



Bid Response

		Bid Opening Date February 10, 2016	Time of Bid Opening 1:00 P.M.	Bid Opening Location 800 Lincoln Way, Ames, IA	
Proposal Number 15823	Description Removal of Trees within the City of Calmar				
Contract Begin Date February 15, 2016	Contract Completion Date March 31, 2016	Bid Bond Amount \$1,000.00	Performance Bond (Y/N)	Liquidated Damages \$0.00	
Purchasing Agent Rhonda Ruark	E-mail Address rhonda.ruark@dot.iowa.gov	Phone 515-239-1285	Fax 515-239-1538		
Company Name			Federal Tax ID		
Street Address		City	State	Zip Code	
Bidder Contact Name	E-mail Address	Phone	Fax		
Bidder agrees to sell items/services at the same prices, terms and conditions to any other Iowa state agency. Regent or Political Subdivision upon request. Please check Yes or No. <input type="checkbox"/> Yes <input type="checkbox"/> No			Bidder is an Iowa Targeted Small Business <input type="checkbox"/> Yes <input type="checkbox"/> No		

GENERAL INFORMATION

The entire contents of this solicitation; Addendums, Schedule of Prices, Specifications, Plans and Drawings, Supplemental Terms and Conditions, Standard Terms and Conditions shall become part of the contract or purchase order. **Faxed or email bids will be accepted.**

Standard Terms and Conditions- Requests for Quotations or Bids

(Please refer to all Standard Terms and Conditions in the solicitation)

Acceptance/Rejection: The Iowa DOT reserves the right to accept or reject any or all bids and to waive irregularities or technicalities, provided such waiver does not substantially change the offer or provide a competitive advantage to any supplier or service provider. The Iowa DOT reserves the right to accept that bid which is deemed to be in the best interests of the state. Any unauthorized changes, additions, or conditional bids including any ties to another bid or proposal or any reservations about accepting an award or entering into a contract, may result in rejection of the bid. Bids must remain available for award for (30) days from the bid opening date.

Method of Award: Award shall be made to the lowest responsible, responsive bidder whose bid meets the requirements of the solicitation and is the most advantageous to the Iowa DOT unless otherwise specified. An Iowa bidder will be given preference over an out-of-state bidder when bid responses are equal in all aspects and are tied in price. By virtue of statutory authority preference will be given to products and provisions grown and coal produced within the State of Iowa.

Contracts: Successful contractor(s) may be sent either a formal contract or a purchase order. The contractor may not assign the contract to another party without written authorization from the Iowa DOT Purchasing Section.

Pricing and Discount: Unit prices shown on the bid response shall be quoted as the price per unit (e.g., gal., case, each, etc.) as stated in the bid solicitation. If there is a discrepancy between the unit bid prices, extended price, or total amount of bid, the unit price shall prevail. Unless otherwise indicated, prices shall be firm for the duration of the contract or purchase. Discounts for early payment are allowed, but not considered in award of the contract.

We certify that all materials, equipment and/or services bid or proposed meet or exceed the specifications and requirement and will be supplied in accordance with the entire contents of this solicitation including delivery schedules.

Signed _____ Date _____



Iowa Department of Transportation
Standard Terms and Conditions
For
Submission of Quotations or Bids

-INFORMAL-

Informal - means a limited solicitation type of procurement where a sufficient number of quotations or bids from qualified sources are obtained and the aggregate amount of the purchase is less than \$50,000.

The entire contents of this bid solicitation shall become a part of a contract or purchase order. In case of a discrepancy between the contents of the solicitation documents, the following items listed by descending order shall prevail:

- Addendums to the bid proposal
- Bid Proposal-
 - Schedule of Prices
 - Specifications
 - Plans and Drawings
- Supplemental Terms and Conditions
- Standard Terms and Conditions

(Example - if there is a statement in the Specifications that contradicts a statement in the Standard Terms and Conditions, the statement in the Specifications shall apply)

Preparation of Bid Response: All bid responses must address all aspects of the proposal including clearly answering all questions within the proposal. Bid responses must be typed or completed in ink and submitted on the forms supplied by the Iowa DOT.

Bid responses must be signed and received prior to the bid opening date and time as indicated on the Bid Response cover page or bid opportunity. The signed, submitted quotation or bidder's proposal shall become the official bid response to be considered for award.

Bid responses may be sent by email, fax, weblink, or delivered by a courier that ensures timely delivery.

A. Solicitation

1. **Bid Opening:** Bid openings are made public and conducted at the Iowa DOT, Ames complex unless otherwise specified. Bid Responses received after the time of the bid opening will be returned to the bidder and considered non-compliant.
2. **Communications:** Questions concerning this proposal should be directed to the purchasing agent listed on the bid proposal. Inquiries can be written, phoned, or faxed. In all cases, written communication will take precedence over verbal communication.
3. **Pricing and Discount:** Unit prices shown on the bid/response shall be quoted as the price per unit (e.g., gal., case, each, etc.) as stated in the bid proposal. If there is a discrepancy between the unit bid prices, extension, or total amount of bid, the unit prices shall prevail. Unless otherwise indicated, prices shall be firm for the duration of the contract or purchase. Discounts for early payment are allowed, but not considered in award of the contract.
4. **Acceptance/Rejection:** The Iowa DOT reserves the right to accept or reject any or all bids and to waive irregularities or technicalities, provided such waiver does not substantially change the offer or provide a competitive advantage to any supplier(s). The Iowa DOT also reserves the right to accept that bid which is deemed to be in the best interests of the state. Any unauthorized changes, additions, or conditional bids including any ties to another bid or proposal or any reservations about accepting an award or entering into a contract, may result in rejection of the bid. Bids must remain available for award for thirty (30) days from date of bid opening.

5. **Bid Results & Disclosure:** A bid tabulation will be sent to all responsive bidders and may be posted on the Iowa DOT website at www.iowadot.gov/purchasing under the *Bid Award link* referencing the proposal number with an award recommendation indicated. At the conclusion of the selection process, the contents of all received bid responses will be placed in the public domain and be open to inspection by interested parties, according to state law. Trade secrets or proprietary information that are recognized as such and are protected by law may be withheld if clearly identified as such in the proposal.
6. **Quality:** All material shall be new and of first quality. Items which are used, demonstrators, refurbished, obsolete, seconds, or which have been discontinued are unacceptable without prior written approval by the Iowa DOT.
7. **Recycled Content:** The Iowa Code encourages purchase of products and materials with recycled content, including but not limited to paper products, oils, plastic products, compost materials, aggregate, solvents, and rubber products. Recycled items or alternatives must be noted in the bid response, if known.
8. **Shipping Terms:** Deliveries shall be F.O.B. Destination unless otherwise specified. All deliveries shall be accompanied by a packing slip indicating the Supplier, quantities shipped, and the purchase order number(s). All delivery charges shall be included in the bid price and paid by the Supplier. No collect C.O.D. deliveries shall be accepted. When entering into a contract, the Supplier shall notify the freight company that all freight and delivery charges are to be prepaid by the Supplier. Goods delivered to the Iowa DOT Distribution Center at 800 Lincoln Way, Ames, IA shall be received between the hours of 7:00 a.m. and 3:00 p.m. on any day except Saturday, Sunday, or a holiday. For deliveries to other Iowa DOT locations, the Supplier may contact the destination location for available times to deliver as not all Iowa DOT locations have the same business hours. The Iowa DOT will not be liable for any freight claims or unpaid freight bills arising from contract or purchase order issues.

B. Award

The binding agreement (award) may be issued in the form a purchase order or contract or both depending on the requirements and complexity of the agreement.

1. **Method of Award:** Award shall be made to the lowest responsible, responsive bidder whose bid meets the requirements of the solicitation unless otherwise specified. An Iowa bidder will be given preference over an out-of-state bidder when bid responses are equal in all aspects and are tied in price. By virtue of statutory authority preference will be given to products and provisions grown and coal produced within the State of Iowa.
2. **Award Protests:** Protests of award recommendations are to be addressed to the Director of Purchasing, and shall be made in accordance with paragraph 761--20.4(6)"e" of the Iowa Administrative Code.
3. **Contracts:** Successful contractor(s) may be sent a formal Contract, Notification of Award or Purchase Order as confirmation of acceptance and award. Any of these binding agreements shall be for the term stated in the bid solicitation or on a purchase order and may be renewed for additional period(s) under the same terms and conditions upon mutual agreement as defined. The successful bidder may not assign a contract to another party without written authorization from the Iowa DOT Purchasing Section. The Iowa DOT may offer a contract extension to the Contractor when a scheduled target date cannot be met.
4. **Consumer Price Index (CPI-U):** A CPI may be allowed as specified in the terms of the Bid Proposal and at the discretion of the Iowa DOT based on currently posted CPI-U, US City Average, All Items – non seasonally adjusted unless otherwise specified. This applies each of any subsequent renewals, extensions, amendments issued under the contract for the duration of the contract.

5. **Payment Terms:** The Iowa DOT typically pays properly submitted vendor invoices within thirty (30) days of receipt, providing goods and/or services have been successfully delivered, installed or inspected (if required), and accepted. Invoices presented for payment must be only for quantities received by the Iowa DOT and must reference the purchase order number or contract to be submitted for processing.
6. **Default (Supplier):** Failure of the Supplier to adhere to specified delivery schedules or to promptly replace rejected materials shall render the Supplier liable for all costs in excess of the bid price when alternate procurement is necessary. This shall not be the exclusive remedy and the Iowa DOT reserves the right to pursue other remedies available to it by law or under the terms of the binding agreement.
7. **Default (Contractor):** Failure of a Contractor other than a Supplier to meet any specified project completion deadline shall render the Contractor liable for all costs incurred by the Iowa DOT that were: a) necessary to meet said deadline; or b) necessary to complete said project after said deadline. This shall not be the exclusive remedy and the Iowa DOT reserves the right to pursue other remedies available to it by law or under the terms of the agreement.

