

**CITY OF GREELEY
INVITATION FOR BID**

2022 KGM PAVEMENTS - REBID

**BID #F22-05-042
DUE MAY 19, 2022, BEFORE 1:30 P.M.**



Serving Our
Community
It's A Tradition

*The Office of the Purchasing Manager is a service division
established to build effective partnerships through efficient and responsive
procurement processes to obtain high quality
goods and services for the best value.*

SECTION 00110
BID #F22-05-042

INVITATION FOR BID

The City of Greeley, Colorado is requesting **sealed** bids for **2022 KGM PAVEMENTS - REBID before May 19, 2022, at 1:30 p.m. (MST)** emailed to purchasing@greeleygov.com. No late or faxed bids will be accepted. It is the responsibility of the vendor to ensure the solicitation documents are delivered to the correct address as noted in the Solicitation Documents. Solicitations delivered to other City of Greeley email addresses may be deemed as late and not accepted.

The City of Greeley disseminates all bids and requests for proposals through the Rocky Mountain E-Purchasing System site. Go to <http://www.RockyMountainBidSystem.com>, then "Bid Opportunities" and then select "The City of Greeley". Bids submitted to the City of Greeley must include Sections 00120, 00130, 00140 and 00160. Addenda must be acknowledged in Section 00120 of the bidding documents. Bidders failing to acknowledge any and all addenda may be considered non-responsive.

No pre-bid meeting will be held.

Each bid shall be accompanied, by a certified check drawn on a bank which is insured by the Federal Deposit Insurance corporation or a bidder's bond executed by a surety company authorized to do business in Colorado, made payable to the City of Greeley, Colorado, in an amount not less than five percent (5%) of the proposal sum as security that the successful bidder will enter into a contract to construct this project in accordance with the plans and specifications, and give bonds in the sum as hereafter provided. Checks accompanying bids not accepted will be returned.

The successful responsive and responsible bidder will be required to furnish a satisfactory performance bond and payment bond in the amount of the contract sum.

No bid shall be withdrawn after the opening on the bids without the consent of the City of Greeley, Colorado, for a period of sixty (60) days after the scheduled time of the receiving the bids.

Bid acceptance and bid evaluation. Bids shall be evaluated based on the requirements set forth in the invitation for bids, which may include criteria to determine acceptability such as inspection, testing, quality, workmanship, delivery and suitability for a particular purpose. Those criteria that will affect the bid price and be considered in evaluation for award shall be objectively measurable, such as discounts, transportation costs and total or life cycle costs. The invitation for bids shall set forth the evaluation criteria to be used. No criteria may be used in bid evaluation that are not set forth in the invitation for bids.

In preparing bids, specific factors will be applied to assist the City in selecting the most qualified bid for this contract.

Following are the evaluation criteria that will be used. Criteria will be assigned a points value.

| Criteria | Point Value |
|---|--------------------|
| Price | 80 |
| Schedule | 10 |
| Similar experience with size of scope of work | 10 |
| Total Points | 100 |

The City of Greeley retains the right to reject any and all bids and to waive any informality as deemed in the best interest of the city.

Questions pertaining to the project may be directed to purchasing@greeleygov.com before May 16, 2022, at 2:00PM (MST).

| Schedule of Events (subject to change) | All times are given in local Colorado time |
|---|--|
| Bid Proposal Issued | 5/11/2022 |
| Pre-Bid Conference include date/time and location | N/A – No Pre-bid meeting will be held. |
| Inquiry Deadline | 5/16/2022 – by 2:00 p.m. MST |
| Final Addendum Issued | 5/18/2022 |
| Bid Due Date and Time | 5/19/2022 – By 1:30 p.m. MST via email to purchasing@greeleygov.com |
| Interviews | N/A |
| Notice of Award (tentative) | 5/24/2022 |
| Notice to Proceed | 6/1/2022 |

City of Greeley, Colorado
Purchasing Division

Greeley Website
May 10, 2022



Virtual Bid Opening Meeting

Thursday, May 19, 2022, at 1:30PM (MST)

F22-05-042 - 2022 KGM Pavements – REBID

Microsoft Teams meeting

Join on your computer or mobile app

[Click here to join the meeting](#)

[Learn More](#) | [Meeting options](#)

Section 00120

BID PROPOSAL

PROJECT: 2022 KGM PAVEMENTS REBID - #F22-05-042

The Undersigned, having become familiar with the local conditions affecting the cost of the work, plans, drawings, and specifications attached herewith, and with advertisement for bids, the form of bid and proposal, form of bond, all of which are issued and attached and on file in the office of the Project Manager, hereby bid and propose to furnish all the labor, materials, necessary tools, and equipment and all utility and transportation service necessary to perform and complete in a workmanlike manner all of the work required in connection with the construction of the items listed on the bidding schedule in accordance with the plans and specifications as prepared by the City of Greeley, Colorado, for the sums set forth in the Bidding Schedule.

The total bid shall be the basis for establishing the amount of the Performance and Payment Bond for this project. The total bid is based on the quantities shown in the bid proposal form and the dimensions shown on the plans.

The undersigned has carefully checked the Bidding Schedule quantities against the plans and specifications before preparing this proposal and accepts the said quantities as substantially correct, both as to classification and the amounts, and as correctly listing the complete work to be done in accordance with the plans and specifications.

The undersigned, agrees to complete and file a Performance and Payment Bond and further agrees to complete the contract within sixty (60) Calendar Days from Notice to Proceed. Official notice to proceed will not be issued until adequate Performance and Payment Bonds and other required documents are on file with the City of Greeley.

NOTE: Bidders should not add any conditions or qualifying statements to this bid as otherwise the bid may be declared irregular as being non responsive to the Invitation for bids. The following numbered Addenda have been received and the bid, as submitted, reflects any changes resulting from those Addenda: _____

ATTEST

DATE

COMPANY NAME

BY

SIGNATURE

TITLE

KGM Pavements Rebid

| ITEM # | ITEM DISCRPTION | UNIT | QUANTITY | UNIT PRICE | TOTAL QUANTITY COST |
|-----------------------------|--|-------|------------|------------|---------------------|
| STREETS OVERLAY | | | | | |
| 001 | LOWER MAN HOLE | EACH | 154.00 | | |
| 002 | LOWER WATER VALVE | EACH | 230.00 | | |
| 003 | RAISE MANHOLE | EACH | 154.00 | | |
| 004 | RAISE WATER VALVE | EACH | 230.00 | | |
| 005 | ASPHALT ROTOMILL (FULL) 2"- 4" | SQY | 240,349.83 | | |
| 006 | PATCHING (ROTO MILL) 4" | SQY | 12,017.49 | | |
| 007 | GEO TEXTILE PAVING FABRIC 12'-15' (INCLUDES AC 20) | SQY | 142,698.74 | | |
| 008 | TENSAR GLASPAV 25 | SQY | 96,402.75 | | |
| 009 | HMA 'CLASS S' 2"- 6" | TON | 20,546.16 | | |
| 010 | HMA 'CLASS S' 2.5" MODIFIED | TON | 12,835.76 | | |
| 011 | HMA LEVELING COURSE- CLASS S | TON | 20,029.15 | | |
| 012 | SHOULDERING - CLASS 6 BASE COURSE INSTALLED | TON | 3,822.22 | | |
| 013 | TEMPORARY STRIPPING 4" YELLOW OR WHITE | LF | 111,096.00 | | |
| 014 | TEMPORARY STRIPPING 8" WHITE | LF | 840.00 | | |
| 015 | NOTIFICATION DELIVERY | HOURL | 156.00 | | |
| OVERLAY SUBTOTAL | | | | | |
| PARKING LOTS | | | | | |
| 016 | LOWER MANHOLE | EACH | 4.00 | | |
| 017 | LOWER WATER VALVE | EACH | 1.00 | | |
| 018 | RAISE MANHOLE | EACH | 4.00 | | |
| 019 | RAISE WATER VALVE | EACH | 1.00 | | |
| 020 | ASPHALT ROTOMILL (FULL) 2"- 4" | SQY | 7,909.67 | | |
| 021 | PATCHING (ROTO MILL) 4" | SQY | 191.63 | | |
| 022 | GEO TEXTILE PAVING FABRIC 12'-15' (INCLUDES AC 20) | SQY | 4,077.17 | | |
| 023 | GLAS-GRID | SQY | 3,640.88 | | |
| 024 | HMA 'CLASS SX' 2"- 6" | TON | 992.10 | | |
| 025 | HMA LEVELING COURSE- CLASS S | TON | 552.68 | | |
| 026 | NOTIFICATION DELIVERY | HOURL | 4.00 | | |
| PARKING LOTS SUBTOTAL | | | | | |
| CONCRETE | | | | | |
| 027 | Remove Curb & Gutter (0 to 2' Pan) | LF | 8,912.00 | | |
| 028 | Remove Concrete Flatwork - Thickness Varies | SY | 4,440.00 | | |
| 029 | Removal of Rollover C&G/Sidewalk | LF | 4,182.00 | | |
| 030 | Remove Asphalt (Thickness Varies) | SY | 236.00 | | |
| 031 | Concrete Sawcut Demo | LF | 282.00 | | |
| 032 | New 6" C&G 0-2' Pan (i.e. Vertical Curb and Gutter: Sim to S-16) | LF | 8,843.00 | | |
| 033 | New High Back Curb and Gutter (8" and above) | LF | 144.00 | | |
| 034 | High Early Mix - Up Charge | CY | 303.00 | | |
| 035 | New Rollover C&G/ Sidewalk | LF | 4,182.00 | | |
| 036 | New 4" Concrete | SY | 1,499.00 | | |
| 037 | New 6" Concrete | SY | 1,770.00 | | |
| 038 | New 8" Concrete | SY | 1,491.00 | | |
| 039 | Unclassified Excavation | CY | 44.00 | | |
| 040 | Class 6 Base Course (Concrete) | TON | 210.00 | | |
| 041 | Major Re-landscaping (Sprinklers, etc.) | HR | 102.00 | | |
| 042 | Adjust Meter Pit | EA | 58.00 | | |
| 043 | Landscape Curb 0-6" | LF | 4,891.00 | | |
| 044 | Landscape Curb 7-18" | LF | 10.00 | | |
| 045 | Landscape Curb 19-48" | LF | 23.00 | | |
| 046 | ADA Detectable Warning plates/domes | SF | 2,674.00 | | |
| 047 | Remove and Reset mailbox | EA | 1.00 | | |
| 048 | Tree and Root Pruning | HR | 31.00 | | |
| 049 | Saw Cut to Preserve Asphalt | LF | 1,976.00 | | |
| 050 | Pre-Fabricated Concrete Washout Structure | LS | 1.00 | | |
| 051 | 4" PVC Installed Under Sidewalk | LF | 50.00 | | |
| CONCRETE SUBTOTAL | | | | | |
| ASPHALT PATCHING | | | | | |
| 052 | ROTOMILL/CUTOUT PATCH - 8 FOOT SINGLE PLUS TRAFFIC SETUP, 7-INCH | TON | 1,046.40 | | |
| 053 | CUT OUT ASPHALT PATCH: 6-8 FOOT, 7-INCH | TON | 82.10 | | |
| 054 | CUT OUT ASPHALT PATCH: 3-6 FOOT, 7-INCH | TON | 160.00 | | |
| 055 | ROTOMILL/CUTOUT PATCH - 8 FOOT SINGLE PLUS TRAFFIC SETUP, 5.5-INCH | TON | 718.60 | | |
| 056 | CUT OUT ASPHALT PATCH: 6-8 FOOT, 5.5-INCH | TON | 66.30 | | |
| 057 | CUT OUT ASPHALT PATCH: 3-6 FOOT, 5.5-INCH | TON | 80.00 | | |
| 058 | LOWER MANHOLE | EACH | 2.00 | | |
| 059 | LOWER WATER VALVE | EACH | 2.00 | | |
| 060 | RAISE MANHOLE | EACH | 2.00 | | |
| 061 | RAISE WATER VALVE | EACH | 2.00 | | |
| ASPHALT PATCHING SUBTOTAL | | | | | |
| CHIPSEAL / SLURRY | | | | | |
| 062 | 1/4 INCH CHIP | SY | 113,458.60 | | |
| 063 | TYPE 2 SLURRY SEAL | SY | 38,566.60 | | |
| 064 | CAPE SEAL - 1/4 INCH & TYPE 2 SLURRY | SY | 24,342.10 | | |
| CHIPSEAL / SLURRY SUBTOTAL | | | | | |
| REJUVENATE | | | | | |
| 065 | GSB 88 REJUVENATE | SY | 124,742.44 | | |
| REJUVENATE SUBTOTAL | | | | | |
| CRACK FILL | | | | | |
| 066 | ARTERIAL/COLLECTOR CLEANING OF CRACKS (BLOW & GO) | LB | 22,388.00 | | |
| 067 | LOCAL CLEANING OF CRACKS (BLOW & GO) | LB | 9,992.00 | | |
| CRACK FILL SUBTOTAL | | | | | |
| STRIPING & MARKING | | | | | |
| 068 | REMOVAL, GROOVING, RECESS (DRUM / ROTARY) | SF | 15,703.00 | | |
| 069 | 4-INCH EPOXY YELLOW CENTERLINE (DOUBLE) , LEFT EDGE LINE (SINGLE) | LF | 130,275.00 | | |
| 070 | 4-INCH EPOXY WHITE (SKIPS, EDGE LINE, PARKING LINE, BIKE LANE) | LF | 75,850.00 | | |
| 071 | 8-INCH EPOXY WHITE (TURN BAY, EXCEL, GORE) | LF | 69,055.00 | | |
| 072 | 4-INCH LATEX WHITE PARKING STALLS (HAND SPRAYERS) | LF | 110.00 | | |
| 073 | 90 MIL 4" WHITE PRE-FORM THERMO | LF | 3,610.00 | | |
| 074 | 90 MIL 4" BLUE PRE-FORM THERMO | LF | 84.00 | | |
| 075 | 90 MIL 12" WHITE PRE-FORM THERMO | LF | 210.00 | | |
| 076 | 90 MIL 24" WHITE PRE-FORM THERMO | LF | 6,234.00 | | |
| 077 | 90 MIL PRE-FORM THERMO CURVED ARROW (LEFT) (8') | EACH | 80.00 | | |
| 078 | 90 MIL PRE-FORM THERMO CURVED ARROW (RIGHT) (8') | EACH | 20.00 | | |
| 079 | 90 MIL PRE-FORM THERMO CURVED COMBO ARROW (13') | EACH | 8.00 | | |
| 080 | 90 MIL PRE-FORM THERMO COMBO LEFT & RIGHT ARROW (9') | EACH | 2.00 | | |
| 081 | 90 MIL PRE-FORM THERMO LANE REDUCTION ARROW | EACH | 4.00 | | |
| 082 | 90 MIL PRE-FORM THERMO ONLY LEGEND (8') | EACH | 5.00 | | |
| 083 | 90 MIL PRE-FORM THERMO STOP LEGEND (8') | EACH | 2.00 | | |
| 084 | 90 MIL PRE-FORM THERMO HC SYMBOL (40" X 40" BOX) | EACH | 13.00 | | |
| 085 | 90 MIL PRE-FORM THERMO SHARROWS (SHARE THE ROAD MARKING) | EACH | 4.00 | | |
| 086 | 125 MIL PRE-FORM THERMO BIKE SET (6.5 BIKE WITH HELMET "LEFT", (GREELEY BIKEWAY ARROW) | EACH | 51.00 | | |
| 087 | 90 MIL PRE-FORM THERMO (20 X 8') RXR KIT | EACH | 4.00 | | |
| 088 | 90 MIL PRE-FORM THERMO AHEAD | EACH | 1.00 | | |
| STRIPING & MARKING SUBTOTAL | | | | | |

