEED LIMIT, MPH (PRIOR TO WORK AREA) |     |     |     |     |     |     |     |     |     |     |
|------------------|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|                  | 25   | 30  | 35  | 40  | 45  | 50  | 55  | 60  | 65  | 70  | 75  |
| D (FEET)         | 250  | 300 | 350 | 400 | 450 | 500 | 550 | 600 | 650 | 700 | 750 |

**GUIDELINES FOR LENGTH OF LONGITUDINAL BUFFER SPACE, "B"**

| "B"<br>LENGTHS | SPEED*, MPH (PRIOR TO WORK AREA) |    |    |     |     |     |     |     |     |     |     |     |
|----------------|----------------------------------|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|                | 20                               | 25 | 30 | 35  | 40  | 45  | 50  | 55  | 60  | 65  | 70  | 75  |
| B (FEET)       | 33                               | 50 | 83 | 132 | 181 | 230 | 279 | 329 | 411 | 476 | 542 | 625 |

\* POSTED SPEED, OFF-PEAK 85TH PERCENTILE SPEED PRIOR TO WORK STARTING, OR THE ANTICIPATED OPERATING SPEED.

**MINIMUM MERGING TAPER LENGTH, "L" (FEET)**

| OFFSET<br>(FEET) | POSTED SPEED LIMIT, MPH (PRIOR TO WORK AREA) |     |     |     |     |     |     |     |     |      |      |
|------------------|--|-----|-----|-----|-----|-----|-----|-----|-----|------|------|
|                  | 25   | 30  | 35  | 40  | 45  | 50  | 55  | 60  | 65  | 70   | 75   |
| 1                | 11   | 15  | 21  | 27  | 45  | 50  | 55  | 60  | 65  | 70   | 75   |
| 2                | 21   | 30  | 41  | 54  | 90  | 100 | 110 | 120 | 130 | 140  | 150  |
| 3                | 32   | 45  | 62  | 80  | 135 | 150 | 165 | 180 | 195 | 210  | 225  |
| 4                | 42   | 60  | 82  | 107 | 180 | 200 | 220 | 240 | 260 | 280  | 300  |
| 5                | 53   | 75  | 103 | 134 | 225 | 250 | 275 | 300 | 325 | 350  | 375  |
| 6                | 63   | 90  | 123 | 160 | 270 | 300 | 330 | 360 | 390 | 420  | 450  |
| 7                | 73   | 105 | 143 | 187 | 315 | 350 | 385 | 420 | 455 | 490  | 525  |
| 8                | 84   | 120 | 164 | 214 | 360 | 400 | 440 | 480 | 520 | 560  | 600  |
| 9                | 94   | 135 | 184 | 240 | 405 | 450 | 495 | 540 | 585 | 630  | 675  |
| 10               | 105  | 150 | 205 | 267 | 450 | 500 | 550 | 600 | 650 | 700  | 750  |
| 11               | 115  | 165 | 225 | 294 | 495 | 550 | 605 | 660 | 715 | 770  | 825  |
| 12               | 125  | 180 | 245 | 320 | 540 | 600 | 660 | 720 | 780 | 840  | 900  |
| 13               | 136  | 195 | 266 | 347 | 585 | 650 | 715 | 780 | 845 | 910  | 975  |
| 14               | 146  | 210 | 286 | 374 | 630 | 700 | 770 | 840 | 910 | 980  | 1050 |
| 15               | 157  | 225 | 307 | 400 | 675 | 750 | 825 | 900 | 975 | 1050 | 1125 |

NOT TO SCALE

|  |              |                             |   |                   |
|--|--------------|-----------------------------|---|-------------------|
|  | NOT TO SCALE | MAINTAINING TRAFFIC TYPICAL | <b>"B", "D" AND "L" TABLES</b><br><b>CHANNELIZING DEVICE SPACING,</b><br><b>SIGN BORDER KEY, AND ROLL-AHEAD SPACING</b> | DATE:<br>MAY 2021 |
|  |              | NO: 101-GEN-SPACING-CHARTS  |   | SHEET:<br>1 OF 3  |

THE FORMULAS FOR THE MINIMUM LENGTH OF A MERGING TAPER IN DERIVING THE "L" VALUES SHOWN IN THE ABOVE TABLES ARE AS FOLLOWS:

"L" =  $\frac{W \times S^2}{60}$  WHERE POSTED SPEED PRIOR TO THE WORK AREA IS 40 MPH OR LESS

"L" = W X S WHERE POSTED SPEED PRIOR TO THE WORK AREA IS 45 MPH OR GREATER

L = MINIMUM LENGTH OF MERGING TAPER  
 S = POSTED SPEED LIMIT IN MPH PRIOR TO WORK AREA  
 W = WIDTH OF OFFSET

TYPES OF TAPERS

UPSTREAM TAPERS

- MERGING TAPER
- SHIFTING TAPER
- SHOULDER TAPER
- 2 TO 1 LANE ROAD TAPER

TAPER LENGTH

- L - MINIMUM
- 1/2 L - MINIMUM
- 1/3 L - MINIMUM
- 100' - MAXIMUM

DOWNSTREAM TAPERS  
 (USE IS RECOMMENDED)

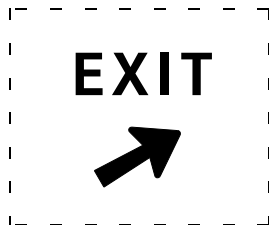
100' (PER LANE)

**MAXIMUM SPACING FOR CHANNELIZING DEVICES**

| WORK ZONE<br>SPEED LIMIT | DRUM AND 42" DEVICE SPACING (FT) |                 | NIGHTTIME 42" DEVICE SPACING (FT) |         |
|--------------------------|----------------------------------|-----------------|-----------------------------------|---------|
|                          | TAPER                            | TANGENT         | TAPER                             | TANGENT |
| < 45 MPH                 | 1 x SPEED LIMIT                  | 2 x SPEED LIMIT | 25 FEET                           | 50 FEET |
| ≥ 45 MPH                 | 50 FEET                          | 100 FEET        | 25 FEET                           | 50 FEET |

**SIGN OUTLINE KEY**

DASHED OUTLINES INDICATE A SIGN THAT EXISTS ON SITE, AND NEEDS TO BE COVERED.



SOLID OUTLINES INDICATE A SIGN THAT IS TO BE PLACED ON THE PROJECT



NOT TO SCALE

|  |              |                             |   |                   |
|--|--------------|-----------------------------|---|-------------------|
|  | NOT TO SCALE | MAINTAINING TRAFFIC TYPICAL | <b>"B", "D" AND "L" TABLES</b><br><b>CHANNELIZING DEVICE SPACING</b><br><b>SIGN BORDER KEY AND ROLL-AHEAD SPACING</b> | DATE:<br>MAY 2021 |
|  |              | NO: 101-GEN-SPACING-CHARTS  |   | SHEET:<br>2 OF 3  |

GUIDELINES FOR ROLL-AHEAD DISTANCES FOR TMA VEHICLES – TEST LEVEL 2

| WEIGHT OF TMA VEHICLE | PREVAILING SPEED (POSTED SPEED PRIOR TO WORK ZONE) | ROLL-AHEAD DISTANCE* (DISTANCE FROM FRONT OF TMA VEHICLE TO WORK AREA) |
|-----------------------|--|--|
| 5.5 TONS (STATIONARY) | 40 MPH OR LESS                                     | 25 FT  |

\* ROLL-AHEAD DISTANCES ARE CALCULATED USING A 4,410 POUND IMPACT VEHICLE WEIGHT.

GUIDELINES FOR ROLL-AHEAD DISTANCES FOR TMA VEHICLES – TEST LEVEL 3

| WEIGHT OF TMA VEHICLE | PREVAILING SPEED (POSTED SPEED PRIOR TO WORK ZONE) | ROLL-AHEAD DISTANCE* (DISTANCE FROM FRONT OF TMA VEHICLE TO WORK AREA) |
|-----------------------|--|--|
| 5 TONS (MOBILE)       | 45 MPH   | 100 FT   |
|                       | 50-55 MPH  | 150 FT   |
|                       | 60-75 MPH  | 175 FT   |
| 12 TONS (STATIONARY)  | 45 MPH   | 25 FT  |
|                       | 50-55 MPH  | 25 FT  |
|                       | 60-75 MPH  | 50 FT  |

\* ROLL-AHEAD DISTANCES ARE CALCULATED USING A 10,000 POUND IMPACT VEHICLE WEIGHT.



NOT TO SCALE

MAINTAINING TRAFFIC TYPICAL

NO: 101-GEN-SPACING-CHARTS

"B", "D" AND "L" TABLES  
CHANNELIZING DEVICE SPACING  
SIGN BORDER KEY AND ROLL AHEAD SPACING

DATE: MAY 2021

SHEET:

3 OF 3

**THE FOLLOWING NOTES APPLY IF CALLED FOR ON THE TRAFFIC TYPICAL**

**GENERAL NOTES**

- G1: SEE GEN-SPACING-CHARTS FOR COMMON VALUES INCLUDING:  
 D = DISTANCE BETWEEN TRAFFIC CONTROL DEVICES  
 L = MINIMUM LENGTH OF TAPER  
 B = LENGTH OF LONGITUDINAL BUFFER  
 ROLL AHEAD DISTANCE
- G2: DISTANCE BETWEEN SIGNS, "D", THE VALUES FOR WHICH ARE SHOWN IN TYPICAL GEN-KEY ARE APPROXIMATE AND MAY NEED ADJUSTING AS DIRECTED BY THE ENGINEER.
- G3: ALL TEMPORARY SIGNS, TYPE III BARRICADES, THEIR SUPPORT SYSTEMS AND LIGHTING MUST MEET NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM REPORT 350 (NCHRP 350) TEST LEVEL 3, OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) TL-3 AS WELL AS THE CURRENT EDITION OF THE MICHIGAN MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, THE CURRENT EDITION OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION, THE STANDARD PLANS AND APPLICABLE SPECIAL PROVISIONS. ONLY DESIGNS AND MATERIALS APPROVED BY MDOT WILL BE ALLOWED.
- G4: DO NOT STORE EQUIPMENT, MATERIALS OR PERFORM WORK IN ESTABLISHED BUFFER AREAS.
- G5: ALL EXISTING PAVEMENT MARKINGS WHICH ARE IN CONFLICT WITH EITHER PROPOSED CHANGES IN TRAFFIC PATTERNS OR PROPOSED TEMPORARY TRAFFIC MARKINGS SHALL BE REMOVED BEFORE ANY CHANGE IS MADE IN THE TRAFFIC PATTERN. EXCEPTION WILL BE MADE FOR TRAFFIC PATTERNS FOR WORK LESS THAN THREE DAYS THAT ARE ADEQUATELY DELINEATED BY OTHER TRAFFIC CONTROL DEVICES.

**SIGN NOTES**

- S1: ALL NON-APPLICABLE SIGNING WITHIN THE CIA MUST BE MODIFIED TO FIT CONDITIONS, COVERED, OR REMOVED. FOR GUIDANCE SEE THE WORK ZONE SAFETY AND MOBILITY MANUAL, SECTIONS 6.01.09 AND 6.01.10.
- S2: R5-18b SIGNS ARE ONLY REQUIRED ON FREEWAY PROJECTS WITH A DURATION OF 15 DAYS OR LONGER OR NON-FREEWAY PROJECTS WITH A DURATION OF 90 DAYS OR LONGER. TO APPLY THIS TYPICAL WITHOUT R5-18b SIGNS, REMOVE THE SIGNS AND CONSOLIDATE THE SEQUENCE AS APPROPRIATE.
- S3: R5-18c IS ONLY REQUIRED IN THE INITIAL SIGNING SEQUENCE IN THE WORK ZONE. OMIT THIS SIGN IN SUBSEQUENT SEQUENCES IN THE SAME WORK ZONE.
- S4: ADDITIONAL SIGNING AND/OR ELONGATED SIGNING SEQUENCES SHOULD BE USED WHEN TRAFFIC VOLUMES ARE SIGNIFICANT ENOUGH TO CREATE BACKUPS BEYOND THE W20-5 SIGNS.
- S5: PLACE ADDITIONAL SPEED LIMIT SIGNS REFLECTING THE WORK ZONE SPEED AFTER EACH MAJOR CROSSROAD THAT INTERSECTS THE WORK ZONE, OR AFTER EACH ENTRANCE RAMP THAT COMES ONTO THE FREEWAY WHERE THE REDUCED SPEED IS IN EFFECT. PLACE ADDITIONAL SPEED LIMIT SIGNS AT INTERVALS ALONG THE ROADWAY SUCH THAT NO SPEED LIMIT SIGNS ARE MORE THAN 2 MILES APART. WHEN REDUCED SPEED LIMITS ARE UTILIZED IN THE WORK AREA, PLACE ADDITIONAL SPEED LIMIT SIGNS RETURNING TRAFFIC TO ITS NORMAL SPEED BEYOND THE LIMITS OF THE WORK AREA AS INDICATED. IF PERMANENT SIGNS DISPLAYING THE CORRECT SPEED LIMIT ARE POSTED, OMIT ALL W3-5b AND R2-1 SIGNS AND REDUCE SPACING ACCORDINGLY.
- S6: FABRICATE SPECIAL SIGNS IN ACCORDANCE WITH CURRENT SIGNING DESIGN STANDARDS.
- S7: PLACE ADDITIONAL R8-3 SIGNS AT A MAXIMUM 500' SPACING THROUGHOUT THE WORK ZONE.
- S8: WHEN SPEED LIMIT SIGNS CANNOT BE PLACED SIDE BY SIDE AS SHOWN, PLACE THEM "D" DISTANCE APART.
- S9: STOP SIGNS NOT REQUIRED IF SIGNALS ARE ON 4-WAY FLASHING RED. STOP AHEAD SIGNS ARE NOT REQUIRED IF THERE IS ADEQUATE VISIBILITY OF THE STOP SIGN OR IF SIGNALS ARE BEING USED TO CONTROL TRAFFIC.
- S10: PLACE REDUCED SPEED ZONE AHEAD SIGN (W3-5b) HERE WHEN USING A SPEED REDUCTION IN THIS DIRECTION.
- S11: THE NUMBER OF W1-6 SHIFT SIGNS TO PLACE FOR A SHIFT IS AS FOLLOWS:  
 SHIFTS 4FT OR LESS, PLACE ONE W1-6(R)(L)  
 SHIFTS 5FT TO 12FT, PLACE TWO W1-6(R)(L)  
 SHIFTS MORE THAN 12FT, PLACE THREE OR MORE W1-6(R)(L) SIGNS DEPENDING UPON LENGTH OF SHIFT AND AS PER THE ENGINEER.
- S12: PLACE R2-1 SIGNS AS DETAILED IN NOTE S5 WHEN THERE IS A SPEED REDUCTION IN THIS DIRECTION

**TRAFFIC REGULATOR NOTES**

- TR1: TRAFFIC REGULATORS MUST FOLLOW ALL THE REQUIREMENTS IN THE STANDARD SPECIFICATIONS, THE STANDARD PLANS AND APPLICABLE SPECIAL PROVISIONS, THE CURRENT VERSIONS OF THE TRAFFIC REGULATOR'S INSTRUCTION MANUAL AND THE VIDEO "HOW TO SAFELY REGULATE TRAFFIC IN MICHIGAN". THE MAXIMUM DISTANCE BETWEEN THE TRAFFIC REGULATORS IS DETERMINED BY THE ROADWAY ADT, GEOMETRICS, AND AS DIRECTED BY THE ENGINEER.
- TR2: PROVIDE APPROPRIATE BALLOON LIGHTING TO SUFFICIENTLY ILLUMINATE TRAFFIC REGULATOR'S STATIONS WHEN TRAFFIC REGULATING IS ALLOWED DURING THE HOURS OF DARKNESS.
- TR3: PROVIDE EITHER A STOP/SLOW AFAD OR A RED/YELLOW LENS AFAD, MEETING THE REQUIREMENTS OF THE MMUTCD

**TEMPORARY TRAFFIC CONTROL DEVICE NOTES**

- TCD1: THE MAXIMUM DISTANCE IN FEET BETWEEN CHANNELIZING DEVICES IN A TAPER SHOULD NOT EXCEED 1.0 TIMES THE WORK ZONE SPEED LIMIT IN MPH FOR ROADWAYS WITH A POSTED WORK ZONE SPEED LIMIT LESS THAN 45 MPH AND SHOULD NOT EXCEED 50 FEET ON ROADWAYS WITH A POSTED WORK ZONE SPEED LIMIT OF 45 MPH OR GREATER. THE SPACING FOR 42 INCH CHANNELIZING DEVICE TAPERS ARE NOT TO EXCEED 25 FEET AT NIGHT.
- TCD2: THE MAXIMUM DISTANCE IN FEET BETWEEN CHANNELIZING DEVICES IN A TANGENT SHOULD NOT EXCEED TWICE THE WORK ZONE SPEED LIMIT IN MPH FOR ROADWAYS WITH A POSTED WORK ZONE SPEED LIMIT LESS THAN 45 MPH AND SHOULD NOT EXCEED 100 FEET ON ROADWAYS WITH A POSTED WORK ZONE SPEED LIMIT OF 45 MPH OR GREATER. THE SPACING FOR 42 INCH CHANNELIZING DEVICE TANGENTS ARE NOT TO EXCEED 50 FEET AT NIGHT.
- TCD3: TYPE III BARRICADES MUST BE LIGHTED FOR OVERNIGHT CLOSURES.
- TCD4: WHEN THE HAUL ROAD IS NOT IN USE, PLACE LIGHTED TYPE III BARRICADES WITH "ROAD CLOSED" EXTENDING COMPLETELY ACROSS THE HAUL ROAD.
- TCD5: USE OBJECT MARKER SIGNS IN LIEU OF THE TYPE B HIGH INTENSITY LIGHT SHOWN IN THE STANDARD PLAN FOR TEMPORARY CONCRETE BARRIER (R-53, AND R-126) WHEN USED WITH A TEMPORARY SIGNAL SYSTEM. THE OBJECT MARKERS MUST BE A MINIMUM OF 12 INCHES IN WIDTH AND 36 INCHES IN HEIGHT AND HAVE ORANGE AND WHITE RETROREFLECTIVE SHEETING. THE RETROREFLECTIVE SHEETING MUST HAVE ALTERNATING DIAGONAL ORANGE AND WHITE STRIPES SLOPING DOWNWARD AT AN ANGLE OF 45 DEGREES IN THE DIRECTION VEHICULAR TRAFFIC IS TO PASS.
- TCD6: PLACE LIGHTED ARROW PANELS AS CLOSE TO THE BEGINNING OF TAPERS AS PRACTICAL, BUT NOT IN A MANNER THAT WILL OBSCURE OR CONFUSE APPROACHING MOTORISTS WHEN PHYSICAL LIMITATIONS RESTRICT PLACEMENT. IN CURBED SECTIONS, IF ARROW BOARD CANNOT BE PLACED BEHIND CURB, PLACE ARROW BOARD IN THE CLOSED LANE AS CLOSE TO THE BEGINNING OF TAPER AS POSSIBLE.
- TCD7: ADDITIONAL TYPE III BARRICADES MAY BE REQUIRED TO COMPLETELY CLOSE OFF ROAD FROM EDGE OF PAVEMENT TO EDGE OF PAVEMENT.
- TCD8: WHERE THE SHIFTED SECTION IS SHORTER THAN 600 FEET, A DOUBLE REVERSE CURVE SIGN (W24-1) CAN BE USED INSTEAD OF THE FIRST REVERSE CURVE SIGN, AND THE SECOND REVERSE CURVE SIGN CAN BE OMITTED.
- TCD9: RUMBLE STRIPS ARE TO BE PLACED AS SPECIFIED IN THE CONTRACT. IF NOT SPECIFIED IN THE CONTRACT, PLACE RUMBLE STRIPS AS SHOWN, AND IN ACCORDANCE WITH THE RUMBLE STRIP MANUFACTURER'S RECOMMENDATIONS. AN ARRAY OF RUMBLE STRIPS CONTAINS THREE RUMBLE STRIPS. PLACE THE RUMBLE STRIPS IN THE ARRAY AT A CONSISTENT DISTANCE, BETWEEN 10' AND 20' APART.
- TCD10: SEE THE WORK ZONE SAFETY AND MOBILITY MANUAL, PORTABLE CHANGEABLE MESSAGE SIGN GUIDELINES FOR RECOMMENDED AND CORRECT PCMS MESSAGING. STAGGER PCMS THAT ARE ON OPPOSING SIDES OF THE ROAD 1000 FEET FROM EACH OTHER.

**RAMP NOTES**

- RMP1: WHEN CONDITIONS ALLOW, E5-1 SIGNS MUST BE REMOVED OR COVERED AND CHANNELIZING DEVICES MUST BE POSITIONED TO ENABLE RAMP TRAFFIC TO DIVERGE IN A FREE MANNER
- RMP2: STOP AND YIELD CONDITIONS SHOULD BE AVOIDED WHENEVER PRACTICAL. WHEN CONDITIONS WARRANT, R1-1 SIGNS MAY BE USED IN PLACE OF R1-2 SIGNS. WHEN R-1 SIGNS ARE USED, W3-1 SIGNS MUST BE USED IN PLACE OF W3-2 SIGNS. CONSIDERATION SHOULD BE GIVEN TO CLOSING THE RAMP TO COMPLETE WORK TO ALLOW AN ADEQUATE MERGE DISTANCE. WORK SHOULD BE EXPEDITED TO AVOID THE STOP AND/OR YIELD CONDITIONS.



NOT TO SCALE

MAINTAINING TRAFFIC TYPICAL

NO: 102-GEN-NOTES

**TRAFFIC TYPICALS  
NOTE SHEET**

DATE: MAY 2022  
SHEET:

1 OF 2

THE FOLLOWING NOTES APPLY IF CALLED FOR ON THE TRAFFIC TYPICAL

**SIGNAL NOTES**

- SIG1: EXISTING SIGNAL MUST BE EITHER 4-WAY FLASHING RED, BAGGED, OR TURNED OFF.
- SIG2: SIGNAL IS IN OPERATION.
- SIG3: DELINEATE THE WORK ZONE AREA WITH 28 INCH CONES FOR DAYTIME WORK, OR 42 INCH CHANNELIZING DEVICES FOR NIGHTTIME WORK.
- SIG4: THE CONTRACTOR MUST HAVE A DESIGNATED SPOTTER IF THE AERIAL BUCKET TRUCK IS LOCATED OVER ACTIVE TRAVEL LANES.
- SIG5: THE LOWEST POINT OF THE BUCKET MAY NOT TRAVEL BELOW 14 FOOT VERTICAL CLEARANCE. THE CONTRACTOR MUST UTILIZE AN ALTERNATE SET UP, OR PLACE THE INTERSECTION IN A 4 WAY STOP IF THE 14 FOOT VERTICAL CLEARANCE IS COMPROMIZED. USE TRAFFIC REGULATORS TO CONTROL TRAFFIC THROUGH THE INTERSECTION WHEN TRAFFIC IS PLACED IN A 4 WAY STOP.
- SIG6: DELINEATE THE TRUCK WITH CHANNELIZING DEVICES. THE POSITION OF THE TRUCK MAY BE MOVED TO FACILITATE WORK.

**MAINTENANCE AND SURVEYING NOTES**

- MS1: WHENEVER STOPPING SIGHT DISTANCE EXISTS TO THE REAR, THE SHADOW VEHICLES SHOULD MAINTAIN THE RECOMENDED DISTANCE FROM THE WORK AREA AND PROCEED AT THE SAME SPEED. THE SHADOW VEHICLE SHOULD SLOW DOWN AND TRAVEL AT A FARTHER DISTANCE TO PROVIDE ADEQUATE SIGHT DISTANCE IN ADVANCE OF VERTICAL OR HORIZONTAL CURVES.
- MS2: WORKERS OUTSIDE OF VEHICLES SHOULD WORK WITHIN 150' OF WORK VEHICLES WITH AN ACTIVATED BEACON, BETWEEN THE "BEGIN WORK CONVOY" SIGN AND THE "END WORK CONVOY" SIGN, OR BETWEEN THE "WORK ZONE BEGINS" AND "END ROAD WORK" SIGN.
- MS3: WORK OR SHADOW VEHICLES WITH OR WITHOUT A TMA MAY BE USED TO SEPARATE THE WORK SPACE FROM TRAFFIC. IF USED, THE VEHICLES SHOULD BE PARKED ACCORDING TO THE ROLL AHEAD DISTANCE TABLES.
- MS4: WORK AND SHADOW VEHICLES SHALL BE APPROPRIATELY EQUIPPED WITH AN ACTIVATED AMBER BEACON.
- MS5: WHEN WORKERS ARE OUTSIDE THEIR VEHICLES IN AN EXISTING LANE WHILE A MOBILE OPERATION IS OCCURRING DURING THE NIGHTTIME HOURS, CHANNELIZING DEVICES TO DELINEATE OPEN OR CLOSED LANES AT 50 FT SPACING MUST BE USED. AN EXAMPLE OF AN OPERATION (BUT NOT LIMITED TO) IS THE LAYOUT OF CONCRETE PATCHES.
- MS6: W21-6 AND W20-1 SIGNS MAY BE SUBSTITUTED AS DETERMINED BY THE TYPE OF WORK TAKING PLACE AS PER THE ENGINEER.