C. General

1. **Administrative Rules:** For Additional details on the rules governing the actions of the Iowa DOT Purchasing Section, refer to 761 IAC, Chapter 20, Iowa Administrative Code, entitled "Procurement of Equipment, Materials, Supplies and Services".
2. **Affirmative Action:** The Contractor (and also subcontractor, vendor or supplier) is prohibited from engaging in discriminatory employment practices forbidden by federal and state law, executive orders and rules of the Iowa Department of Management, pertaining to equal employment opportunity and affirmative action. Contractor may be required to have a copy of their affirmative action program on file, containing goal and time specifications. Contractors doing business with Iowa in excess of \$5,000 annually and employing 50 or more full time employees may be required to file with the Iowa Department of Management a copy of their affirmative action plan. Failure to fulfill these non-discrimination requirements may cause the contract to be canceled and the contractor declared ineligible for future state contracts or subject to other sanctions as provided by law or rule.
3. **Applicable Law:** The contract shall be governed under the laws of the State of Iowa. The contractor shall at all times comply with and observe all federal and state laws, local laws, ordinances, and regulations which are in effect during the period of a contract and which in any manner affect the work or its conduct. Any legal action relating to a contract shall only be commenced in the Story County, Iowa, District Court or the United States District Court for the Southern District of Iowa.
4. **Conflict of Interest:** No state or county official or employee, elective or appointive shall be directly or indirectly interested in any contract issued by the Iowa DOT, see Code of Iowa 314.2.
5. **Debarment and Vendor Suspension:** By submitting a proposal, the contractor is certifying that it and its principals and/or subcontractors are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by the State of Iowa or any Federal department or agency.
6. **Equal Opportunity:** Firms submitting bids must be an "Equal Opportunity Employer" as defined in the Civil Rights Act of 1964 and in Iowa Executive Order Number Thirty-four.
7. **Indemnification-Goods:** To the extent the goods are not manufactured in accordance with Iowa DOT's designs, Supplier shall defend, indemnify and hold harmless Iowa DOT, its assignees, and other users of the goods from and against any claim of infringement of any letters patent, trade names, trademarks, copyright or trade secrets by reason of sale or use of any articles purchased. Iowa DOT shall promptly notify Supplier of any such claim.
8. **Infringement:** Goods shall be delivered free of the rightful claim of any third party by way of infringement. Contractor shall indemnify and save harmless the State of Iowa and the Iowa DOT against all claims for infringement of, and/or royalties claimed under, patents or copyrights on materials and equipment furnished under this bid.
9. **Iowa Open Records Law:** All Bid Responses are subject to terms and provisions of Iowa Code Chapter 22 Examination of Public Records (Open Records), specifically 22.7- Confidential Records.

10. **Records Audit:** The contractor agrees that the Auditor of the State of Iowa or any authorized representative of the state, and where federal funds are involved, the Comptroller General of the U.S. Government, shall have access to and the right to examine, audit, excerpt, and transcribe any directly pertinent books, documents, papers, and records of the contractor relating to orders, invoices, or payments of a contract or purchase order.
11. **Targeted Small Businesses:** The Iowa DOT seeks to provide opportunities for women and/or minority small business enterprises. To apply for certification as an Iowa Targeted Small Business, contact the Iowa Department of Inspection and Appeals (515-281-5796). Contractors shall take documented steps to encourage participation from Targeted Small Businesses for the purpose of subcontracting and supplying of goods or services or both.
12. **Taxes:** Prices quoted shall not include state or federal taxes from which the state is exempt. Exemption certificates will be furnished upon request.
13. **Termination:**
 - **Termination Due to Lack of Funds or Change in Law**

The Iowa DOT shall have the right to terminate this Contract without penalty by giving thirty (30) days written notice to the vendor as a result of any of the following:

 - Adequate funds are not appropriated or granted to allow the Iowa DOT to operate as required and to fulfill its obligations under contract.
 - Funds are de-appropriated or not allocated or if funds needed by the Iowa DOT, at the Iowa DOT's sole discretion, are insufficient for any reason.
 - The Iowa DOT's authorization to operate is withdrawn or there is a material alteration in the programs administered by the Iowa DOT.
 - The Iowa DOT's duties are substantially modified.

Following a 30 day written notice, the Iowa DOT may terminate a binding agreement in whole or in part without the payment of any penalty or incurring any further obligation to the Supplier. Following termination upon notice, the Supplier shall be entitled to compensation upon submission of invoices and proper proof of claim for goods and services under contract up to and including the date of termination.

RFB15823
Letting Date February 10, 2016
Schedule of Prices

Contractor to provide all labor, equipment and materials necessary to complete the tree clearing and grubbing of trees as per attached drawings.

Item No.	Description	Quantity	Unit/Price	Total Bid Amount
1	Clearing & Grubbing 622 units a. 20.5" diameter tree = 22 UNITS b. 45.5" diameter tree = 120 UNITS c. 66" diameter tree = 200 UNITS d. 81.5" diameter tree = 280 UNITS	I Job	Lump/Sum	\$ _____
2	Traffic Control	I Job	Lump/Sum	\$ _____
3	Mobilization	I Job	Lump/Sum	\$ _____
	Total Job			\$ _____

I hereby certify that this Bid Response meets or exceeds the minimum requirements including specifications and addendums.

Contact Person: _____

(Print Name)

Authorized Signature: _____

Company: _____

Address: _____

(City) (State) (Zip Code)

Phone No: _____

Email: _____

Contractors
Registration Number _____

I acknowledge receipt of addendums: _____

HENRY ST.

873
878

874

875
878

BEGIN PAVEMENT REMOVAL
BEGIN SIDEWALK REMOVAL
STA. 872+57.66 OFFSET -45.30

SIDEWALK REMOVAL LIMITS
STA. 872+72.11 OFFSET -45.21

SIDEWALK REMOVAL LIMITS
STA. 872+72.05 OFFSET -36.19

SIDEWALK REMOVAL LIMITS
STA. 872+80.75 OFFSET -36.13

SIDEWALK REMOVAL LIMITS
STA. 872+80.75 OFFSET -34.75

END PAVEMENT REMOVAL
STA. 872+63.48 OFFSET -30.23

END DRIVEWAY REMOVAL
AT THE BACK OF CURB

BEGIN PAVEMENT REMOVAL
STA. 873+58.11 OFFSET -24.25

BEGIN DRIVEWAY REMOVAL
STA. 874+20.09 OFFSET -44.00

END PAVEMENT REMOVAL
STA. 875+42.89 OFFSET -37.27

END SIDEWALK REMOVAL
STA. 875+41.08 OFFSET -34.61

END DRIVEWAY REMOVAL
AT BACK OF CURB

BEGIN PAVEMENT REMOVAL
STA. 875+30.80 OFFSET -26.67

END PAVEMENT REMOVAL
STA. 873+98.88 OFFSET -24.25

MARYVILLE ST. (US 52)

BEGIN PAVEMENT REMOVAL
STA. 872+66.31 OFFSET 25.24

1) Tree to be removed
Sta. 873+08.25, 24' RT
20.5" Diameter = 22 UNITS

END DRIVEWAY REMOVAL
AT THE BACK OF CURB

REMOVE WALKWAY

BEGIN PAVEMENT REMOVAL
STA. 875+34.45 OFFSET 23.35

BEGIN SIDEWALK REMOVAL
STA. 872+71.25 OFFSET 36.66

END PAVEMENT REMOVAL
STA. 872+58.15 OFFSET 36.22

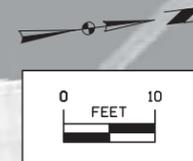
END SIDEWALK REMOVAL
STA. 875+42.74 OFFSET 30.60

END PAVEMENT REMOVAL
STA. 875+45.32 OFFSET 35.19

E. NORTH ST.

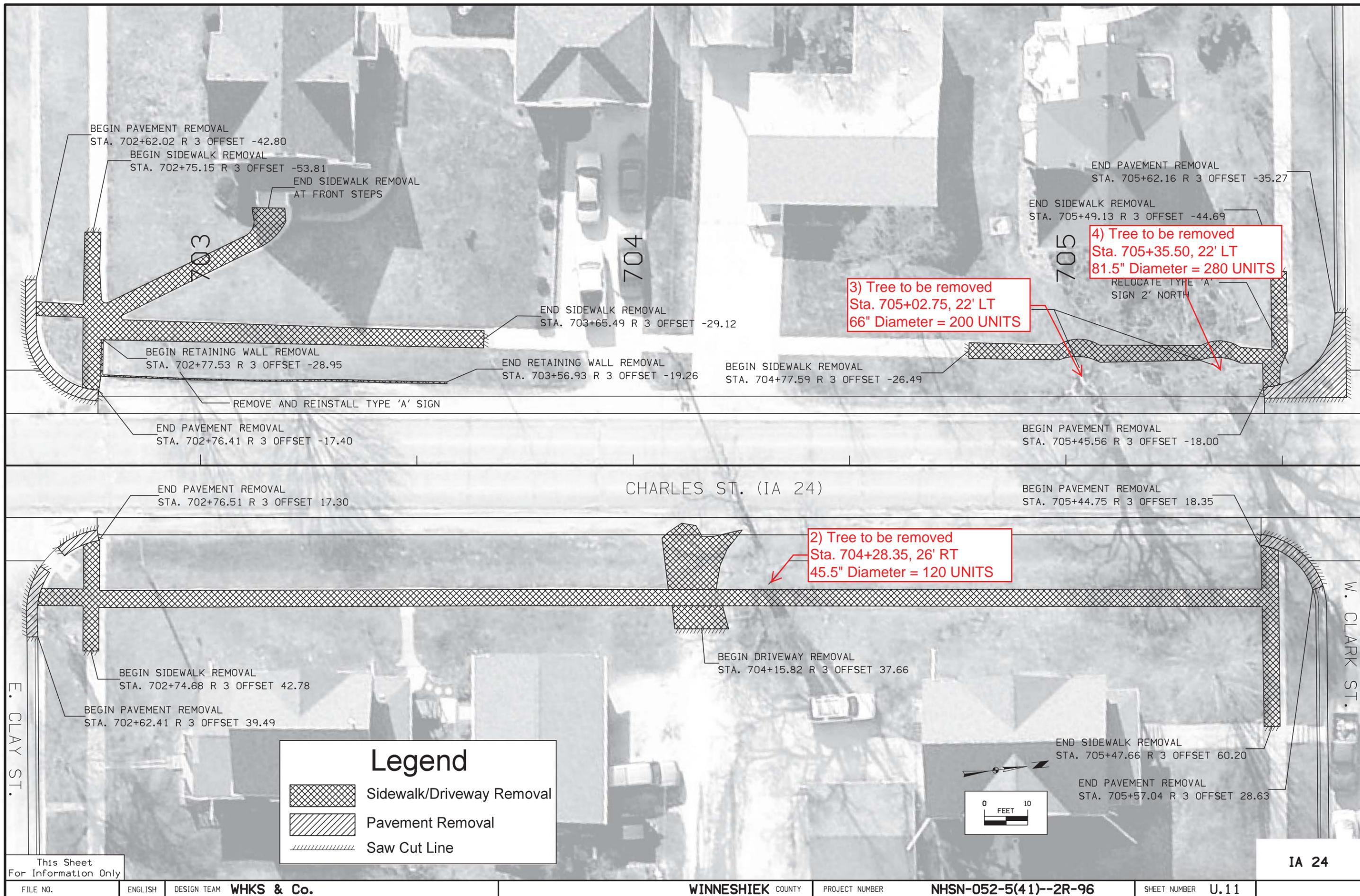
Legend

-  Sidewalk/Driveway Removal
-  Pavement Removal
-  Saw Cut Line



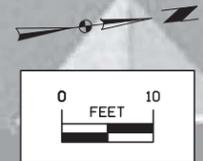
This Sheet
For Information Only

US 52 N.