TOTAL

| CHECKLIST FOR BID SUBMITTAL (please place check mark or value in box below to verify item is included in Bid Submittal) | |
|--|--|
| COMPLETE BID TAB | |
| BID BOND | |
| CONSTRUCTION SCHEDULE SHOWING COMPLETION OF ALL ITEMS OF WORK | |
| PRIME CONTRACTOR CALCUALTED VALUE (P/C SHALL BE >48%) | |

COOPERATIVE PURCHASING STATEMENT

The City of Greeley encourages and participates in cooperative purchasing endeavors undertaken by or on behalf of other governmental jurisdictions. To the extent, other governmental jurisdictions are legally able to participate in cooperative purchasing endeavors; the City of Greeley supports such cooperative activities. Further, it is a specific requirement of this proposal or Request for Proposal that pricing offered herein to the City of Greeley may be offered by the vendor to any other governmental jurisdiction purchasing the same products. The vendor(s) must deal directly with any governmental agency concerning the placement of purchase orders, contractual disputes, invoicing, and payment. The City of Greeley shall not be liable for any costs or damages incurred by any other entity.

SECTION 00140

BID BOND

KNOW ALL MEN BY THESE PRESENT, that we, the undersigned _____ as Principal, and _____ as Surety, are hereby held and firmly bound unto the City of Greeley, Colorado, as Owner, in the penal sum of _____ for the Payment of which, well and truly to be made, we hereby jointly and severally bind ourselves, successors, and assigns.

THE CONDITION of this obligation is such that whereas the Principal has submitted to the City of Greeley, Colorado, the accompanying bid and hereby made a part hereof to enter into a Contract Agreement for the construction of City of Greeley Project,

2022 KGM PAVEMENTS REBID - #F22-05-042

WHEREAS, the Owner, as condition for receiving said bid, requires that the Principal to deposit with the Owner as Bid Guaranty equal to five percent (5%) of the amount of said bid.

NOW, THEREFORE,

(a) If said bid shall be rejected; or in the alternate,

(b) If said bid shall be accepted and the Principal shall execute and deliver a Contract Agreement (properly completed in accordance with said bid) and shall furnish a Performance and Payment Bond upon the forms prescribed by the Owner for the faithful performance of said Agreement; and shall in all other respects perform the agreement created by the acceptance of said bid;

then this obligation shall be void, otherwise the same shall remain in force and effect; it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall, in no event, exceed the penal amount of this obligation as herein stated.

The Surety, for value received, hereby stipulates and agrees that the obligations of said Surety and its bond shall be in no way impaired or affected by any extension of the time within which the Owner may accept such bid; and said Surety does hereby waive notice of any such extension.

IN WITNESS WHEREOF, the Principal and the Surety have hereunto set their hands and seals this _____ day of _____, 20_____, and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers, the day and year first set forth above.

PRINCIPAL

SURETY

Name: _____

Address: _____

By: _____

Title: _____ Attorney _____

In-Fact:

(Seal)

(Seal)

NOTE: Surety Companies executing bonds must be authorized to transact business in the State of Colorado and be accepted to the Owner.

SECTION 00160

NOTICE OF PRE-BID CONFERENCE

PROJECT: 2022 KGM PAVEMENTS REBID - #F22-05-042

NO PRE-BID MEETING WILL BE HELD

SECTION 00210

NOTICE OF AWARD

DATE:

TO:

Re: **2022 KGM PAVEMENTS REBID - #F22-05-042**

Dear Contractor:

The City of Greeley, Colorado (hereinafter called "the Owner") has considered the bids submitted for referenced work in response to its Invitation for Bids. You are hereby notified that your bid has been accepted for items and prices stated in the Bid Schedule in the amount of \$_____. You are required to execute the Contract Agreement, provide the necessary insurance certificates, the Performance and Payment Bonds within ten (10) days from the date of this Notice. If you fail to execute said Contract Agreement and furnish the necessary insurance certificates and bonds within the time allotted from this date, the Owner will be entitled to consider your rights arising out of the Owner's acceptance of your bid as abandoned and to demand payment of bid guaranty as damages. The Owner will be entitled to such other rights as may be granted by law. You are required to return an acknowledged copy of this Notice of Award and enclosures to Purchasing.

CITY OF GREELEY, COLORADO

By: Paul Trombino III

Title: Director of Public Works

ACKNOWLEDGMENT: Receipt of the foregoing Notice of Award accompanied with a Performance and Payment Bond form and a signed copy of the Contract Document is hereby acknowledged this _____ day of _____, 20_____.

Bidder: _____

By: _____

SECTION 00310

CONTRACT

THIS AGREEMENT made and entered into this _____ day of _____, 20____, by and between the City of Greeley, Colorado, and under the laws of the state of Colorado, party of the first part, termed in the Contract Documents as the "Owner" and _____ party of the second part, termed in the Contract Documents as "Contractor."

WITNESSETH: In consideration of monetary compensation to be paid by the Owner to the Contractor at the time and in the manner hereinafter provided, the said Contractor has agreed, and does hereby agree, to furnish all labor, tools, equipment and material and to pay for all such items and to construct in every detail, to wit:

PROJECT: **2022 KGM PAVEMENTS REBID - #F22-05-042**

at the price bid on the Proposal Form of \$ _____ all to the satisfaction and under the general supervision of the Project Manager for the City of Greeley, Colorado.

The Contract Documents consist of this Agreement, the Conditions of the Contract (General, Supplementary and other Conditions), the Drawings, the Specifications, all Addenda issued prior to and all Modifications issued after execution of this Agreement. These form the Contract, and all are as fully a part of the Contract as if attached to this Agreement or repeated herein.

The Project Manager named herein shall interpret and construe the Contract Documents, reconciling any apparent or alleged conflicts and inconsistencies therein; and all of the work and all details thereof shall be subject to the approval and determination of the Project Manager as to whether or not the work is in accordance with Contract Documents. Said City Project Manager shall be the final arbiter and shall determine any and all questions that may arise concerning the Contract Documents, the performance of the work, the workmanship, quality of materials and the acceptability of the completed project. The decision of the Project Manager on all questions shall be final, conclusive and binding.

AND FOR SAID CONSIDERATION IT IS FURTHER PARTICULARLY AGREED BETWEEN THE PARTIES TO THIS AGREEMENT.