NOT TO SCALE

MAINTAINING TRAFFIC TYPICAL

NO: 102-GEN-NOTES

TRAFFIC TYPICALS  
NOTE SHEET

DATE: MAY 2022  
SHEET:

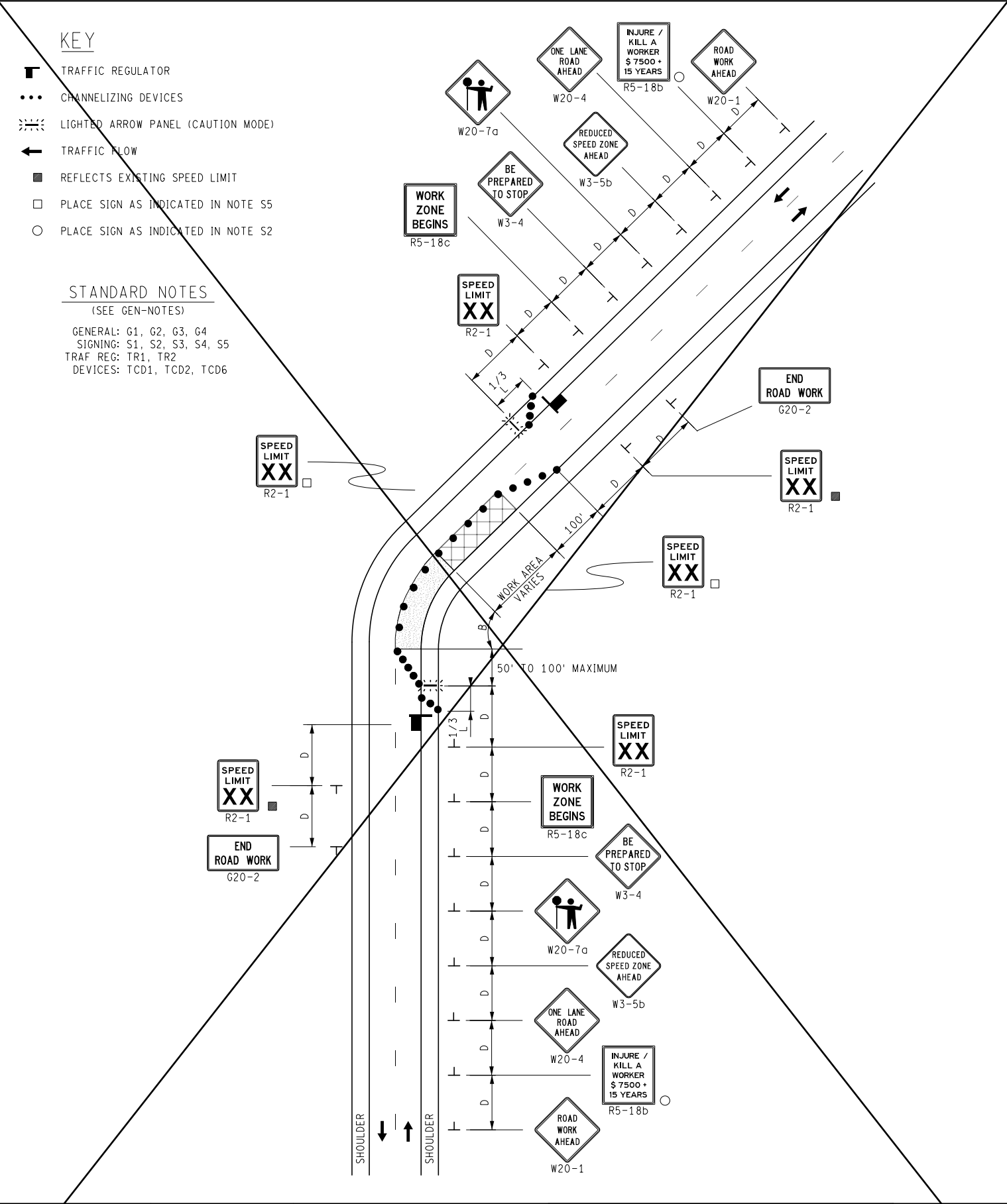
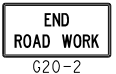
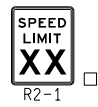
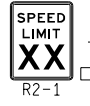
2 OF 2

**KEY**

- ▬ TRAFFIC REGULATOR
- CHANNELIZING DEVICES
- ⚡ LIGHTED ARROW PANEL (CAUTION MODE)
- ← TRAFFIC FLOW
- REFLECTS EXISTING SPEED LIMIT
- PLACE SIGN AS INDICATED IN NOTE S5
- PLACE SIGN AS INDICATED IN NOTE S2

**STANDARD NOTES**  
(SEE GEN-NOTES)

GENERAL: G1, G2, G3, G4  
 SIGNING: S1, S2, S3, S4, S5  
 TRAF REG: TR1, TR2  
 DEVICES: TCD1, TCD2, TCD6

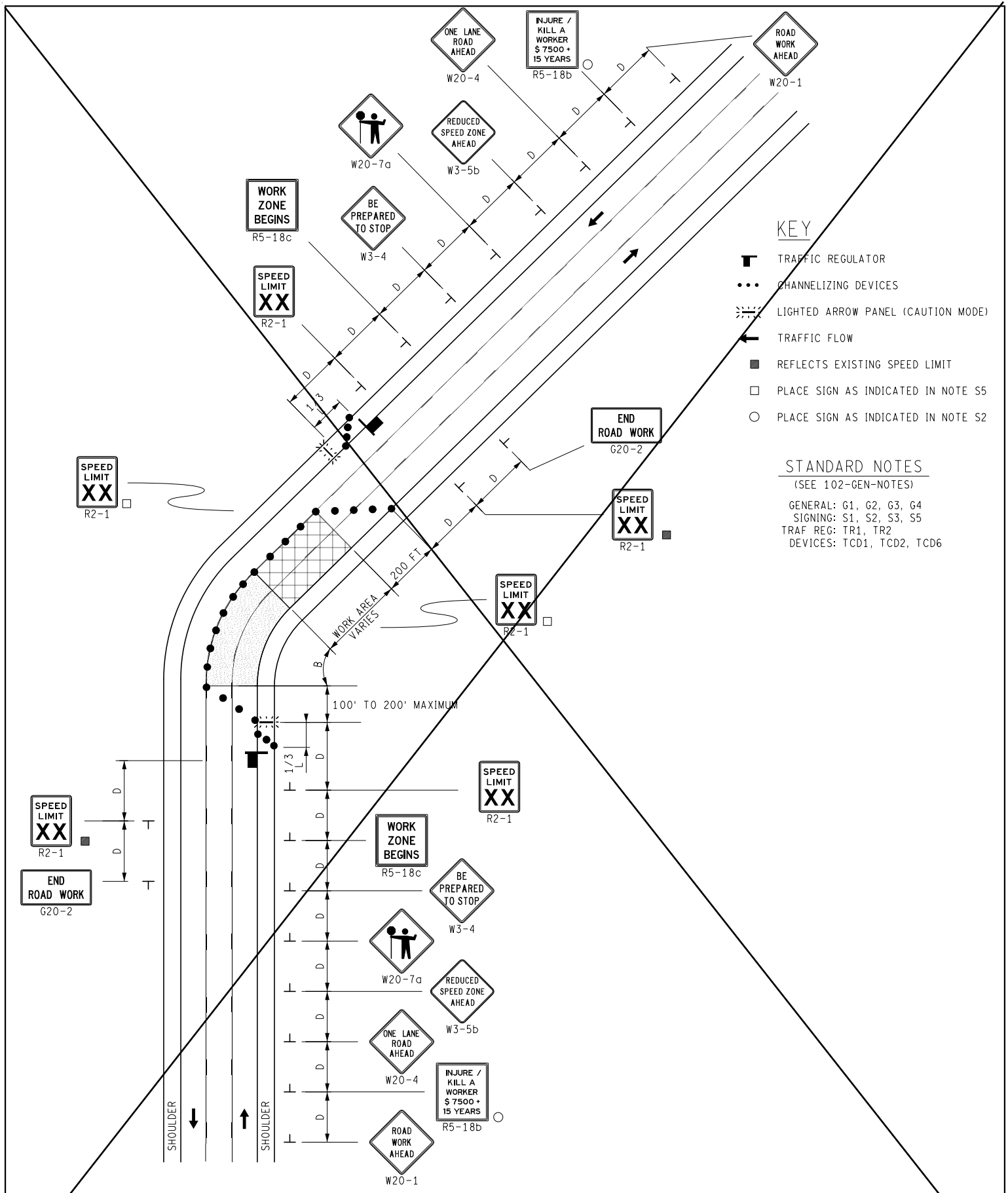


NOT TO SCALE

MAINTAINING TRAFFIC TYPICAL  
 NO: 110-TR-NFW-2L

**LANE CLOSURE  
 UTILIZING TRAFFIC REGULATORS  
 ON A 2-LANE UNDIVIDED ROADWAY**

DATE: MAY 2021  
 SHEET: 1 OF 1



NOT TO SCALE

MAINTAINING TRAFFIC TYPICAL

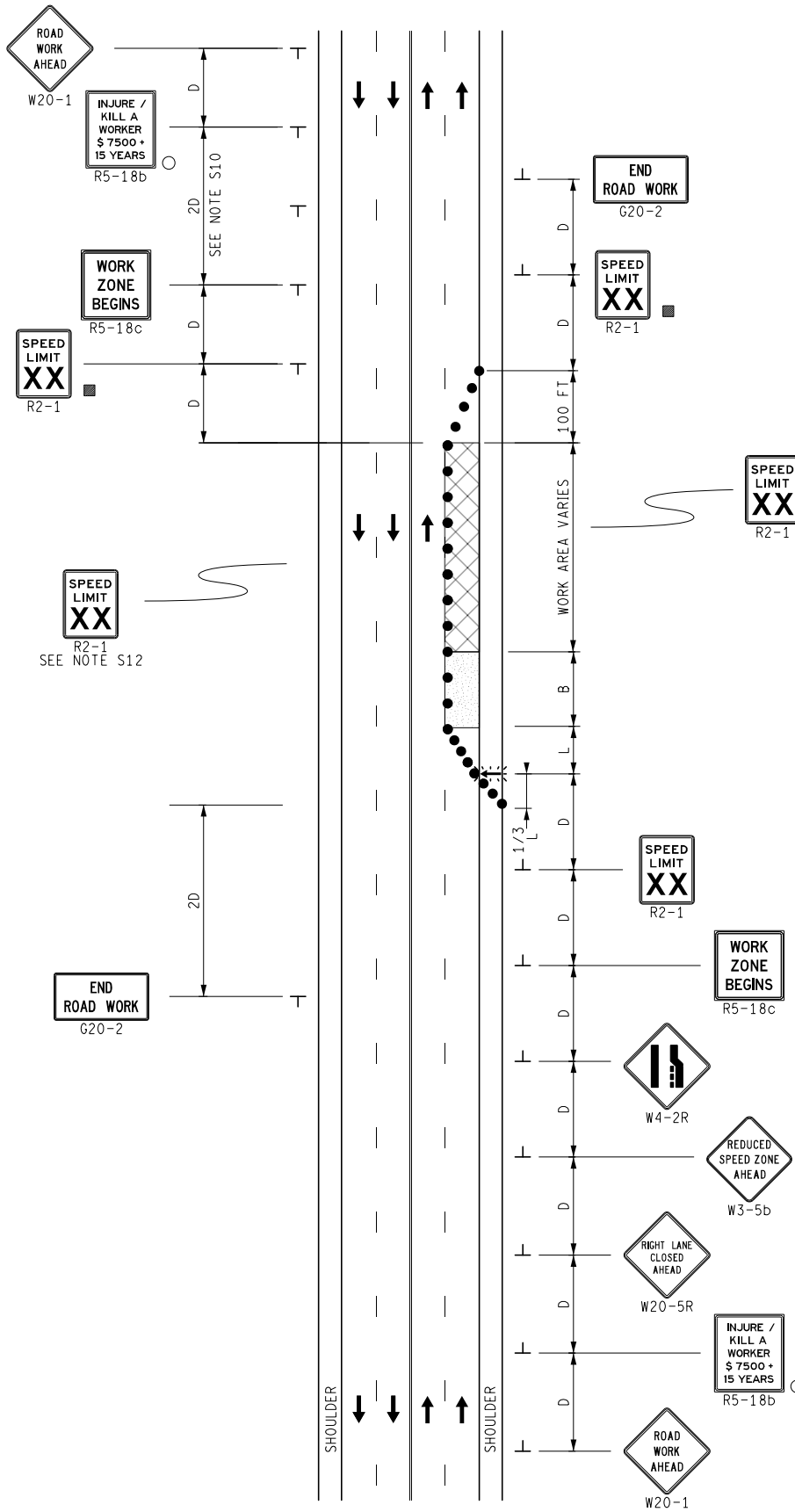
NO:

112-TR-CLT

1-LANE AND CLTL CLOSURE  
UTILIZING TRAFFIC REGULATORS  
ON A 3-LANE UNDIVIDED ROADWAY

DATE: MAY 2021  
SHEET:





**KEY**

- CHANNELIZING DEVICES
- ⚡ LIGHTED ARROW PANEL
- ← TRAFFIC FLOW
- REFLECTS EXISTING SPEED LIMIT
- PLACE SIGN AS INDICATED IN NOTE S5
- PLACE SIGN AS INDICATED IN NOTE S2

**STANDARD NOTES**

(SEE 102-GEN-NOTES)

GENERAL: G1, G2, G3, G4  
 SIGNING: S1, S2, S3, S5, S10, S12  
 DEVICES: TCD1, TCD2, TCD6

**KEY**

- CHANNELIZING DEVICES
- ⚡ LIGHTED ARROW PANEL (CAUTION MODE)
- ← TRAFFIC FLOW
- REFLECTS EXISTING SPEED LIMIT
- PLACE SIGN AS INDICATED IN NOTE S2

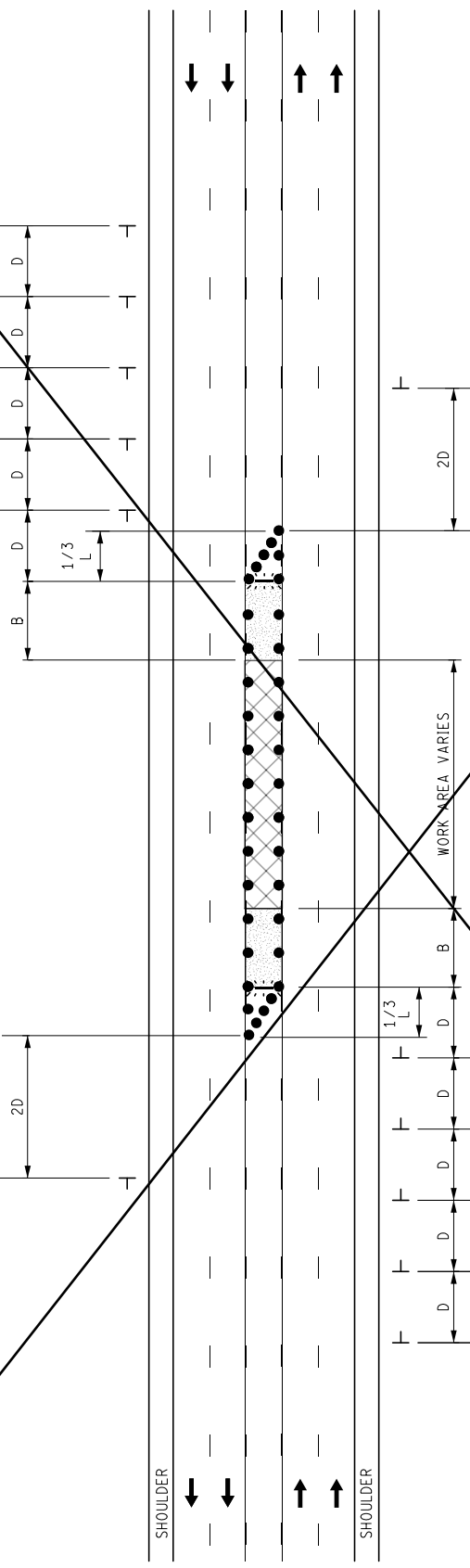
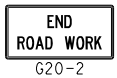
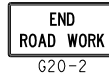
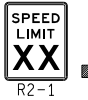
**STANDARD NOTES**

(SEE 102-GEN-NOTES)

GENERAL: G1, G2, G3, G4  
 SIGNING: S1, S2, S3, S5  
 DEVICES: TCD1, TCD2, TCD6

**NOTES**

THIS SEQUENCE SHOULD ONLY BE USED WHEN WORKERS ARE NOT PRESENT, E.G., FOR CURING CONCRETE OVERNIGHT, ETC. WHEN WORK IS BEING CONDUCTED IN THE CENTER LANE, AN ADJACENT LANE (IN ONE OR BOTH DIRECTIONS) SHOULD ALSO BE CLOSED UTILIZING THE APPROPRIATE TYPICAL SIGNING SEQUENCE

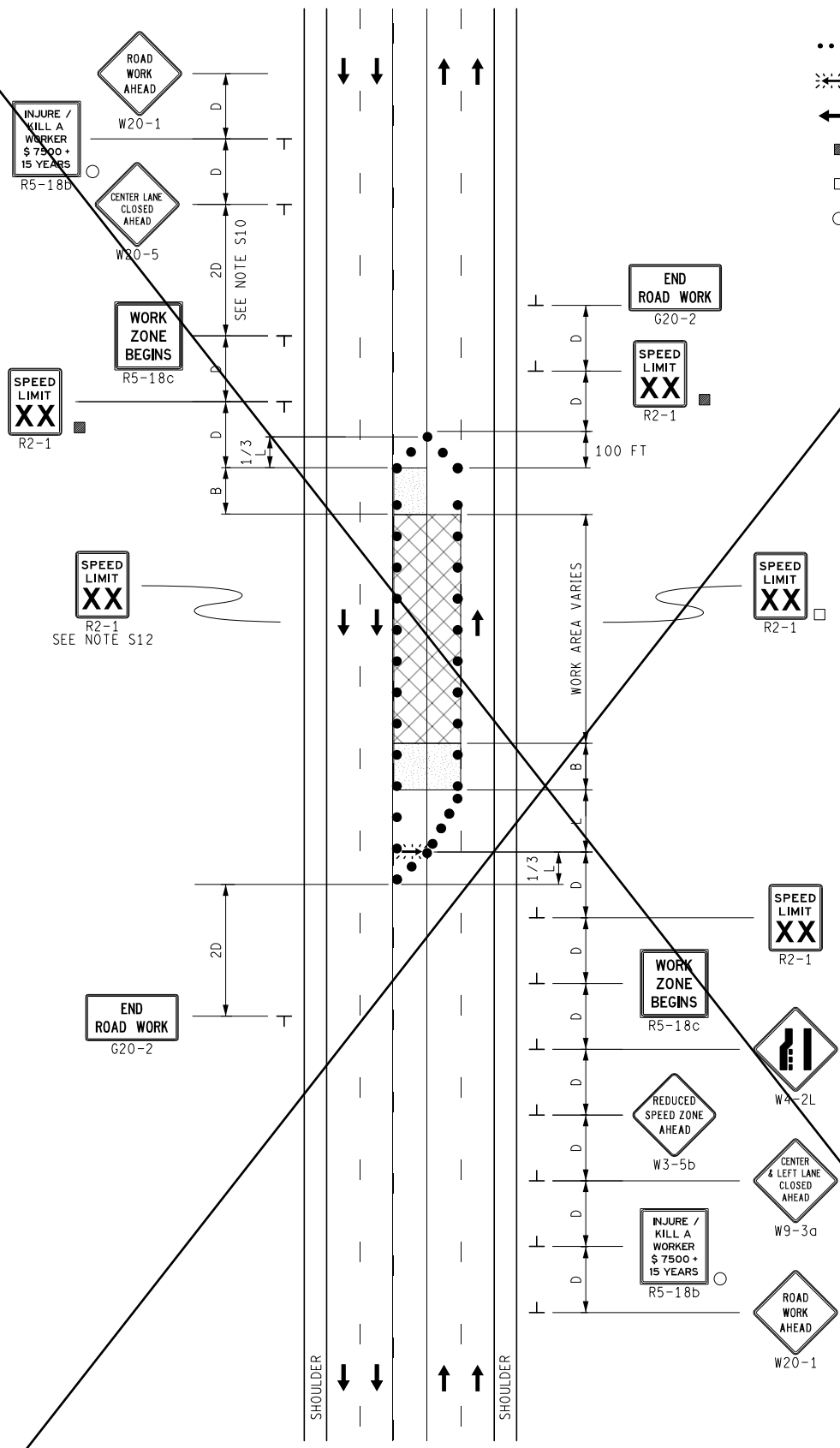


**KEY**

- CHANNELIZING DEVICES
- ⚡ LIGHTED ARROW PANEL
- ← TRAFFIC FLOW
- REFLECTS EXISTING SPEED LIMIT
- PLACE SIGN AS INDICATED IN NOTE S5
- PLACE SIGN AS INDICATED IN NOTE S2

**STANDARD NOTES**

(SEE 102-GEN-NOTES)  
 GENERAL: G1, G2, G3, G4  
 SIGNING: S1, S2, S3, S5, S10, S12  
 DEVICES: TCD1, TCD2, TCD6

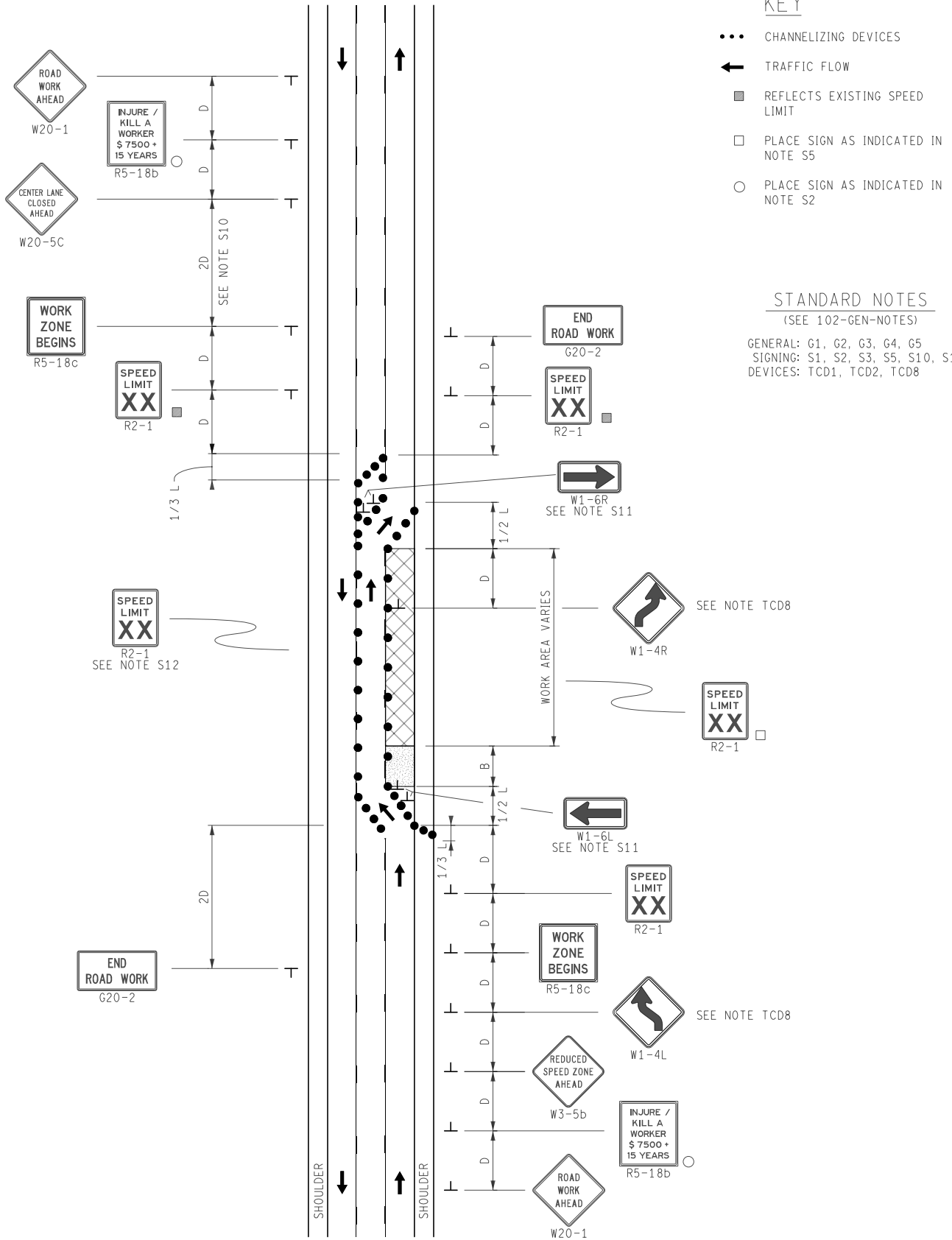


### KEY

- CHANNELIZING DEVICES
- ← TRAFFIC FLOW
- REFLECTS EXISTING SPEED LIMIT
- PLACE SIGN AS INDICATED IN NOTE S5
- PLACE SIGN AS INDICATED IN NOTE S2

### STANDARD NOTES

(SEE 102-GEN-NOTES)  
 GENERAL: G1, G2, G3, G4, G5  
 SIGNING: S1, S2, S3, S5, S10, S11, S12  
 DEVICES: TCD1, TCD2, TCD8



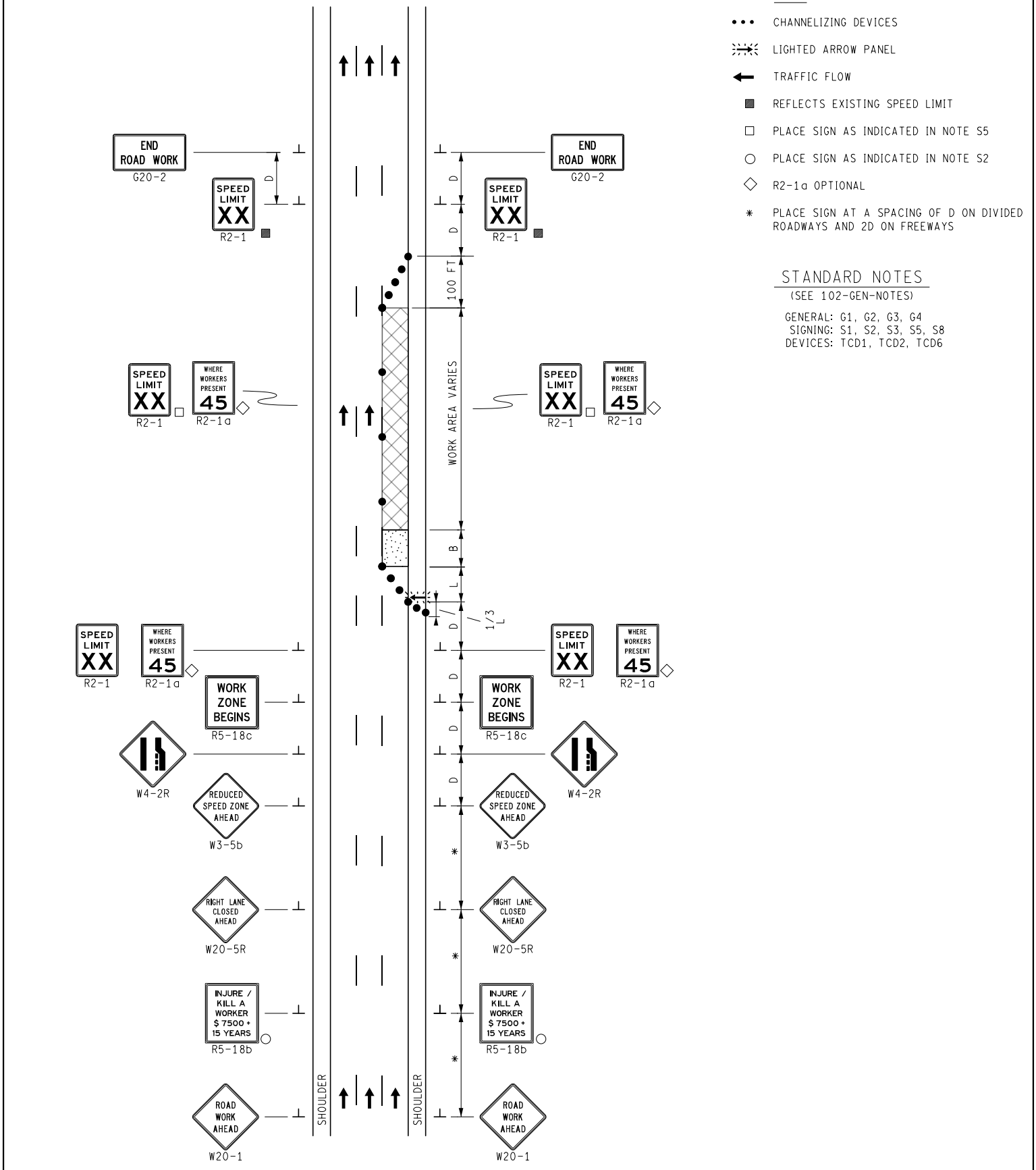
# KEY

- CHANNELIZING DEVICES
- ⚡ LIGHTED ARROW PANEL
- ← TRAFFIC FLOW
- REFLECTS EXISTING SPEED LIMIT
- PLACE SIGN AS INDICATED IN NOTE S5
- PLACE SIGN AS INDICATED IN NOTE S2
- ◇ R2-1a OPTIONAL
- \* PLACE SIGN AT A SPACING OF D ON DIVIDED ROADWAYS AND 2D ON FREEWAYS

# STANDARD NOTES

(SEE 102-GEN-NOTES)

GENERAL: G1, G2, G3, G4  
 SIGNING: S1, S2, S3, S5, S8  
 DEVICES: TCD1, TCD2, TCD6



# Meeting Minutes

Project: CP23036 - ELECTRICAL DISTRIBUTION - FARM LN DUCT BANK EXTENSION RED CEDAR TO FARM LN/WILSON RD - PHASE 1  
Meeting: Pre-Bid Meeting  
Date: December 10, 2024

## Those in Attendance

See attached sign in sheet

## Items Discussed

1. Construction of approximately 2,915' of electrical duct bank and 150' of communications duct bank on Trowbridge Road and Farm Lane between Red Cedar and Wilson.
2. Reviewed MSU's typical procedures for bidding.
3. In addition to the construction documents, the following items were noted at the Pre-Bid Mtg:
  - a. Potholed – teamed w/MSU to completed; surveyed and noted on Plans.
  - b. Trees – to be protected by MSU.
  - c. Restoration – topsoil to be pulled by the contractor at the beginning of the construction in that location and would be placed by MSU.
  - d. Fish and Wildlife Club (along south side of Trowbridge between Red Cedar/Farm Ln) – R/R fence.
    - 1) The fence will be removed and replaced
    - 2) The west end of the project has designated areas where special considerations are required for the handling of topsoil. The topsoil from that area is to be stockpiled in that area by the contractor and will be placed at the completion of work by MSU.
  - e. 15' x 15' electric vaults and duct bank have been located to avoid direct impacts to roadway. Construction vehicles can operate in the lane closure, but physical construction work is to occur outside of the roadway.
  - f. No drains to storm sewers from vaults.
  - g. Witness Log – pavement markings and signage.
  - h. Concurrent Work –
    - 1) Plant Science Greenhouse projects
  - i. Elec Vault at SE corner of Farm Ln/Wilson – duct bank to continue to north.
  - j. Warranties required for conc/HMA.