Legend

- Sidewalk/Driveway Removal
- Pavement Removal
- Saw Cut Line



This Sheet For Information Only

IA 24

Section 1 Introduction & Bidding Information

1.1 Purpose

The purpose of this Request for Bid (RFB) is to solicit bids from responsible, responsive bidders to provide the goods and/or services identified and described below and specifically in Section 2 of this solicitation.

Overview The Iowa DOT is seeking qualified bidders to provide all labor, equipment, and materials necessary to complete the tree clearing and grubbing per attached drawing, while following all necessary Iowa DOT Specifications and Standard Road Plans.

1.2 General

The owner of goods and/or services sought shall be the Iowa Department of Transportation.

1.2.1 Project Location: Winneshiek County in the City of Calmar on US 52 and IA 24.

1.2.2 Issuing Agent

The Issuing Agent, identified on the Bid Response page is the sole point of contact regarding the RFB from the date of issuance until the notice of intent to award is issued (selection of the successful Bidder).

1.2.3 RFB posted on the Internet

Bidders are required to visit the Iowa DOT's website at www.iowadot.gov/purchasing/lettingschedule periodically for any and all addendums or other pertinent information regarding this solicitation.

The Iowa DOT must receive bids either **electronically or by standard mail on or before** the deadline on the Bid Response cover page.

Bidders must furnish all information necessary to be considered for award. Bids that fail to meet the mandatory requirements of the RFB may be disqualified. Verbal information provided by Bidders shall not be considered part of the Bidder's bid response.

1.2.4 Clarification

If additional information is needed to interpret specifications found in Section 2 or any other part of the solicitation, written questions sent electronically will be accepted by the issuing office until end of business day Friday, February 5, 2016.

The Iowa DOT reserves the right to contact Bidders after receiving bids for the purpose of clarification to ensure mutual understanding.

1.2.5 Responsiveness

The detailed requirements set forth in Section 2 shall be considered mandatory unless indicated otherwise.

1.2.6 Incurring Costs

The costs of preparation and delivery of a bid are solely the responsibility of the Bidder. No payments shall be made by the Iowa DOT to cover costs incurred by any Bidder for the preparation of any bid.

Section 2 General Requirements & Specifications

2.1 Purpose

The Iowa DOT is seeking qualified bidders to provide tree removal services in Winneshiek County in the City of Calmar on US 52 and IA 24.

Scope of Work/Project Description:

Contractor to provide all labor, equipment, and materials necessary to complete the tree clearing and grubbing while following all Iowa DOT Specifications and Standard Road Plans.

- Trees are to be cut and removed before March 31, 2016 and can be seen in the attached sheets.
- Removed trees are to become property of the contractor for proper disposal.
- Contractor shall make property owner contacts prior to tree removal.

Interruptions to traffic or lane closures require a 10 day notice to CARS 511. Successful bidder will be required to complete attached information for 511 Notification.

All work must be coordinated with IA DOT point of contact Nick Humpal. Phone 641-422-9446 or email nickolas.humpal@dot.iowa.gov.

Section 3 Supplemental Terms & Conditions

3.1 Contract Award

It is the intent of the Iowa DOT to award the contract to the responsible bidder whose submitted quotation is the most advantageous to the Iowa DOT, cost and other factors considered. Other factors include, but are not limited to: meeting or exceeding mandatory requirements, proposed staffing, and meeting required time schedule.

3.2 Contractor's Insurance Requirements

The resulting Contract will require the successful Contractor to maintain insurance coverage(s) of the type and in the amounts set forth below.

It shall be the Contractor's responsibility to have liability insurance covering the entire project operations incident to contract completion and the Contractor(s) must have on file with the Contracting Authority a current "Certificate of Insurance" prior to award of contract. The certificate shall identify the insurance company firm name and address, contractor firm name, policy period, type of policy, limits of coverage, and scope of work covered (single contract or statewide). This requirement shall apply with equal force, whether the work is performed by persons employed directly by the Contractor(s) including a subcontractor, persons employed by a subcontractor(s), or by an independent contractor(s).

The liability insurance shall be written by an insurance company (or companies) qualified to do business in Iowa. For independent contractors engaged solely in the transportation of materials, the minimum coverage provided by such insurance shall be not less than that required by Chapter 325A, Code of Iowa, for such truck operators or contract carriers

as defined therein. For all other contractors, subcontractors, independent contractors, and the Contracting Authority, the minimum coverage by such insurance shall be as follows:

- *General Liability* including Contractual Liability;
- Contingent Liability;
- Damage; Occurrence Basis Bodily Injury; Broad Form Personal Injury; Broad Form Property Damage.

Bodily Injury

The contractor will purchase and maintain throughout the term of this contract the following minimum limits and coverage:

- | | |
|----------------------------|-----------|
| • Each person | \$750,000 |
| • Each accident/occurrence | \$750,000 |
| • Workers Compensation | \$750,000 |
| • Statutory Limits | \$750,000 |
| • Employer's liability | \$750,000 |
| • Pollution Liability | \$750,000 |
| • Occupation Disease | \$750,000 |

Operations

Property Damage \$250,000 each occurrence

The Contractor shall require all subcontractors meet the above insurance requirements.

The Certificate of Insurance must include the following;

- Iowa Department of Transportation must be listed as an additional insured
- Proposal Number
- Proposal Description
- Bid opening date and contract period

Section 2101. Clearing and Grubbing

2101.01 DESCRIPTION.

- A. **Clearing:** Cut and remove trees 3 inches or more in diameter. Cutting shall be performed between October 1st and March 31st.
- B. **Grubbing:** Remove stumps, including roots, to a depth of at least 12 inches.
- C. **Removal of Logs and Down Timber:** Remove logs and down timber encountered on the work.
- D. **Hedge Removal:** Pull or grub hedge fences of Osage Orange or shrubs planted close together in rows. If any individual tree, of those composing a hedge, has a diameter greater than 6 inches, it will be measured separately as a tree.
- E. **Brush and Shrub Removal:** Pull or grub trees and shrubs less than 3 inches in diameter, including roots, which are not classified as hedge.
- F. **Removal of Growing Corn:** Cut stalks to a maximum height of 5 inches above the ground, remove the stalks, and thoroughly disk the corn stubble.
- G. **Vegetation and Rubbish Removal:** Remove vegetation and all rubbish encountered on the right-of-way.
- H. **Field Fence:** Remove field fence from the project.

2101.02 MATERIALS.

None.

2101.03 CONSTRUCTION.

- A. Remove woody and other herbaceous vegetation, field fences, and rubbish from the right-of-way and from borrow pits furnished by the Contracting Authority. Do not remove field fences, trees, shrubs, and grasses that are to be preserved as indicated in the contract documents or as designated by the Engineer.
- B. Unless shown otherwise in the contract documents or ordered by the Engineer, clear and grub the area within the need line, or the entire right-of-way including borrow pits and the area covered by embankments. All of this material which is removed from the project remains the property of the Contractor.
- C. Material from clearing and grubbing may be burned according to 567 IAC 23.2 and additional local ordinances. The unburned materials may be buried on State of Iowa right of way at locations approved by the Engineer.
- D. Material from clearing and grubbing may be processed by such means as chipping of logs, down timber, or brush, for mulching material, or salvaging of logs and down timber for firewood. Other vegetation including corn stubble may be disked into the existing ground surface.
- E. Haul the materials from clearing and grubbing (other than field fence) that are not handled on the project to a "yard waste" landfill.
- F. Remove field fence from the project. Field fence may be deposited in an appropriate landfill.

2101.04 METHOD OF MEASUREMENT.

Measurement for Clearing and Grubbing, removal, and clean-up of other material in units (calculated to the nearest 0.1 unit) or by area will be as follows:

A. Units.

- 1. Clearing and Grubbing will be the quantity shown in the contract documents.
 - a. Trees 3 inches in diameter or greater will be counted and the circumference will be measured at a height of 18 inches above the ground. The diameter will be calculated by measuring the circumference to the nearest inch and dividing by 3.14. See Table 2101.04-1 for identification of units per tree for clearing, grubbing, and clearing and grubbing.
 - b. Stumps 3 inches in diameter or greater will be counted and the diameter, in inches, calculated by determining the average diameter at cutoff. See Table 2101.04-1 for identification of units per stump for grubbing.

- c. Logs and down timber 3 inches in diameter or greater will be measured in a manner similar to that used for trees. Measurement will be at a point 18 inches from the end of the log with greatest diameter or 18 inches from the base of the tree for down timber for clearing. See Table 2101.04-1 for identification of units per log and down timber for clearing.
 - d. Hedge rows will be measured in linear feet and converted to units using a rate of 30 units per station of hedge row.
 - e. Brush will be measured in square feet and converted to units by using a rate of 0.8 units per 100 square feet of brush.
 - f. Growing corn will be measured in square feet and converted to units by using a rate of 0.2 units per 100 square feet of growing corn.
 - g. Vegetation removal will not be measured for payment.
 - h. Field fence removal, included in clearing and grubbing, will be measured in stations and converted to units at a rate of 6.0 units per station of fence.
2. For each tree or stump counted as identified in [Articles 2101.04, A, 1, a; b; and c](#), units will be determined as identified in Table 2101.04-1.

Table 2101.04-1: Clearing and Grubbing Units

Size Diameter	Unit		
	Clearing	Grubbing	Clearing and Grubbing
3 in. to 6 in. inclusive	0.5	1.1	1.6
Over 6 in. to 9 in. inclusive	1.1	2.8	3.9
Over 9 in. to 12 in. inclusive	1.9	4.8	6.7
Over 12 in. to 15 in. inclusive	2.8	6.6	9.4
Over 15 in. to 18 in. inclusive	4.7	8.8	13.5
Over 18 in. to 24 in. inclusive	8.4	13.6	22.0
Over 24 in. to 30 in. inclusive	11.4	17.6	29.0
Over 30 in. to 36 in. inclusive	22.0	28.0	50.0
Over 36 in. to 42 in. inclusive	30.0	50.0	80.0
Over 42 in. to 48 in. inclusive	40.0	80.0	120.0
Over 48 in. to 60 in. inclusive	60.0	100.0	160.0
Over 60 in. to 72 in. inclusive	80.0	120.0	200.0
Over 72 in.	120.0	160.0	280.0

B. Area.

- 1. The area in acres will be based on that shown in the contract documents, computed from a need line, or computed from a right-of-way line if the limits are not shown for this item in the contract documents.
- 2. Within these limits, an item for clearing and grubbing in units will not be measured for payment.