1. That construction and installation of the above enumerated work for the Owner shall be completed and ready for use in accordance with the time of completion described in the Bid form of this Contract. That the above enumerated work shall begin within ten (10) days of the official "Notice to Proceed". (Contract shall become void if work is not started at specified time.)

2. That said work and materials for the project covered by the Contract Documents shall be completely installed and delivered to the Owner, within the time above stated, clear and free from any and all liens, claims, and demands of any kind.
3. The full compensation to be paid the Contractor by the Owner pursuant to the terms of this Contract shall be payable as provided in the Contract Documents.
4. This Contract consists of the following component parts, all of which are as fully a part of the Contract as herein set out verbatim, or if not attached, as if hereto attached:

- Section 00110: Invitation for Bid
- Section 00120: Bid Proposal
- Section 00130: Bid Schedule
- Section 00140: Bid Bond
- Section 00160: Pre-bid meeting
- Section 00210: Notice of Award
- Section 00310: Contract
- Section 00320: Performance Bond
- Section 00330: Payment Bond
- Section 00340: Certificate of Insurance
- Section 00350: Lien Waiver Release
- Section 00360: Debarment/Suspension Certification Statement
- Section 00410: Notice to Proceed
- Section 00420: Project Manager Notification
- Section 00430: Certificate of Substantial Completion
- Section 00440: Final Completion
- Section 00510: General Conditions of the Contract
- Section 00520: Subcontractors List
- Section 00620: Special Provisions

Addenda Number _____ Inclusive

Any modifications, including change orders, duly delivered after execution of this Agreement.

IN WITNESS WHEREOF, the parties have caused this instrument to be executed as of the day and year first above written.

City of Greeley, Colorado

Contractor_____

Approved as to Substance

Authorized Signature

City Manager-Raymond Lee III

Printed Name

Reviewed as to Legal Form
OFFICE OF THE CITY ATTORNEY

Title

By: _____
City Attorney-Doug Marek

Certification of Contract
Funds Availability

Director of Finance – John Karner

SECTION 00320

PERFORMANCE BOND

Bond No. _____

KNOWN ALL MEN BY THESE PRESENTS: that

(Firm) _____

(Address) _____

(an Individual), (a Partnership), (a Corporation), hereinafter referred to as "the Principal", and

(Firm) _____

(Address) _____

hereinafter referred to as "the Surety", are held and firmly bound unto the CITY OF GREELEY, 1000 10th Street, Greeley, CO. 80631, a Municipal Corporation, hereinafter referred to as "the Owner" in the penal sum of _____ in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, successors and assigns, jointly and severally, firmly by these present.

THE CONDITIONS OF THIS OBLIGATION are such that whereas the Principal entered into a certain Contract Agreement with the Owner, dated the _____ day of _____, 20_____, a copy of which is hereto attached and made a part hereof for the performance of City of Greeley Project,

2022 KGM PAVEMENTS REBID - #F22-05-042

NOW, THEREFORE, if the Principal shall well, truly and faithfully perform its duties, all the undertakings, covenants, terms, conditions and agreements of said Contract Agreement during the original term thereof, and any extensions thereof which may be granted by the Owner, with or without Notice to the Surety and during the life of the guaranty period, and if he shall satisfy all claims and demands incurred under such Contract Agreement, and shall fully indemnify and save harmless the Owner from all cost and damages which it may suffer by reason of failure to do so, and shall reimburse and repay the Owner all outlay and expense which the Owner may incur in making good any default, and then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the said Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract Agreement or to the work to be performed thereunder or the specifications accompanying the same shall in any way affect its obligation on this bond; and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Contract Agreement or to the work or to the specifications.

IN WITNESS WHEREOF, this instrument is executed this _____ day of _____, 20____.

PROVIDED, FURTHER, that no final settlement between the Owner and Contractor shall abridge the right of any beneficiary hereunder, whose claims may be unsatisfied.

IN PRESENCE OF:

PRINCIPAL

| | |
|------------------|-----------|
| _____ | By: _____ |
| _____ | _____ |
| _____ | _____ |
| (Corporate Seal) | (Address) |

IN PRESENCE OF:

OTHER PARTNERS

| | |
|-------|-----------|
| _____ | By: _____ |
| _____ | By: _____ |
| | By: _____ |

IN PRESENCE OF:

SURETY

| | |
|--------------------|-----------|
| _____ | By: _____ |
| (Attorney-in-Fact) | |
| _____ | _____ |
| _____ | _____ |
| (SURETY SEAL) | (Address) |

NOTE: Date of Bond must not be prior to date of Contract Agreement. If Contractor is Partnership, all partners should execute bond.

IMPORTANT: Surety Company must be authorized to transact business in the State of Colorado and be acceptable to the Owner.

SECTION 00330

PAYMENT BOND

Bond No. _____

KNOWN ALL MEN BY THESE PRESENT: that

(Firm) _____

(Address) _____

(an Individual), (a Partnership), (a Corporation), hereinafter referred to as "the Principal", and

(Firm) _____

(Address) _____

hereinafter referred to as "the Surety", are held and firmly bound unto the CITY OF GREELEY, 1000 10th Street, Greeley, Co. 80631, a Municipal Corporation, hereinafter referred to as "the Owner", in the penal sum of

_____ in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, successors and assigns, jointly and severally, firmly by these presents.

THE CONDITIONS OF THIS OBLIGATION are such that whereas the Principal entered into a certain Contract Agreement with the Owner, dated the _____ day of _____, 20_____, a copy of which is hereto attached and made a part hereof for the performance of

2022 KGM PAVEMENTS REBID - #F22-05-042

NOW, THEREFORE, if the Principal shall make payment to all persons, firms, subcontractors and corporations furnishing materials for or performing labor in the prosecution of the work provided for in such Contract Agreement, and any equipment and tools, consumed, rented or used in connection with the construction of such work and all insurance premiums on said work, and for all labor, performed in such work whether by subcontractor or otherwise, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the said Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract Agreement or to the work to be performed thereunder or the specifications accompanying the same shall in any way affect its obligation on this bond; and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Contract Agreement or to the work or to the specifications.

IN WITNESS WHEREOF, this instrument is executed this _____ day of _____, 20____.

PROVIDED, FURTHER, that no final settlement between the Owner and Contractor shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN PRESENCE OF:

PRINCIPAL

_____ By: _____

(Corporate Seal)

(Address)

IN PRESENCE OF:

OTHER PARTNERS

_____ By: _____

_____ By: _____

_____ By: _____

IN PRESENCE OF:

SURETY

_____ By: _____

(Attorney-in-Fact)

(SURETY SEAL)

(Address)

NOTE: Date of bond must not be prior to date of Contract Agreement. If Contractor is Partnership, all partners should execute Bond.

IMPORTANT: Surety Company must be authorized to transact business in the State of Colorado and be acceptable to the Owner.

ACORD™

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

05/14/2013

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

| | | |
|---|--|----------------|
| PRODUCER ABC Insurance Company P. O. Box 1234 Anywhere, USA | CONTACT NAME: | |
| | PHONE (A/C, No, Ext): | FAX (A/C, No): |
| | E-MAIL ADDRESS: | |
| | PRODUCER CUSTOMER ID #: | |
| INSURED Sample Certificate | INSURER(S) AFFORDING COVERAGE | |
| | INSURER A : Financial Rating of A | |
| | INSURER B : | |
| | INSURER C : | |
| | INSURER D : | |
| | INSURER E : | |
| | INSURER F : | |

COVERAGES

CERTIFICATE NUMBER:

REVISION NUMBER:

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

| INSR LTR | TYPE OF INSURANCE | ADDL INSR | SUBR WVD | POLICY NUMBER | POLICY EFF (MM/DD/YYYY) | POLICY EXP (MM/DD/YYYY) | LIMITS |
|----------|--|-----------|----------|---------------|-------------------------|-------------------------|--|
| | GENERAL LIABILITY | | | | | | EACH OCCURRENCE \$1,000,000 |
| | <input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY | | | | | | DAMAGE TO RENTED PREMISES (Ea occurrence) \$100,000 |
| | <input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR | | | | | | MED EXP (Any one person) \$5,000 |
| | | | | | | | PERSONAL & ADV INJURY \$1,000,000 |
| | | | | | | | GENERAL AGGREGATE \$2,000,000 |
| | GEN'L AGGREGATE LIMIT APPLIES PER: | | | | | | PRODUCTS - COMP/OP AGG \$2,000,000 |
| | <input type="checkbox"/> POLICY <input type="checkbox"/> PRO-JECT <input type="checkbox"/> LOC | | | | | | \$ |
| | AUTOMOBILE LIABILITY | | | | | | COMBINED SINGLE LIMIT (Ea accident) \$1,000,000 |
| | <input checked="" type="checkbox"/> ANY AUTO | | | | | | BODILY INJURY (Per person) \$ |
| | <input type="checkbox"/> ALL OWNED AUTOS | | | | | | BODILY INJURY (Per accident) \$ |
| | <input type="checkbox"/> SCHEDULED AUTOS | | | | | | PROPERTY DAMAGE (Per accident) \$ |
| | <input checked="" type="checkbox"/> HIRED AUTOS | | | | | | \$ |
| | <input checked="" type="checkbox"/> NON-OWNED AUTOS | | | | | | \$ |
| | | | | | | | \$ |
| | UMBRELLA LIAB | | | | | | EACH OCCURRENCE \$ |
| | EXCESS LIAB | | | | | | AGGREGATE \$ |
| | DEDUCTIBLE | | | | | | \$ |
| | RETENTION \$ | | | | | | \$ |
| | WORKERS COMPENSATION AND EMPLOYERS' LIABILITY | | | | | | <input checked="" type="checkbox"/> WC STATUTORY LIMITS <input type="checkbox"/> OTHER |
| | ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) | | | | | | E.L. EACH ACCIDENT \$100,000 |
| | If yes, describe under DESCRIPTION OF OPERATIONS below | | | | | | E.L. DISEASE - EA EMPLOYEE \$100,000 |
| | | | | | | | E.L. DISEASE - POLICY LIMIT \$500,000 |

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (Attach ACORD 101, Additional Remarks Schedule, if more space is required)

City of Greeley is named as Additional Insured on General Liability. Waiver of subrogation is included on Work Compensation. This insurance is primary and noncontributory to insurance policies held by the City.

CERTIFICATE HOLDER

CANCELLATION

| | |
|--|--|
| City of Greeley 1000 10th St Greeley, CO 80631-3808 | SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS. |
| | AUTHORIZED REPRESENTATIVE |

SECTION 00350

LIEN WAIVER RELEASE

TO: City of Greeley, Colorado (hereinafter referred to as "the OWNER".)