If there are any corrections or additions to the above meeting minutes, please provide written notification, within five (5) days from today (12/18/2024). Please do not hesitate to call if there are any questions or concerns.



- k. Const Observation will be performed by MSU
  - l. Provide the costs for the alternate related to the conduit material as noted in the documents
  - m. Work in the project will be broken up into additional stages. This will include separating the work on Trowbridge (to be completed in 2025) and the work on Farm Lane (to be completed in 2026).
  - n. MSU will confirm and directly address street lighting relocations if necessary on the project.
  - o. MSU will provide the 21AA for the parking lot off Farm Lane
  - p. Contractor can park their personal vehicles within their construction fencing. They may also park in designated public/commuter lots on campus and follow the payment process posted. There are some lots that will be free parking during the summer. Parking outside of the designated area may result in receiving a ticket.
4. Following the meeting, the direction has been updated to adjust the project in the addendum to reflect the following approach:
- a. The project will include the constructing the duct bank along the south side of Trowbridge Road only.
  - b. Crossings at the intersection of Trowbridge and Red Cedar will not be included in this project. Knock outs will need to be incorporated into the structures for future extension.
  - c. The crossings of Farm Lane will not be included in this project, along with the section running along the east side of Farm Lane. This work will be planned for a project in the 2026 construction season. A knock out will be required in Vault 5 in order to accommodate the continuation of the duct bank in the future project.



**ELEC DIST – FARM LN DUCT BANK EXTENSION –  
 RED CEDAR TO FARM LN/WILSON RD  
 PRE-BID MEETING  
 JOB No. CP23036**

MICHIGAN STATE  
 UNIVERSITY

TUESDAY, DECEMBER 10, 2024 10:30AM

| NAME               | COMPANY               | PHONE:         | EMAIL:                          |
|--------------------|-----------------------|----------------|---------------------------------|
| 1. ANDY LINEBAUGH  | MSU-IPF-PDC           | (517) 819-8936 | LINEBAU6@MSU.EDU                |
| 2. Nolan Arthur    | Granger Const.        | (517) 862-2438 | narthur@grangerconstruction.com |
| 3. Craig Merritt   | Rauhorv Electric      | (586) 206-5941 | cmerritt@rauhorvelec.com        |
| 4. David Smith     | MMES                  | (989) 859-4319 | dsmith@mmesus.com               |
| 5. Charles Claven  | MMES                  | (517) 819-3622 | cclaven@mmesus.com              |
| 6. Domenic Sutter  | Kaltz Excavating      | (248) 390-4348 | Domenic.Sutter@kaltzexca.com    |
| 7. Troy Strang     | Centennial Electric   | (517) 543-9900 | Tstrang@centennial-electric.com |
| 8. Michael Hull    | Superior Elec Lansing | (517) 485-5120 | m.hull@superiorelectricinc.com  |
| 9. Joe Green       | Fessler + Bowman      | (510) 247-6377 | jgreen@fesslerbowman.com        |
| 10. Adam Falkowski | COAE                  | (517) 819-8255 | adam.falkowski@coae.com         |
| 11.                |                       | ( )            |                                 |
| 12.                |                       | ( )            |                                 |
| 13.                |                       | ( )            |                                 |
| 14.                |                       | ( )            |                                 |
| 15.                |                       | ( )            |                                 |
| 16.                |                       | ( )            |                                 |
| 17.                |                       | ( )            |                                 |
| 18.                |                       | ( )            |                                 |
| 19.                |                       | ( )            |                                 |
| 20.                |                       | ( )            |                                 |



MEETING SIGN IN SHEET

| Name            | Company              | Phone        | Fax Email                          |
|-----------------|----------------------|--------------|------------------------------------|
| Eric Hall       | J. Ranck Electric    | 989-205-2155 | chall@jranck.com                   |
| Peter Kropp     | J. Ranck Electric    | 989-775-7393 | pkropp@jranck.com                  |
| Shelly Laughlin | MSC                  |              | laughl44@msu.edu                   |
| John Gunk       | MSU                  | 517 648-2950 | jgunk4@MSU.edu                     |
| Austin Moore    | MSU                  | 517 643 4394 | moore@msu.edu                      |
| Ben Fox         | Central Ex           | 989-640-8394 | benjamin.f@central-ex.com          |
| SADIE KILBOURN  | BARTON MALOW COMPANY | 517 898 3062 | SADIEKILBOURN@BMC.CO.COM           |
| Wade Kremer     | BMC                  | 248 866 6704 | wade.kremer@BMC.COM                |
| Domenic Sutter  | haltz                | 248-390-4349 | Domenic.Sutter@haltzexcavating.com |
| Trant Strong    | Centennial Electric  | 517-543-1900 | trants@centennial-electric.com     |
| John Verlinde   | VerLinde excavating  | 517-202-4167 | verlindeexcavating@gmail.com       |
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|                 |                      |              |                                    |

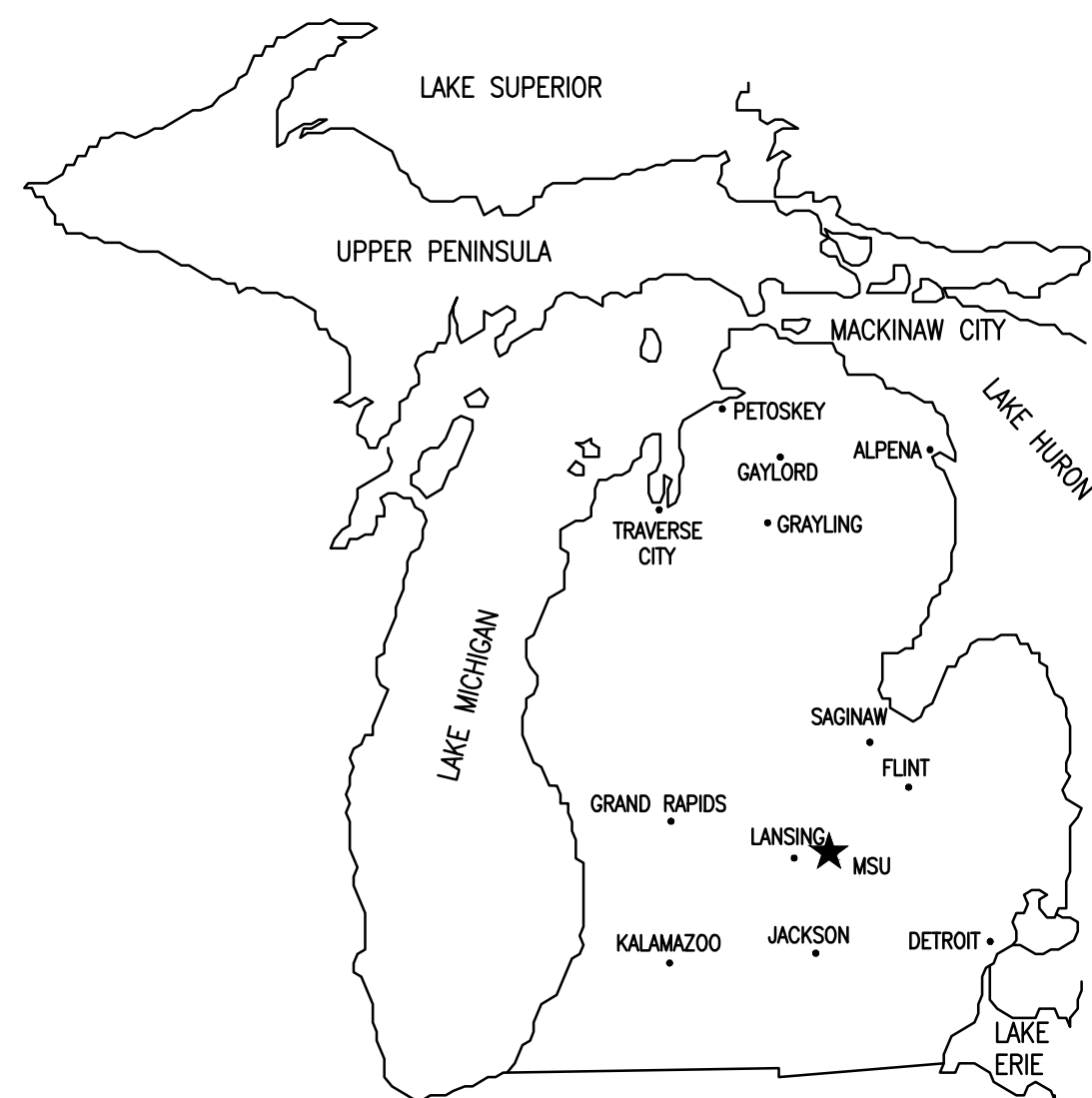
# ISSUED FOR BIDS CONSTRUCTION PLANS FOR: MICHIGAN STATE UNIVERSITY



Infrastructure  
Planning and Facilities

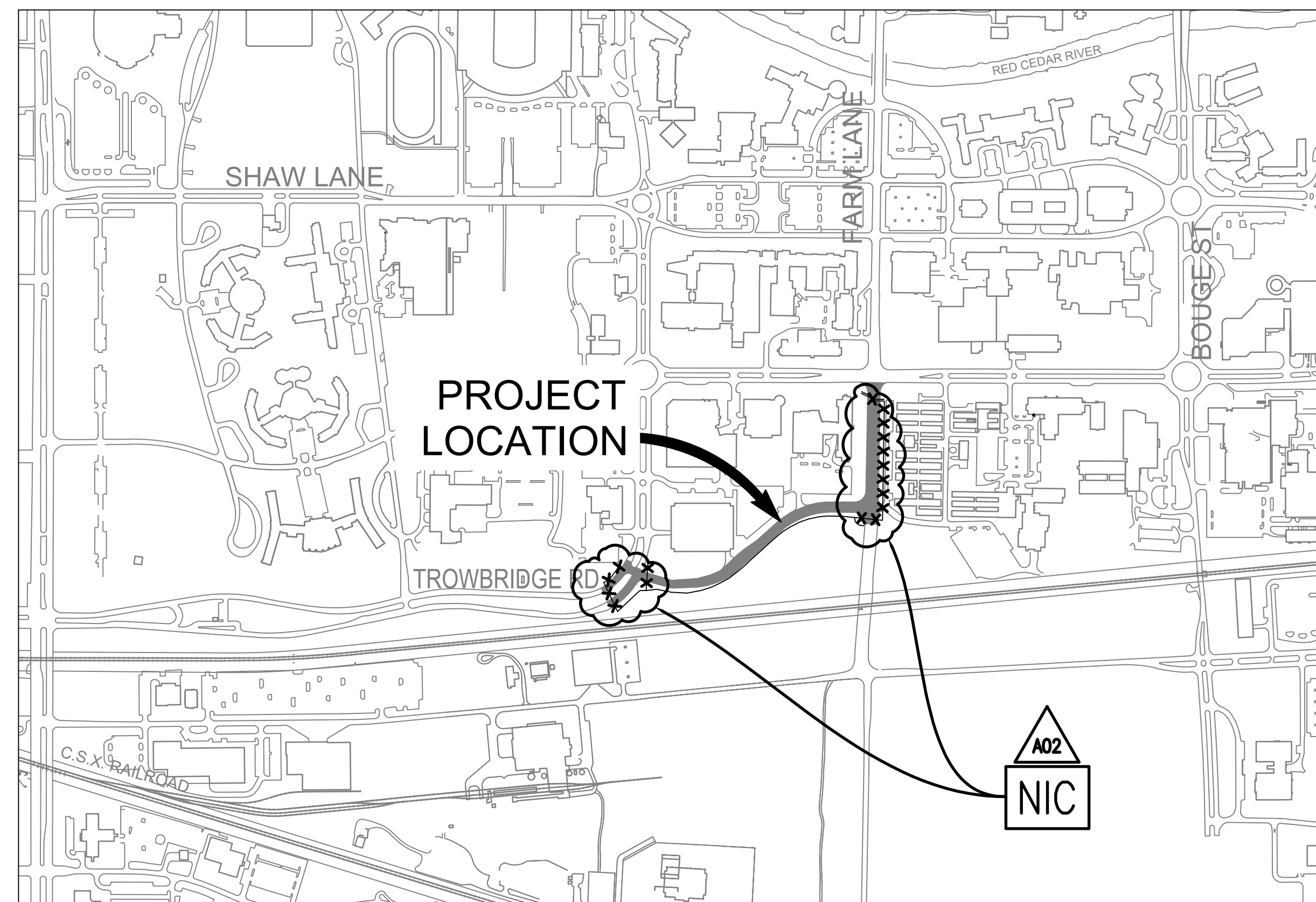
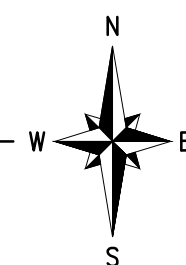
MICHIGAN STATE  
UNIVERSITY

## CP23036 - ELECTRICAL DISTRIBUTION - FARM LN DUCT BANK EXTENSION RED CEDAR TO FARM LN/WILSON RD - PHASE 1



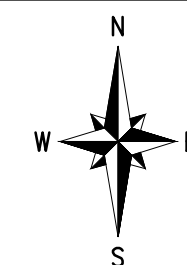
MICHIGAN LOCATION MAP

SCALE: NTS



PROJECT MAP

SCALE: NTS



| Sheet List Table |   |
|------------------|---|
| Sheet Number     | Sheet Title                               |
| G-001            | COVER                                     |
| G-002            | GENERAL NOTES                             |
| G-003            | VAULT DETAILS                             |
| G-004            | STANDARD DETAILS 1                        |
| G-005            | STANDARD DETAILS 2                        |
| G-006            | SESC NOTES AND DETAILS                    |
| C-100            | DUCT BANK PLAN PROFILE STA 00+00 TO 11+00 |
| C-101            | DUCT BANK PLAN PROFILE STA 11+00 TO 20+50 |
| C-102            | DUCT BANK PLAN PROFILE STA 20+50 TO 28+00 |
| C-103            | DUCT BANK PLAN PROFILE CONNECTIONS        |
| C-500            | MAINTENANCE OF TRAFFIC PLAN - STAGE 1     |
| C-501            | MAINTENANCE OF TRAFFIC PLAN - STAGE 2     |
| C-502            | MAINTENANCE OF TRAFFIC PLAN - STAGE 3     |
| C-503            | MAINTENANCE OF TRAFFIC PLAN - STAGE 4     |
| C-504            | MAINTENANCE OF TRAFFIC PLAN - STAGE 5     |
| C-505            | MAINTENANCE OF TRAFFIC PLAN - STAGE 6     |

ELECTRICAL DISTRIBUTION - FARM LN DUCT BANK EXTENSION  
RED CEDAR TO FARM LN/WILSON RD - PHASE 1  
INFRASTRUCTURE PLANNING FACILITIES

COVER

MSU PROJ. NO.  
CP23036

|                            |              |
|----------------------------|--------------|
| PR. MGR.                   | A. LINEBAUGH |
| ARCH.                      |              |
| MECH.                      |              |
| ELEC.                      |              |
| CIVIL                      |              |
| L.A.                       |              |
| INT. DES.                  |              |
| CONST. REP.                |              |
| APPR.                      |              |
| DATE                       | 11/15/2024   |
| SCALE                      | AS SHOWN     |
| ISSUED                     |              |
| 2/20/24 - PRELIMINARY      |              |
| 2/21/24 - 95% SUBMITTAL    |              |
| 11/15/24 - ISSUED FOR BIDS |              |
| 12/18/24 - ADDENDUM 2      |              |

GENERAL

G-001

1 OF 16



Know what's below.  
Call before you dig.

IT IS UNDERSTOOD THAT THE CONTRACTOR SHALL PERFORM ALL WORK UNDER THIS CONTRACT IN ACCORDANCE WITH ALL APPLICABLE PROVISIONS, POLICIES, RULES AND STANDARDS OF THE MICHIGAN OCCUPATIONAL SAFETY AND HEALTH ACT (MDSHA), BEING ACT 154 OF THE PUBLIC ACTS OF 1974 AND AS AMENDED.

NIC - NOT IN CONTRACT



GENERAL PLAN NOTES

1. BENCH MARKS

USE TWO BENCH MARKS FOR VERIFICATION OF ALL CONSTRUCTION. CONTRACTOR SHALL BE RESPONSIBLE FOR SETTING ADDITIONAL BENCH MARKS TO MEET THIS REQUIREMENT.

2. REMOVAL ITEMS

UNLESS SPECIFICALLY NOTED FOR REMOVAL ON THE PLANS, ALL SIDEWALKS, DRIVES, CULVERTS, DRAINAGE STRUCTURES AND ABOVE GRADE UTILITIES SHALL BE PROTECTED. ALL SUCH ITEMS DAMAGED OR DESTROYED DURING CONSTRUCTION SHALL BE REMOVED AND REPLACED WITH NEW BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.

3. UNDERGROUND UTILITIES

FOR PROTECTION OF UNDERGROUND UTILITIES AND IN CONFORMANCE WITH PUBLIC ACT 53, 1974, THE CONTRACTOR SHALL CONTACT MISS DIG (1-800-482-7171, <https://www.missdig.org/>) A MINIMUM OF THREE FULL WORKING DAYS, EXCLUDING SATURDAYS, SUNDAYS, AND HOLIDAYS PRIOR TO BEGINNING EACH EXCAVATION IN AREAS WHERE PUBLIC UTILITIES HAVE NOT BEEN PREVIOUSLY LOCATED. MISS DIG MEMBERS WILL THUS BE ROUTINELY NOTIFIED. THIS DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF NOTIFYING UTILITY OWNERS WHO MAY NOT BE A PART OF THE "MISS DIG" ALERT SYSTEM.

4. MAINTAIN ACCESS TO COMMERCIAL ENTRANCES

ACCESS TO ALL COMMERCIAL ENTRANCES SHALL BE MAINTAINED BY THE CONTRACTOR WITH THE USE OF SALVAGED GRAVEL, IMPORTED GRAVEL, OR MILLED TAILINGS.

5. PROTECT EXISTING UTILITIES

THE CONTRACTOR WILL BE RESPONSIBLE FOR ANY DAMAGE TO THE EXISTING WATER MAIN, STORM, AND SANITARY SEWER DURING THE CONSTRUCTION OF THE PROPOSED DUCT BANK(S).

6. EXPLORATORY TRENCHING

THE EXACT LOCATION AND ELEVATION OF THE VARIOUS UTILITIES ARE NOT KNOWN. THE CONTRACTOR MAY BE REQUIRED TO DO SOME EXPLORATORY EXCAVATION TO VERIFY THE LOCATION AND ELEVATION.

7. DRIVEWAYS

EXISTING DRIVEWAYS BEYOND THE CONSTRUCTION LIMITS SHALL BE PROTECTED. ANY DAMAGE FROM CONSTRUCTION OPERATIONS SHALL BE RESTORED AT CONTRACTORS EXPENSE.

8. DISPOSAL OF EXCESS MATERIAL

ALL EXCESS MATERIAL SHALL BE DISPOSED OF BY THE CONTRACTOR AT A LOCATION PROVIDED BY THE CONTRACTOR.

9. SAWCUTTING PAVEMENT

SAWCUT EXISTING HMA OR CONCRETE SURFACES TO THE LIMITS OF CONSTRUCTION OR AS DIRECTED BY THE ENGINEER. THIS ALSO INCLUDES SAWCUTTING DRIVES AT THE REPLACEMENT LIMITS. IF THE EDGE IS DAMAGED SUBSEQUENT TO SAWCUTTING, THE EDGE SHALL BE RECUT AS DIRECTED BY THE ENGINEER AT NO ADDITIONAL COST TO THE OWNER.

10. PROTECTIVE FENCE

PROTECTIVE FENCE SHALL BE PLACED AROUND ALL TRENCH EXCAVATIONS THAT ARE LEFT OPEN OVERNIGHT.

11. RESTORATION

ALL TOPSOIL SHALL BE SUPPLIED AND PLACED BY MSU LANDSCAPE SERVICES. TOPSOIL OPERATIONS SHALL INCLUDE SUBSOIL SURFACE PREPARATION, HAULING, SPREADING, ROUGH GRADING, FINE GRADING, SEEDING, AND CLEAN-UP.

12. CAMPUS WOODY PLANT PROTECTION

ALL PLANT PROTECTION SHALL BE IN ACCORDANCE WITH MSU STANDARD SPECIFICATION SECTION 015000 - TEMPORARY FACILITIES AND CONTROLS.

13. PAVEMENT MARKINGS AND SIGNAGE

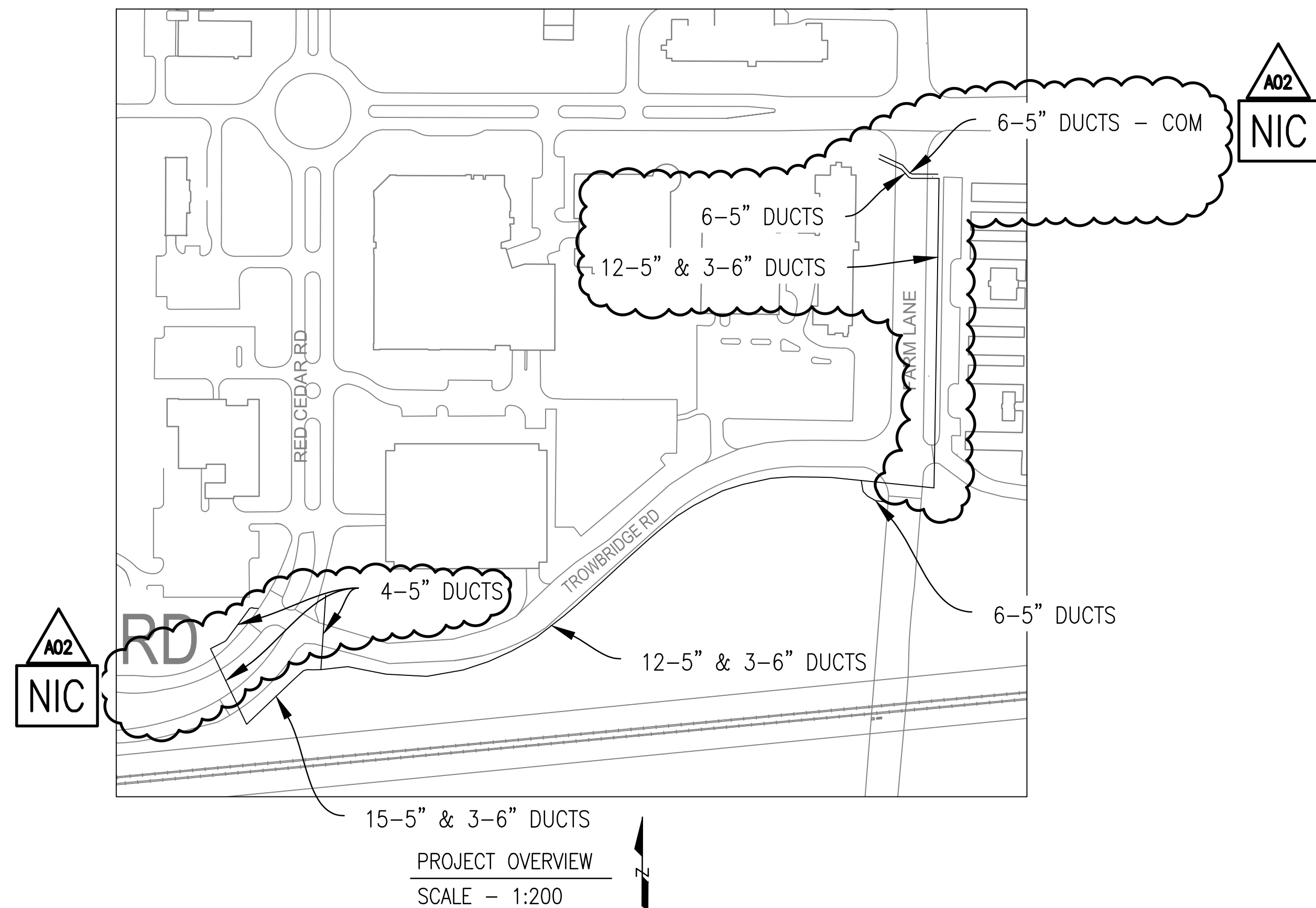
CONTRACTOR SHALL PREPARE A WITNESS LOG LAYOUT, INCLUDING PAVEMENT MARKINGS AND SIGNAGE, IN ACCORDANCE WITH 2012 MDOT SECTION 811. ANY PERMANENT SIGNS IMPACTED BY CONSTRUCTION OPERATIONS SHALL BE SALVAGED AND RESET BY THE CONTRACTOR AT LOCATIONS DESIGNATED BY THE ENGINEER.

14. ADJUSTING MONUMENT BOXES

ALL GOVERNMENT CORNERS ON THIS PROJECT SHALL BE PRESERVED, WHETHER SHOWN OR NOT. IT MAY BE NECESSARY TO PLACE OR ADJUST MONUMENT BOXES, AS REQUIRED.

15. STREETLIGHTS

ALL STREETLIGHT REMOVALS/REPLACEMENTS DEEMED NECESSARY FOR SAFE OPERATIONS WILL BE PERFORMED BY MSU ELECTRICAL SHOP. CONTRACTOR NEEDS TO COORDINATE WITH THEM.



PUBLIC UTILITIES

THE EXISTING UTILITIES LISTED BELOW AND SHOWN ON THESE PLANS REPRESENT THE BEST INFORMATION AVAILABLE AS OBTAINED FROM THE RESPECTIVE UTILITIES. THIS INFORMATION DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY TO BE SATISFIED AS TO ITS ACCURACY AND THE LOCATION OF EXISTING UTILITIES.