2101.05 BASIS OF PAYMENT.

Payment for Clearing and Grubbing, removal of trees, stumps, logs and down timber, hedge rows, brush, field fence, and growing corn will be made at the contract unit price per unit or per acre as indicated below. If the Contractor is required to save material less than 6 inches in diameter or to process material saved to an extent greater than is necessary to produce neat piles, this extra saving and processing is considered extra work and payment will be as provided in [Article 1109.03, B](#). Removal and disposal of household rubbish and other nonhazardous rubbish is considered extra work and payment will be as provided in [Article 1109.03, B](#).

A. Units.

Number of units satisfactorily completed.

- B. Area.**
Number of acres satisfactorily completed.

Section 2528. Traffic Control

2528.01 DESCRIPTION.

A. General.

1. This section describes various materials, equipment, and procedures involved in traffic control during construction. The Contractor and the Contracting Authority have certain responsibilities, whether public traffic is allowed or is prohibited during construction. Apply [Article 1107.09](#).
2. The contract may include an item for traffic control. In this case furnish, erect, operate, maintain, move, and remove all traffic control devices required by the contract documents.
3. The contract may indicate that traffic control is incidental. In this case the Contracting Authority will furnish all signs and traffic control devices, except pilot car and flaggers' signs, and all Type III barricades, and associated mounting devices. Furnish all other traffic control devices required. Erect, operate, maintain, move, and remove all traffic control devices. Signs and barricades to be furnished by the Contracting Authority will be made available at a nearby maintenance site. Return the signs and barricades when no longer needed.
4. The contract documents may specify orange mesh safety fence be used in conjunction with other traffic control devices as part of the project traffic control requirements. Use orange mesh safety fence meeting the requirements of Article 4188.03. Securely support the fence so it is in a vertical position without any sagging. Locate and place the safety fence supports so they are not a safety hazard.
5. Ensure all traffic control complies with the current edition of the MUTCD, Part 6 as adopted by the Department.
6. On Interstate and Primary Road projects, use crashworthy Category I and Category II traffic control signs and devices that meet NCHRP Report 350.
7. Upon request provide the following to the Engineer for the purpose of documenting the crashworthiness of Category I and Category II signs and traffic control devices:
 - a. The vendor's self-certification for Category I traffic control devices.
 - b. FHWA NCHRP Report 350 approval memos for Category II signs and traffic control devices.
8. A list of approved Category II traffic control devices is found on the World Wide Web at the following URL: http://safety.fhwa.dot.gov/roadway_dept/policy_guide/road_hardware/wzd/.
9. Gender specific signs, such as FLAGMAN and MEN WORKING, will not be allowed. Use neutral gender signs, for example FLAGGER, or equivalent symbol signs.
10. Provide 10 calendar days advance notification of a pedestrian path closure to the following:
 - ~~Iowa Department of the Blind: Director's Office, telephone: 515.281.1336, website: www.blind.state-ia.us~~
 - National Federation of the Blind of Iowa: President, telephone: 319.321.8769, email address: donna.prime@nfb.org.
 - Engineer

B. Monitoring With Incident Response.

1. Provide 24 hour per day continuous monitoring of traffic control devices and incident response for emergency situations on projects during complex traffic situations as defined in the contract documents. The contract documents will identify projects requiring monitoring with incident response. Ensure a vehicle and operator traverses the project throughout the entire traffic control zone at all times, except for refueling and short rest breaks no greater than 15 minutes in duration.
2. Furnish this work according to the contract documents any time that signs, barriers, barricades, or other traffic control devices are in place during complex traffic situations.
3. Provide a vehicle and operator for this work as follows:

a. Equipment.

- 1) Meet the following requirements:
 - a) 3/4 ton pickup truck or another similar vehicle.
 - b) Contractor's insignia on the vehicle.
 - c) Adequate weight and power and suitably equipped to move stalled automobiles or pickup trucks.
 - d) Equipped with an amber revolving light or amber strobe light visible in all directions and a cellular telephone or similar type of mobile phone.
 - e) Capable of carrying traffic signs, tools, traffic control devices, and other necessary equipment.
- 2) When used on projects where more than one lane in one direction is maintained at all times, ensure this vehicle is also be equipped with a Type C arrow panel as described in Article 2528.03, G, mounted to be visible to traffic approaching from behind.

b. Operation.

- 1) Furnish an operator for the vehicle. Ensure the operator re-erects, repairs, or replaces defective devices immediately upon discovery.
- 2) Have the operator:
 - a) Be available to assist persons with vehicle problems and move automobiles, pickup trucks and other obstructions so as to keep all travel lanes and shoulders available for public traffic.
 - b) Continue assistance to motorists and involvement with obstructions until they are no longer an impediment to traffic and further assistance can be provided safely by others.
 - c) Assist motorists or remove obstructions promptly and safely when a vehicle or anything else is obstructing a travel lane or shoulder intended to be clear.
 - d) Summon further assistance if needed.
 - e) Keep a report of any events that restrict the normal traffic flow during complex operations, including responses to emergency situations, on forms provided by the Engineer. Provide the Engineer with a copy of this report daily.
- 3) During anticipated peak traffic times, the Engineer may direct the Contractor to provide additional monitoring personnel.

C. Traffic Quality Control.

1. Maintain a Traffic Control Technician on staff, even though the traffic control portion of the contract may be subcontracted. The Traffic Control Technician is required to have attended and passed the exam in an ATSSA Traffic Control Technician, IMSA Work Zone Traffic Control, Minnesota DOT Traffic Control Supervisor training class, or Texas Engineering Extension Service Work Zone Traffic Control training class. This Traffic Control Technician is responsible for overall management of the Contractor's quality control program for traffic control.
2. On a daily basis as the project is constructed, perform the following quality control work associated with monitoring and documenting traffic control conditions:
 - a. Review all traffic control operations for compliance with contract documents and maintain a project traffic control daily diary in a format provided by the Contracting Authority. Submit this diary to the Engineer. It will become a part of the Contracting Authority's permanent project records. The Engineer may require submission of completed portions of the daily diary at routine intervals during construction of the project. In the diary include:
 - Listing and station location of traffic control used each day referenced to the appropriate Standard Road Plan, project plan sheet, etc.,
 - All reviews of traffic control devices and operations, whether satisfactory or unsatisfactory, and corrections made,
 - Approved changes to the contract document's traffic control,
 - Incidentals affecting the efficiency and safety of traffic, and
 - A daily list of trained flaggers used, including hours worked.
 - b. Monitor traffic operations and submit proposed Traffic Control Plan changes to the Engineer for approval.
 - c. Coordinate all changes to the Traffic Control Plan.
 - d. Coordinate all traffic control operations, including those of subcontractors and suppliers.

2528.02 MATERIALS.

Use materials meeting the requirements of Part 6 of the MUTCD and [Division 41](#) for the respective traffic control signs and devices.

2528.03 SIGNS AND DEVICES.

A. Signs.

1. Furnish signs that are of the size and type shown in the contract documents and use retroreflective sheeting meeting the requirements of [Article 4186.03](#).
2. For Interstate and Primary projects, furnish diamond shaped warning signs that are 48 inches by 48 inches unless specified otherwise in the contract documents.
3. For traffic control zones in duration for 4 calendar days or more, mount signs on fixed posts.
4. Signs for traffic control zones in duration for less than 4 calendar days may be mounted on moveable skids or fixed posts.
5. Meet the following requirements for fixed post mounted signs:
 - a. Sign sheeting applied to rigid wood or metal.
 - b. Mounted at a height of at least 7 feet, measured from the bottom of the sign to the near edge of the pavement. A secondary sign on the same post may be mounted 1 foot lower than specified above.
 - c. A clear distance 2 feet behind a curb or beyond the edge of the shoulder.
6. Meet the following requirements for moveable skid mounted signs:
 - a. Flexible roll-up sheeting or other skid mounted sign systems that meet NCHRP 350 requirements.
 - b. Mounted at a height of at least 1 foot above the roadway.
7. Ensure mounting devices are not so substantial as to be a hazard to vehicles. Meet the following requirements for posts mounted in existing soil:
 - a. Wood sign supports meeting the materials requirements of [Article 4164.04](#).
 - b. 3.0 pounds per foot U-shaped rail steel posts.
 - c. 2 1/4 or 2 1/2 inch square 12 gage perforated steel tubing.
8. Dual-post and triple-post configurations using these sign supports are acceptable provided that no more than two posts occupy any 8 foot wide path. Bracing of these posts will not be permitted. Posts exceeding these requirements shall have breakaway features approved by the Engineer.
9. Ensure signs are in a condition so they are effective for the intended purposes when viewed from a vehicle. For nighttime installations, ensure the reflectance is adequate so that the message is clearly readable. Ensure signs are maintained in a near vertical position.
10. When indicated in the contract documents, use supplemental sign flags in conjunction with work zone signing. Use sign flags 16 inches square and sheeted with red Type IV retroreflective sheeting meeting requirements of [Article 4186.03](#).
11. On projects where two new lanes are being constructed adjacent to an existing two lane highway, place TWO WAY TRAFFIC (W6-3) signs. Place them off the right shoulder of mainline: 1) after each public side road for each direction of travel for traffic that may enter from all intersecting side roads; or 2) at 1/2 mile intervals, whichever is less. Install these signs when grading activities start and leave in place until the entire four lane divided highway is opened to traffic. If the pavement is constructed under a separate contract, leave these signs in place after the grading contract is completed. They become the property of the Contracting Authority. The paving contractor then takes over these signs and removes them when the four lane divided highway is opened to traffic. Payment will be according to [Article 2528.05, A](#).
12. When directed by the Engineer, cover or remove permanent signing that conveys a message contrary to the message of the temporary signing and not applicable to the working conditions.
13. The END ROAD WORK (G20-2) sign may be eliminated for mobile or short duration (less than 1 hour) temporary traffic control zones.

B. Portable Dynamic Message Signs

Furnish, place, operate (when specified), and maintain Portable Dynamic Message Sign (PDMS) meeting requirements of [Article 4188.07](#) at locations shown on the plans. The Contractor maintains possession of PDMS upon completion of the project.