FROM: (hereinafter referred to as "the CONTRACTOR")

PROJECT: **2022 KGM PAVEMENTS REBID - #F22-05-042**

1. The CONTRACTOR does hereby release all Mechanic's Liens Rights, Miller Act Claim (40 USCA 270), Stop Notice, Equitable Liens and Labor and Material Bond Rights resulting from labor and/or materials, subcontract work, equipment or other work, rents, services or supplies heretofore furnished in and for the construction, design, improvement, alteration, additions to or repair of the above described project.
2. This release is given for and in consideration of the sum of \$ and other good and valuable consideration. If no dollar consideration is herein recited, it is acknowledged that other adequate consideration has been received by the CONTRACTOR for this release.
3. In further consideration of the payment made or to be made as above set forth, and to induce the OWNER to make said payment, the CONTRACTOR agrees to defend and hold harmless the OWNER, employees, agents and assigns from any claim or claims hereinafter made by the CONTRACTOR and/or its material suppliers, subcontractors or employees, servants, agents or assigns of such persons against the project. The CONTRACTOR agrees to indemnify or reimburse all persons so relying upon this release for any and all sums, including attorney's fees and costs, which may be incurred as the result of any such claims.
4. It is acknowledged that the designation of the above project constitutes an adequate description of the property and improvements for which the CONTRACTOR has received consideration for this release.
5. It is further warranted and represented that all such claims against the CONTRACTOR or the CONTRACTOR's subcontractors and/or material suppliers have been paid or that arrangements, satisfactory to the OWNER and CONTRACTOR, have been made for such payments.
6. It is acknowledged that this release is for the benefit of and may be relied upon by the OWNER, the CONTRACTOR, and construction lender and the principal and surety on any labor and material bond for the project.

7. In addition to the foregoing, this instrument shall constitute a *** (full, final and complete) *** (partial) release of all rights, claims and demands of the CONTRACTOR against the OWNER arising out of or pertaining to the above referenced project. If partial, all rights and claims on the project are released up to and including the _____ day of Month, 20 .

Dated this _____ day of _____, 20_____.

CONTRACTOR

By: _____

Title: _____

STATE OF _____)
)ss.
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____,
20____ by _____.

My Commission expires:

Notary Public

***Strike when not applicable

SECTION 00360

Debarment/Suspension Certification Statement

PROJECT: 2022 KGM PAVEMENTS REBID - #F22-05-042

The proposer certifies that neither it nor its principals are presently debarred, suspended, proposed for debarment, declared ineligible or voluntarily excluded from participation in this transaction by any Federal, State, County, Municipal or any other department or agency thereof. The proposer certifies that it will provide immediate written notice to the City if at any time the proposer learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstance.

UEI# _____

Name of Organization_____

Address_____

Authorized Signature_____

Title_____

Date_____

SECTION 00410

NOTICE TO PROCEED

Month , 20

TO: NAME

PROJECT: **2022 KGM PAVEMENTS REBID - #F22-05-042**

To Whom It May Concern:

You are hereby notified to commence work on the above-referenced project in accordance with the Contract Agreement dated Month , 20 .

You are to complete this project by Month , 20

CITY OF GREELEY, COLORADO

By: _____

Title: _____

Signature

SECTION 00420

PROJECT MANAGER NOTIFICATION

_____, 20____

TO:

PROJECT: **2022 KGM PAVEMENTS REBID - #F22-05-042**

The Owner hereby designates _____ as its Project Manager and authorizes this individual, under the authority of the Director of Public Works to make all necessary and proper decisions with reference to the project. Contract interpretations, change orders and other requests for clarification or instruction shall be directed to the Project Manager. The Director of Public Works shall be authorized to bind the Owner with respect to any decision made in accordance with the contract document.

CITY OF GREELEY, COLORADO

By: _____

Title: _____

SECTION 00430

CERTIFICATE OF SUBSTANTIAL COMPLETION

TO: CONTRACTOR

PROJECT: 2022 KGM PAVEMENTS REBID - #F22-05-042

Project or designated portion shall include: Describe Scope.

The work performed under this contract has been reviewed and found to be substantially complete. The Date of Substantial Completion of the Project or portion thereof designated above is hereby established as Month , 20 .

The date of commencement of applicable warranties required by the Contract Documents is stipulated in Section 00440 - Certificate of Final Acceptance.

DEFINITION OF DATE OF SUBSTANTIAL COMPLETION

The Date of Substantial Completion of the Work or designated portion thereof is the date certified by the Project Manager when construction is sufficiently complete, in accordance with the Contract Documents, so the Owner can occupy or utilize the Work or designated portion thereof for the use for which it is intended, as expressed in the Contract Documents.

A list of items to be completed or corrected, prepared by the Contractor and verified and amended by the Project Manager is attached hereto. The failure to include any items on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents. The date of commencement of warranties for items on the attached list is as stipulated in Section 00440 – Certificate of Final Acceptance.

The Owner shall operate and maintain the Work or portion of the Work described above from the Date of Substantial Completion and be responsible for all costs associated with the completed work excluding cost related to warrantee work.

Certificate of Substantial Completion

Page 2

The Contractor will complete or correct the Work on the list of items attached hereto within
days from the above Date of Substantial Completion.

Contractor

Owner

(Note--Owner's and Contractor's legal and insurance counsel should review and determine insurance requirements and coverage; Contractor shall secure consent of surety company, if any.)

SECTION 00440

CERTIFICATE OF FINAL ACCEPTANCE

TO: **CONTRACTOR**

PROJECT NAME: **2022 KGM PAVEMENTS REBID - #F22-05-042**

The work performed under this contract has been reviewed and found to meet the definition of final acceptance. This Certificate of Final Acceptance applies to the whole of the work.

The Date of Final Acceptance of the Project designated above is hereby established as: Month _____, 20____ at 2:00 pm. This date is also the date of commencement of applicable warranties associated with the Project described above and as required by the Contract Documents.

DEFINITION OF DATE OF FINAL ACCEPTANCE

The Date of Final Acceptance of the Work is the date certified by the City of Greeley's Project Manager when the work is 100% complete, in accordance with the Contract Documents, as amended by change order(s), or as amended below:

Amendment to the Certificate of Final Completion (if any): Describe Amendments.

The Contractor and/or the City Of Greeley shall define any claims or requests for additional compensation above (or as attachments to this document).

Final Acceptance shall not be achieved until the Contractor provides the City Of Greeley with all contract specified Contractor and Sub-contractor close out documents including final lien waivers, releases, insurances, manuals, training, test results, warranties, and other documents required by the Contract Documents, as amended.

Upon issuance of the Certificate of Final Acceptance the Contractor may submit an application for payment requesting final payment for the entire Work. Liquidated damages (if any) will be assessed at this time.

Contractor's acceptance of the final payment shall constitute a waiver by the Contractor of all claims arising out of or relating to the Work; except as noted under 'Amendment to the Certificate of Final Acceptance' above.

Agreed:

| | | | |
|--------------------------------------|---------------|--------------------------------|---------------|
| _____ Contractor's Representative | _____ DATE | _____ Project Manager (COG) | _____ DATE |
|--------------------------------------|---------------|--------------------------------|---------------|

SECTION 00510
CITY OF GREELEY
GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION
(REVISED MAY 2020)

ARTICLE 1
DEFINITIONS

- 1.1 **Bidder:** An architect, engineer, individual, firm, partnership, corporation or combination thereof, submitting a Bid for the Work.
- 1.2 **Change Notice:** A document issued to the Contractor specifying a proposed change to the Contract Documents. Unless otherwise expressly stated on the face of the Change Notice, a Change Notice is a proposal which may result in a Change Order.
- 1.3 **Change Order:** A document issued to the Contractor modifying the Contract.
- 1.4 **Construction Contract:** The Contract Documents, including the Contract for construction (hereinafter “the contract”) executed by the Contractor and the Owner covering the performance of the Work including the furnishing of labor, superintendence, materials, tools and equipment as indicated in the Contract Documents.
- 1.5 **Contract Documents:** Documents applicable to and specific to the construction of an individual Project, including the Contract and all other documents executed by the Contractor and Owner covering the performance of the work including but not limited to Specifications, Insurance Requirements, Contract Drawings, Conditions of the Contract (General and Supplementary), Owner Contractor Agreement, all Addenda, all change orders issued after execution of the Contract, Performance and Payment Bonds, and any other special provisions.
- 1.6 **Contract Drawings(Project Drawings):** Contract drawings, The plans, to include but not limited to plans, profiles, typical cross sections, general cross-sections, elevations, schedules, schematics, notes and details which show locations, character, dimensions, and details of the Work.
- 1.7 **Contractor:** The individual, firm, partnership, or corporation, or combination thereof, private, municipal, or public, including joint ventures, which, as an independent contractor, has entered into a contract with the Owner, who is referred to throughout the Contract Documents by singular number and masculine gender.
- 1.8 **Days:** Unless otherwise designated, days mean calendar days.

- 1.9 **Extra Work:** Work not provided for in the Contract as awarded but found to be essential to the satisfactory completion of the Contract, within its intended scope. Reimbursement for extra work is governed by Article 28, CHANGES, or Article 31, CONTRACTOR PROPOSALS.
- 1.10 **Field Order:** A written order issued to a contractor by the Owner, or Project Manager, effecting a minor change or clarification with instructions to perform work not included in the contract. The work will eventually become a Change Order. A field Order is an expedient process used in an emergency or need situation that in many cases does not involve an adjustment to the contract sum or an extension of the contract sum or an extension of the contract time.
- 1.11 **Final Acceptance:** The formal written acceptance by the Owner of the completed Work.
- 1.12 **Force Account:** A method of payment, other than lump sum or unit price, for Work ordered by Change Order or by written notice from the Owner. Reimbursement for force account work is governed by Article 36, FORCE ACCOUNT WORK.
- 1.13 **Furnishing:** Manufacturing, fabricating and delivering to the site of the Work materials, plant, power, tools, patterns, supplies, appliances, vehicles and conveyances necessary or required for the completion of the Work.
- 1.14 **General Conditions (GC):** A section of the Contract Documents which specifies, in general, the contractual conditions.
- 1.15 **General Terms:** Directed, required, permitted, ordered, designated, selected, prescribed or words of like import shall be understood to mean the direction, requirement, permission, order, designation, selection or prescription of the Project Manager. Approved, satisfactory, equal, necessary or words of like import shall be understood to mean approved by, acceptable to, satisfactory to, equal, necessary in the opinion of the Project Manager.
- 1.16 **Indicated:** A term meaning as shown on the Contract Drawings, or as specified and detailed in the Contract Documents.
- 1.17 **Installation, Install, or Installing:** Completely assembling, erecting and connecting material, parts, components, appliances, supplies and related equipment specified or required for the completion of the Work.
- 1.18 **Limit of Work:** Boundary within which the Work, excepting utility and drainage work in Public Right Of Way and Easements, is to be performed.
- 1.19 **Notice to Proceed:** Written notice from the Owner to the Contractor to proceed with the Work.
- 1.20 **Notice of Termination:** Written notice from the Owner to the Contractor to stop work under the Contract on the date and to the extent specified in the Notice of Termination.