UTILITY OWNER

AT&T  
ATTN: JOSEPH BONACCI  
517-488-3985  
jb3842@att.com

CONSUMERS ENERGY  
ATTN: ADAM BERTRAM  
517-614-8570  
Adam.Bertram@cmsenergy.com

MICHIGAN STATE UNIVERSITY  
1147 CHESTNUT RD.  
EAST LANSING, MI 48824  
ATTN: JEFF WEST  
TELEPHONE: 517-432-0110

MICHIGAN STATE UNIVERSITY  
517-353-1760

UTILITY

TELEPHONE  
FIBER OPTICS

GAS

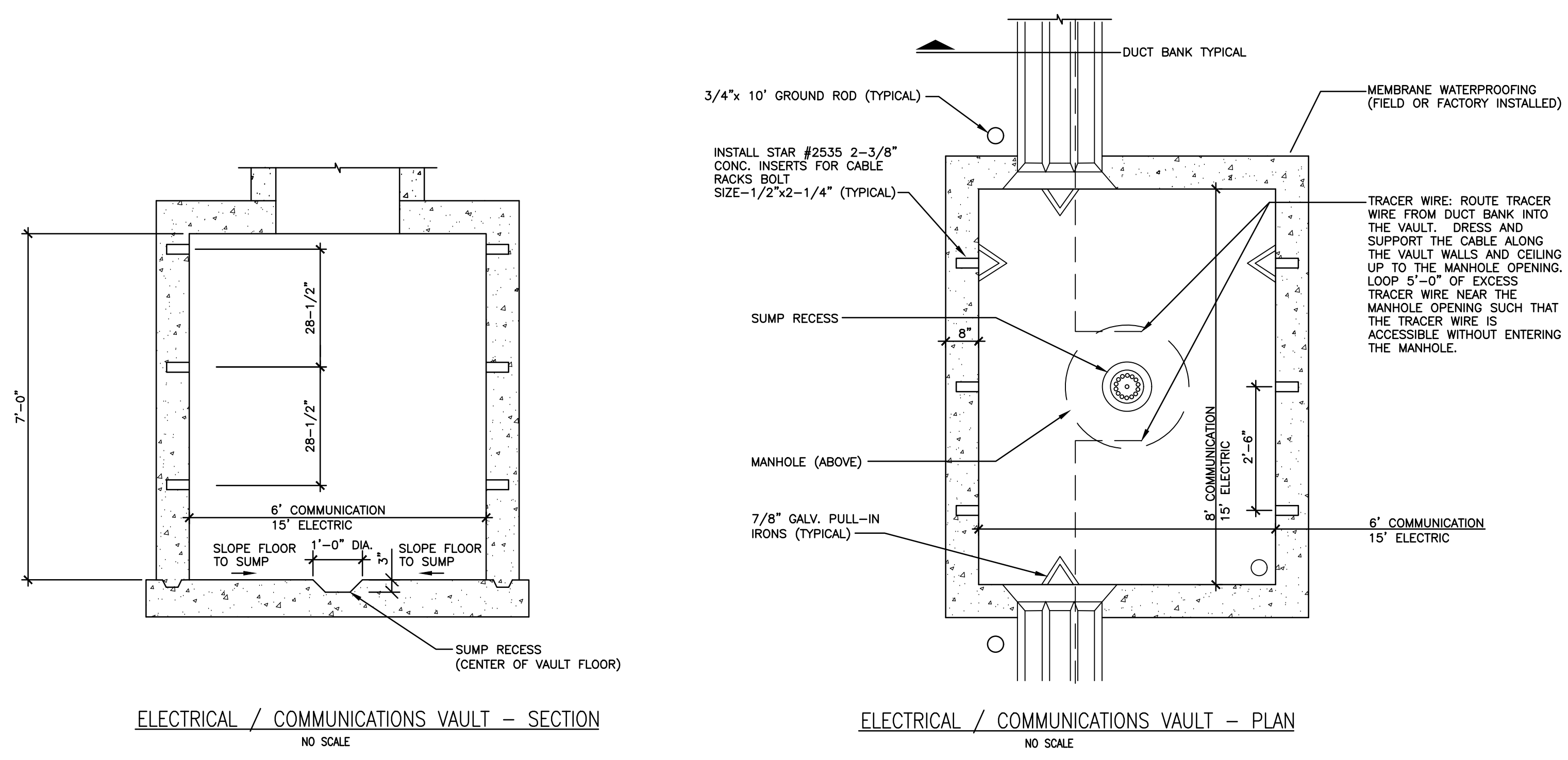
WATER, SANITARY  
SEWER, STORM  
SEWER, AND STEAM

IRRIGATION

LEGEND

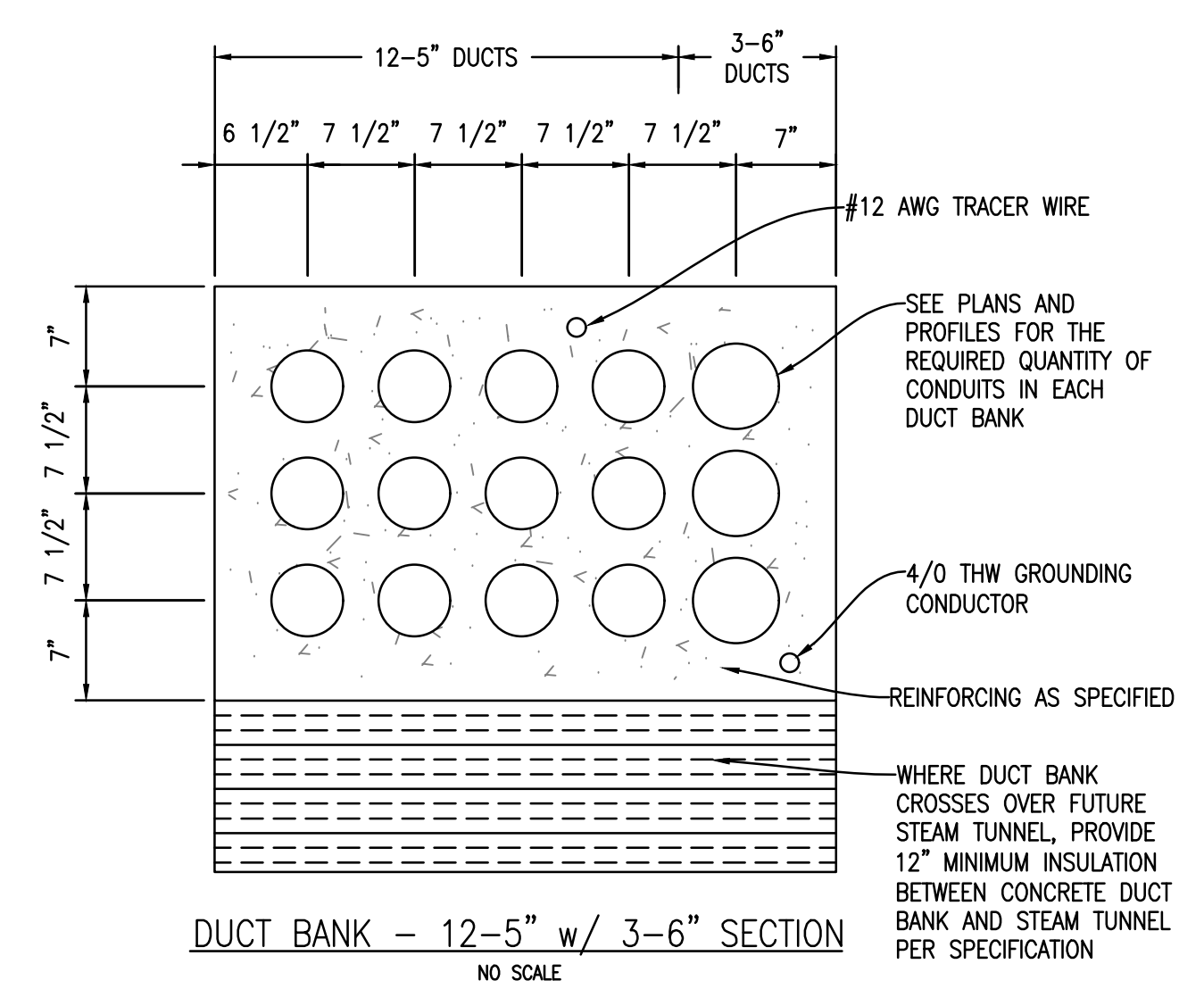
- = Right-of-way
- = Property Line
- = Tree line
- = Wetland
- X- = Fence line
- OE = Existing Overhead Electric
- E = Existing Underground Electric
- G = Existing Gas line
- SAN = Existing Sanitary Sewer
- STM = Existing Storm Sewer
- T = Existing Underground Telephone
- WAT = Existing Water Main
- E = Proposed U.G. Electric
- FO = Proposed Fiber Optic
- G = Proposed Gas
- SAN = Proposed Sanitary Sewer
- STM = Proposed Storm Sewer
- T = Proposed Telephone
- TV = Proposed Cable TV
- WAT = Proposed Water Main
- = Benchmark
- = Catchbasin
- ⊕ = Storm Manhole
- ⊕ = Flattop Catchbasin
- ⊕ = Sanitary Manhole
- ⊕ = Sanitary Cleanout
- ⊕ = Hydrant
- ⊕ = Water Valve
- ⊕ = Water Meter
- ⊕ = Water Manhole
- ⊕ = Well
- ⊕ = Gas Valve
- ⊕ = Gas Meter
- ⊕ = Sign
- ⊕ = Mailbox
- ⊕ = Soil Boring
- ⊕ = Electric Meter
- = Property Iron
- ⊕ = Electric Manhole
- ⊕ = Transformer
- ⊕ = Utility Pole
- ⊕ = Guy Pole
- ⊕ = Guy Wire
- ⊕ = Light Pole
- ⊕ = Telephone Manhole
- ⊕ = Telephone Pedestal
- ⊕ = AC Unit
- ⊕ = Post
- ⊕ = Monitoring Well
- ⊕ = Deciduous Tree
- ⊕ = Coniferous Tree
- ⊕ = Shrub/Bush
- ⊕ = Stump
- = Existing Culvert End Section
- = Proposed Culvert End Section
- ⊕ = Tracer Box
- ⊕ = Water Casing Pipe Vent
- ⊕ = Gas Casing Pipe Vent
- ⊕ = ADJUST
- ⊕ = UTILITY CO. TO RELOCATE
- ⊕ = RELOCATE
- ⊕ = REMOVE
- ⊕ = BULKHEAD
- ⊕ = ABANDON
- ⊕ = RELOCATE BY OTHERS
- ⊕ = PROTECT

|                          |                            |
|--------------------------|----------------------------|
| MSU PROJ. NO.<br>CP23036 | PR. MGR. A. LINEBAUGH      |
|                          | ARCH. .                    |
|                          | MECH. .                    |
|                          | ELEC. .                    |
|                          | CIVIL .                    |
|                          | L.A. .                     |
|                          | INT. DES. .                |
|                          | CONST. REP. .              |
|                          | APPR. .                    |
|                          | DATE 11/15/2024            |
|                          | SCALE AS SHOWN             |
|                          | ISSUED                     |
|                          | 2/20/24 - PRELIMINARY      |
|                          | 2/21/24 - 95% SUBMITTAL    |
|                          | 11/19/24 - ISSUED FOR BIDS |
|                          | 12/18/24 - ADDENDUM 2      |

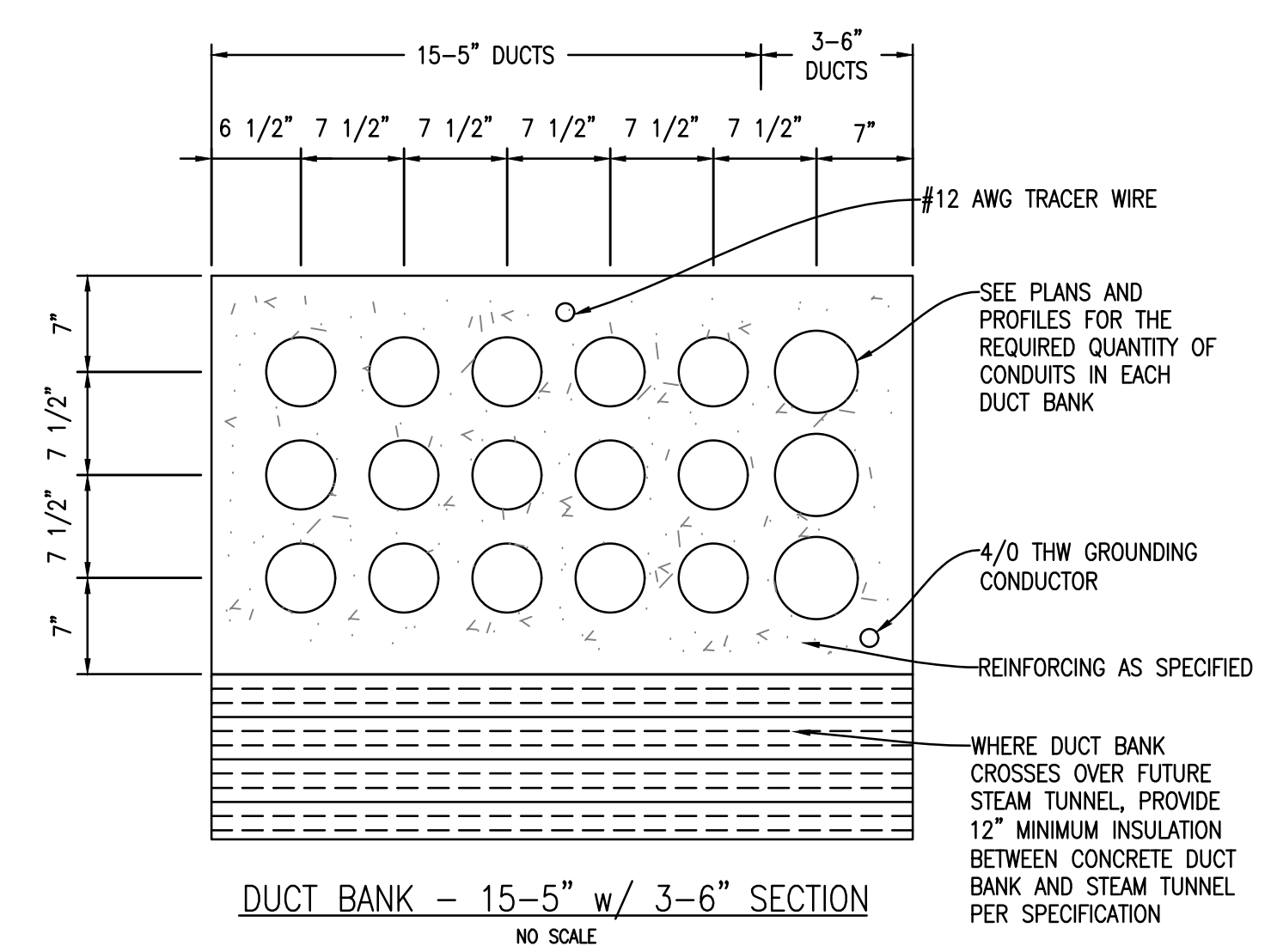


ELECTRICAL / COMMUNICATIONS VAULT - SECTION  
NO SCALE

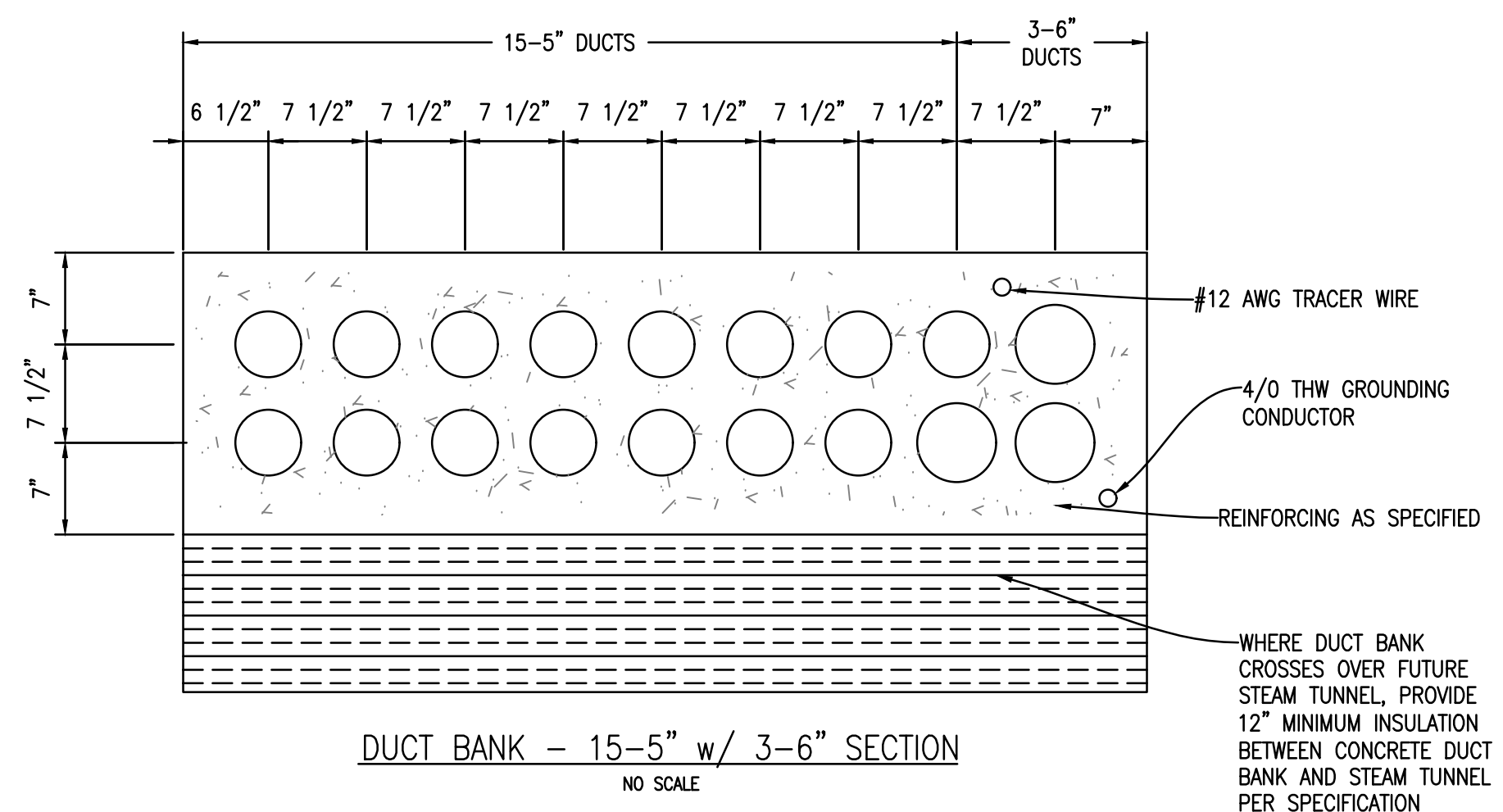
ELECTRICAL / COMMUNICATIONS VAULT - PLAN  
NO SCALE



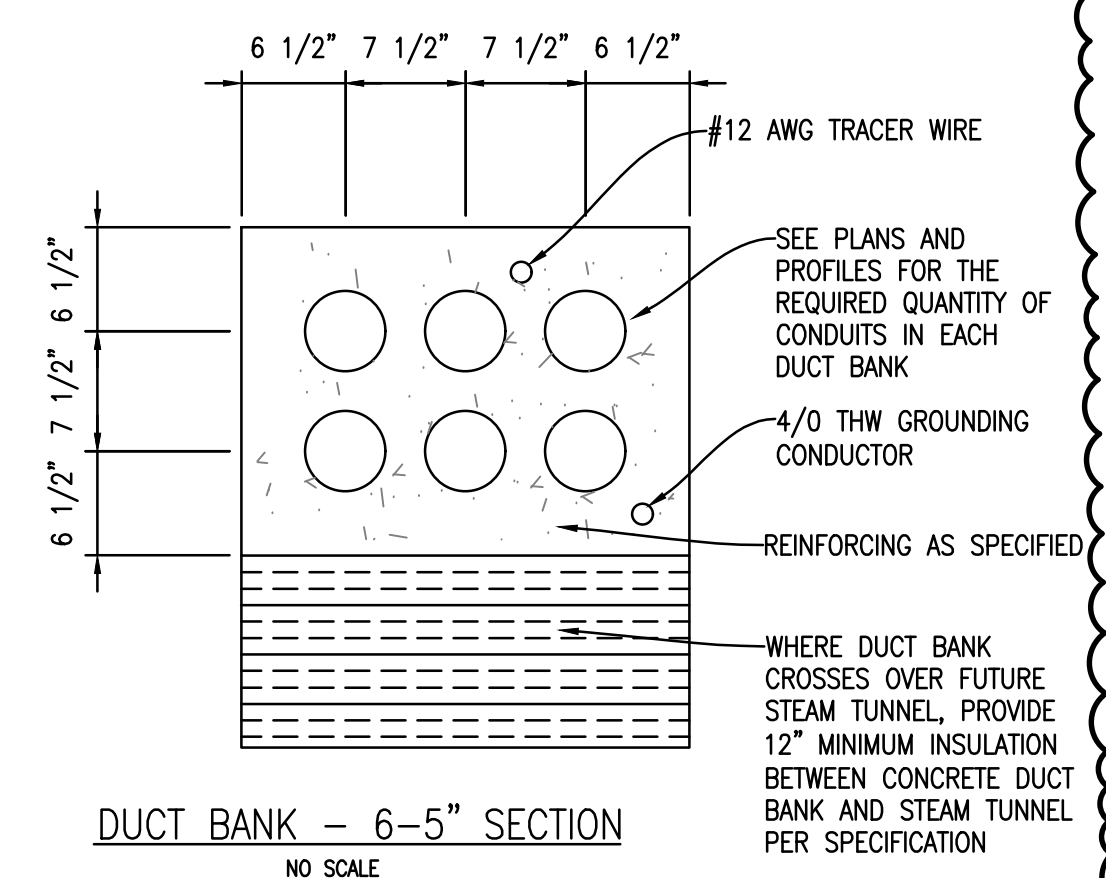
DUCT BANK - 12-5" w/ 3-6" SECTION  
NO SCALE



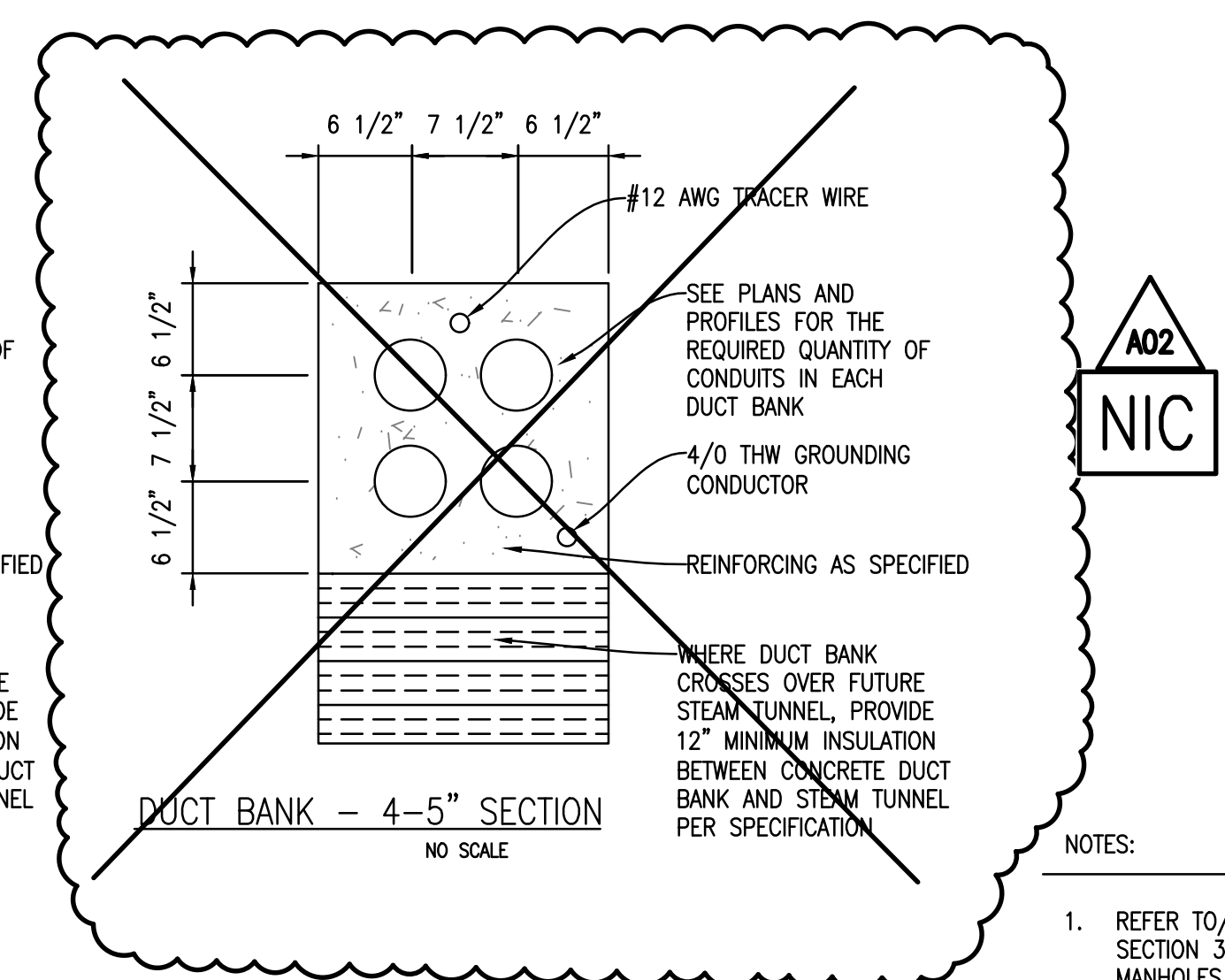
DUCT BANK - 15-5" w/ 3-6" SECTION  
NO SCALE



DUCT BANK - 15-5" w/ 3-6" SECTION  
NO SCALE



DUCT BANK - 6-5" SECTION  
NO SCALE

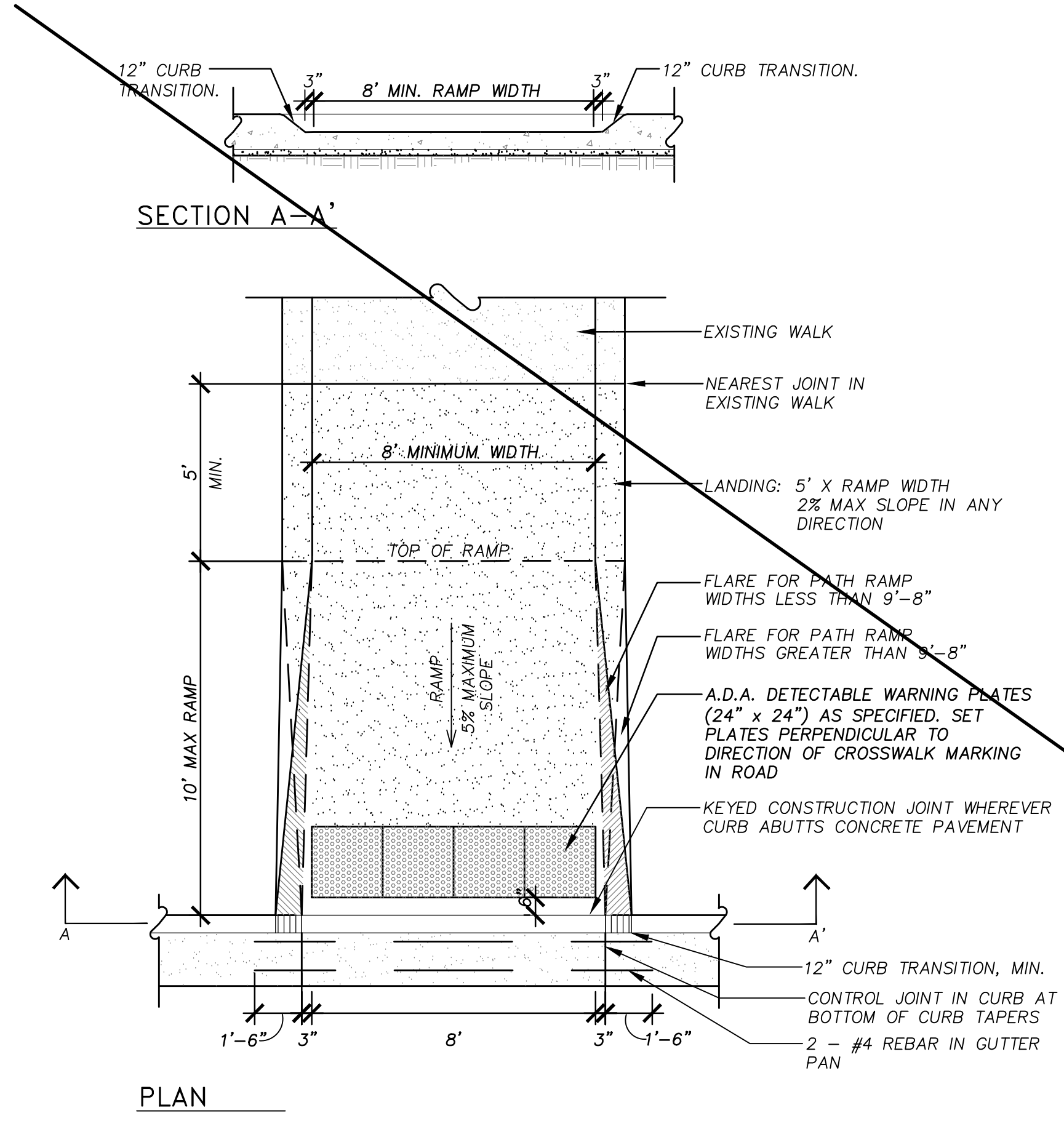


DUCT BANK - 4-5" SECTION  
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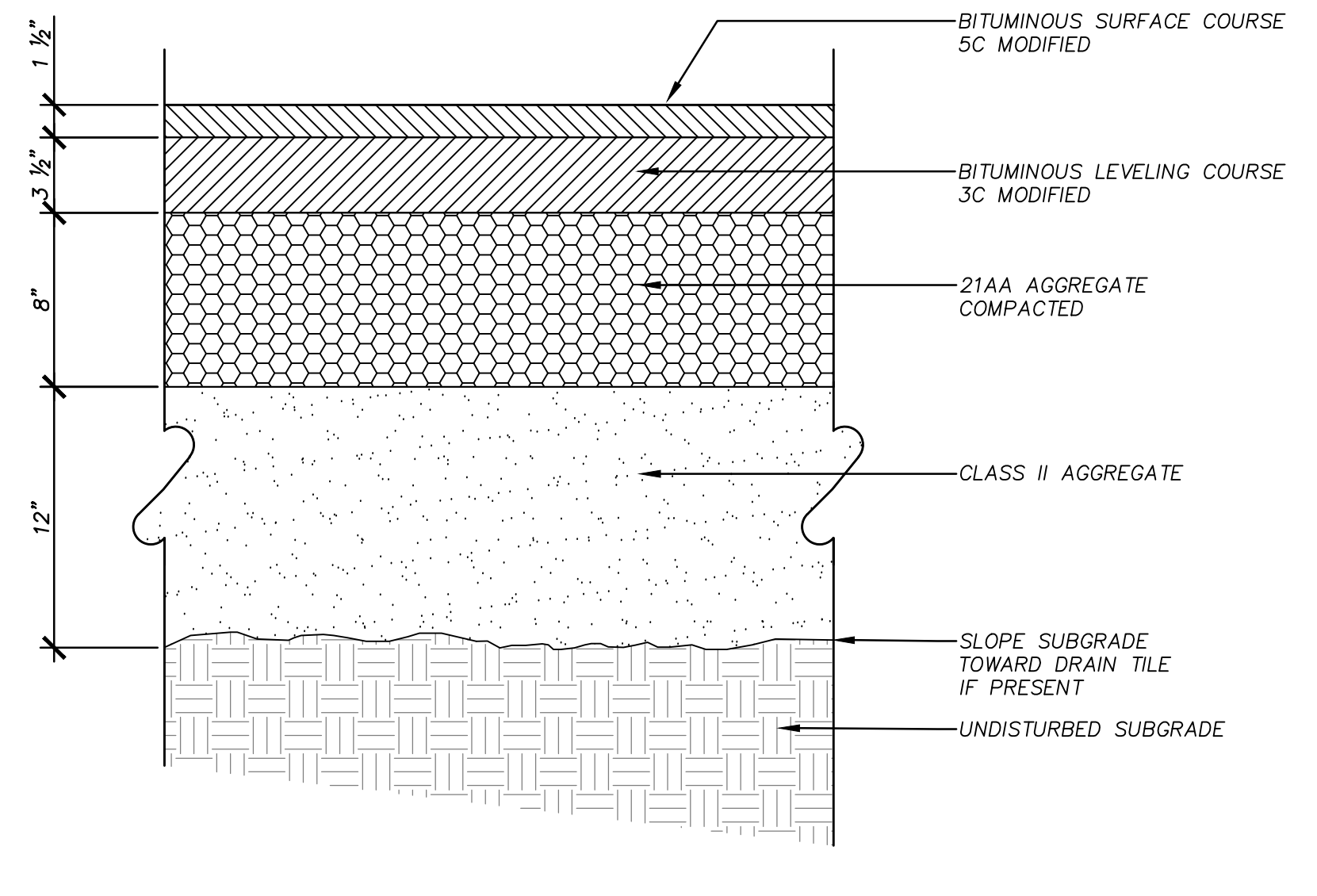
NOTES:

- REFER TO/COMPLY WITH MSU STANDARD SPECIFICATION SECTION 337119 - ELECTRICAL UNDERGROUND DUCTS AND MANHOLES FOR CONCRETE ENCASMENT REQUIREMENTS.