1. Testing and Configuration.

- a. Physical and electronic access to PDMS shall be granted to the Engineer.
- b. On Interstate and Primary projects:
 - 1) At least one week before PDMS is deployed to a project, a testing and configuration meeting with the Engineer shall be held.
 - 2) The Engineer, in conjunction with the Contractor, will perform necessary configuration adjustments to the PDMS and cellular modem to allow remote control by the Contracting Authority's NTCIP software.

2. Remote Operation.

- a. On Interstate and Primary projects, the Department will remotely operate signs through use of a modem and NTCIP software.
- b. Contracting Authority will use their own NTCIP compliant software to activate messages, check sign's status, and perform diagnostic tests.
- c. Anytime during the project, the Engineer may remotely activate a message on the PDMS. Any message placed on the PDMS shall not be removed or replaced by the Contractor unless requested by the Engineer.

3. Direct Operation.

- a. On Secondary road projects, PDMS will be operated directly by either the Contractor or the Engineer.
- b. The Engineer may request the Contractor to operate PDMS for advance traffic notification and warning. Authority to operate PDMS will be under the direction of the Engineer. The Contractor may only operate the PDMS to display messages authorized by the Engineer.
- c. Promptly program and/or reprogram the computer to provide the messages as directed by the Engineer.

4. Maintenance.

- a. Provide preventive maintenance necessary to achieve uninterrupted service.
- b. On Interstate and Primary projects, Engineer will perform remote diagnostic tests of sign's operational status each morning and notify Contractor when a problem is detected.
- c. On Secondary road projects, verify operational status each morning and notify Engineer when a problem is detected.
- d. Provide unscheduled maintenance or total replacement of sign when sign is unable to display a message adequately within 24 hours of notification. Action shall be taken to resolve the following problems if they have been visually observed or confirmed by self diagnostics by the PDMS for three continuous days or seven intermittent days over a two week period.
 - 1) An entire pixel board is showing failure.
 - 2) Five or more pixel failures over entire message panel anytime while sign is deployed for use (blank or displaying a message).
 - 3) Two or more pixel failures in any character when displaying a message.
- e. If service is not restored within 24 hours, Engineer will cause such work to be performed as may be necessary to provide this service. The cost for this restoration shall be borne by the Contractor.

C. Channelizing Devices.

1. Use Channelizing Devices that are of the type shown in the contract documents. Use reflective sheeting meeting the requirements of [Article 4186.03](#).
 - a. **Barricades.**
 - 1) A 2 foot minimum length barricade may be used when Type I or Type II Barricades are furnished as one of the options for channelizing devices in lieu of vertical panels, 42 inch channelizers, cones, or drums.
 - 2) Ensure Type III barricades have a minimum length of rail of 6 feet. When traffic is permitted in each direction around a Type III Barricade, ensure the Type III Barricade used has fully reflectorized faces on both sides of the rails.

- 3) Erect barricades in essentially a horizontal position perpendicular to the direction of approaching traffic. Ballast them so as not to cover any striped rail.
- b. Cones, Vertical Panels, 42 Inch Channelizers, Drums, and Tubular Markers.**
- 1) Ensure cones, vertical panels, 42 inch channelizers, drums, and tubular markers meet the current requirements of the MUTCD, and [Section 4188](#).
 - 2) When used to separate two way traffic, separate temporary no passing lines approximately 16 inches, with the marker to be installed between these lines.
 - 3) Ensure tubular markers meet the following:
 - a) A nominal 36 inch height.
 - b) Diameter facing traffic at least 2 inches in width.
 - c) Completely faced with reflectorized white and orange sheeting that is in two bands 4 inches wide with 6 inches between bands, with the top band no more than 2 inches from the top of the tubular marker.
 - 4) Cones may be used as channelizing devices in tapers and along lane lines during daylight hours only.
 - 5) 42 inch channelizers may be used in place of drums in work areas remaining in place for up to three days. Spacing of channelizers shall be half the spacing required for drums or double the number of drums required.
- c. Temporary Lane Separator System.**
- 1) **Installation.**
Install according to the manufacturer's recommendations.
 - 2) **Maintenance.**
Repair or replace all damaged curb units or posts no later than 24 hours after the damage is reported to the Contractor.
 - 3) **Removal.**
 - a) Upon completion of the project, the temporary lane separator system will remain the property of the Contractor for systems used in temporary traffic control zones. When placed as part of a permanent installation, the system will become the property of the Contracting Authority.
 - b) Repair all holes left in the pavement or bridge deck when the temporary lane separator system is removed. Holes shall be filled with a non shrink grout meeting the requirements of [Materials I.M. 491.13](#).
2. Channelizing devices may be placed up to 2 feet beyond centerline or lane line at specific locations where actual work activity is taking place. Return channelizing devices to the original position when the work activity has passed.
 3. Individual channelizing devices may be omitted during working hours in areas where placement interferes with the work. Channelizing devices on tapers are required at all times.
 4. Do not intermix channelizing devices of different types.
 5. For pedestrian path closures, use Type III Barricades to block the full width of the pedestrian path. Mount a SIDEWALK CLOSED (R9-9) sign to at least one of the Type III barricades at each closure.
- D. Pilot Cars.**
1. Pickup trucks or automobiles displaying the Contractor's company insignia, equipped with G20-4 signs reading: PILOT CAR - FOLLOW ME. Ensure two signs are mounted on the vehicle so as to be clearly visible from both directions of traffic. Mount the signs so the bottoms are at least 1 foot above the top of the vehicle's roof.
 2. Operate pilot cars such that they maintain a uniform speed through the work area, no greater than 40 miles per hour.
- E. Temporary Barrier Rail.**
Use temporary barrier rail as shown in the contract documents. Unless shown otherwise, use precast concrete units. Tie the units together as specified or as approved by the Engineer.
- F. Modular Glare Screens.**

1. When specified in the contract documents furnish, install, and maintain a modular glare screen system on the top of concrete barrier rail according to the contract documents and the modular glare screen system manufacturer's instructions. Furnish a system consisting of modular base rails attached to the top of concrete barrier rail with blades evenly spaced and securely mounted to the base rails. Ensure the following:
 - Modular base rails and glare screen blades are compatible so the base unit and blades can be securely attached to each other.
 - Base rails and blades supplied are manufactured by the same manufacturer.
 - The length of individual modular base rails is no longer than the nominal length of individual temporary concrete barrier rail sections.
 - The width of the modular base rails is no wider than the top width of the concrete barrier rail.
 - Glare screen blades are FHWA highway green in color and made of impact resistant non-metallic high density plastic material.
 - Blade height is from 24 inches to 30 inches and width is from 6 inches to 9 inches.
 - The same uniform sized blades are used throughout the work.
 - The modular glare screen system is manufactured by a company on the approved manufacturer's list in [Materials I.M. 486.06, Appendix A](#).
2. Install the modular glare screen system according to the manufacturer's instructions and the approval of the Engineer. Install the system so that:
 - It is centered along the longitudinal axis length of the top of the concrete barrier rail.
 - The overhang of the base rails, blades, and associated assembly over the edges of the top of the concrete barrier rail is kept to a minimum.
 - The modular base rails are flush with the top of the concrete barrier rail and they do not extend over the joints between concrete barrier rail sections. A maximum gap between base rails across barrier rail gaps shall be 12 inches.
3. Install glare screen blades so the combination of blade width and spacing provide for a minimum 22 degree sight cut-off angle.
4. Glare screen blades shall be free from reflective sheeting or other modifications and shall be consistent in appearance.
5. Maintain the modular glare screen throughout the work. Replace or repair damaged parts of the modular glare screen system, as soon as practical, at no additional cost to the Contracting Authority.
6. When moving temporary barrier rail with a modular glare screen system, the Contractor may temporarily remove base rails and glare screen blades, if necessary, to assist in the moving. Reinstall the removed base units and glare screen blades as soon as the temporary concrete barrier rail has been moved to its new location.
7. Perform final removal of the modular glare screens from the concrete barrier rail when directed by the Engineer. Upon removal, ensure there are no protrusions on the top of the concrete barrier rail.
8. Upon completion of the work, the Contractor retains ownership of the modular glare screen system.

G. Lighting Devices.

1. Furnish lighting devices as required by the contract documents. Type A barricade warning lights will normally be required for nighttime installations. Type B warning lights will normally be required for 24 hour operation.
2. Use barricade warning lights that comply with the ITE Standard for Flashing and Steady Burn Barricade Warning Lights and are identified as such. In addition, use Type A barricade warning lights that:
 - Operate on a 12 volt battery system, unless the ITE identification specifically indicates that the rating is based on a different system, and
 - Are visible to both directions of traffic.
3. When arrow displays are used, furnish Type C arrow displays described in the current edition of the MUTCD, Part 6, and operate them in a sequential chevron mode when indicating a lane change.

H. Temporary Traffic Signals.

1. General.

- a. Set up and operate temporary traffic signals as shown in the contract documents. Ensure the temporary traffic signal system meets the physical display and operational requirements of conventional traffic signals as specified in Part 4 of the MUTCD. Unless stated otherwise in the contract documents, either a span wire or trailer mounted temporary traffic signal system may be provided.
- b. In the event any part of the temporary traffic signal system malfunctions or a continuous red flash mode is encountered, furnish flaggers on a 24 hour/7 day a week basis until repairs are made and the signals are fully functional. For temporary traffic signals at intersections, install stop signs on all approaches until the signals are fully operational, at no additional cost to the Contracting Authority.

2. Equipment.

a. Trailer or Span Wire Mounted Systems.