- 1.21 **Owner:** The City of Greeley.
- 1.22 **Permanent Drainage Easement:** Area required to construct and maintain permanent drainage facilities for retention, release, and passage of surface water.
- 1.23 **Permanent Utility Easement:** Area required to construct and maintain utility facilities.
- 1.24 **Project:** That specific portion of the Work indicated in the Contract Documents.
- 1.25 **Project Manager:** The Owner's designated representative. The Project Manager has the authority to delegate portions of his responsibilities to others.
- 1.26 **Provide:** In reference to work to be performed by the Contractor, provide means furnish and install completely in place.
- 1.27 **Punch List:** Work determined to be incomplete or unacceptable at time of inspection for substantial completion.
- 1.28 **Samples:** Physical examples which illustrate materials, equipment, fixtures and workmanship which establish standards by which the Work will be judged.
- 1.29 **Schedule:** Acceptable schedules are BAR or GANTT Chart or CPM schedule.
- 1.30 **Shop Drawings:** Documents furnished by the Contractor to illustrate specific portions of the Work. Shop Drawings include drawings, diagrams, illustrations, schedules, charts, brochures, tables and other data describing fabrication and installation of specific portions of the Work.
- 1.31 **Specifications:** A document applicable to construction contracts containing the Technical Provisions.
- 1.32 **Subcontractor:** Any person, firm or corporation, other than the employees of the Contractor, who contracts with the Contractor to furnish labor, material or labor and materials, under this Contract.
- 1.33 **Special Provisions:** Provisions especially applicable to this Contract which invoke, modify and supplement the General Conditions which are included in the Contract Documents.
- 1.34 **Substantial Completion:** The state in the progress of Work when the Work, or a designated portion thereof, is sufficiently complete in accordance with the Contract Documents, so that Owner may access, occupy, use, and enjoy the Project, or designated portion thereof, for its intended purpose. Substantial Completion shall not occur until a temporary or permanent Certificate of Occupancy is issued and only minor punch list items remain for such Work.

1.35 **Technical Provisions:** Those provisions which specify the materials and execution of construction for work entering into the project.

1.36 **Work:** The construction, labor, materials, equipment, and contractual requirements as indicated in the Contract Documents, including alterations, amendments, or extensions thereto made by authorized changes.

1.37 **Work Site:** The area enclosed by the Limit of Work indicated in the Project Drawings and boundaries of local streets and public easements in which the Contractor is to perform work under the Contract. It shall also include areas obtained by the Contractor for use in connection with the Contract, when contiguous to the Limit of Work.

ARTICLE 2 INTERPRETATION

2.1 The documents comprising the Contract Documents are complementary and indicate the construction and completion of the Work. Anything mentioned in the Contract Specifications and not shown on the Contract Drawings, or shown on the Contract Drawings and not mentioned in the Contract Specifications, shall be of like effect as if shown or mentioned in both.

2.2 Where "as indicated", "as detailed", or words of similar import are used, it shall be understood that the reference is made to the specifications or drawings accompanying this Contract unless stated otherwise.

2.3 References to Articles or Sections include sub articles or subsections under the Article Reference (for example, a reference to Article 2 is also a reference to 2.1 through 2.9, and references to paragraphs similarly include references to subparagraphs).

2.4 Referenced Standards: Material and workmanship specified by the number, symbol, or title of a referenced standard shall comply with the latest edition or revision thereof and amendments and supplements thereto in effect on the date of the Invitation to Bid except where a particular issue is indicated.

2.5 Precedence of Contract Documents: Except as provided by Paragraph 2.1 of this Article, the Construction Contract governs over other Contract Documents, except that a Change Order governs over the Contract and previously issued Change Orders. The Contract Conditions govern over the General Conditions.

2.6 Explanations: Should it appear that the Work to be done or any of the matters relative thereto are not sufficiently detailed or explained in the Contract Documents, the Contractor shall apply to the Owner for such explanation provided as part of the Contract. Disputes over questions of fact which are not settled by agreement shall be decided by Owner. Such decision thereon will be final, subject to remedies under Article 35, DISPUTES.

2.7 Should there be any conflict, detailed instructions govern over general instructions, detail drawings have precedence over small scale drawings, and dimensions have precedence over scale.

2.8 Omissions and Misdescriptions: The Contractor shall carefully study and compare all drawings, specifications, Contract Documents and other instructions; shall verify all dimensions on the Contract Drawings before laying out the Work; shall notify the Project Manager of all errors, inconsistencies or omissions which he may discover; and obtain specific instructions in writing before proceeding with the Work. The Contractor shall not take advantage of apparent errors or omissions which may be found in the Contract Documents, but the Project Manager shall be entitled to make such corrections therein and interpretations thereof as he may deem necessary for the fulfillment of their intent. The Contractor shall be responsible for all errors in construction which could have been avoided by such examination and notification, subject to remedies under Article 35, Disputes.

ARTICLE 3 ENTITY OF CONTRACTOR

3.1 If the Contractor hereunder is comprised of more than one legal entity, each such entity shall be jointly and severally liable hereunder.

ARTICLE 4 LIABILITY AND INDEMNIFICATION

4.1 It is agreed that the Contractor assumes responsibility and liability for damages, loss or injury of any kind or nature whatever to persons or property caused by or resulting from or in connection with any act, action, neglect, omission, or failure to act when under a duty to act on the part of the Contractor or any of his officers, agents, employees, or subcontractors in his or their performance of the Work. The Contractor shall indemnify and hold harmless the Government, the State, the Owner and the Project Manager and their members, officers, agents, or employees from claims, losses, damages, charges, costs, or expenses, including attorney's fees, whether direct or indirect, to which they or any of them may be put or subjected to by reason of any such loss or injury.

ARTICLE 5 PROTECTION OF EXISTING VEGETATION, STRUCTURES, UTILITIES, AND IMPROVEMENTS AND LAND SURVEY MONUMENTS

5.1 A Contractor shall preserve and protect existing vegetation such as trees, shrubs, and grass on or adjacent to the work site which are not indicated to be removed and which do not unreasonably interfere with the construction work and he shall replace in kind any vegetation, shrubs and grass damaged by him at his own expense.

5.2 The Contractor shall protect from damage all utilities, structures, or improvements on or near the site of the Work and shall repair or restore any damage to such utilities, structures, or improvements resulting from failure to comply with the requirements of the Contract or the failure to exercise reasonable care in the performance of the Work. If the Contractor fails or refuses to repair

any such damage promptly, the Owner may have the necessary work performed and charge the cost thereof to the Contractor.

5.3 All land survey monuments shall be protected from any damage by any work and/or shall be replaced by a licensed land surveyor licensed in the state of Colorado at the contractor's expense before final acceptance is issued.

ARTICLE 6 CONTRACTUAL RELATIONSHIPS

6.1 No contractual relationship will be recognized under the Contract other than the contractual relationship between the Owner and the Contractor.

ARTICLE 7 ASSIGNMENT

7.1 The performance of the Work under the Contract shall not be assigned except upon written consent of the Owner. Consent will not be given to any proposed assignment which would relieve the Contractor or his surety of their responsibilities under the Contract. The Contractor shall not assign any monies due or to become due to him under the Contract without the previous written consent of the Owner.

ARTICLE 8 SUBCONTRACTORS

8.1 Unless otherwise required by the Contract Documents or the Bidding Documents, the Contractor, as soon as practicable after the award of the Contract, not to exceed 3 days, shall furnish to the Owner and the Project Manager, in writing the names of the subcontractors, persons or entities (including those who are to furnish materials or equipment fabricated to a special design) proposed for each of the principal portions of the Work. The Project Manager will promptly reply to the Contractor in writing whether or not the Owner or the Project Manager, after due investigation, has reasonable objection to any such proposed person or entity. Failure of the Owner or Project Manager to reply promptly shall constitute notice of no reasonable objections.

ARTICLE 9 CONDITIONS AFFECTING THE WORK

9.1 The Contractor shall be responsible for taking steps reasonably necessary to ascertain the nature and location of the Work, and the general and local conditions which can affect the Work or the cost thereof. Failure by the Contractor to do so will not relieve him from responsibility for successfully performing work without additional expense to the Owner. The Owner will not be responsible for any understanding or representations concerning conditions, unless such understanding or representations are expressly stated in the Contract.

ARTICLE 10

GRATUITIES AND CONFLICTS OF INTEREST

10.1 The Owner may, by written notice to the Contractor terminate the right of the Contractor to proceed under this Contract if it is found that gratuities (in the form of entertainment, gifts, or otherwise) were offered or given by the Contractor, or any agent or representative of the Contractor or any director, officer or employee of the Owner or its Project Manager with a view toward securing a contract or securing favorable treatment with respect to the awarding or amending, or the making of any determinations with respect to the performance of such contract. The Owner's determination shall be final subject only to judicial review.

10.2 In the event this Contract is terminated for any reason, the Owner shall be entitled to pursue the same remedies against the Contractor as it could pursue in the event of a breach of the Contract by the Contractor.

10.3 No member, officer or employee of the Owner or of a local public body during his tenure or for one year thereafter shall have any interest, direct or indirect, in this Contract or the proceeds thereof. "Local public body" means the State, any political subdivision of the State, or any agency of the State or any political subdivision thereof.

10.4 The rights and remedies of the Owner provided in this article are not exclusive and are in addition to any other rights and remedies provided by law or under the Contract.

ARTICLE 11

WARRANTY OF WORK

11.1 Except where longer periods of warranty are indicated for certain items, the Contractor warrants work under the Contract to be free from faulty materials and workmanship for a period of not less than two years from date of Final Acceptance, which two year period shall be covered by the Performance Bond and Payment Bond as specified in this Contract. The Contractor shall immediately remedy, repair, or replace, without cost to the Owner and to the entire satisfaction of the Owner, defects, damages, or imperfections due to faulty materials or workmanship appearing in said work within said period of not less than two years. Remedied work shall carry the same warranty as the original work starting with the date of acceptance of the replacement or repair. Payment to the Contractor will not relieve him of any obligation under this Contract.

11.2 The Contractor, at no additional expense to the Owner, shall also remedy damage to equipment, the site, or the building or the contents thereof which is the result of any failure or defect in the Work, and restore any work damaged in fulfilling the requirements of the Contract. Should the Contractor fail to remedy any such failure or defect within a reasonable time but no longer than ten (10) days after receipt of notice thereof, the Owner will have the right to replace, repair, or otherwise remedy such failure or defect at the Contractor's expense.

11.3 Subcontractors', manufacturers', and suppliers' warranties and guarantees, expressed or implied, respecting any part of the Work and any material used therein shall be deemed obtained and

shall be enforced by the Contractor for the Benefit of the Owner without the necessity of separate transfer or assignment thereof.

11.4 The rights and remedies of the Owner provided in this Article are in addition to and do not limit any rights and remedies afforded by the Contract or by law.

ARTICLE 12 MATERIAL

12.1 Unless otherwise indicated in this Contract, equipment, material and products incorporated in the Work covered by this Contract shall be new and of the grade specified in the Contract for the purpose intended. Unless otherwise specifically indicated, reference to equipment, material, product or patented process by trade names, make, or catalog number, shall be regarded as establishing a standard of quality and shall not be construed as limiting competition, and the Contractor may, at his option, use any equipment, material, article, or process which is equivalent to that named, subject to the requirements of Paragraph 12.2 of this Article.