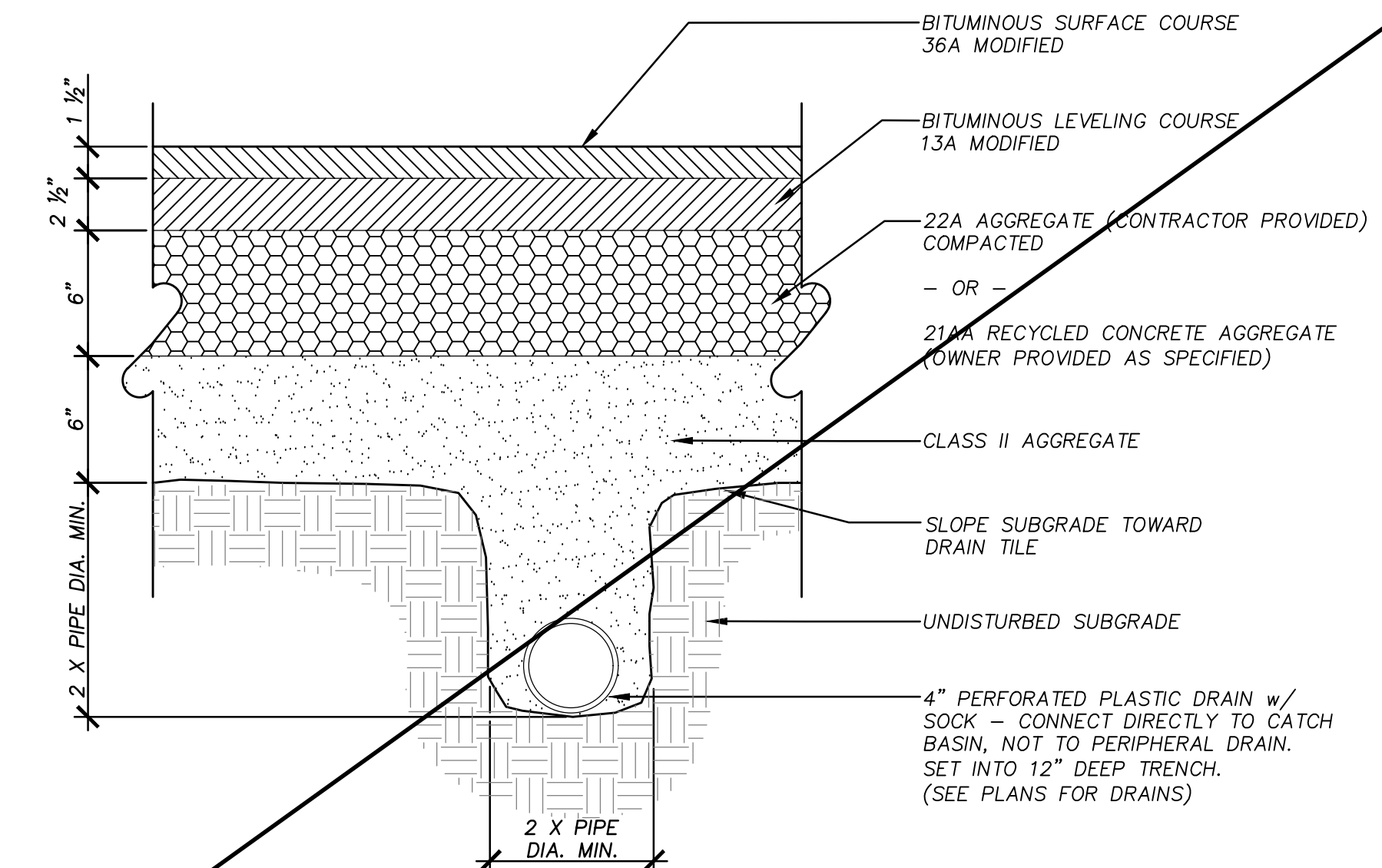
|                            |              |
|----------------------------|--------------|
| MSU PROJ. NO.              | CP23036      |
| PR. MGR.                   | A. LINEBAUGH |
| ARCH.                      |              |
| MECH.                      |              |
| ELEC.                      |              |
| CIVIL                      |              |
| L.A.                       |              |
| INT. DES.                  |              |
| CONST. REP.                |              |
| APPR.                      |              |
| DATE                       | 11/15/2024   |
| SCALE                      | AS SHOWN     |
| ISSUED                     |              |
| 2/20/24 - PRELIMINARY      |              |
| 2/21/24 - 95% SUBMITTAL    |              |
| 11/15/24 - ISSUED FOR BIDS |              |
| 12/18/24 - ADDENDUM 2      |              |



**CURB RAMP - STANDARD**  
NOT TO SCALE

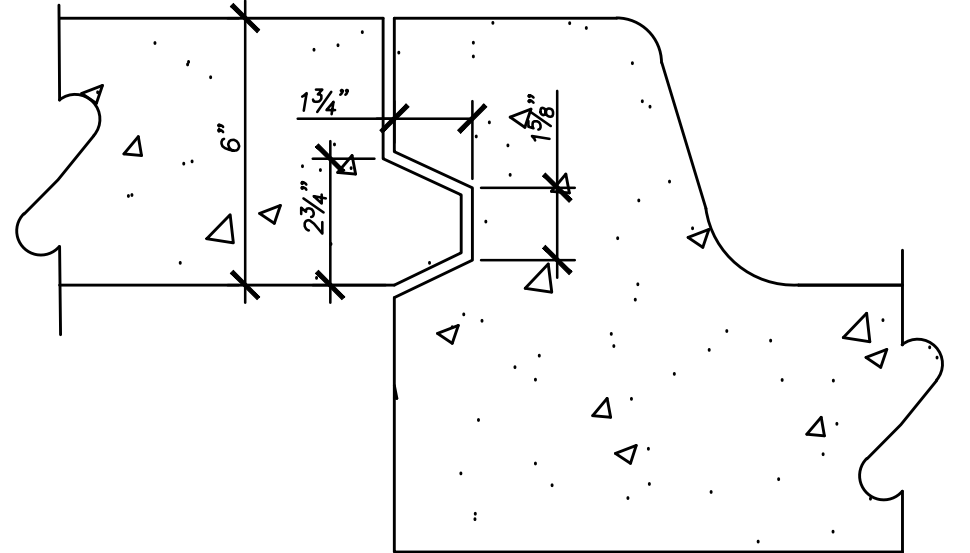


**ROAD & SERVICE AREA BITUMINOUS PAVEMENT SECTION**  
NOT TO SCALE

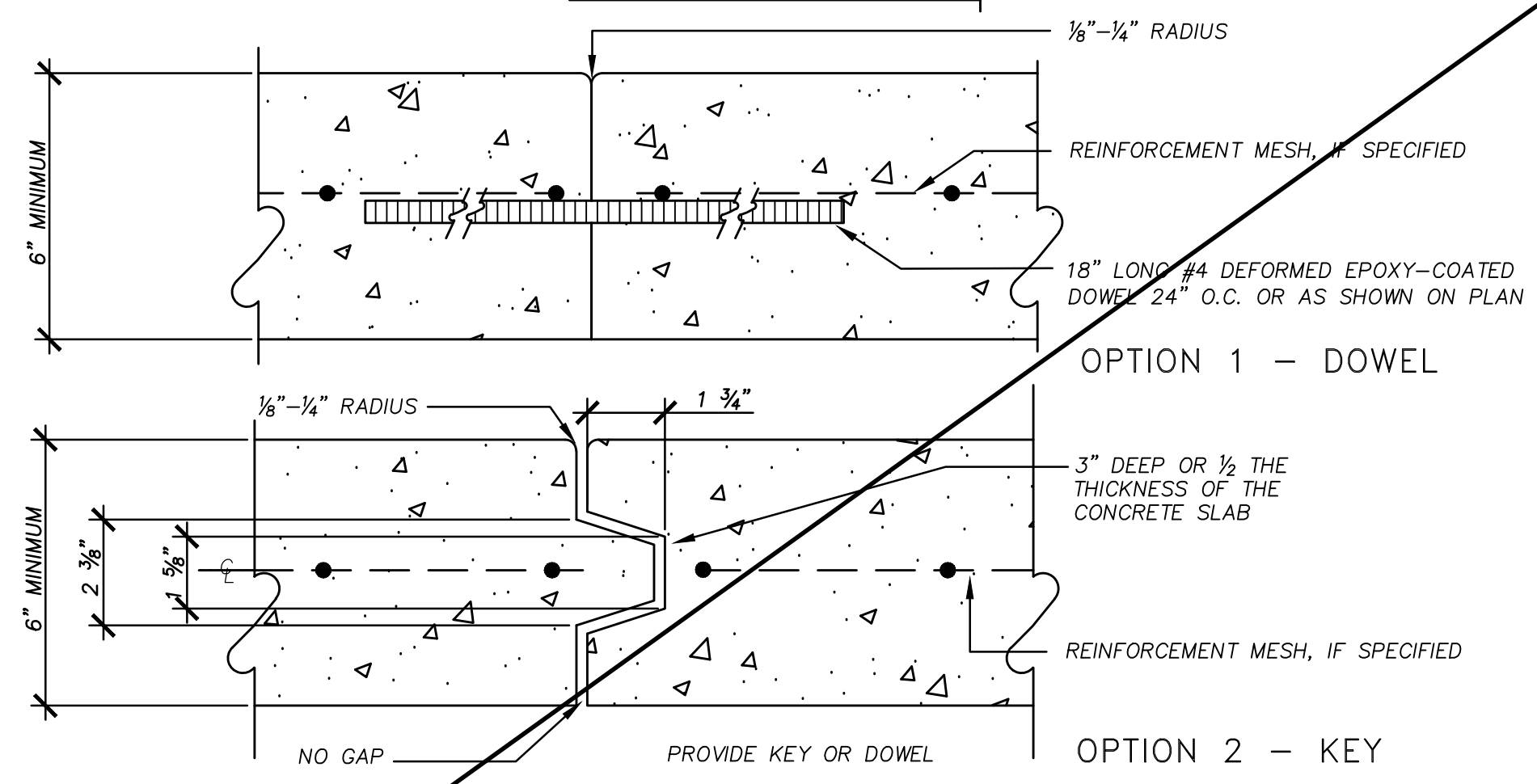


**PARKING BITUMINOUS PAVEMENT SECTION**  
NOT TO SCALE

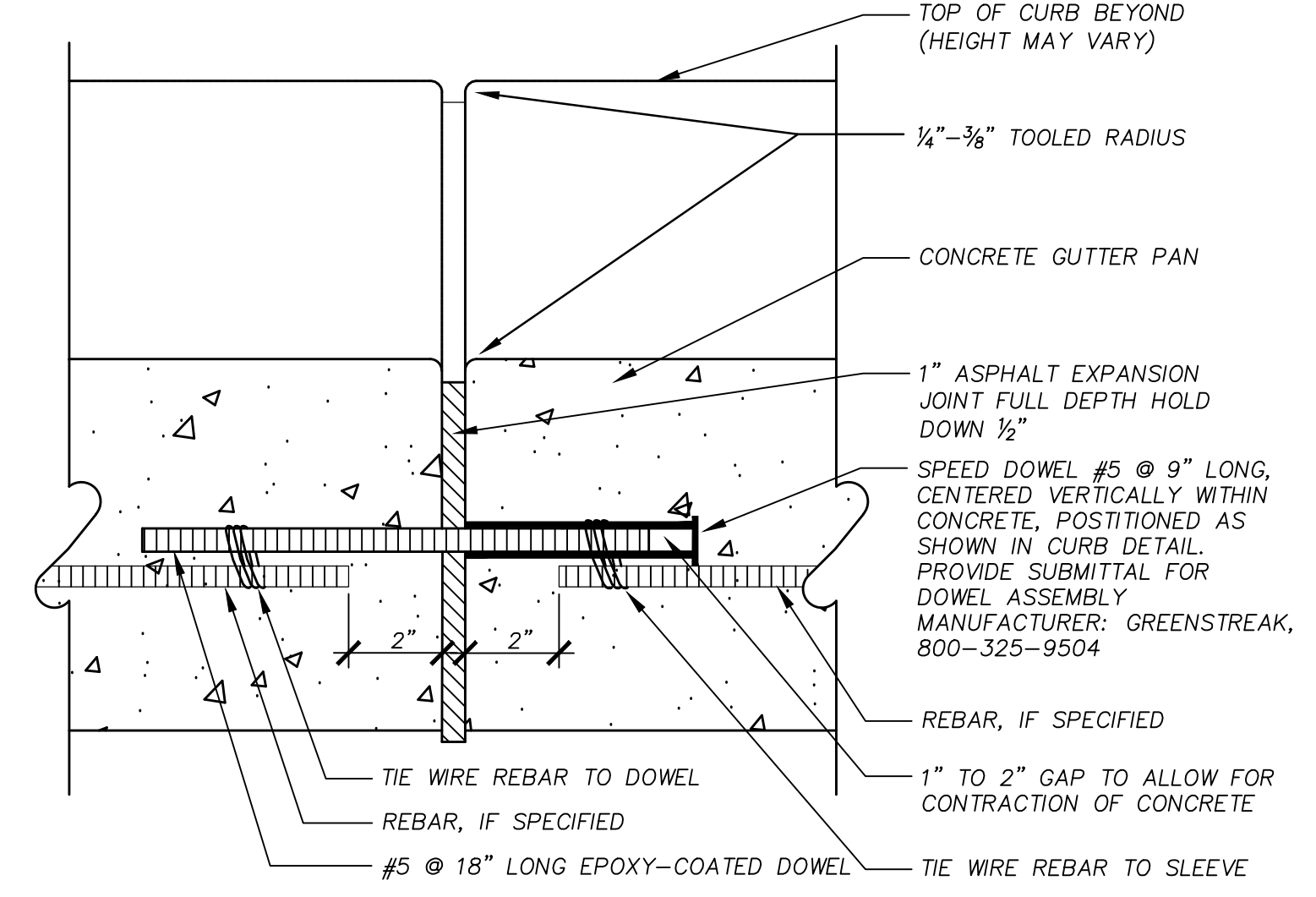
A02  
**THIS SHEET NIC**



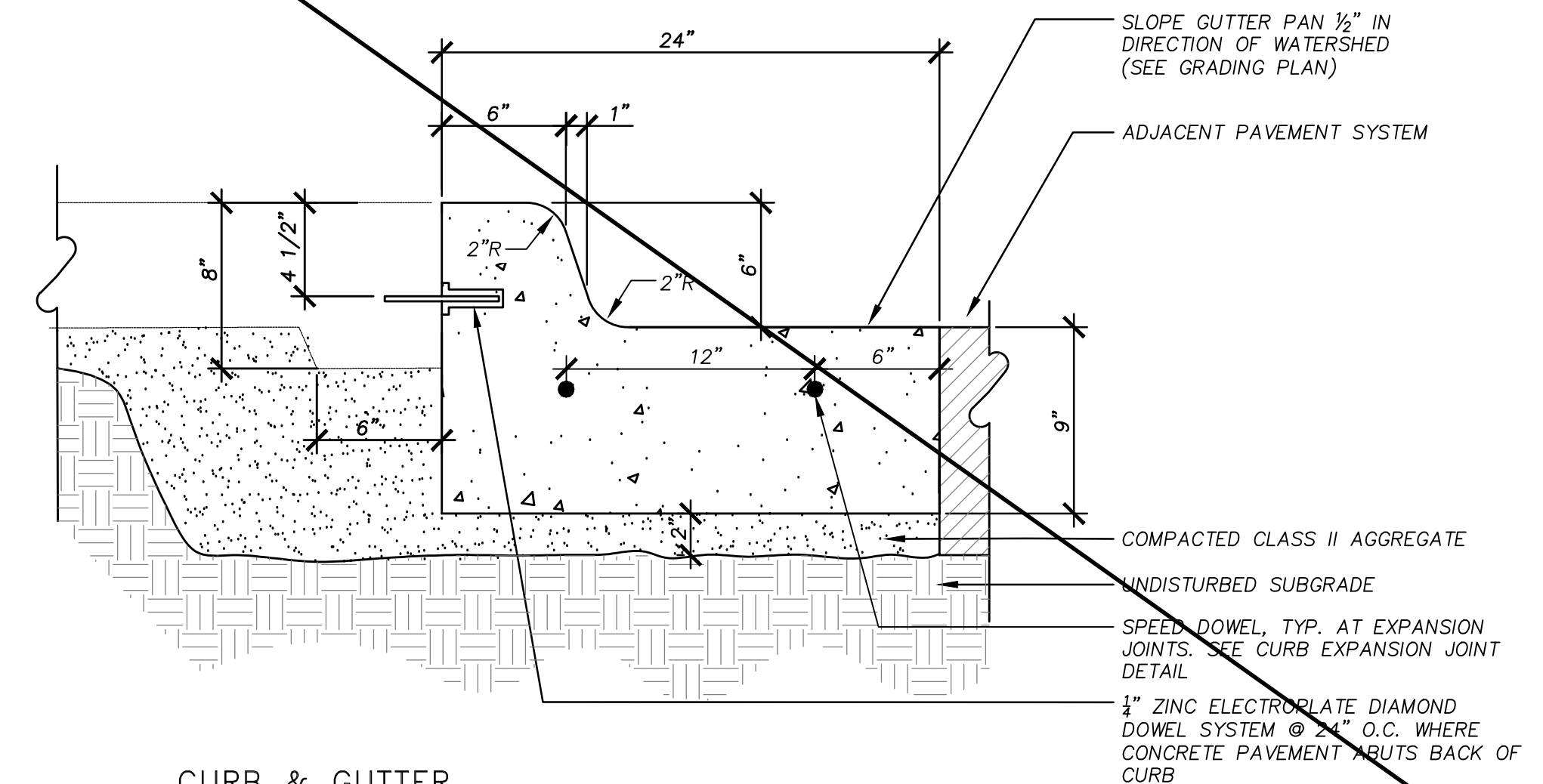
**KEYWAY AT BACK OF CURB**



**CONSTRUCTION JOINTS**  
NOT TO SCALE



**CURB EXPANSION JOINT**  
SECTION ELEVATION NOT TO SCALE



**CURB & GUTTER**  
SECTION NOT TO SCALE

**MICHIGAN STATE UNIVERSITY**

**Infrastructure Planning and Facilities**

**ELECTRICAL DISTRIBUTION - FARM LN DUCT BANK EXTENSION  
RED CEDAR TO FARM LN/WILSON RD - PHASE 1  
INFRASTRUCTURE PLANNING FACILITIES**

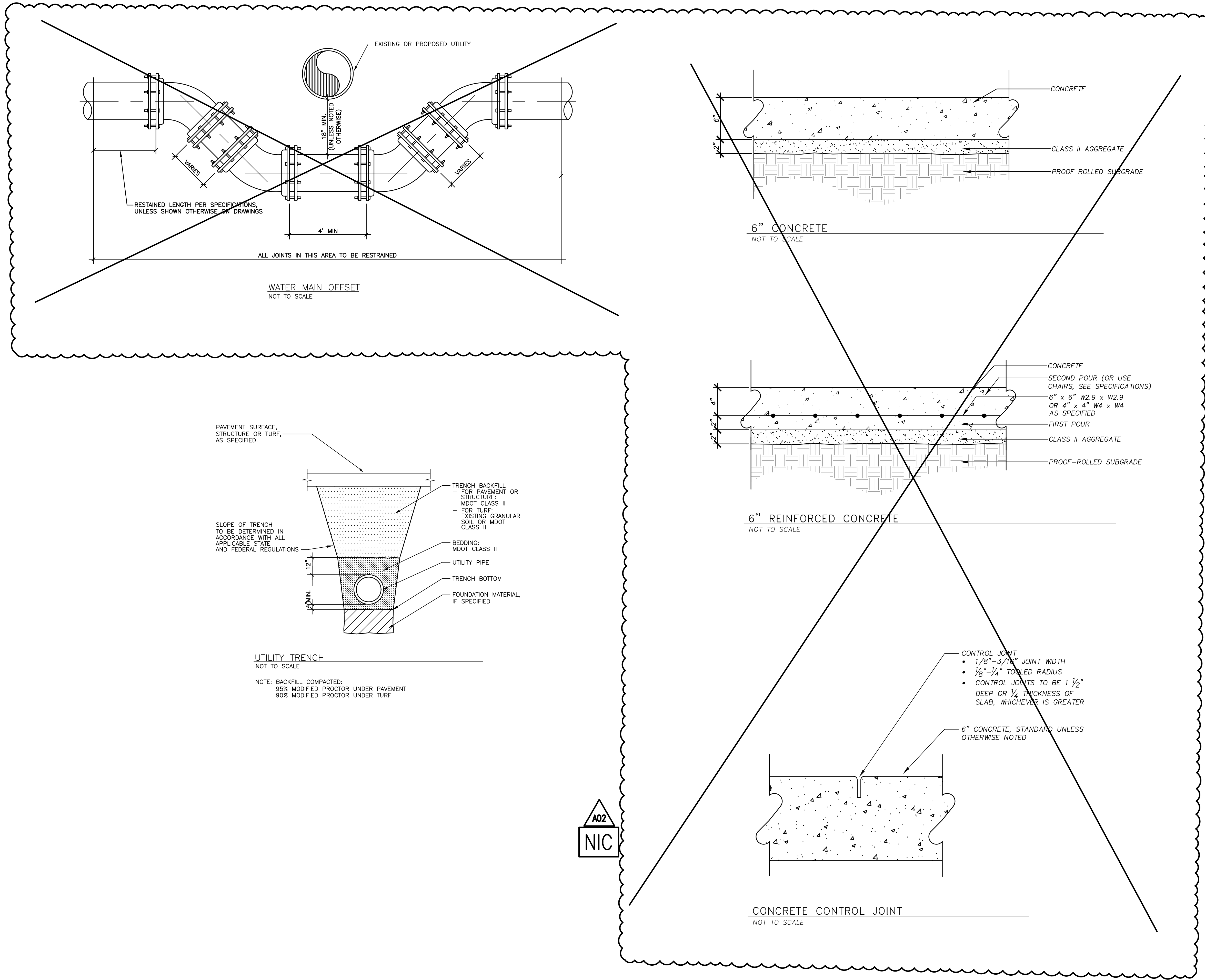
**STANDARD DETAILS 1**

|               |                            |
|---------------|----------------------------|
| MSU PROJ. NO. | CP23036                    |
| PR. MGR.      | A. LINEBAUGH               |
| ARCH.         |                            |
| MECH.         |                            |
| ELEC.         |                            |
| CIVIL         |                            |
| L.A.          |                            |
| INT. DES.     |                            |
| CONST. REP.   |                            |
| APPR.         |                            |
| DATE          | 11/15/2024                 |
| SCALE         | 1"=40'                     |
| ISSUED        |                            |
|               | 2/20/24 - PRELIMINARY      |
|               | 2/21/24 - 95% SUBMITTAL    |
|               | 11/15/24 - ISSUED FOR BIDS |
|               | 12/18/24 - ADDENDUM 2      |

**DETAILS**

**G-004**

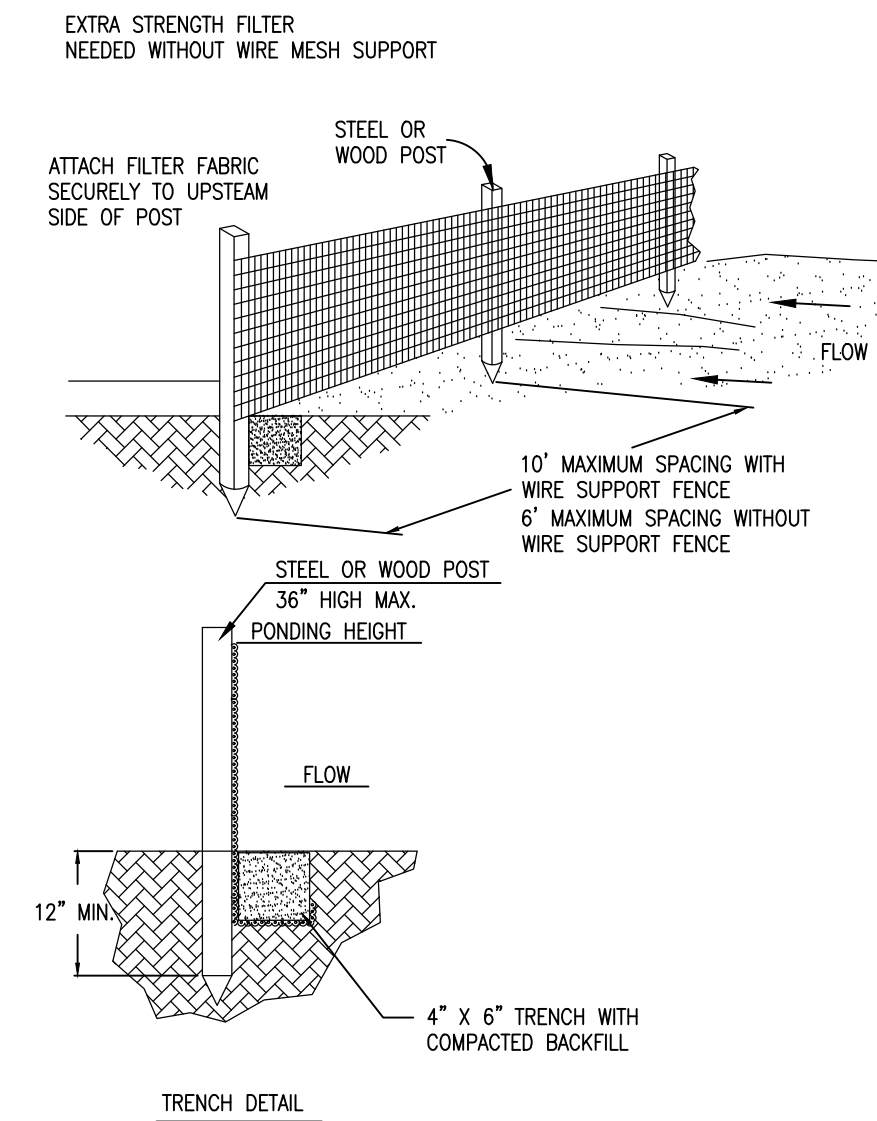
4 OF 16



A02  
NIC



**S51 SILT FENCE**



**NOTES:**

- SILT FENCE SHALL BE PLACED ON SLOPE CONTOURS TO MAXIMIZE PONDING EFFICIENCY.
- INSPECT AND REPAIR FENCE AFTER EACH STORM EVENT AND REMOVE SEDIMENT WHEN NECESSARY. 9" MAXIMUM RECOMMENDED STORAGE HEIGHT.
- REMOVE SEDIMENT SHALL BE DEPOSITED TO AN AREA THAT WILL NOT CONTRIBUTE SEDIMENT OFF-SITE AND CAN BE PERMANENTLY STABILIZED.