- 1) Furnish actuated signal controllers complying with NEMA and ITE standards. Ensure the temporary traffic signal system complies with the following:
 - a) Includes a solid state digital traffic signal controller capable of operating the signals according to MUTCD requirements and NEMA Standard TS1. A copy of the manufacturer's certificate of compliance is to be posted in the control cabinet (in a weatherproof folder) and made available to the Engineer upon request.
 - b) Has conflict monitoring complying with NEMA Standard TS1 and the following:
 - Detects the presence of conflicting signal indications, absence of proper voltages, and proper operation of the controller.
 - Upon detection of a conflict or loss of communication, all signals enter into flashing red mode.
 - 2) Apply [Article 2525.03, E, 4](#), with the following exceptions for one lane two way traffic control:
 - a) **Green Revert.**
If during an All Red clearance interval a call occurs on the phase losing the right-of-way prior to a call on any other traffic phase, the right-of-way reverts to the previous traffic phase, initiating the initial green interval. The transfer is to be immediate without completing the All Red clearance interval.
 - b) **Rest in Absence of Actuation.**
In the absence of detector actuation of assertion or recall switch(es), the right-of-way indication dwells in All Red.
 - 3) Comply with the following:
 - a) Clearance for overhead wiring is a minimum of 18 feet.
 - b) A detection area is located near the stop line with the downstream edge positioned 6 feet from the stop line. A second detection area is located 100 to 150 feet in advance of the stop line. The size of detection areas is 6 feet by 10 feet. A single above-ground detector may be used to provide detection for both areas.
 - c) Signal heads have 12 inch lenses and comply with ITE Specification "Vehicle Traffic Control Signal Heads". All signal heads are equipped with visors and back plates. The backplate provides a minimum of 5 inches black field around the signal assembly and has a dull black finish.
 - d) A minimum of two traffic signal heads per approach. All signal heads mounted over the road surface are mounted a minimum of 15 feet from the bottom of the signal head to the top of the road surface. One signal head mounted over the center of the travel lane. All far right signal heads mounted a minimum of 8 feet from the bottom of the signal head to the top of the ground surface. Required signal heads for through traffic on any one approach located no less than 8 feet apart measured horizontally perpendicular to the approach between the centers of the signal faces.
- b. **Trailer Mounted Systems.**
Provide a system consisting of two or more self-contained trailer mounted units each containing two signal heads.
 - c. **Span-Wire Mounted Systems.**
Ensure posts meet the requirements of [Article 2528.03, A](#).

3. Operational Requirements.

- a. Locate signals, stop bars, and signs exactly as identified in the contract documents. Secure and level temporary traffic signal installations in a manner approved by the Engineer.

- b. Program all temporary traffic signals for red flash upon startup, conflict, or power failure. Program the temporary traffic signal system to dwell in All Red.
- c. For one lane two way traffic control operations, when an additional phase is used for a side road movement, only one long all red interval is to be used between active phases on each side of the work area.
- d. Set signal timing as identified in the contract documents.

4. Equipment Crossings.

- a. For equipment crossings, use a signal operator to control the signal system. Position this operator with good sight distance for both the mainline and haul road.
- b. Program the signal system with fixed yellow and all red time periods so the operator can only activate the beginning of the yellow interval for mainline traffic.
- c. When the equipment crossing is not in use, set the signal to yellow flash mode. If hauling operations are suspended for more than one week, cover the signal heads, or if portable trailer units are used, remove the trailers.

I. Temporary Floodlighting.

1. General.

- a. Set up and operate either pole mounted or portable, mobile self contained LED temporary floodlights at locations shown in contract documents.
- b. Ensure floodlighting is installed and in service before commencing work requiring nighttime traffic control according to the traffic control plan.
- c. Exercise reasonable care to avoid interruptions during hours of darkness, promptly repair damage to system, and replace burned out lamps promptly.

2. Equipment.

a. Pole Mounted Floodlights.

- 1) Pole-mounted luminaire.
- 2) Mounting height of luminaires is no less than 35 feet above the roadway and as shown in the contract documents. Pole length determined by field measurement to obtain specified mounting height.
- 3) Place poles outside normal shoulder line at approximate locations shown on the contract documents.
- 4) Meet the following requirements for floodlighting luminaires:
 - Standard roadway types with totally enclosed refractors.
 - IES glare control rating of "cut off".
 - Lamps with initial output rating at least 19,000 lumens.
 - Photoelectric controlled for dusk to dawn operation.
 - Approval of the Engineer.
- 5) Ensure clearance for overhead wiring at least 18 feet. Auxiliary poles used to furnish power to floodlighting offset 30 feet from traveled way unless there are right-of-way restrictions.
- 6) Above ground lighting circuits are aluminum or A.C.S.R. triplex.
- 7) Underground lighting circuits are type U.S.E. or U.F.

b. Portable, Mobile Self Contained LED Floodlights.

- 1) Mounted on portable trailers containing solar cell array and storage battery system to power LED luminaire. Ensure system meets NCHRP 350 Category IV crash testing.
- 2) Ensure mounting height of LED luminaires is no less than 17 feet above roadway, or as shown in the contract documents.
- 3) Locate portable trailers so LED luminaire is centered over outside edge of pavement and trailer is on shoulder offset as far as possible from traveled way
- 4) Meet materials requirements of [Article 4188.06](#) for LED Floodlighting Luminaires.

J. Temporary Crash Cushions.

Apply [Section 2551](#).

K. Flaggers.

- 1. Prior to flagging operations, ensure the flaggers are trained in safe flagging operations that comply with [Iowa DOT Flagger's Handbook](#), Part 6 of the MUTCD, and the Standard Specifications. Ensure training of flaggers includes the following:
 - a. Issuing and reviewing the current [Iowa DOT Flagger's Handbook](#),

- b. Presentation of the current Iowa Professional Flagging Video,
 - c. Issuing flagger training cards including the information below. Ensure the flaggers carry their flagger training card at all times and show it upon request.
 - 1) Employee name,
 - 2) Date of training,
 - 3) Name of Instructor, and
 - 4) Expiration date of December 31 of the year following the training date.
- 2. Maintain a list of the flaggers trained and the date of the training.
 - 3. Training is not required for short time, emergency, or relief assignment of employees to flagging operations. Payment will not be made in accordance with [Article 2528.05, I.](#)
 - 4. Ensure flagger operations, equipment, and apparel comply with the current [Iowa DOT Flagger's Handbook](#).
 - 5. When nighttime flagging is required, provide auxiliary lighting to illuminate the flagging stations according to the current [Iowa DOT Flagger's Handbook](#). Set up this lighting in such a manner to minimize glare to motorists. The cost of furnishing nighttime flagging stations is included in the lump sum price bid for Traffic Control.

L. Limitations.

- 1. Use sandbags to anchor all traffic control devices subject to movement by wind.
- 2. When a two way road is open to public traffic during contract work, do not control one way traffic through the work area by means of a carry through flag or other token, except during equipment failure or emergency. Use other means when voice or signal communication between flaggers at control points is difficult or not effective because of distance, sight, or noise. Other means may be two way radio, pilot cars, or traffic signals.
- 3. Use pilot cars when the normal work area exceeds 1/4 mile on Primary projects. Where necessary for short durations, the distance may be extended to 1/2 mile for better sight distance or to clear intersections or other safety considerations with approval of the Engineer, provided a two way radio is used for communication between flaggers.
- 4. During non-working hours, remove, cover, or turn down traffic control devices intended for working hours only, unless a drop-off or physical obstruction remains within 15 feet of a lane open to traffic. Signs or barricades are not required for work beyond 15 feet of a lane open to traffic. When traffic control devices are no longer needed, remove them.
- 5. Personnel in the highway right-of-way shall wear orange or strong yellow green ANSI 107 Class 2 apparel when exposed to traffic or construction equipment. Orange or strong yellow green ANSI 107 Class E pants or shin reflectors/gaiters are also required to be worn at night. Shin reflectors/gaiters shall have a minimum of two 2 inch bands of retroreflective material spaced at least 6 inches apart. Background material shall extend at least 2 inches above and below retroreflective bands and continue through the length of shin reflector/gaiter. Shin reflector/gaiter shall completely encircle the leg and be worn on lower leg between knee and ankle.
- 6. The Engineer may require traffic control devices to be recleaned by washing. Use a brush and water, and detergent or solvent as necessary. Include the entire target area or sign face, supplemental or auxiliary signs, if any, all reflectors, and faces of warning lights which are part of that device.
- 7. Ensure entry to and exit from work areas is in the direction of public traffic and does not cross open traffic lanes at other than designated locations.
- 8. During hours of darkness, operate equipment in the traffic control zone facing in the direction of traffic flow unless specified otherwise in the Traffic Control Plan. Darkness will include the period from sunset to sunrise and other times when conditions such as fog, snow, sleet or rain provide insufficient lighting to clearly identify persons and vehicles on the highway at a distance of 500 feet ahead.

9. Unless stated otherwise in the traffic control plan, provide for a minimum of 2 miles between traffic control zones on rural roadways. The Engineer will determine minimum distances between traffic control zones on urban roadways.
10. Submit Traffic Control Plan modifications to the Engineer for review and approval prior to any changes being made. The Engineer may modify sign spacing to meet existing field conditions or to prevent obstruction of the motorist's view of permanent signing.
11. Ensure vehicles (except ready mix trucks) hauling soil, aggregate, and paving material to or from work area display a minimum 16 inch by 48 inch sign with the legend "DO NOT FOLLOW - INTO WORK AREA", as shown in the contract documents. Comply with the following requirements for the sign:
 - Orange with black lettering using Type VII (Iowa) sheeting.
 - Keep clean to maintain its visibility.
12. For lanes closed to traffic, place two drums meeting the requirements of [Article 2528.03, C](#), every 1000 feet. For full depth excavations in a closed lane, place two drums in front of each location. Additional drums need not be placed for full depth excavations spaced closer than 150 feet.
13. When milled or scarified surfaces exist, sign approaches to scarified areas using ROUGH ROAD (W8-8) signs. Place signs at least 250 feet in advance of milled or scarified areas. Repeat signs for traffic that may enter within the scarified area from intersecting public roads. At locations where milled or scarified areas end at project limits, bridges, or end of day's work; place BUMP (W8-1) signs within 50 feet in advance of each location. Erect, move, and maintain these signs until milled or scarified areas have been covered with new HMA or PCC pavement.

2528.04 METHOD OF MEASUREMENT.

Measurement will be as follows:

A. Traffic Control.

Lump sum.

B. Portable Dynamic Message Signs.

The Engineer will count the number of days each Portable Dynamic Message Sign is required to be in place along a road and capable of displaying messages to the traveling public. Days when PDMS is blank and is in good working condition, will be measured. Days when PDMS is unable to display a message due to cellular (when specified) or mechanical problems will not be measured. Days when PDMS is on the roadway and not approved by the Engineer will not be measured.

C. Temporary Barrier Rail.

The Engineer will calculate the length of temporary barrier rail used based on count and the nominal length of each unit. The length of temporary barrier rail measured will be the length required per setup. Measurement will also be made for temporary barrier rail moved within, or added to, an existing setup when required by the contract documents. Measurement of temporary barrier rail, after its initial placement, will not be made unless it is required by the contract documents to be moved.

D. Temporary Lane Separator System.

The Engineer will measure the length of the Temporary Lane Separator System installed in feet.

E. Modular Glare Screen.

Measurement for Modular Glare Screen System will be in liner feet.

F. Temporary Crash Cushions.

[Article 2551.04](#) applies.