12.2 Within the scope of his authority, the Project Manager shall be the sole judge of the quality and suitability of proposed alternative equipment, material, article or process. The burden of proving the quality and suitability of the alternative shall be upon the Contractor. Information required by the Project Manager in judging an alternative shall be submitted for approval by the Contractor at the Contractor's expense prior to installation.

12.3 Where use of an alternative material involves redesign of or changes to other parts of the Work, the cost and the time required to affect such redesign or change will be considered in evaluating the suitability of the alternative material. Redesign and changes in other parts of the Work shall be at the Contractor's expense.

12.4 No action relating to the approval of alternative materials will be taken by the Project Manager until the request for substitution is made in writing by the Contractor accompanied by complete data as to the quality and suitability of the materials proposed. Such request shall be made in ample time to permit approval without delaying the Work.

12.5 Disposal of material outside the Work Site: The Contractor shall make his own arrangements for legally disposing of waste and excess materials outside the Work Site and he shall pay costs therefore.

12.6 Property rights in materials: The Contractor shall have no property right in materials after they have been attached or affixed to the Work or the soil, or after payment has been made by the Owner to the Contractor for materials delivered to the site of the Work, or stored subject to or under the control of the Owner as provided in Article 24, PROGRESS PAYMENTS.

ARTICLE 13 WORKMANSHIP AND UNAUTHORIZED WORK

13.1 Work under this Contract shall be performed in a skillful and workmanlike manner. The Project Manager may, in writing, require the Contractor to remove from the work any employee the Project Manager determines incompetent, careless or otherwise objectionable.

13.2 Unauthorized work: Work performed beyond the lines and grades shown on the Contract Drawings, approved Working and Shop Drawings and Extra work done without written authorization, will be considered as unauthorized work, and the Contractor will receive no compensation therefore. If required by the Owner, unauthorized work shall be remedied, removed, or replaced by the Contractor at the Contractor's expense. Upon failure of the Contractor to remedy, remove or replace unauthorized work, the Owner may take courses of action set out in Paragraph 15.3 of Article 15, INSPECTION.

ARTICLE 14 SUPERINTENDENCE BY CONTRACTOR

14.1 The Contractor shall give his personal superintendence to the Work or have a competent foreman or superintendent, hereinafter designated his authorized representative, satisfactory to the Owner, on the Work Site at all times during progress, with authority to act for him. There shall be provided at all times, a reasonable method of communication directly to the Contractor if the Owner experiences any problems or difficulties with the Superintendent.

ARTICLE 15 INSPECTION/TESTING

15.1 Work (which term includes but is not restricted to materials, workmanship and manufacture and fabrication of components) will be subject to inspection and test by the Project Manager at all reasonable times and at all places prior to acceptance. Such inspection and test is for the sole benefit of the Owner and shall not relieve the Contractor of the responsibility of providing quality control measures to assure that the Work strictly complies with the Contract Documents. No inspection or test by the Project Manager shall be construed as constituting or implying acceptance. Inspection or test shall not relieve the Contractor of responsibility for damage to or loss of the material prior to acceptance, nor in any way affect the continuing rights of the Owner after acceptance of the completed Work.

15.2 The Contractor shall, at his own expense, replace any material or correct any workmanship found not to conform to the contract requirements, unless the Owner consents in writing to accept such material or workmanship with an appropriate adjustment in contract price. The Contractor shall promptly segregate and remove rejected material from the premises at his own expense.

15.3 If the Contractor does not promptly replace rejected material or correct the rejected workmanship, the Owner (1) may, by separate contract or otherwise, replace such material or correct such workmanship and charge the cost thereof to the Contractor, or (2) may terminate the Contractor's right to proceed in accordance with Article 38, TERMINATION FOR DEFAULT-DAMAGES FOR DELAY--TIME EXTENSIONS.

15.4 The Contractor shall give the Project Manager ample notification of inspections and tests, and the Project Manager will perform, except as otherwise specifically provided, said inspections and tests in such manner as not to unnecessarily delay the work. The Owner will have the right to charge to the Contractor any additional cost of inspection or test or when reinspection or retest is necessitated by prior rejection.

15.5 Should it be considered necessary, before acceptance of the entire work, to make an examination of work already completed by removing or tearing out same, the Contractor shall on request promptly furnish all necessary facilities, labor and material therefore. If such work is found to be defective or nonconforming in any material respect, due to the fault of the Contractor or his subcontractors, he shall defray the expenses of such examination and of satisfactory reconstruction. If, however, such work is found to meet the requirements of the Contract, an equitable adjustment will be made in the contract price to compensate the Contractor for the additional services involved in such examination and reconstruction. If completion for the work has been delayed thereby, he will, in addition, be granted an equitable extension of time.

15.6 The Project Manager shall have access to the work during its construction. Work done and materials provided will be subject to the Project Manager's on-site and off-site inspection and approval. When work is to be performed during hours other than during his normal schedule, the Contractor shall so advise the Project Manager not less than 24 hours in advance. The Contractor shall provide access to the work for authorized representatives of the Owner.

15.7 The Project Manager's inspection and approval of work or materials shall not relieve the Contractor of any of his obligations to fulfill the requirements of the Contract Documents. Work and materials not meeting the requirements of the Contract shall not be incorporated in the Work. Unsuitable or substandard work or materials may be rejected by the Project Manager, notwithstanding that such work or materials may have been previously inspected by the Project Manager, or that payment therefore has been included in a progress payment.

ARTICLE 16

PERMITS AND COMPLIANCE WITH LAWS

16.1 The Contractor shall without additional expense to the Owner be responsible for obtaining necessary licenses and permits and for complying with applicable Federal, State, County and Municipal laws, codes and regulations in connection with the commencement of the work. The Contractor is required to supply the Project Manager with complete and final copies of license and permits including final inspection documentation. The Contractor shall be required to obtain permits at his own expense. The Contractor shall protect, indemnify and hold harmless the Owner and the Project Manager and their members, officers, agents and employees against claims and liabilities arising from or based on the violation of requirements of law or permits whether by the Contractor, his employees, agents or subcontractors.

ARTICLE 17
RIGHTS IN LAND IMPROVEMENT

17.1 The Contractor shall make no arrangements with any person to permit occupancy or use of any land, structure or building within the work site for any purpose whatsoever, either with or without compensation, in conflict with any agreement between the Owner and any owner, former owner or tenant of such land, structure or building. The Contractor shall not occupy Owner property outside the work site without obtaining prior written approval from the Owner.

ARTICLE 18
DAMAGE TO THE WORK AND RESPONSIBILITY FOR MATERIALS

18.1 The Contractor shall be responsible for materials delivered and work performed until completion and final acceptance of the entire construction thereof.

18.2 The Contractor shall bear the risk of injury, loss or damage to any and all parts of the work for whatever cause, whether arising from the execution or from the non-execution of work. The Contractor shall rebuild, repair or restore work and materials which have been damaged or destroyed from any cause before completion and acceptance of the work and shall bear the expense thereof. The Contractor shall provide security and drainage and erect temporary structures as necessary to protect the work and materials from damage.

18.3 The Contractor shall be responsible for materials not delivered to the site for which any progress payment has been made to the same extent as if the materials were so delivered.

ARTICLE 19
EMERGENCIES

19.1 In an emergency affecting the safety of life, the work, or adjacent property, the Contractor shall notify the Project Manager as early as possible that an emergency exists. In the meantime, without special instruction from the Project Manager as to the manner of dealing with the emergency, the Contractor shall act at his own discretion to prevent such threatened loss or injury. As emergency work proceeds, the Project Manager may issue instruction, which the Contractor shall follow. The amount of compensation to which Contractor is entitled on account of emergency work will be determined in accordance with Article 28, CHANGES.

ARTICLE 20
NOTICE TO PROCEED

20.1 The Owner will issue a Notice to Proceed to the Contractor within 15 days after the Contractor has executed the Contract and has delivered the specified bonds and Certificates of Insurance as required by the Owner. Except as specifically authorized in writing by the Owner, the Contractor is not authorized to perform work under the Contract until the effective date of the Notice to Proceed. Within 10 days after the effective date of such Notice to Proceed, the Contractor shall

commence work and shall diligently prosecute the Work to completion within the time limits specified. These time periods may be modified by mutual written agreement of both the Owner and Contractor.

ARTICLE 21

PROGRESS SCHEDULE AND REQUIREMENTS FOR MAINTAINING PROGRESS

21.1 The Contractor shall, at the pre-construction meeting, prepare and submit to the Project Manager for approval a practicable schedule, showing the order in which the Contractor proposes to carry on the work, the date on which he will start the several salient features (including procurement of materials, plant and equipment) and the contemplated dates for completing the same. The schedule shall be in the form of a progress chart of suitable scale to indicate appropriately the percentage of work scheduled for completion at any time. The Contractor shall update the chart with the actual progress monthly or at such intervals as directed by the Project Manager, and shall immediately deliver three copies thereof. If the Contractor fails to submit a progress schedule within the time herein prescribed, the Project Manager may withhold approval of progress payment estimates until such time as the Contractor submits the required progress schedule.

21.2 The Contractor shall prosecute the work in accordance with the latest approved Progress Schedule. In the event, that the progress of items along the critical path is delayed, the Contractor shall revise his planning to include additional forces, equipment, shifts or hours as necessary to meet the time or times of completion specified in this Contract. Additional costs resulting therefrom will be borne by the Contractor. The Contractor shall make such changes when his progress at any check period does not meet at least one of the following two tests:

21.2.1 The percentage of dollar value of completed work with respect to the total amount of the Contract is within ten percentage points of the percentage of the Contract time elapsed, or;

21.2.2 The percentage of dollar value of completed work is within ten percentage points of the dollar value which should have been performed according to the Contractors own network analysis previously approved by the Project Manager.

21.3 Failure of the Contractor to comply with the requirements under this provision will be grounds for determination that the Contractor is not prosecuting the work with such diligence as will ensure completion within the time of completion specified in this Contract. Upon such determination, the Owner may terminate the Contractor's right to proceed with the work, or any separate part thereof, in accordance with Article 38, TERMINATION FOR DEFAULT--DAMAGES FOR DELAY-TIME EXTENSIONS of these General Conditions.

ARTICLE 22

SUSPENSION OF WORK

22.1 The Owner reserves the right to suspend, delay or interrupt execution of the whole or any part of the work for such period of time as he may determine to be appropriate for his convenience.

22.2 If the performance of all or any part of the work is, for an unreasonable period of time, suspended, delayed, or interrupted by an act of the Owner in the administration of this Contract or by his failure to act within the time specified in this Contract (or if no time is specified, within a reasonable time), an adjustment shall be made for any increase in the cost of performance of this Contract (excluding profit) necessarily caused by such unreasonable suspension, delay, or interruption and the contract modified in writing accordingly. However, no adjustment shall be made under this clause for any suspension, delay, or interruption to the extent (1) that performance would have been so suspended, delayed or interrupted by any other cause, including the fault or negligence of the Contractor or (2) for which an equitable adjustment is provided for or excluded under any other provision of this Contract.