**MAINTENANCE:**

- INSPECT FREQUENTLY AND IMMEDIATELY AFTER EACH STORM EVENT. CHECK SEVERAL TIMES DURING PROLONGED STORM EVENTS. IF NECESSARY, REPAIR IMMEDIATELY.
- IF THE SEDIMENT HAS REACHED 1/3 THE HEIGHT OF THE FENCE, THE SOIL SHOULD BE REMOVED AND DISPOSED OF IN A STABLE UPLAND SITE.
- THE FENCE SHOULD BE RE-INSTALLED IF WATER IS SEEPING UNDERNEATH IT OR IF THE FENCE HAS BECOME INEFFECTIVE.
- SILT FENCE SHOULD BE REMOVED ONCE VEGETATION IS ESTABLISHED AND UP-SLOPE AREA HAS STABILIZED.

2025

| SESC SCHEDULE   | MARCH | APRIL | MAY | JUNE | JULY | AUG. | SEPT. | OCT. | NOV. | DEC. |
|---|-------|-------|-----|------|------|------|-------|------|------|------|
| PLACE & MAINTAIN EROSION CONTROLS                     |       |       |     |      |      |      |       |      |      |      |
| DUCT BANK CONSTRUCTION                                |       |       |     |      |      |      |       |      |      |      |
| RESTORATION – TOPSOIL SPREADING AND PERMANENT SEEDING |       |       |     |      |      |      |       |      |      |      |
| FINAL INSPECTION                                      |       |       |     |      |      |      |       |      |      |      |
| REMOVE TEMPORARY EROSION CONTROLS                     |       |       |     |      |      |      |       |      |      |      |

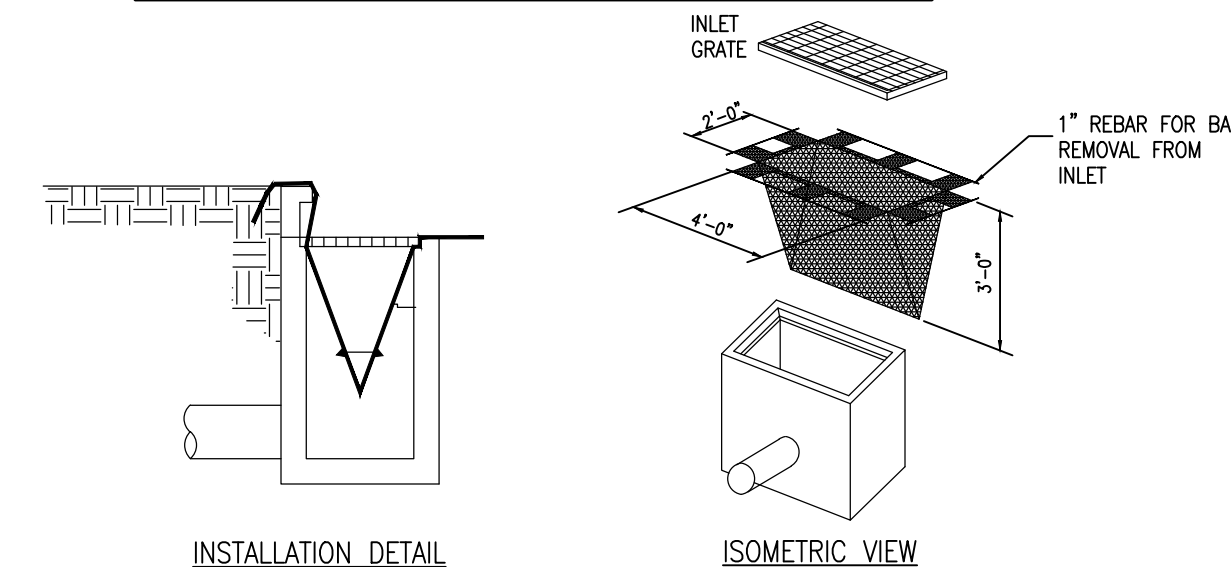
**SOIL EROSION CONTROL MEASURES KEY**

| KEY | DETAIL                         | NOTES  |
|-----|--------------------------------|--|
| S51 | SILT FENCE                     |  |
| S58 | INLET PROTECTION – FABRIC DROP | CATCH BASIN SILT GUARD SHALL BE "SILT SACK" AS MANUFACTURED BY ACF OR "BASIN BAG" AS SUPPLIED BY CONSTRUCTION SUPPLY INC |

SESC DETAILS UTILIZE STATE OF MICHIGAN, DEPARTMENT OF MANAGEMENT AND BUDGET, INFRASTRUCTURE SERVICES, DESIGN AND CONSTRUCTION DIVISION "SOIL EROSION AND SEDIMENTATION CONTROL GUIDEBOOK".

**EARTH DISTURBANCE AREA**  
 THE EARTH DISTURBANCE AREA FOR THIS PROJECT IS APPROXIMATELY 0.49 ACRES.  
**DISTANCE TO NEAREST WATER COURSE**  
 WILSON ROAD IS APPROXIMATELY 1,600 FEET FROM THE RED CEDAR RIVER.

**S58 INLET PROTECTION – FABRIC DROP**



**MAINTENANCE**

- DROP INLET FILTERS SHOULD BE INSPECTED ROUTINELY AND AFTER EACH MAJOR RAIN EVENT.
- DAMAGED FILTER BAGS SHOULD BE REPLACED.
- CLEAN AND/OR REPLACE FILTER BAG WHEN 1/2 FULL.
- REPLACE CLOGGED FABRIC IMMEDIATELY.
- IF NEEDED, INITIATE REPAIRS IMMEDIATELY UPON INSPECTION.
- REMOVE ENTIRE PROTECTIVE MECHANISM WHEN UPGRADE AREAS ARE STABILIZED AND STREETS HAVE BEEN SWEEPED.

**GENERAL REQUIREMENTS:**

- THE CONTRACTOR SHALL OBTAIN THE SOIL EROSION CONTROL PERMIT AND ANY CONDITIONS OF CONSTRUCTION FROM THE OFFICE OF THE CITY OF EAST LANSING.
- ALL EROSION CONTROL MEASURES SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THE OFFICE OF THE CITY OF EAST LANSING REQUIREMENTS AND PROJECT SPECIFICATIONS.
- ANY EROSION OR SEDIMENT FROM WORK ON THIS SITE SHALL BE CONTAINED ON THE SITE AND NOT ALLOWED TO COLLECT ON ANY OFF SITE AREAS OR IN WATERWAYS. WATERWAYS INCLUDE BOTH NATURAL AND MAN-MADE OPEN DITCHES, STREAMS, STORM DRAINS, LAKES AND PONDS.
- CONTRACTOR SHALL APPLY TEMPORARY EROSION AND SEDIMENTATION CONTROL MEASURES AS REQUIRED AND AS DIRECTED ON THESE PLANS. HE SHALL REMOVE TEMPORARY MEASURES AS SOON AS PERMANENT STABILIZATION OF SLOPES, DITCHES AND OTHER EARTH CHANGES HAVE BEEN ESTABLISHED.

**SEQUENCE OF CONSTRUCTION:**

- INSTALL ALL TEMPORARY SILT FENCE PER PLAN AND AS SHOWN ON THE DETAIL THIS SHEET.
- INSTALL GEOTEXTILE FILTER FABRIC WRAPS BETWEEN THE FRAME AND COVER OF ALL EXISTING YARD BASINS OR INLETS WHICH MAY BE SUSCEPTIBLE TO SEDIMENT EROSION FROM THE PROPOSED CONSTRUCTION AS SHOWN IN THESE PLANS.
- WHILE MAINTAINING A VEGETATIVE BUFFER WHENEVER POSSIBLE, STRIP AND STOCKPILE TOPSOIL ABOVE AREAS OF PROPOSED EXCAVATION OR GRADING FOR LATER USE ON SITE. PLACE STOCKPILED TOPSOIL IN AREAS WHICH ARE NEITHER SUBJECT TO HIGH RUNOFF NOR ALONG STEEP SLOPES. SEED AND MULCH STOCKPILES IMMEDIATELY TO PREVENT WIND BLOWN SEDIMENT POLLUTION AND EXCESSIVE DUST.
- RESTORATION OF THE SLOPES ALONG PROPOSED ROADS, AND SIDESLOPES OF THE EXCAVATION AREAS SHALL BE COMPLETED WITHIN 5 CALENDAR DAYS OF COMPLETION OF THE PLACEMENT OF THE TOPSOIL – FINAL GRADING. PLACE STRAW MULCH BLANKETS ALONG ALL SUCH SEEDED SURFACES. TEMPORARY SEEDING OF THE TOPSOIL STOCKPILES, INCLUDING PLACEMENT OF STRAW MULCH SHALL BE COMPLETED WITHIN 5 CALENDAR DAYS OF COMPLETION OF TOPSOIL STRIPPING OPERATIONS.
- PLACEMENT OF TOPSOIL SHALL PROGRESS WITH THE SITE GRADING/EXCAVATION OPERATIONS. PLACEMENT OF ALL PERMANENT SESC MEASURES SHALL BE COMPLETED WITHIN 5 CALENDAR DAYS OF COMPLETION OF THE SITE GRADING OPERATIONS.
- WATER EXPOSED GROUND REGULARLY TO CONTROL AIRBORNE PARTICULATE MATTER.
- IN NON-TRAFFIC AREAS WHERE THE ROUGH GRADING OPERATIONS HAVE BEEN STOPPED BY THE CONTRACTOR FOR A PERIOD LONGER THAN 3 WORKING DAYS, THE CONTRACTOR SHALL STABILIZE THE AREA WITH APS SILT STOP OR APPROVED EQUAL.
- UPON FINAL APPROVED INSPECTION OF THE COMPLETED CONSTRUCTION BY ALL REVIEWING AGENCIES, AND THE ESTABLISHMENT OF PERMANENT SOIL EROSION CONTROL MEASURES, THE CONTRACTOR SHALL REMOVE ALL TEMPORARY SOIL EROSION AND SEDIMENTATION CONTROL MEASURES.

**SOIL EROSION CONTROL INSTALLATION & MAINTENANCE PROGRAM:**

- THE CONTRACTOR SHALL MAINTAIN ALL TEMPORARY AND PERMANENT SOIL EROSION AND SEDIMENTATION CONTROL MEASURES THROUGHOUT THE ENTIRE CONSTRUCTION PROCESS AND UNTIL PERMANENT VEGETATION IS REESTABLISHED IN ALL EXPOSED AREAS. REMOVE ACCUMULATED SEDIMENT FROM ALL STRUCTURES.
- DAILY INSPECTIONS SHALL BE MADE BY THE CONTRACTOR TO DETERMINE EFFECTIVENESS OF EROSION AND SEDIMENTATION CONTROL MEASURES, AND ANY NECESSARY REPAIRS SHALL BE PERFORMED WITHOUT DELAY.
- AFTER EACH RAINFALL EVENT, CONTRACTOR SHALL INSPECT AND MAINTAIN ALL SOIL EROSION CONTROL MEASURES AND CLEAN AND REPLACE CATCH BASIN FILTERS.
- DUST CONTROL WILL BE EXERCISED AT ALL TIMES WITHIN THE PROJECT BY THE CONTRACTORS. SPRINKLING TANK TRUCKS SHALL BE AVAILABLE AT ALL TIMES TO BE USED ON HAUL ROUTES OR OTHER PLACES WHERE DUST BECOMES A PROBLEM.
- ALL MUD, DIRT AND DEBRIS TRACKED ONTO EXISTING ROADS SHALL BE PROMPTLY REMOVED BY THE CONTRACTOR NO LESS THAN ON A DAILY BASIS. ALL MUD, DIRT AND DEBRIS TRACKED OR SPILLED ONTO PAVED SURFACES WITHIN THIS SITE SHALL BE PROMPTLY REMOVED BY THE CONTRACTOR.
- THE SITE WILL BE PERIODICALLY INSPECTED BY THE STAFF OF THE CITY OF EAST LANSING. THE CONTRACTOR SHALL BECOME FAMILIAR WITH THE RULES AND REGULATIONS OF THAT OFFICE.

PRINCIPLE EXISTING ON-SITE SOILS, BASED ON THE INGHAM COUNTY SOILS SURVEY, ARE AS FOLLOWS:

- AnA – AUBREENAUBBEE–CAPAC SANDY LOAMS, 0 TO 3 PERCENT SLOPES
- CO – COLWOOD–BROOKSTON LOAMS
- SpB – SPINKS LOAMY SAND, 0 TO 6 PERCENT SLOPES
- UeB – URBAN LAND–BOYER–SPINKS COMPLEX, 0 TO 10 PERCENT SLOPES
- UpA – URBAN LAND–CAPAC–COLWOOD COMPLEX, 0 TO 4 PERCENT SLOPES

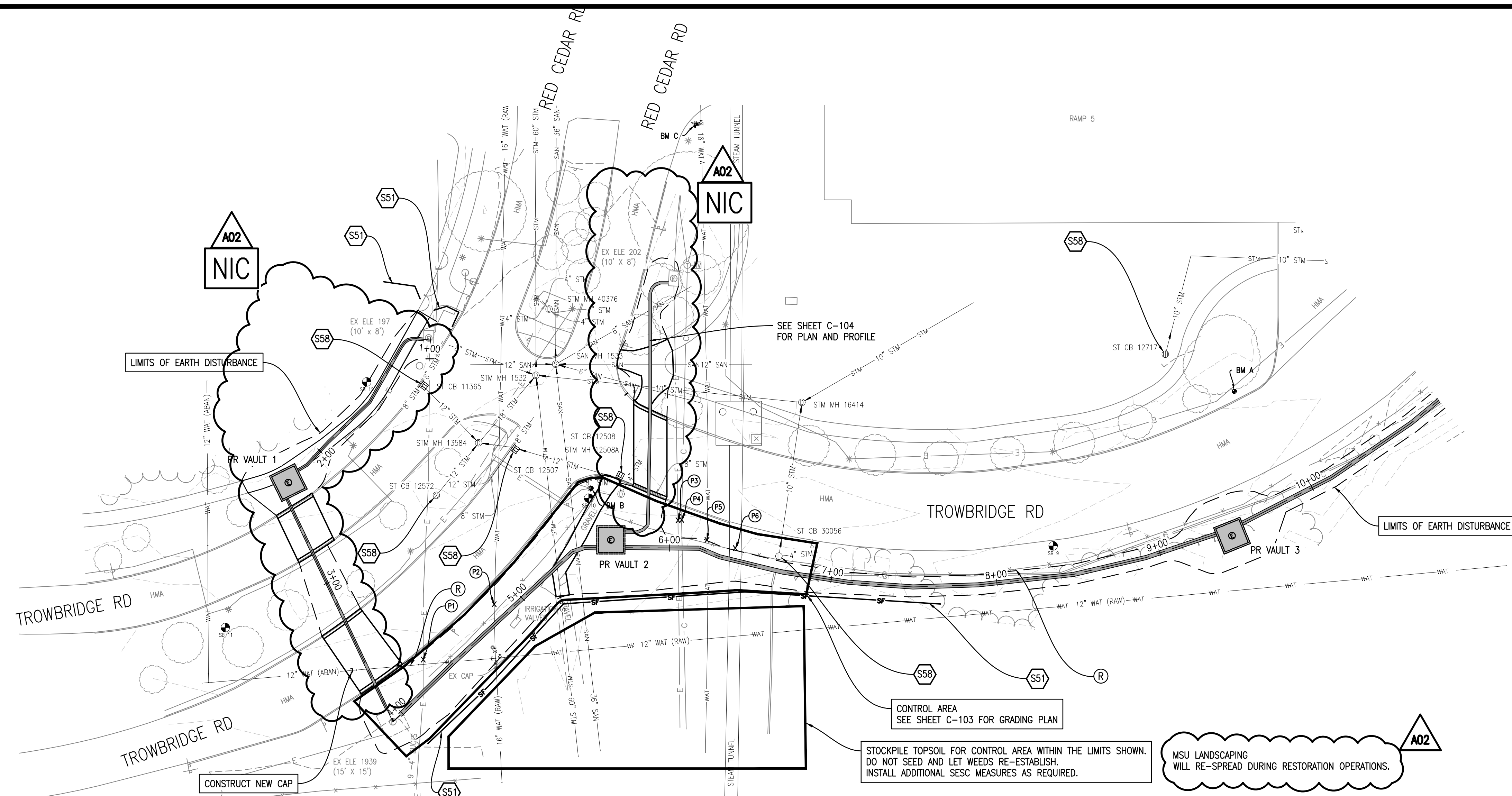
ALL TOPSOIL SHALL BE SUPPLIED AND PLACED BY MSU LANDSCAPE SERVICES. TOPSOIL OPERATIONS SHALL INCLUDE SUBSOIL SURFACE PREPARATION, HAULING, SPREADING, ROUGH GRADING, FINE GRADING, SEEDING, AND CLEAN-UP.

MSU PROJ. NO.  
CP23036

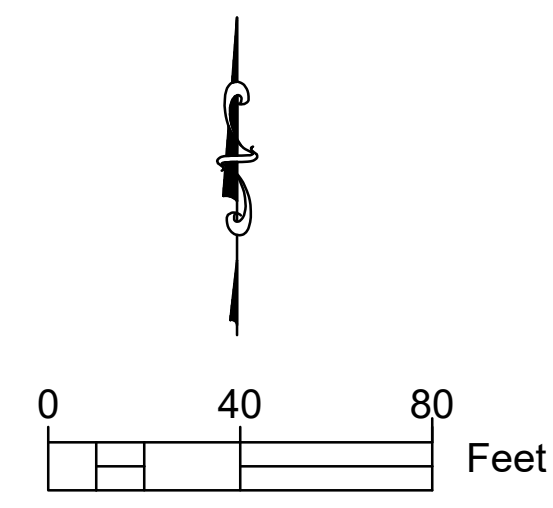
|             |                            |
|-------------|----------------------------|
| PR. MGR.    | A. LINEBAUGH               |
| ARCH.       | -                          |
| MECH.       | -                          |
| ELEC.       | -                          |
| CIVIL       | -                          |
| L.A.        | -                          |
| INT. DES.   | -                          |
| CONST. REP. | -                          |
| APPR.       | -                          |
| DATE        | 11/15/2024                 |
| SCALE       | 1"=40'                     |
| ISSUED      |                            |
|             | 2/20/24 - PRELIMINARY      |
|             | 2/21/24 - 95% SUBMITTAL    |
|             | 11/15/24 - ISSUED FOR BIDS |
|             | 12/18/24 - ADDENDUM 2      |

SESC

**G-006**

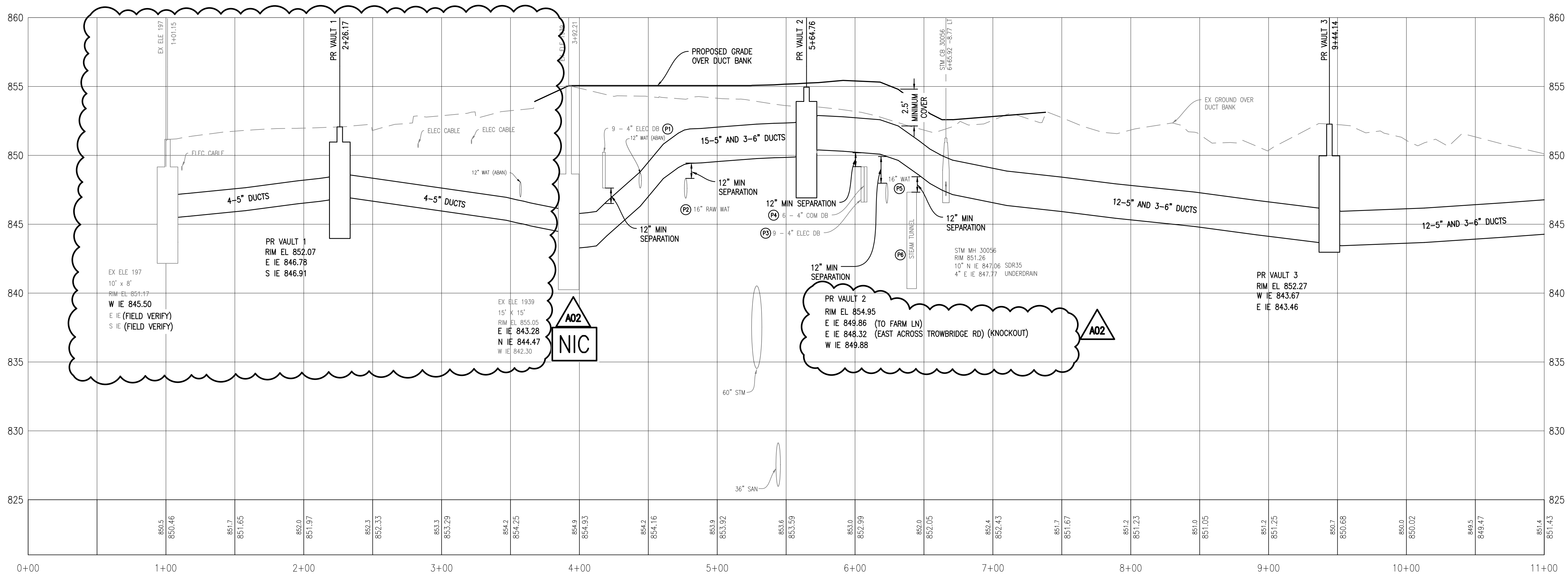


**BENCHMARKS**  
 BM A  
 NORTH SIDE OF TROWBRIDGE ROAD, BEHIND CURB, 440 FT EAST OF RED CEDAR ROAD  
 ELEV. 851.71  
 BM B  
 SE QUADRANT OF TROWBRIDGE ROAD AND RED CEDAR RD INTERSECTION, ON LIGHT POLE.  
 852.90  
 BM C  
 NORTH OF TROWBRIDGE ROAD AND RED CEDAR RD INTERSECTION ON HYDRANT.  
 853.64  
 SITE SURVEY IS BASED ON:  
 HORIZONTAL - MICHIGAN STATE PLANE, SOUTH ZONE  
 VERTICAL - NGVD29 DATUM



**POTHOLE LOCATION TABLE**

| NUMBER | STATION | UTILITY NAME   | TOP OF UTILITY EL. |
|--------|---------|----------------|--------------------|
| P1     | 4+40    | ELECTRIC       | 850.23             |
| P2     | 4+84    | WATER          | 847.85             |
| P3     | 6+05    | ELECTRIC       | 849.17             |
| P4     | 6+07    | COMMUNICATIONS | 849.18             |
| P5     | 6+20    | WATER          | 847.95             |
| P6     | 6+40    | STEAM          | 847.43             |



**MICHIGAN STATE UNIVERSITY**

**Infrastructure Planning and Facilities**

**ELECTRICAL DISTRIBUTION - FARM LN DUCT BANK EXTENSION  
 RED CEDAR TO FARM LN/WILSON RD - PHASE 1  
 INFRASTRUCTURE PLANNING FACILITIES**

DUCT BANK PLAN PROFILE STA 00+00 TO 11+00

MSU PROJ. NO.  
**CP23036**

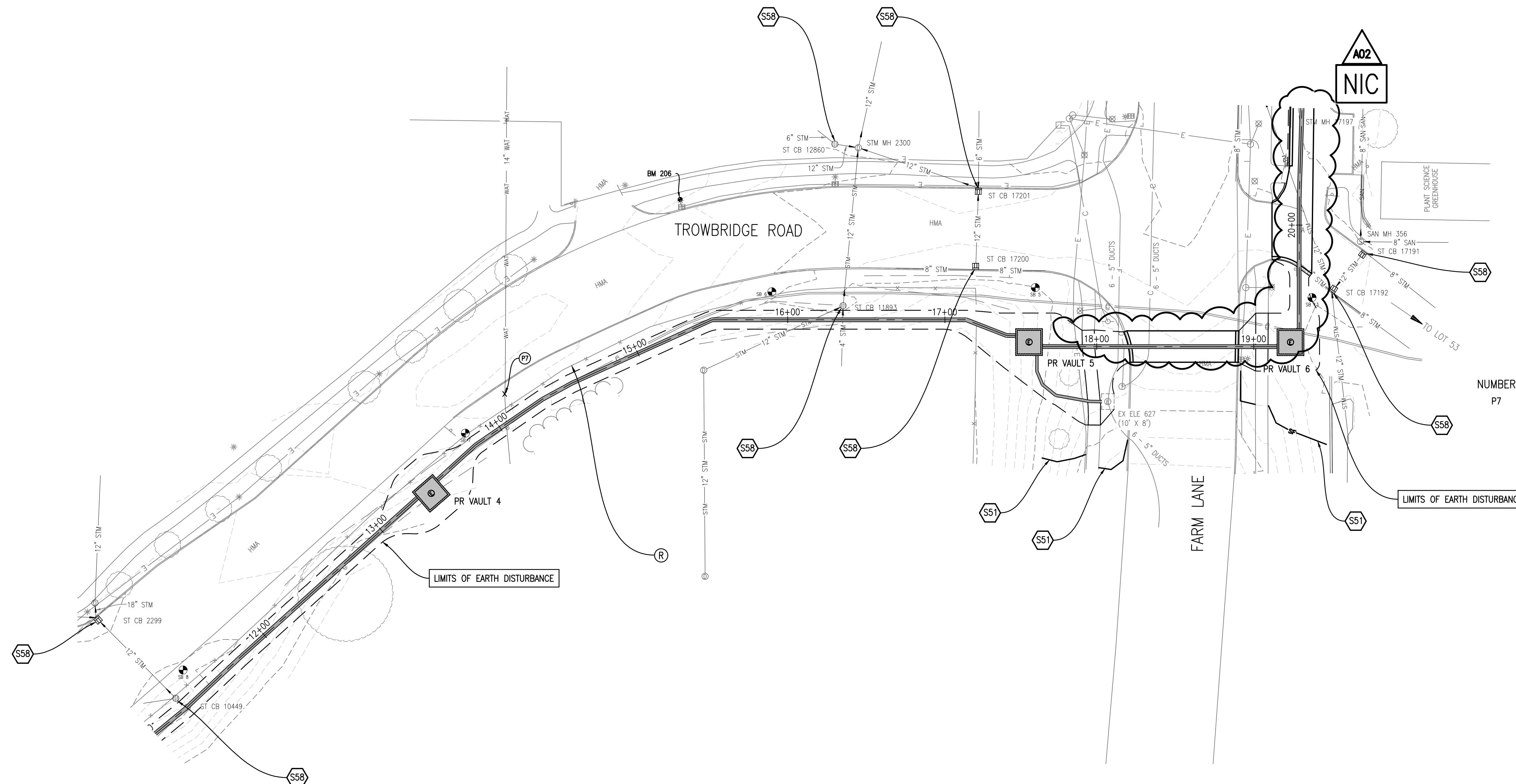
|                            |              |
|----------------------------|--------------|
| PR. MGR.                   | A. LINEBAUGH |
| ARCH.                      |              |
| MECH.                      |              |
| ELEC.                      |              |
| CIVIL                      |              |
| L.A.                       |              |
| INT. DES.                  |              |
| CONST. REP.                |              |
| APPR.                      |              |
| DATE                       | 11/15/2024   |
| SCALE                      | 1"=40'       |
| ISSUED                     |              |
| 2/20/24 - PRELIMINARY      |              |
| 2/21/24 - 95% SUBMITTAL    |              |
| 11/15/24 - ISSUED FOR BIDS |              |
| 12/18/24 - ADDENDUM 2      |              |