G. Temporary Traffic Signals.

By count for each group installation of temporary traffic signals operated by a common control unit. A group installation is normally four signal heads at the same traffic conflict area.

H. Temporary Floodlighting Luminaire.

By count.

I. Pilot Cars.

1. By count for the number of pilot cars used during each work shift. A shift is a scheduled period of work for the Contractor's operations.
2. For a pilot car to be counted:
 - a. Use of the pilot car is necessary and it is used as part of preplanned work that is started that shift and is intended to proceed for a major part of the shift. If used less than 4 hours during a shift, one half pilot car will be counted.
 - b. Use of other pilot cars is necessary and they are used for at least 1 hour during the shift, perhaps intermittently, and this shall be the primary duty of the employee. If used less than 4 hours in a shift, one-half pilot car will be counted.
3. Short time, emergency, or relief assignment of employees to pilot car operations will not be counted separately.

J. Flaggers.

1. By count for the number of flaggers used during each work shift. A shift is a scheduled period of work for the Contractor's operations.
2. For flaggers to be counted:
 - a. Use of the flaggers is necessary and they are used as part of preplanned work that is started that shift and is intended to proceed for a major part of the shift. If used less than 4 during a shift, one-half flagger will be counted.
 - b. Use of other flaggers is necessary and they are used for at least 1 hour during the shift, perhaps intermittently, and this shall be the primary duty of the employee. If used less than 4 hours in a shift, one-half flagger will be counted.
3. Short time, emergency, or relief assignment of employees to flagging operations will not be counted separately.

K. Monitoring with Incident Response.

Calendar days based on the contract quantity. Additional personnel required by the Engineer to provide additional traffic monitoring of CMS operation will be measured in calendar days per person needed.

2528.05 BASIS OF PAYMENT.

Payment will be at the contract unit price as described below. When the Engineer requires recleaning of reflectorized surfaces of traffic control devices, payment will be made as extra work according to [Article 1109.03, B](#). All traffic control devices furnished by the Contractor remain the Contractor's property at the completion of the work and are to be removed from the site when no longer needed.

A. Traffic Control.

1. Lump sum when there is a contract item for Traffic Control.
2. Payment is full compensation for:
 - Erecting, maintaining, moving, and removing all traffic control devices required by the contract documents, including warning lights,
 - Furnishing all materials, labor, and equipment, and
 - Traffic quality control.

B. Portable Dynamic Message Signs.

1. Payment will be at the contract unit price per calendar day for each Portable Dynamic Message Sign measured as provided in [Article 2528.04, B](#).
2. Payment is full compensation for furnishing, placing, operation (when specified), and maintenance of PDMS. Payment includes the cost of preventative and unscheduled maintenance, cellular communication (when specified), on-board software, hardware, and power supply.

C. Temporary Barrier Rail.

1. Linear feet of Temporary Barrier Rail measured.
2. Maintenance of temporary barrier rail is incidental to Temporary Barrier Rail.
3. Payment for repair or replacement of temporary barrier rail damaged by public traffic will be paid according to [Article 1109.03, B.](#)

D. Temporary Lane Separator System.

1. Linear feet of Temporary Lane Separator System measured
2. Payment includes installation, maintenance, repair, removal of the temporary lane separator system (if installed in a temporary traffic control zone), and all required pavement or bridge deck repair.

E. Modular Glare Screen.

1. Per foot of Modular Glare Screen System measured.
2. Payment is full compensation for:
 - Material, equipment, and labor to furnish and install the system on the top of the temporary concrete barrier rail,
 - Furnishing and applying retroreflective strips,
 - Maintenance of the system,
 - Repairing or replacing damaged parts of the system,
 - Removing and reinstalling the system if necessary when moving the concrete barrier rail, and
 - Final removal of the system from the top of the concrete barrier rail.

F. Temporary Crash Cushions.

[Article 2551.05, A.](#), applies.

G. Temporary Traffic Signals.

1. Each, for individual group installations operated by a common control unit, normally four signal heads at the same traffic control area.
2. Payment is full compensation for furnishing, installing, maintaining and servicing the controller, signal heads, traffic detection system, signal operator, costs for electrical energy, and the cost of removing temporary traffic signal materials from the construction site. The Contractor shall supply their own breaker box and power meter and shall not connect to existing Contracting Authority owned circuits to supply power for temporary traffic signals.

H. Temporary Floodlighting Luminaire.

1. Each.
2. Payment is full compensation for:
 - Furnishing, installing, maintaining and servicing the temporary floodlighting units,
 - All costs for electrical energy,
 - The cost of removing all lighting materials from the construction site, and
 - The Contractor shall supply their own breaker box and power meter and shall not connect to existing Contracting Authority owned circuits to supply power for temporary floodlighting.

I. Pilot Cars.

Predetermined contract unit price per each for the number of shifts each pilot car was operated.

J. Flaggers.

1. Predetermined contract unit price per each for the number of shifts each flagger was used.

2. Payment is full compensation for providing trained flaggers according to [Article 2528.03, K](#).

K. Monitoring with Incident Response.

1. Per calendar day for the number of calendar days used.
2. This payment is full compensation for:
 - Furnishing the necessary vehicle (including operation, maintenance, and supplies),
 - Furnishing the operator,
 - Documentation of any events that restrict the normal flow of traffic including responses to an emergency situation,
 - Re-erecting, repairing, or replacing traffic control devices,
 - Providing assistance to persons with vehicle problems,
 - Moving stalled vehicles, and
 - Summoning further assistance when needed.
3. Payment for the number of calendar days that additional personnel, such as for CMS operation required by the Engineer, will be the contract unit price per calendar day. Payment is full compensation for furnishing the required personnel and necessary support vehicles.

Section 2533. Mobilization

2533.01 DESCRIPTION.

- A.** Preparatory work and operations for all items under the contract, including, but not limited to those necessary for:
- The movement of personnel, equipment, supplies, and incidentals to the project site,
 - The establishment of all offices, buildings, and other facilities necessary for work on the projects, and
 - All other work or operations which shall be performed or costs incurred prior to beginning work on the various items on the project site.
- B.** Mobilization may include bonding, permit, and demobilization costs.
- C.** Nothing herein is to be construed to limit or preclude partial payments otherwise provided for by the contract.
- D.** A contract item for Mobilization will not be included for maintenance aggregate, materials, granular surfacing, or for any other minor projects.
- E.** When the proposal includes a lump sum item for Mobilization, the bidder shall indicate the bid price in dollars, and this is the contract price for this item. When the proposal does not include a lump sum item for Mobilization, all costs incurred by the Contractor for Mobilization are incidental to other work.

2533.02 MATERIALS.

None

2533.03 CONSTRUCTION.

None.

2533.04 METHOD OF MEASUREMENT.

None.

2533.05 BASIS OF PAYMENT.

Payment for Mobilization will be as follows:

A. Partial Payments.

Partial payments may be made as follows:

1. Partial payment of mobilization will be made for each project within 30 calendar days after receipt of a signed contract. This partial payment will be either 10% of the contract price for this item or 1% of the original project sum, whichever is less. If the partial payment for a project is less than \$1000, the Engineer will delay this partial payment until 5% of the awarded project total is earned.
2. When 5% of the original project sum is earned, either 25% of the contract price for this item or 2.5% of the original project sum, whichever is less, will be paid.
3. When 10% of the original project sum is earned, either 50% of the contract price for this item or 5% of the original project sum, whichever is less, will be paid.
4. When 25% of the original project sum is earned, either 100% of the contract price for this item or 10% of the original project sum, whichever is less, will be paid.

B. Full Payment.

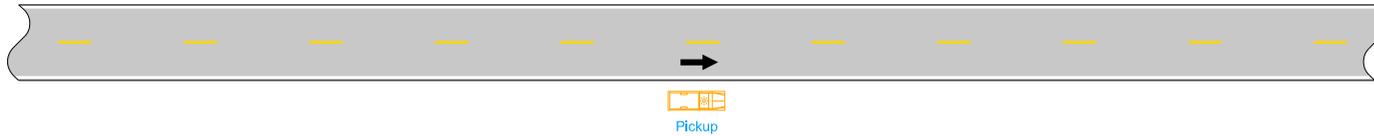
Upon completion of all work on the project required by the contract, full payment will be made for this contract item, including any amount not paid as a partial payment.

Do not allow work to interfere with the flow of traffic.

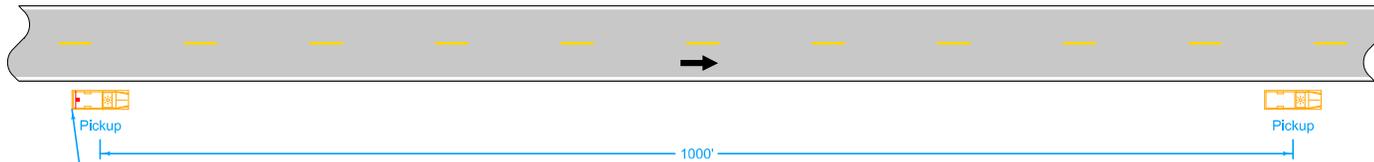
When parked, locate vehicles as far from the open traffic lane as possible. Entrances and driveways should be used whenever appropriate.

Equip all vehicles with an amber revolving light or amber strobe light.

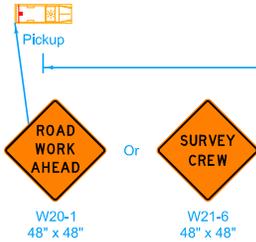
① For work lasting longer than one hour, refer to [TC-202](#) or [TC-402](#).