22.3 No claim under this clause shall be allowed (1) for any costs incurred more than 20 days before the Contractor shall have notified the Owner in writing of the act of failure to act involved (but this requirement shall not apply as to a claim resulting from a suspension order), and (2) unless the claim, in an amount stated is asserted in writing as soon as practicable after the termination of such suspension, delay, or interruption, but not later than the date of final payment under the Contract.

ARTICLE 23

FINAL INSPECTION AND ACCEPTANCE

23.1 Final inspection: When the Contractor notifies the Project Manager in writing that the work has been completed, the Owner will make the final inspection for the purpose of ascertaining that the work has been completed in accordance with the requirements of the Contract Documents.

23.2 Acceptance of the work: When the Owner has made the final inspection and has determined that the work has been completed in accordance with the Contract Documents, the Owner will accept the work. Immediately upon and after Final Acceptance, the Contractor will be relieved of the duty of maintaining and protecting the work as a whole. The Contractor will be relieved of his responsibility for injury to persons or property or damage to the work which occurs after Final Acceptance, except that the Contractor will not be relieved of his responsibility for injury to persons or property arising from his duties and obligations under Article 4, LIABILITY AND INDEMNIFICATION.

23.3 Final Acceptance shall be final and conclusive, and no further performance of work shall be required except with regards to latent defects, fraud or such gross mistakes as may amount to fraud, or with regard to the Owner's rights under any warranty or guarantee. All punch list items must be completed and building permits provided to Owner before final acceptance is issued.

23.4 Date of Substantial Completion for all Work shall be within the number of calendar days bid by the Contractor on the Bid proposal.

23.5 Date of Final Completion shall be the date specified on the Certificate of Final Completion.

ARTICLE 24 PROGRESS PAYMENTS

24.1 The Owner will make progress payments monthly as the work proceeds, on estimates approved by the Project Manager. Payment will be made within 15 days after progress estimates are approved by the Project Manager and Department Head. On request of the Project Manager, the Contractor shall furnish a detailed estimate of the total contract price each showing the amount included therein for each principal category of the work, to provide a basis for determining the amount of progress payments. In the preparation of estimates, the Owner, at its sole discretion, may authorize material delivered on the site and preparatory work done to be taken into consideration which is to be submitted at the pre-construction meeting.

24.2 In making such progress payments, five percent of the estimated amount will be retained until Final Acceptance of the Contract work; in addition, the Owner shall retain from all Progress payments an amount equal to all statutory claims filed against the Contractor. Also, whenever the work is substantially complete, the Owner if it considers the amount retained to be in excess of the amount adequate for its protection, may release to the Contractor all or a portion of such excess amount. Substantial completion as used in this Paragraph 24.2 shall mean the following: Substantial completion of the work or a portion thereof shall be when, as determined by both the Project Manager and the Owner, the construction is sufficiently completed in accordance with the Contract Documents and any modification thereto as provided in the Contract to permit the Owner to occupy the work or a portion of the work for the use which it is intended.

24.3 Material and work covered by progress payments shall become the sole property of the Owner. This provision shall not be construed as relieving the Contractor from the sole responsibility for material and work upon which payments have been made, the restoration of damaged work or as waiving the right of the Owner to require the fulfillment of the terms of the Contract.

ARTICLE 25 PAYMENT TO SUBCONTRACTORS

25.1 The Contractor shall pay all subcontractors for and on account of work performed by such subcontractors in accordance with the terms of their respective subcontract. Prior to final payment an unconditional lien waiver release form will be required by the Owner.

ARTICLE 26 PAYMENT OF TAXES

26.1 The price or prices for the work will include full compensation for taxes that the Contractor is or may be required to pay. The Contractor shall bear the risk of any added or increased taxes occurring during the prosecution of the work. A change in taxes shall under no circumstances entitle the Contractor to an adjustment under the Contract.

26.2 The Contractor's attention is directed to the fact that this project is exempt from payment of City of Greeley Sales and Use taxes, and such taxes must not be included in the amount of bid.

26.3 The Contractor shall pay all sales and use taxes required to be paid, shall maintain such records in respect of his work, which shall be separate and distinct from all other records maintained by the Contractor and shall be available for inspection by the Owner at any and all reasonable times, and shall furnish the Owner with such data, as may be necessary to enable the Owner to obtain any refunds of such taxes which may be available to the Owner under the laws, ordinances, rules or regulations applicable to such taxes. The Contractor shall require each of his subcontractors to pay all sales and use taxes required to be paid and to maintain such records and furnish the Contractor with such data as may be necessary to enable the Owner to obtain a refund of the taxes paid by such subcontractors.

ARTICLE 27 FINAL PAYMENT

27.1 After the Work has been accepted by the Owner, subject to the provisions of Article 11, WARRANTY OF WORK and Article 23, FINAL INSPECTION AND ACCEPTANCE of these General Conditions, a final payment due the Contractor under this Contract shall be paid upon the presentation of properly executed voucher and after the Contractor shall have furnished the Owner with a release of all claims against the Owner arising by virtue of this Contract, other than claims in stated amounts as may be specifically excepted by the Contractor from the operation of the release. If the Contractor's claim to amounts payable under the contract has been assigned under the assignment of Claims Act of 1940, as amended (31 U.S.C. 203, 41 U.S.C. 15), a release may also be required of the assignee.

27.2 If any mechanic's or material man's lien or notice of claim of such lien is filed or recorded against the project for labor, materials, supplies or equipment claimed to have been furnished to or incorporated into the Work, or for other alleged contribution thereto, the Owner will have the right to retain from payments otherwise due the Contractor, in addition to other amounts properly withheld under this Article or under other provisions of the Contract, an amount equal to such lien or liens claimed.

27.3 Further, the Owner will have the right to retain from final payment an amount equal to all liquidated damages claimed by the Owner.

27.4 Retainages held by the Owner for any state or federal statutory claim arising out of the project will be held by the Owner in addition to all retainages held under the provisions of the Contract.

ARTICLE 28 CHANGES

28.1 The Owner may, at any time, without notice to the sureties, by written notice or order designated or indicated to be a Change Notice or Change Order, make any change in the work within the general scope of the Contract in accordance with all of the Owner's processes and procedures whether or not set forth herein, including but not limited to changes:

28.1.1 In the Contract (including drawings and designs);

28.1.2 In the method or manner of performance of the work;

28.1.3 In Owner furnished facilities, equipment, materials, services, or site; or

28.1.4 Directing acceleration in performance of the work.

28.2 Any other order (which terms as used in Paragraph 28.2 of this Article shall include direction, instruction, interpretation, or determination) from the Project Manager, which causes any change, shall be treated as a Change Notice under this Article provided that the Contractor gives the Project Manager written notice stating the date, circumstances and source of the order, and that the Contractor regards the order as a Change Notice. The Contractor shall notify the Project Manager when he receives direction, instruction, interpretation or determination from any source which may cause any change in the work. Such notification shall be given to the Project Manager before the Contractor acts on said direction, instruction, interpretation or determination.

28.3 Except as herein provided, no order, statement, or conduct of the Architect/ Project Manager or any other person shall be treated as a change under this Article or entitle the Contractor to an equitable adjustment hereunder.

28.4 If any change under this Article causes an increase or decrease in the Contractor's cost of, or the time required for, the performance of any part of the Work under this Contract, whether or not changed by an order, an equitable adjustment will be made and the Contract modified accordingly by a written Change Order; provided, however, that except for claims based on errors in the Contract Documents, no claim for change under Paragraph 28.2 of this Article will be allowed for costs incurred more than 20 days before the Contractor gives written notice as herein required; and provided that in the case of errors in the Contract Documents for which the Owner is responsible, the adjustment will include increased cost, reasonably incurred by the Contractor in attempting to comply with such errors in the Contract Documents. No claim shall be made for the type of errors in the Contract Documents which are set forth in Article 2, INTERPRETATION.

28.5 If the Contractor intends to assert a claim for an equitable adjustment under this Article, he shall, within 30 days after receipt of a written Change Order under Paragraph 28.1 of this Article or the furnishing of a written notice under Paragraph 28.2 of this Article, submit to the Project Manager a written statement setting forth the general nature and monetary extent of such claim, unless this period is extended in writing by the Owner. The statement of claim hereunder may be included in the notice under Paragraph 28.2 of this Article.

28.6 No claim by the Contractor for an equitable adjustment hereunder will be allowed unless asserted as described in Paragraphs 28.4 and 28.5 above.

28.7 Payment will not be made under the provisions of this Article for such work or materials which are so required to be done or furnished in or about or for the performance of the Work and which are not mentioned, specified or indicated or otherwise provided for in this Contract or in the Contract Documents so far as such work or materials may be, in the opinion of the Project Manager, susceptible of classification under or reasonably inferred to be included in the Bid Items of the Bid Form.

28.8 In case the Contractor is ordered to perform work under this Article for which payments are not determined under Paragraph 28.7 of this Article, which in the opinion of the Owner it is impracticable to have performed by the Contractor's own employees, the Contractor will, subject to the approval of the Owner, be paid the actual cost to him of such work and, in addition thereto, a negotiated amount to cover the Contractor's superintendence, administration and other overhead expenses. The terms and conditions of any subcontract which the Contractor may propose to enter into in connection with work under the provision of this Article shall be subject to the written approval of the Project Manager before such subcontract is made. The contractor shall be responsible for the work of the subcontractors and shall be liable therefore as if he had performed the work directly.

28.9 In cases other than those described in Paragraphs 28.7 and 28.8 above, the Owner and the Contractor (on his own behalf and on behalf of his subcontractors) shall endeavor to negotiate a reasonable contract price and line adjustment in a Change Order on terms appropriate to the changed work. The Contractor will be required to submit a sufficiently detailed price proposal supported with sufficient documentation that (1) the Owner can determine that the proposal reflects all impacts on the Contract from work additions, deletions and modifications shown in the Change Notice being priced, (2) the proposed prices are set out in such a way that their reasonableness can be evaluated against prices based on adequate price competition, bid unit prices, established catalog or market prices of commercial items sold in substantial quantities to the general public, prices set by law or regulation, recognized published price lists and indices, independently developed cost estimates and other appropriate price comparisons, and (3) contract provisions relating to Contract changes costing over \$100,000.00 are complied with. If any prices or other aspects are conditional, such as on firm orders being made by a certain date or the occurrence or nonoccurrence of an event, the Contractor shall identify these aspects in his proposal. A negotiated Change Order shall set out prices, scheduling requirements, time extensions and all costs of any nature arising out of the issuance of a Change Notice except for those cost and time aspects explicitly reserved on the face of the Change Order. Except for these explicit reservations, the execution of a Change Order by both parties will be deemed accord and satisfaction of all claims of any nature arising from the issuance of the Change Notice negotiated.