**UTILITY**

**C-100**

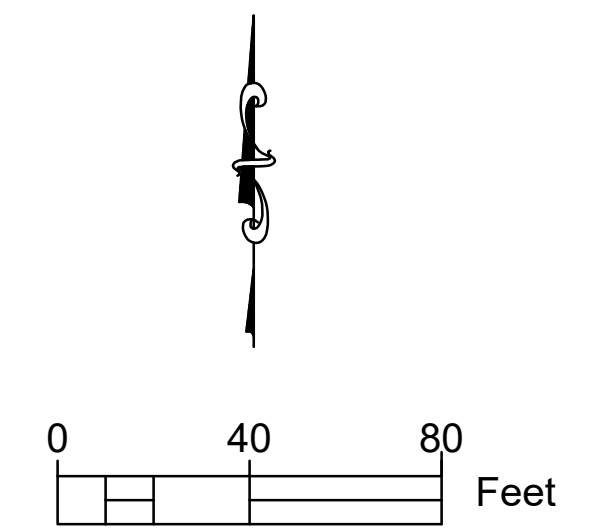
7 OF 16





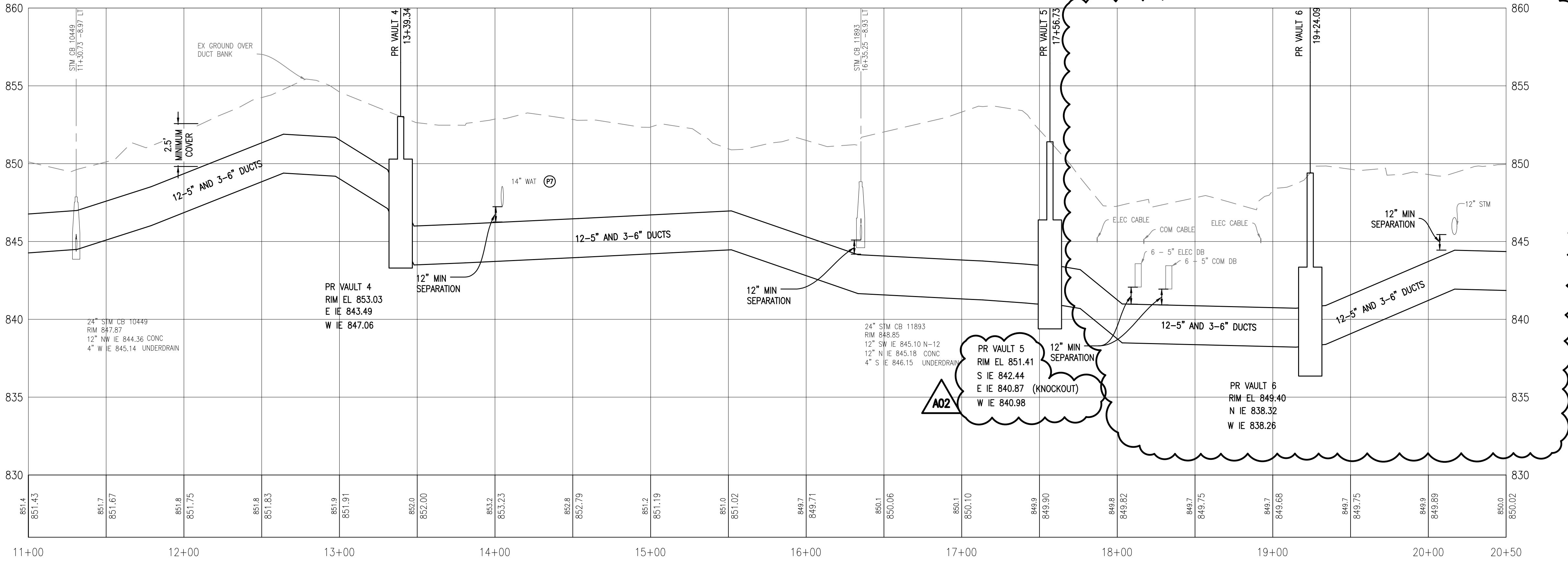
**BENCHMARKS**  
 BM 206  
 NORTH SIDE OF TROWBRIDGE ROAD, ON POWER POLE 320 FT WEST OF FARM LANE.  
 ELEV. 852.53

SITE SURVEY IS BASED ON:  
 HORIZONTAL - MICHIGAN STATE PLANE, SOUTH ZONE  
 VERTICAL - NGVD29 DATUM



**POTHOLE LOCATION TABLE**

| NUMBER | STATION | UTILITY NAME | TOP OF UTILITY EL |
|--------|---------|--------------|-------------------|
| P7     | 14+15   | WATER        | 848.86            |



**ELECTRICAL DISTRIBUTION - FARM LN DUCT BANK EXTENSION  
 RED CEDAR TO FARM LN/WILSON RD - PHASE 1  
 INFRASTRUCTURE PLANNING FACILITIES**  
 DUCT BANK PLAN PROFILE STA 11+00 TO 20+50

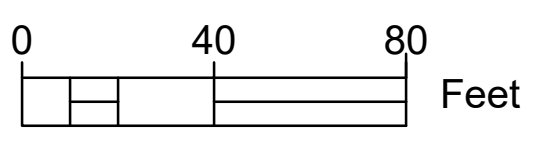
MSU PROJ. NO.  
 CP23036

|                            |              |
|----------------------------|--------------|
| PR. MGR.                   | A. LINEBAUGH |
| ARCH.                      |              |
| MECH.                      |              |
| ELEC.                      |              |
| CIVIL                      |              |
| L.A.                       |              |
| INT. DES.                  |              |
| CONST. REP.                |              |
| APPR.                      |              |
| DATE                       | 11/15/2024   |
| SCALE                      | 1"=40'       |
| ISSUED                     |              |
| 2/20/24 - PRELIMINARY      |              |
| 2/21/24 - 95% SUBMITTAL    |              |
| 11/15/24 - ISSUED FOR BIDS |              |
| 12/18/24 - ADDENDUM 2      |              |

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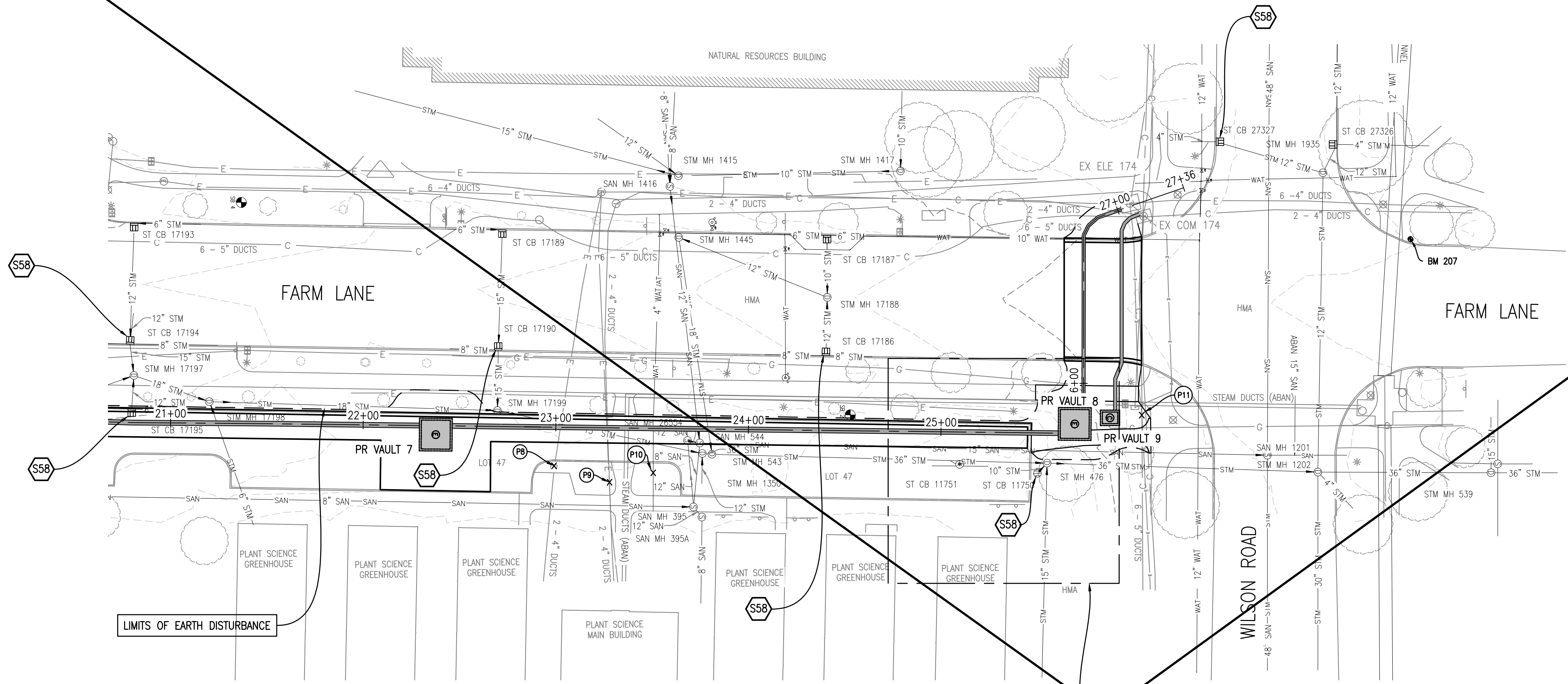
BENCHMARKS  
 BM 207  
 AT NW QUADRANT OF FARM LANE AND WILSON ROAD  
 INTERSECTION, BEHIND CURBLINE  
 ELEV. 857.50

SITE SURVEY IS BASED ON:  
 HORIZONTAL - MICHIGAN STATE PLANE, SOUTH ZONE  
 VERTICAL - NGVD29 DATUM



NOTES:

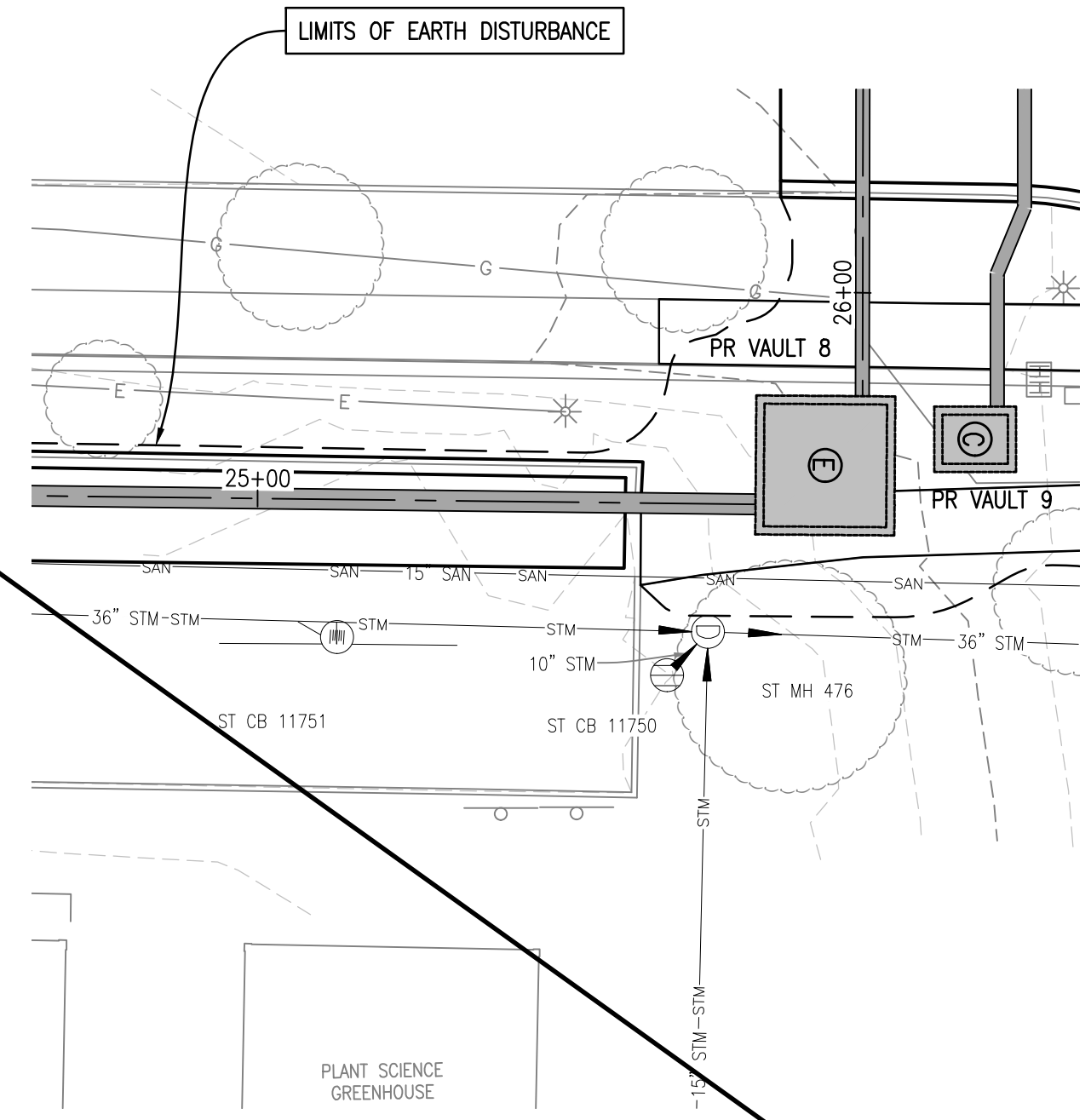
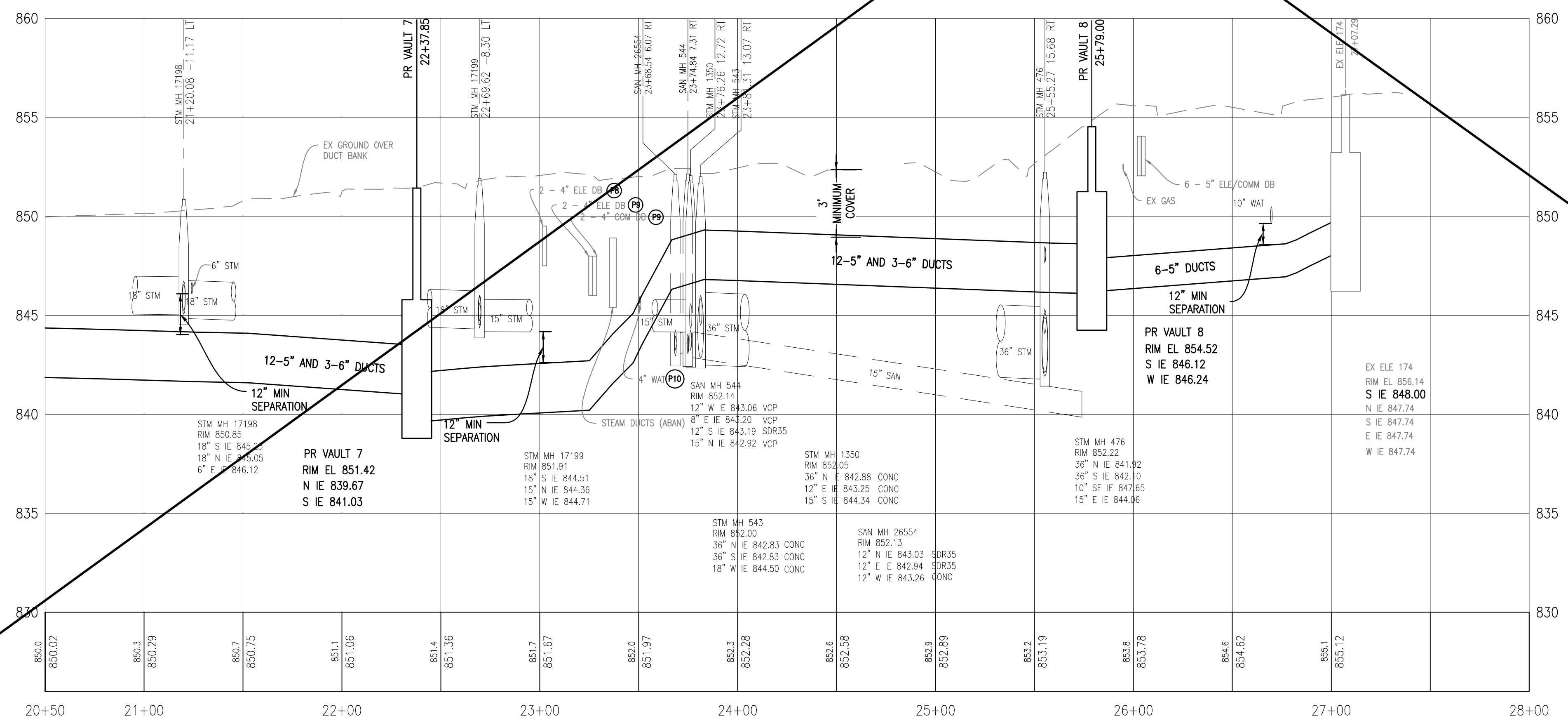
1. THE PLANT SCIENCE GREENHOUSES PROJECT IS SCHEDULED TO BE COMPLETED IN THE SPRING OF 2025. THESE PLANS REFLECT THE PRECONSTRUCTION CONDITIONS FOR THE PLANT SCIENCE GREENHOUSES, INCLUDING THE EXISTING UTILITIES WHICH ARE LOCATED IN/ACROSS PARKING LOT 47 TO SERVICE THE PLANT SCIENCE GREENHOUSES AND WHICH MAY HAVE BEEN ABANDONED IN CONJUNCTION WITH THE PLANT SCIENCE GREENHOUSES PROJECT. CONTRACTOR SHALL CONFIRM THE STATUS OF THE UTILITIES BEFORE PROCEEDING WITH THE DUCT BANK CONSTRUCTION.



SEE DETAIL 1 - THIS SHEET

POTHOLE LOCATION TABLE

| NUMBER | STATION | UTILITY NAME                            | TOP OF UTILITY EL |
|--------|---------|---|-------------------|
| P8     | 22+94   | ELECTRIC                                | 849.50            |
| P9     | 23+22   | ELECTRIC/COMMUNICATION                  | 847.99            |
| P10    | 23+45   | WATER                                   | 846.42            |
| P11    | 26+04   | ELECTRIC/COMMUNICATION (UNDER SIDEWALK) | 853.47            |



DETAIL 1  
 SCALE 1:20

MSU PROJ. NO.  
 CP23036

|             |                            |
|-------------|----------------------------|
| PR. MGR.    | A. LINEBAUGH               |
| ARCH.       |                            |
| MECH.       |                            |
| ELEC.       |                            |
| CIVIL       |                            |
| L.A.        |                            |
| INT. DES.   |                            |
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| DATE        | 11/15/2024                 |
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|             | 2/21/24 - 95% SUBMITTAL    |
|             | 11/15/24 - ISSUED FOR BIDS |
|             | 12/18/24 - ADDENDUM 2      |

UTILITY  
**C-102**



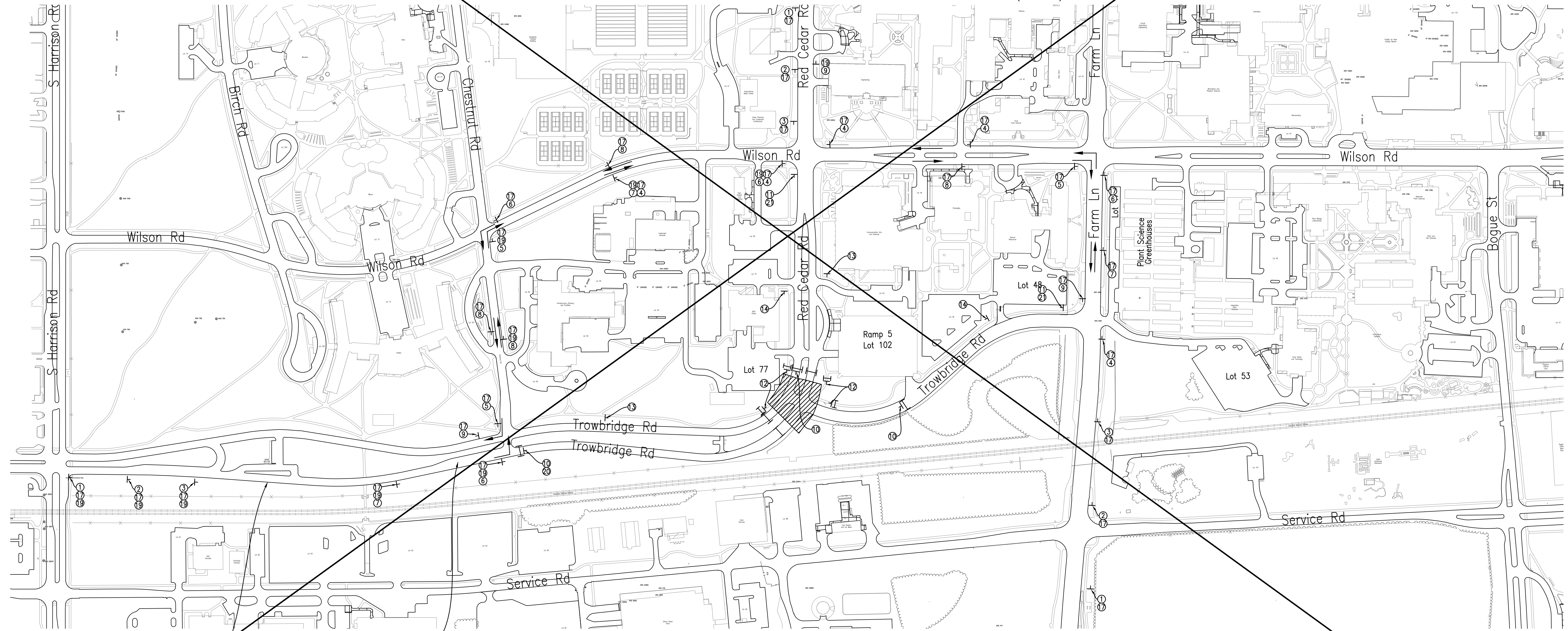


|                            |              |
|----------------------------|--------------|
| MSU PROJ. NO.<br>CP23036   |              |
| PR. MGR.                   | A. LINEBAUGH |
| ARCH.                      |              |
| MECH.                      |              |
| ELEC.                      |              |
| CIVIL                      |              |
| L.A.                       |              |
| INT. DES.                  |              |
| CONST. REP.                |              |
| APPR.                      |              |
| DATE                       | 11/15/2024   |
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| 11/15/24 - ISSUED FOR BIDS |              |
| 12/18/24 - ADDENDUM 2      |              |

**SIGN LEGEND**

- ① ROAD WORK AHEAD  
W20-1 (48")
- ② DETOUR AHEAD  
W20-2 (48")
- ③ ROAD CLOSED AHEAD  
W20-3 (48")
- ④ DETOUR  
M4-9J (30" X 24")
- ⑤ DETOUR  
M4-9R (30" X 24")
- ⑥ DETOUR  
M4-9L (30" X 24")
- ⑦ DETOUR  
M4-9KL (30" X 30")
- ⑧ DETOUR  
M4-9KR (30" X 30")
- ⑨ END DETOUR  
M4-8A (24" X 18")
- ⑩ ROAD CLOSED  
R11-2 (48" X 30")
- ⑪ ROAD CLOSED TO THRU TRAFFIC  
R11-4 (60" X 30")
- ⑫ SIDEWALK CLOSED  
R9-9 (30" X 18")
- ⑬ SIDEWALK CLOSED AHEAD CROSS HERE  
R9-11L (48" X 36")
- ⑭ SIDEWALK CLOSED AHEAD CROSS HERE  
R9-11R (48" X 36")
- ⑮ SIDEWALK CLOSED CROSS HERE  
R9-11dL (48" X 24")
- ⑯ SIDEWALK CLOSED CROSS HERE  
R9-11dR (48" X 24")
- ⑰ TROWBRIDGE RD  
W20-12P (48" X 12")
- ⑱ FARM LN  
W20-12P (30" X 12")
- ⑲ RED CEDAR RD  
W20-12P (48" X 12")
- ⑳ DETOUR  
M4-10L (48" X 18")
- ㉑ DETOUR  
M4-10R (48" X 18")
- ㉒ R3-1 (24" X 24")
- ㉓ R3-2 (24" X 24")
- ㉔ ONE WAY  
R6-1L (36" X 12")
- ㉕ ONE WAY  
R6-1R (36" X 12")
- ㉖ DO NOT ENTER  
R5-1 (30" X 30")
- ㉗ WORK ZONE BEGINS  
R5-18c (48" X 48")
- ㉘ END ROAD WORK  
G20-2 (48" X 24")

A02  
**THIS SHEET NIC**



CLOSE RIGHT LANE AND BIKE LANE IN ACCORDANCE WITH 203-FW-11C-(R)  
SHIFT TRAFFIC INTO LEFT TURN LANE 90' SHIFT (12' OFFSET, 30 MPH)

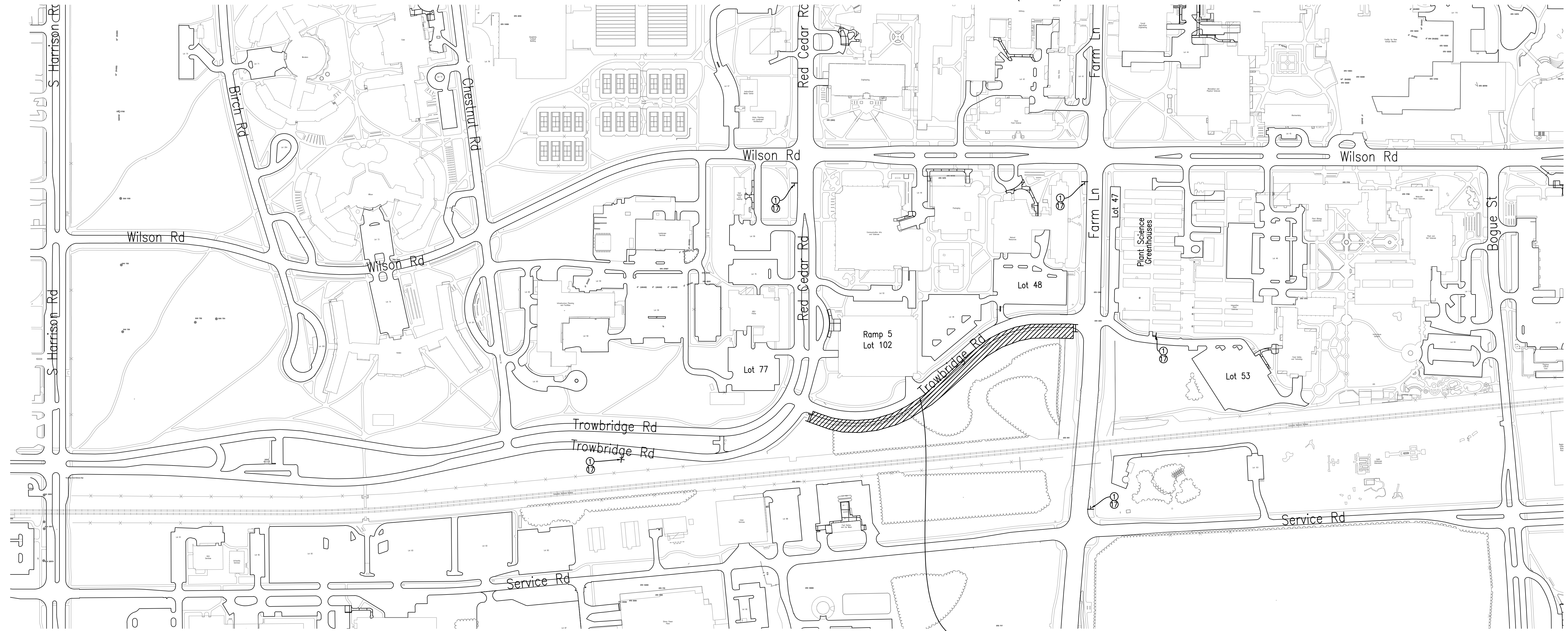
PLACE W11-1 (BIKE SYMBOL) AND W16-1P (SHARE THE ROAD) WARNING SIGNS 150' IN ADVANCE OF LANE CLOSURE

**TROWBRIDGE RD CLOSED AT RED CEDAR RD**  
FAB #1 (78" X 24")  
PLACE 500' IN ADVANCE OF FARM LANE AND MT HOPE INTERSECTION, EAST, WEST AND SOUTH LEG.