VEHICLE STOPPED ON SHOULDER FOR LESS THAN ONE HOUR ①



SLOW-MOVING OPERATION



LEGEND	
	Traffic Sign
	Direction of Traffic

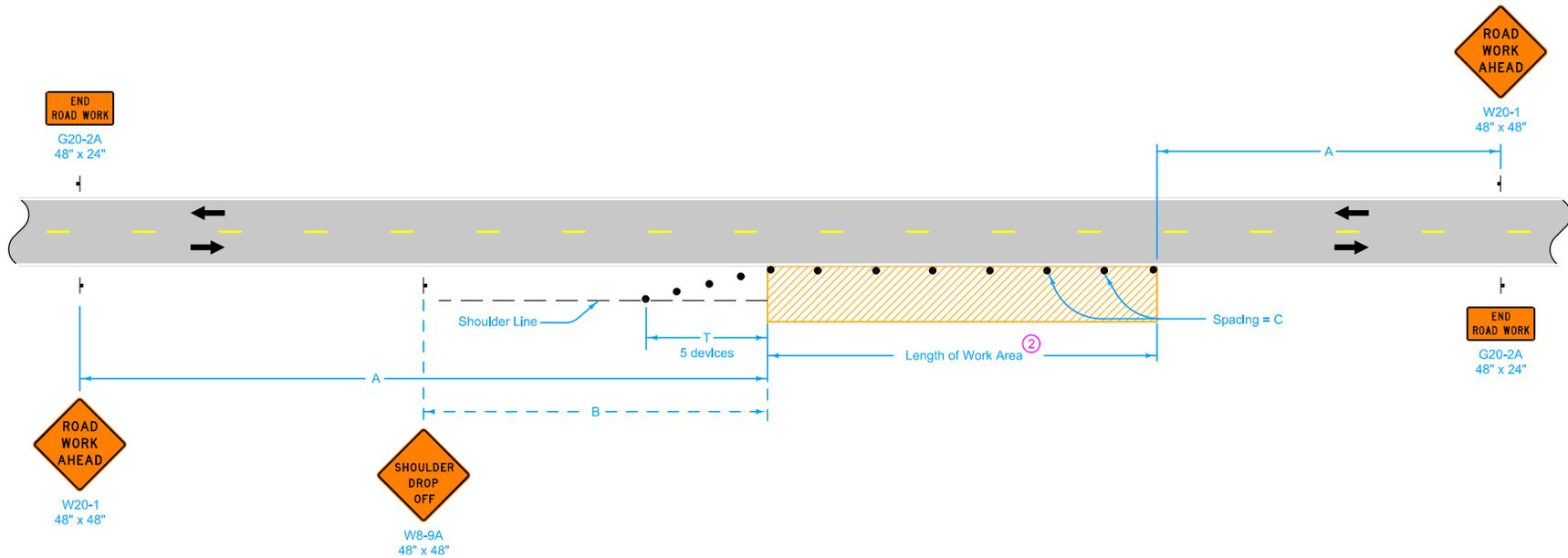
Possible Contract Item:
Traffic Control

	REVISION
	2 04-16-13
STANDARD ROAD PLAN	TC-1
SHEET 1 of 1	

REVISIONS: Modified note concerning amber Vehicle Warning Light.

Deanna Maifield
APPROVED BY DESIGN METHODS ENGINEER

**WORK NOT AFFECTING TRAFFIC
(TWO-LANE OR MULTI-LANE)**



When a pavement edge drop-off exists, install a SHOULDER DROP-OFF sign.

No pavement edge drop-offs greater than pavement depth will be allowed during non-working hours.

Shoulder edge drop-offs shall be mitigated according to Article 1107.08.L2 of the Standard Specifications.

For work lasting less than one hour, refer to TC-1.

① When the length of a pavement edge drop-off is 1000 feet or less, the temporary fillet requirement of Article 1107.08 of the Standard Specifications does not apply. Reduce channelizer spacing to 40 feet.

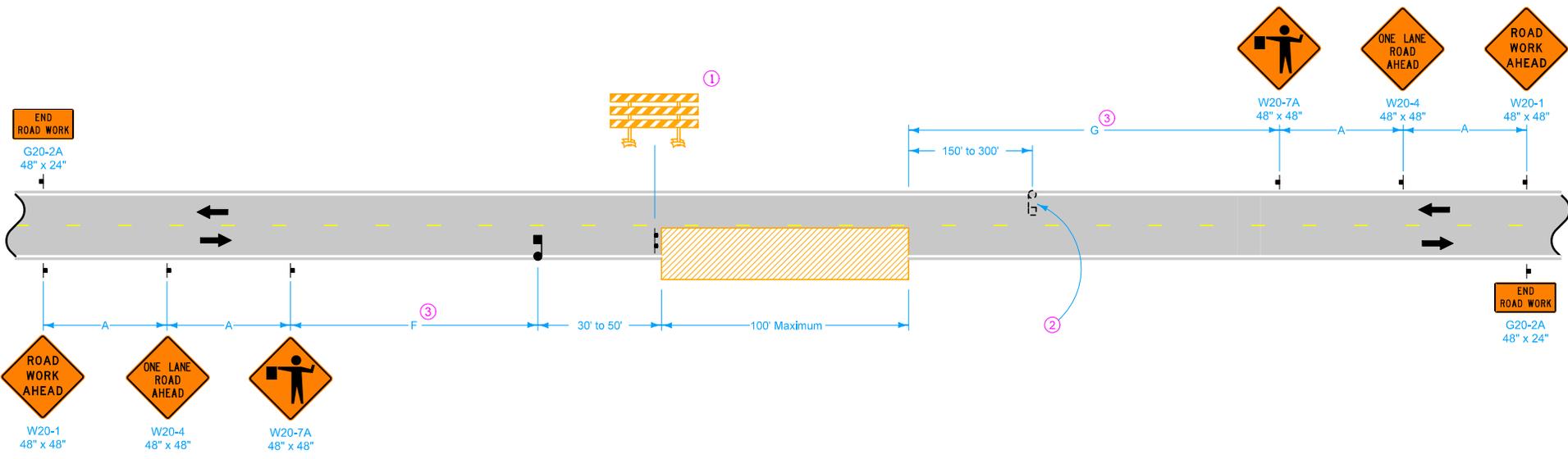
② For work areas less than 200 feet long, use channelizers spaced at 20 foot centers or use a vehicle with an amber revolving light or amber strobe light.

Possible Contract Item:
Traffic Control

LEGEND	
	Traffic Sign
	42" Channelizer
	Work Area
	Direction of Traffic

SPEED LIMIT (mph)	A	B	C ②	T
35 or less	500'	250'	40'	100'
40 - 45	700'	350'	80' ①	200'
50 or greater	1000'	500'	100' ①	200'

	REVISION
	8 04-21-15
	TC-202
STANDARD ROAD PLAN	
SHEET 1 of 1	
<small>REVISIONS: Modified general notes, changed title and replaced the DOT logo in the title block with the new version.</small>	
<small>APPROVED BY DESIGN METHODS ENGINEER</small>	
WORK WITHIN 15 FT OF TRAVELED WAY	



LEGEND

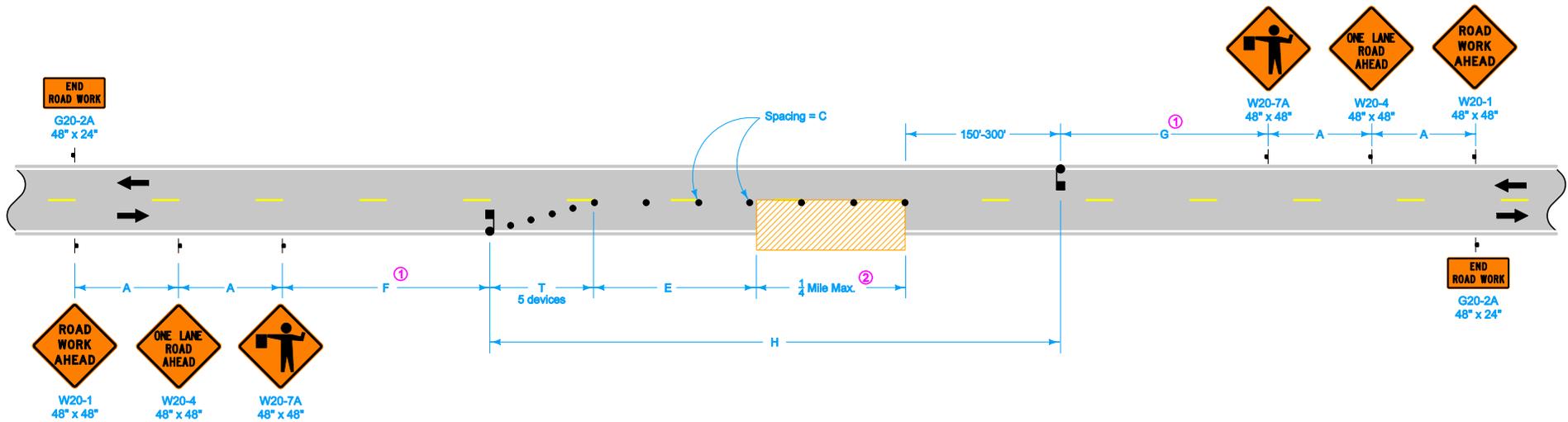
- Traffic Sign
- Flagger
- Work Area
- Type III Barricade
- Direction of Traffic

SPEED LIMIT (mph)	A	F and G Range ^③	F + G Max.
35 or less	250'	250'-3250'	3500'
40 - 45	350'	350'-3350'	3700'
50 or greater	500'	500'-3500'	4000'

- ① A vehicle with an amber revolving light or amber strobe light may be substituted for the Type III barricade.
- ② Provide a second flagger if:
 The flagger's view of approaching traffic in the open lane is less than 1/4 mile or the work site is in an area of restricted sight distance (such as a "No Passing" zone); or
 Excessive traffic delays are encountered.
- ③ F and G distances are to remain as near minimum values as work permits. However, to be able to move the work area without moving the advance signing, F and G distances may be varied within the limits of the table. Maximum movement can be achieved by setting one F or G value at the minimum and the other value at its maximum.

Possible Contract Items:
 Flaggers
 Traffic Control

	REVISION
	4 04-16-13
STANDARD ROAD PLAN	TC-212
REVISIONS: Modified circle note 1.	SHEET 1 of 1
 APPROVED BY DESIGN METHODS ENGINEER	
SPOT LOCATION LANE CLOSURE WITH FLAGGERS	



LEGEND

- Traffic Sign
- Flagger
- 42° Channelizer
- Work Area
- Direction of Traffic

SPEED LIMIT (mph)	A	C	E	F and G Range ^①	F + G Max.	H Max.	T
35 or less	250'	40'	0'-200'	500'-3000'	3500'	2000'	50'
40 - 45	350'	80'	0'-200'	700'-3000'	3700'	2000'	100'
50 or greater	500'	100'	200'-300'	1000'-3000'	4000'	2000'	100'

- ① Keep F and G distances as near to minimum values as work permits. However, to allow advancement of the work area without moving signs, F and G distances may be varied within the limits of the table. Maximum movement can be achieved by setting one F or G value at the minimum and the other value at its maximum.
- ② If length of work area exceeds 1/4 mile, use TC-214.

Possible Contract Items:
 Flaggers
 Traffic Control

Iowa Department of Transportation STANDARD ROAD PLAN	REVISION
	3 04-17-12
	TC-213
SHEET 1 of 1	
REVISIONS: Removed "or Vertical Panel" from 42° Channelizer In Legend.	
 APPROVED BY DESIGN METHODS ENGINEER	
LANE CLOSURE WITH FLAGGERS	