**DETOUR LEGEND**

- DETOUR ROUTE
- CONSTRUCTION ZONE
- TEMPORARY SIGN
- TYPE III BARRICADE
- TYPE II PEDESTRIAN BARRICADE

\* WHEN CLOSING ROADWAYS, PLACE SUFFICIENT NUMBER OF TYPE III BARRICADES TO CLOSE THE ROAD FROM EDGE TO EDGE WITH NO GAPS BETWEEN BARRICADES



**SIGN LEGEND**

- ① ROAD WORK AHEAD  
W20-1 (48")
- ② DETOUR AHEAD  
W20-2 (48")
- ③ ROAD CLOSED AHEAD  
W20-3 (48")
- ④ DETOUR  
M4-9J (30" X 24")
- ⑤ DETOUR  
M4-9R (30" X 24")
- ⑥ DETOUR  
M4-9L (30" X 24")
- ⑦ DETOUR  
M4-9KL (30" X 30")
- ⑧ DETOUR  
M4-9KR (30" X 30")
- ⑨ END DETOUR  
M4-8A (24" X 18")
- ⑩ ROAD CLOSED  
R11-2 (48" X 30")
- ⑪ ROAD CLOSED TO THRU TRAFFIC  
R11-4 (60" X 30")
- ⑫ SIDEWALK CLOSED  
R9-9 (30" X 18")
- ⑬ SIDEWALK CLOSED AHEAD CROSS HERE  
R9-11L (48" X 36")
- ⑭ SIDEWALK CLOSED AHEAD CROSS HERE  
R9-11R (48" X 36")
- ⑮ SIDEWALK CLOSED CROSS HERE  
R9-11dL (48" X 24")
- ⑯ SIDEWALK CLOSED CROSS HERE  
R9-11dR (48" X 24")
- ⑰ TROWBRIDGE RD  
W20-12P (48" X 12")
- ⑱ FARM LN  
W20-12P (30" X 12")
- ⑲ RED CEDAR RD  
W20-12P (48" X 12")
- ⑳ DETOUR  
M4-10L (48" X 18")
- ㉑ DETOUR  
M4-10R (48" X 18")
- ㉒ R3-1 (24" X 24")
- ㉓ R3-2 (24" X 24")
- ㉔ ONE WAY  
R6-1L (36" X 12")
- ㉕ ONE WAY  
R6-1R (36" X 12")
- ㉖ DO NOT ENTER  
R5-1 (30" X 30")
- ㉗ WORK ZONE BEGINS  
R5-18c (48" X 48")
- ㉘ END ROAD WORK  
G20-2 (48" X 24")

CLOSE EB LANE AND MAINTAIN TRAFFIC IN ACCORDANCE WITH MDT 137-CLT-SHIFT-OLC MAINTAINING TRAFFIC TYPICAL

CLOSE OUTSIDE RIGHT TURN LANE AT FARM LN

CLOSE EB BIKE LANE

REMOVE EX PAVEMENT MARKINGS IN CONFLICT

PLACE 6" DOUBLE YELLOW TEMP TAPE PAVEMENT MARKING TO DELINEATE THE CENTERLINE

PLACE 6" SINGLE WHITE TEMP TAPE PAVEMENT MARKING TO DELINEATE THE EB EDGE LINE

**DETOUR LEGEND**

- DETOUR ROUTE
- CONSTRUCTION ZONE
- TEMPORARY SIGN
- TYPE III BARRICADE
- TYPE II PEDESTRIAN BARRICADE

\* WHEN CLOSING ROADWAYS, PLACE SUFFICIENT NUMBER OF TYPE III BARRICADES TO CLOSE THE ROAD FROM EDGE TO EDGE WITH NO GAPS BETWEEN BARRICADES

|                            |              |
|----------------------------|--------------|
| MSU PROJ. NO.              | CP23036      |
| PR. MGR.                   | A. LINEBAUGH |
| ARCH.                      |              |
| MECH.                      |              |
| ELEC.                      |              |
| CIVIL                      |              |
| L.A.                       |              |
| INT. DES.                  |              |
| CONST. REP.                |              |
| APPR.                      |              |
| DATE                       | 11/15/2024   |
| SCALE                      | AS SHOWN     |
| ISSUED                     |              |
| 2/20/24 - PRELIMINARY      |              |
| 2/21/24 - 95% SUBMITTAL    |              |
| 11/15/24 - ISSUED FOR BIDS |              |
| 12/18/24 - ADDENDUM 2      |              |



MSU PROJ. NO.  
CP23036

|             |              |
|-------------|--------------|
| PR. MGR.    | A. LINEBAUGH |
| ARCH.       |              |
| MECH.       |              |
| ELEC.       |              |
| CIVIL       |              |
| L.A.        |              |
| INT. DES.   |              |
| CONST. REP. |              |
| APPR.       |              |
| DATE        | 11/15/2024   |
| SCALE       | AS SHOWN     |
| ISSUED      |              |

2/20/24 - PRELIMINARY  
2/21/24 - 95% SUBMITTAL  
11/15/24 - ISSUED FOR BIDS  
12/18/24 - ADDENDUM 2

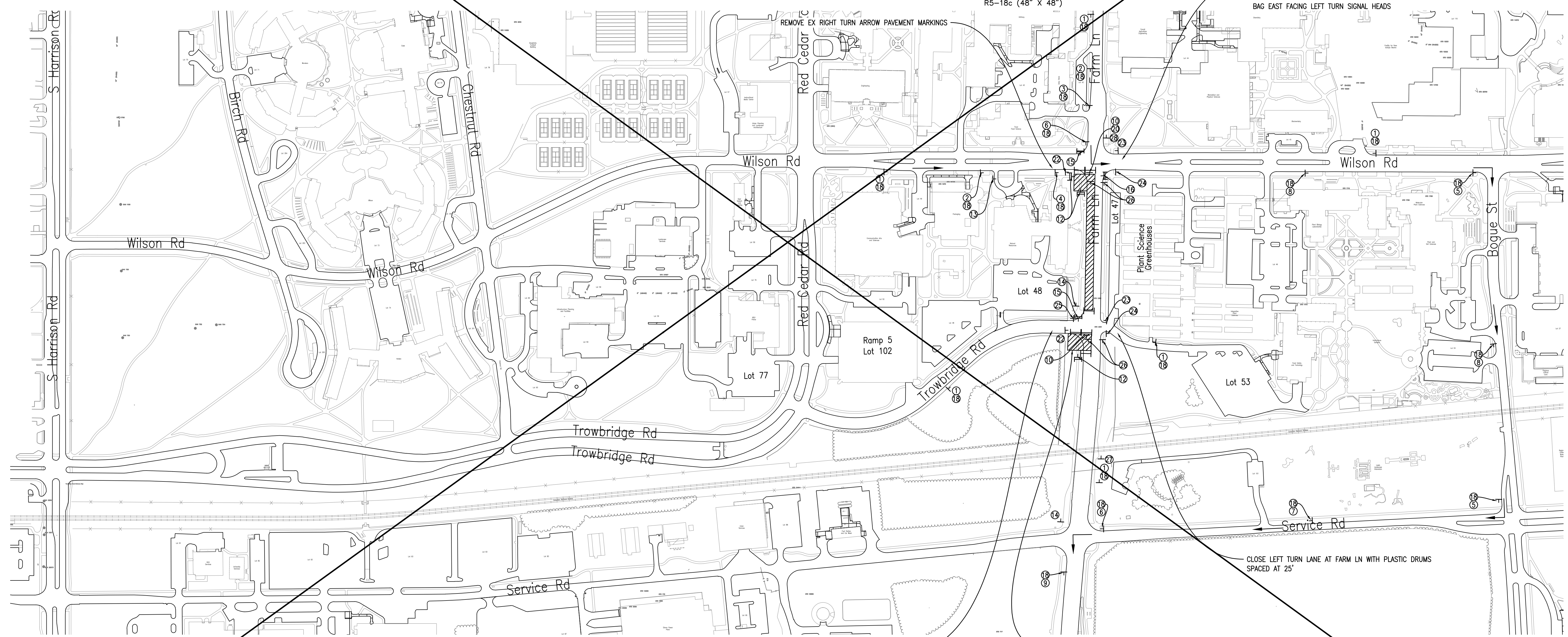
MOT

**C-502**

A02  
**THIS SHEET NIC**

**SIGN LEGEND**

- ① ROAD WORK AHEAD  
W20-1 (48")
- ② DETOUR AHEAD  
W20-2 (48")
- ③ ROAD CLOSED AHEAD  
W20-3 (48")
- ④ DETOUR  
M4-9J (30" X 24")
- ⑤ DETOUR  
M4-9R (30" X 24")
- ⑥ DETOUR  
M4-9L (30" X 24")
- ⑦ DETOUR  
M4-9KL (30" X 30")
- ⑧ DETOUR  
M4-9KR (30" X 30")
- ⑨ END DETOUR  
M4-8A (24" X 18")
- ⑩ ROAD CLOSED  
R11-2 (48" X 30")
- ⑪ ROAD CLOSED TO THRU TRAFFIC  
R11-4 (60" X 30")
- ⑫ SIDEWALK CLOSED  
R9-9 (30" X 18")
- ⑬ SIDEWALK CLOSED AHEAD CROSS HERE  
R9-11L (48" X 36")
- ⑭ SIDEWALK CLOSED AHEAD CROSS HERE  
R9-11R (48" X 36")
- ⑮ SIDEWALK CLOSED CROSS HERE  
R9-11dL (48" X 24")
- ⑯ SIDEWALK CLOSED CROSS HERE  
R9-11dR (48" X 24")
- ⑰ TROWBRIDGE RD  
W20-12P (48" X 12")
- ⑱ FARM LN  
W20-12P (30" X 12")
- ⑲ RED CEDAR RD  
W20-12P (48" X 12")
- ⑳ DETOUR  
M4-10L (48" X 18")
- ㉑ DETOUR  
M4-10R (48" X 18")
- ㉒ DETOUR  
R3-1 (24" X 24")
- ㉓ DETOUR  
R3-2 (24" X 24")
- ㉔ DO NOT ENTER  
R5-1 (30" X 30")
- ㉕ WORK ZONE BEGINS  
R5-18c (48" X 48")
- ㉖ END ROAD WORK  
G20-2 (48" X 24")



**DETOUR LEGEND**

- DETOUR ROUTE
- CONSTRUCTION ZONE
- TEMPORARY SIGN
- TYPE III BARRICADE
- TYPE II PEDESTRIAN BARRICADE

\* WHEN CLOSING ROADWAYS, PLACE SUFFICIENT NUMBER OF TYPE III BARRICADES TO CLOSE THE ROAD FROM EDGE TO EDGE WITH NO GAPS BETWEEN BARRICADES

MSU PROJ. NO.  
CP23036

|                            |              |
|----------------------------|--------------|
| PR. MGR.                   | A. LINEBAUGH |
| ARCH.                      |              |
| MECH.                      |              |
| ELEC.                      |              |
| CIVIL                      |              |
| L.A.                       |              |
| INT. DES.                  |              |
| CONST. REP.                |              |
| APPR.                      |              |
| DATE                       | 11/15/2024   |
| SCALE                      | AS SHOWN     |
| ISSUED                     |              |
| 2/20/24 - PRELIMINARY      |              |
| 2/21/24 - 95% SUBMITTAL    |              |
| 11/15/24 - ISSUED FOR BIDS |              |
| 12/18/24 - ADDENDUM 2      |              |

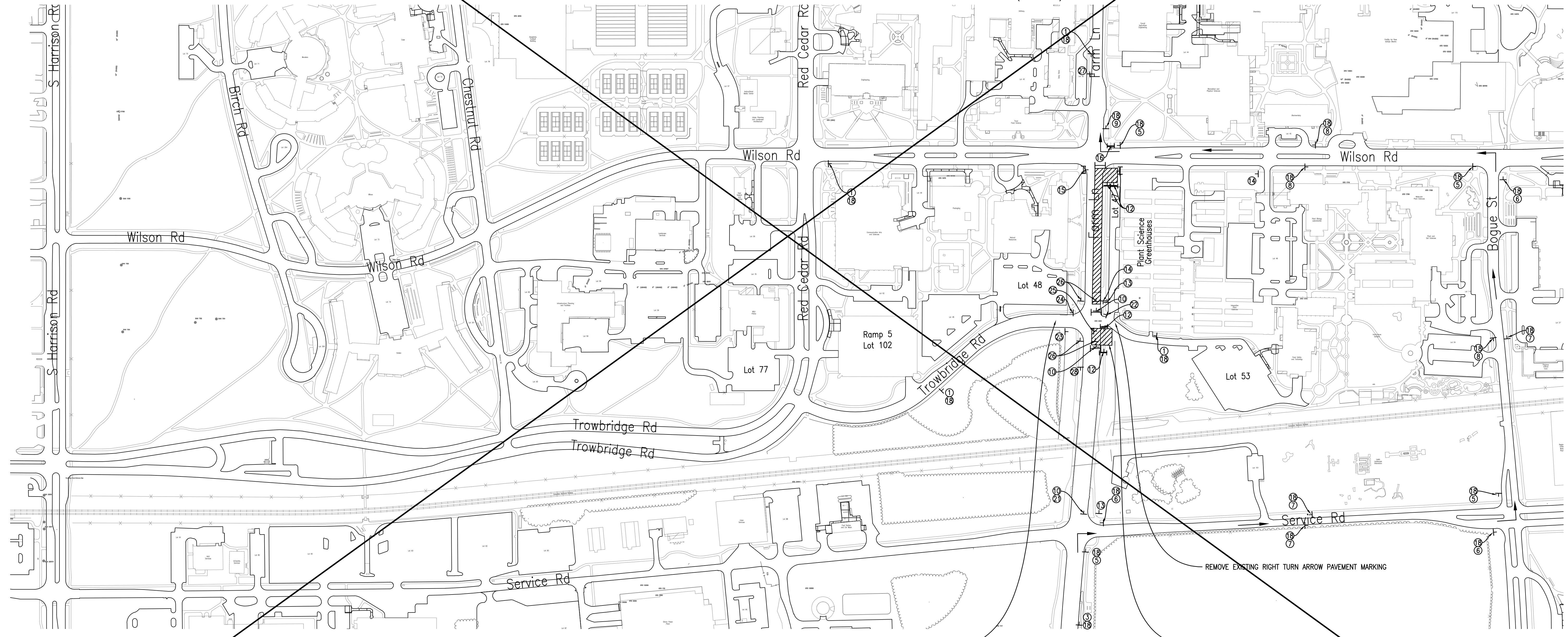
MOT

**C-503**

**SIGN LEGEND**

- ① ROAD WORK AHEAD  
W20-1 (48")
- ② DETOUR AHEAD  
W20-2 (48")
- ③ ROAD CLOSED AHEAD  
W20-3 (48")
- ④ DETOUR  
M4-9J (30" X 24")
- ⑤ DETOUR  
M4-9R (30" X 24")
- ⑥ DETOUR  
M4-9L (30" X 24")
- ⑦ DETOUR  
M4-9KL (30" X 30")
- ⑧ DETOUR  
M4-9KR (30" X 30")
- ⑨ END DETOUR  
M4-8A (24" X 18")
- ⑩ ROAD CLOSED  
R11-2 (48" X 30")
- ⑪ ROAD CLOSED TO THRU TRAFFIC  
R11-4 (60" X 30")
- ⑫ SIDEWALK CLOSED  
R9-9 (30" X 18")
- ⑬ SIDEWALK CLOSED AHEAD CROSS HERE  
R9-11L (48" X 36")
- ⑭ SIDEWALK CLOSED AHEAD CROSS HERE  
R9-11R (48" X 36")
- ⑮ SIDEWALK CLOSED CROSS HERE  
R9-11dL (48" X 24")
- ⑯ SIDEWALK CLOSED CROSS HERE  
R9-11dR (48" X 24")
- ⑰ TROWBRIDGE RD  
W20-12P (48" X 12")
- ⑱ FARM LN  
W20-12P (30" X 12")
- ⑲ RED CEDAR RD  
W20-12P (48" X 12")
- ⑳ DETOUR  
M4-10L (48" X 18")
- ㉑ DETOUR  
M4-10R (48" X 18")
- ㉒ R3-1 (24" X 24")
- ㉓ R3-2 (24" X 24")
- ㉔ R6-1L (36" X 12")
- ㉕ R6-1R (36" X 12")
- ㉖ DO NOT ENTER  
R5-1 (30" X 30")
- ㉗ WORK ZONE BEGINS  
R5-18c (48" X 48")
- ㉘ END ROAD WORK  
G20-2 (48" X 24")

A02  
**THIS SHEET NIC**



REMOVE EXISTING LEFT TURN ARROW PAVEMENT MARKING

REMOVE EXISTING RIGHT TURN ARROW PAVEMENT MARKING

CLOSE NB LANES AND CENTER TURN LANE UTILIZING PLASTIC DRUMS SPACED AT 25'

MAINTAIN EX 2 LANES OF SB TRAFFIC

**DETOUR LEGEND**

- DETOUR ROUTE
- ▨ CONSTRUCTION ZONE
- ⊥ TEMPORARY SIGN
- ⊥ TYPE III BARRICADE
- ⊥ TYPE II PEDESTRIAN BARRICADE

\* WHEN CLOSING ROADWAYS, PLACE SUFFICIENT NUMBER OF TYPE III BARRICADES TO CLOSE THE ROAD FROM EDGE TO EDGE WITH NO GAPS BETWEEN BARRICADES



MSU PROJ. NO.  
CP23036

|             |              |
|-------------|--------------|
| PR. MGR.    | A. LINEBAUGH |
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| MECH.       |              |
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| CIVIL       |              |
| L.A.        |              |
| INT. DES.   |              |
| CONST. REP. |              |
| APPR.       |              |
| DATE        | 11/15/2024   |
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| ISSUED      |              |

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12/18/24 - ADDENDUM 2

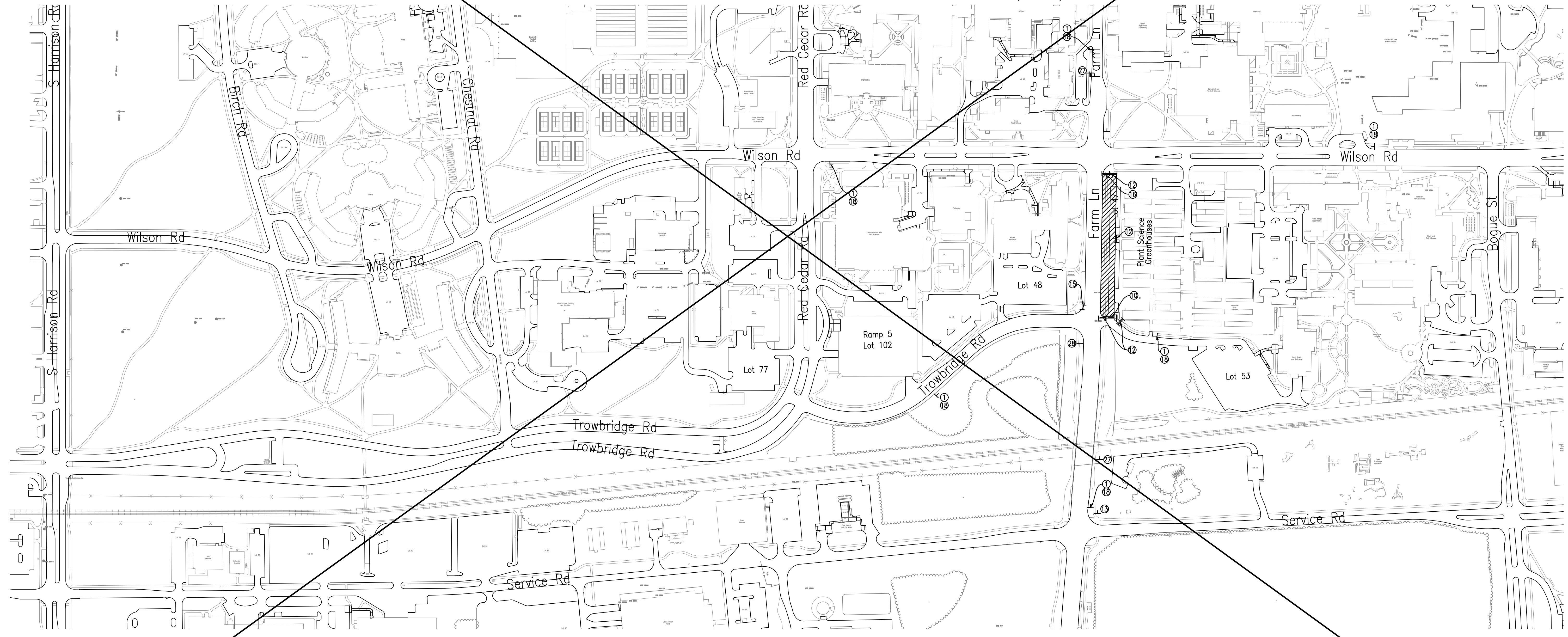
MOT

**C-504**

**SIGN LEGEND**

- ① ROAD WORK AHEAD  
W20-1 (48")
- ② DETOUR AHEAD  
W20-2 (48")
- ③ ROAD CLOSED AHEAD  
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- ㉒ R3-1 (24" X 24")
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- ㉕ WORK ZONE BEGINS  
R5-18c (48" X 48")
- ㉖ END ROAD WORK  
G20-2 (48" X 24")
- ㉗ ONE WAY  
R6-1L (36" X 12")
- ㉘ ONE WAY  
R6-1R (36" X 12")

A02  
**THIS SHEET NIC**



**DETOUR LEGEND**

- DETOUR ROUTE
- CONSTRUCTION ZONE
- TEMPORARY SIGN
- TYPE III BARRICADE
- TYPE II PEDESTRIAN BARRICADE

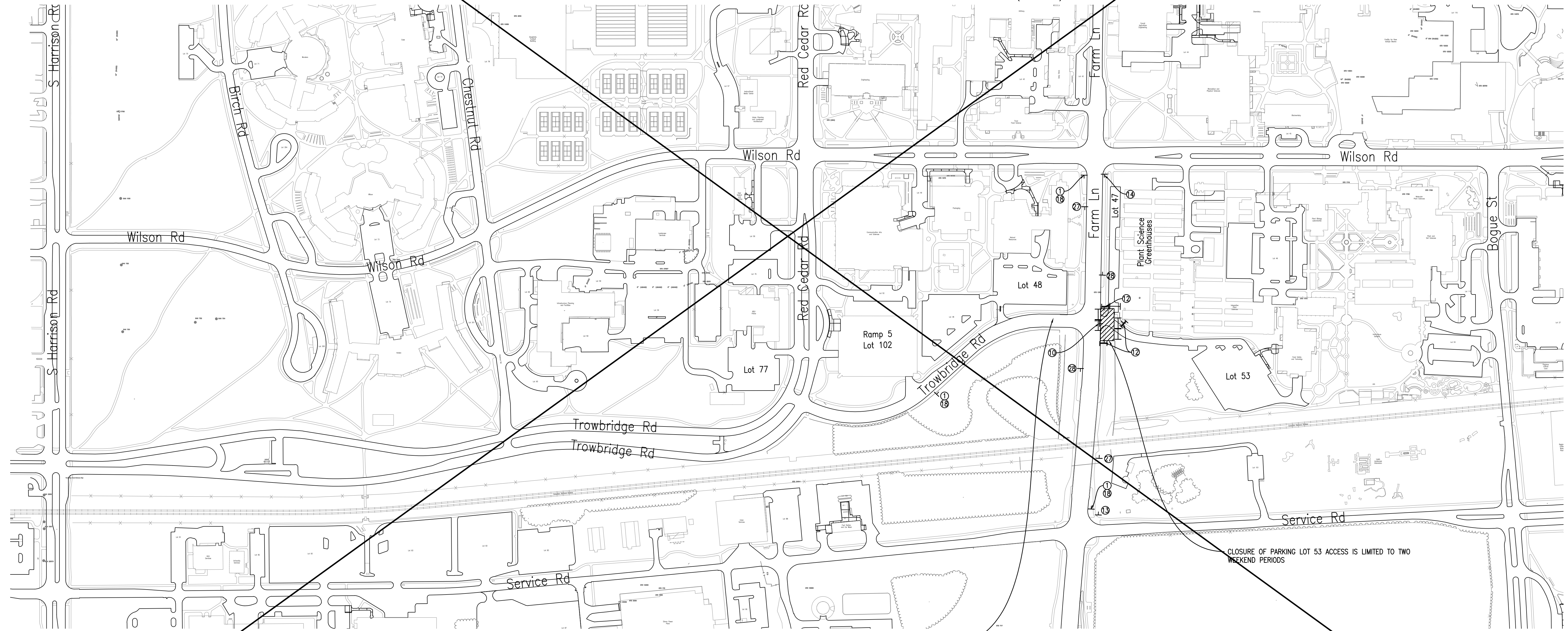
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A02  
THIS SHEET NIC

SIGN LEGEND

- ① ROAD WORK AHEAD  
W20-1 (48")
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- ㉕ ONE WAY  
R6-1R (36" X 12")
- ㉖ DO NOT ENTER  
R5-1 (30" X 30")
- ㉗ WORK ZONE BEGINS  
R5-18c (48" X 48")
- ㉘ END ROAD WORK  
G20-2 (48" X 24")



CLOSURE OF PARKING LOT 53 ACCESS IS LIMITED TO TWO WEEKEND PERIODS

REMOVE EXISTING THRU ARROW PAVEMENT MARKING

DETOUR LEGEND

- DETOUR ROUTE
- ▨ CONSTRUCTION ZONE
- ⊥ TEMPORARY SIGN
- ⊥ TYPE III BARRICADE
- ⊥ TYPE II PEDESTRIAN BARRICADE

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MSU PROJ. NO.  
CP23036

|                            |              |
|----------------------------|--------------|
| PR. MGR.                   | A. LINEBAUGH |
| ARCH.                      |              |
| MECH.                      |              |
| ELEC.                      |              |
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| L.A.                       |              |
| INT. DES.                  |              |
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| DATE                       | 11/15/2024   |
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| ISSUED                     |              |
| 2/20/24 - PRELIMINARY      |              |
| 2/21/24 - 95% SUBMITTAL    |              |
| 11/15/24 - ISSUED FOR BIDS |              |
| 12/18/24 - ADDENDUM 2      |              |

MOT

**C-505**