28.10 In the event the Contractor and the Owner are unable to agree upon the Contractor's entitlement to an equitable adjustment or upon the amount thereof, or in the event that it is in the best interest of the Owner to have the Work proceed pending negotiation of amount of an equitable adjustment, the Owner may direct the Contractor to perform the Work in accordance with the Owner order, direction, instruction, interpretation, or determination, with any Contract price adjustments and progress payments for the Work to be determined on a Force Account basis in accordance with

Article 36. The Contractor shall continue diligently to perform the Contract in accordance with the Owner's order, direction, instruction, interpretation, or determination during negotiations with respect to the Contractor's entitlement to an equitable adjustment hereunder or to the amount of any Contract price adjustment or time extension. The Contractor and the Owner may agree on certain aspects of an equitable adjustment and take those aspects out of operation of Force Account provisions. In the event a mutually agreeable equitable adjustment cannot be made, the Contractor shall continue diligently to perform the orders as he proceeds with his remedies under Article 35, DISPUTES, and shall continue to receive compensation on a Force Account basis.

28.11 For contract changes, the Owner, State and Government or their representative shall have the audit and inspection rights as described below:

28.11.1 Where the agreed payment method for any contract changes is to be by cost reimbursement, time and material, labor hours or any combination thereof, the Contractor shall maintain and the Owner or its representatives shall have the right to examine books, records, documents and other evidence and accounting principles and practices sufficient to reflect properly all direct and indirect costs of whatever nature claimed to have been incurred and anticipated to be incurred for the performance of the contract changes under this sub article.

28.11.2 Contract changes exceeding \$100,000.00 in cost: For submitted cost and pricing data in connection with pricing a contract modification referred to in this sub article, unless such pricing is based on bid unit prices, adequate price competition, established catalog or market prices of commercial items sold in substantial quantities to the public, or prices set by law or regulation, the Owner or his representatives and the Comptroller General of the United States and his representatives who are employees of the United States shall have the right to examine all books, records, documents and other data of the Contractor related to the negotiation of or performance under the contract Change Orders for the purpose of evaluating the accuracy, completeness and currency of the cost or pricing data submitted. The right of examination shall extend to all documents necessary to permit adequate evaluation of the cost or pricing data submitted, along with the computations and projections used therein.

28.11.3 Contract changes exceeding \$10,000.00 but not \$100,000.00 in cost: The Owner or his representatives prior to the execution of any contract Change Order in this sub article or for a period of twelve months after execution shall, unless such pricing is based on bid unit prices, adequate price competition, established catalog of market prices or commercial items sold in substantial quantities to the public, or prices set by law or regulation, have the right to examine all books, records, documents, and other data of the Contractor relating to the negotiation and contract Change Order for the purpose of evaluating the accuracy, completeness, and currency of the data is submitted upon which negotiation is or has been based. To the extent the examination reveals inaccurate, incomplete or noncurrent data, the Project Manager may renegotiate the contract Change Order price based on such data.

28.11.4 Contract changes of less than \$10,000.00 in cost: The Owner may require from the Contractor appropriate documentation to support the prices being negotiated for contract changes

under this sub article, and may refuse to complete negotiations until satisfactory documentation is submitted.

28.11.5 Availability: The materials described in Paragraphs 28.11.1 and 28.11.2 above shall be available at the office of the Contractor at all reasonable times for inspection, audit or reproduction until three years from the date of final payment under this Contract and for records which relate to Article 35, DISPUTES, or litigations or the settlement of claims arising out of the negotiation or the performance of contract changes over 100,000.00, records shall be made available until such litigations or claims have been resolved.

28.11.6 The Contractor shall insert a clause containing all the provisions in this Paragraph 28.11, including this subparagraph 28.11.6, in all subcontracts hereunder except altered as necessary for proper identification of the contracting parties and Owner.

28.11.7 For the purposes of Paragraph 28.11 of this Article, costs shall include liquidated damages which would be assessed if extension(s) of time were not granted by contract Change Order.

28.11.8 The requirements of this audits and records article are in addition to other audit, inspection and record keeping provisions elsewhere in the Contract Documents.

28.12 Changes involving aggregate increases and decreases in excess of \$100,000.00 shall be subject to the following:

28.12.1 A change involves aggregate increases and decreases in excess of \$100,000.00 if the total value of work affected, without regard to the arithmetic sign, exceeds this amount; for example, a change order adding work in the amount of \$75,000.00 and deleting work in the amount of \$50,000.00 will be considered to involve aggregate increases and decreases of \$125,000.00.

28.12.2 The Contractor shall submit in support of all items not based upon unit prices or lump sum prices contained in the Contract or upon the established prices at which commercial items are sold in substantial quantities to the public, statements by his vendors that the prices charged the Contractor are not greater than the prices charged by the respective vendors to their most favored customers for the same items in similar quantities.

28.12.3 Price reductions for Defective Cost or Pricing Data--Pricing Adjustments: If any price, including profit and fee, negotiated in connection with any price adjustment was increased by any significant sums because:

28.12.3.1 The Contractor furnished cost or pricing data which were not complete, accurate, and current as certified in the Contractor's Certificate of Current Cost or Pricing Data;

28.12.3.2 A subcontractor, pursuant to Paragraph 28.13 of this Article entitled Subcontractor Cost or Pricing Data--Pricing Adjustments or any subcontract provision therein required, furnished costs or pricing data which were not complete, accurate, and current as certified in the Subcontractor's Certificate of Current Cost or Pricing Data;

28.12.3.3 The subcontractor or his prospective subcontractor furnished cost or pricing data which were required to be complete, accurate, and current and to be submitted to support a subcontract cost estimate furnished by the Contractor but which were not complete, accurate, and current as of the date certified in the Contractor's Certificate of Current Cost or Pricing Data; or

28.12.3.4 The Contractor or a subcontractor or his prospective subcontractor furnished any data, not within subparagraphs 28.12.3.1, 28.12.3.2, or 28.12.3.3 above, which were not complete, accurate, and current as submitted, the price shall be reduced accordingly and the Contract shall be modified in writing as may be necessary to reflect such reduction. Any reduction in the Contract Price due to defective subcontract data of a prospective subcontractor, when the subcontract was not subsequently awarded to such subcontractor, will be limited to the amount (plus applicable overhead and profit markup) by which the actual subcontract, or actual cost to the Contractor if there was no subcontract, was less than the prospective subcontract cost estimate submitted by the Contractor, provided the actual subcontract price was not affected by defective cost or pricing data.

28.13 Subcontract Cost of Pricing Data-- Pricing Adjustment:

28.13.1 When negotiating a change involving increases or decreases in excess of \$100,000.00, the Contractor shall require subcontractors hereunder to submit cost or pricing data under the following circumstances. Prior to award of any cost-reimbursement type, incentive or price redeterminable subcontract;

28.13.1.2 Prior to the award of any subcontract the price of which is expected to exceed \$100,000.00;

28.13.1.3 Prior to the pricing of any subcontract change modifications for which the price is expected to exceed \$100,000.00, except in the case of 28.13.1.2 and 28.13.1.3 where the price is based on adequate price competition, established catalog or market prices, commercial items sold in substantial quantities to the general public, or prices set by law or regulation.

28.13.2 The Contractor shall require subcontractors to certify to the best of their knowledge and belief that the cost and pricing data submitted under subparagraph 28.13.1 of this Article are accurate, complete, and current as of the date of execution, which date shall be as close as possible to the date of agreement on the negotiated price of the contract Change Order.

28.13.3 The Contractor shall insert the substance of Paragraph 28.13 of this Article, including this subparagraph 28.13.3, in each subcontract hereunder which exceeds \$100,000.00.

ARTICLE 29

PERFORMANCE BOND AND LABOR AND MATERIAL PAYMENT BOND

29.1 The Contractor shall furnish a Performance Bond in the amount equal to one hundred percent (100%) of the Contract Sum as security for the faithful performance of this Contract and also a Labor and Material Payment Bond in an amount not less than one hundred percent (100%) of the

Contract Sum or in a penal sum not less than that prescribed by State, or local law, as security for the payment of all persons performing labor on the Project under this Contract and furnishing materials in connection with this Contract. The Performance Bond and the Labor and Material Payment Bond may be in one or in separate instruments in accordance with local law and shall be delivered to the Owner not later than the date of execution of the Contract.

29.2 Performance Bonds, Labor and Material Payment Bonds and other such sureties shall provide that the surety and the Contractor are both jointly and severally liable and obligated under respective Bond or other surety agreement and shall incorporate acknowledge of applicable provisions of state law into all documents furnished in connection with the project.

ARTICLE 30 DIFFERING SITE CONDITIONS

30.1 The Contractor shall within 10 days of actual or constructive notice of a differing site condition, promptly, and before such conditions are disturbed, notify the Project Manager in writing of: (1) subsurface or latent physical conditions at the site differing materially from those indicated in the Contract Documents, or (2) unknown physical conditions at the site, of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract. The Project Manager will promptly investigate the conditions, and if such conditions materially differ and cause an increase or decrease in the Contractor's cost of, or the time required for, performance of any part of the work under the Contract, whether or not changed as a result of such conditions, an equitable adjustment may be made subject to Owner's approval and the Contract modified in writing accordingly.

30.2 No claim of the Contractor under this Article will be allowed unless the Contractor has given the notice required in Paragraph 30.1 of this Article.

30.3 No claim by the Contractor for an equitable adjustment hereunder will be allowed if asserted after final payment under this Contract.

ARTICLE 31 CONTRACTOR PROPOSALS

31.1 The Contractor may at any time submit to the Project Manager for his review proposed modifications to the Contract Documents, supported by a cost/price proposal. Upon acceptance of the proposed modifications by the Owner, a Change Order will be issued. Denial of the proposed modification will neither provide the Contractor with any basis for claim for damages nor release the Contractor from contractual responsibilities. An equitable adjustment in the form of a contract price reduction will be made if the change results in a reduction of the cost of performance and the Contractor will not be entitled to share in said savings unless the proposal is made under Paragraph 31.2 of this Article. Except as provided in Paragraph 31.2 of this Article, the Contractor will not be compensated for any direct, incidental or collateral benefits or savings the Owner receives as a result of the proposal.

31.2 Value Engineering Change Proposals: The Contractor may submit to the Project Manager one or more cost reduction proposals for changing the Contract requirements. The Proposals shall be based upon a sound study made by the Contractor indicating that the proposal:

31.2.1 Will result in a net reduction in the Total Contract amount;

31.2.2 Will not impair any essential function or characteristic of the Work such as safety, service life, reliability, economy of operation, ease of maintenance and necessary standardized features.

31.2.3 Will not require an unacceptable extension of the contract completion time; and

31.2.4 Will require a change in the Contract Documents and such change is not already under consideration by the Owner.

31.3 The Owner may accept in whole or in part any proposal submitted pursuant to the previous Paragraph 31.2 by issuing a Change Order which will identify the proposal on which it is based. The Change Order will provide for an equitable adjustment in the Contract Price and will revise any other affected provisions of the Contract Documents. The equitable adjustment in the Contract price will be established by determining the net savings resulting from the accepted change. The net savings resulting from the change will be shared between the Contractor and the Owner on the basis of 50 percent for the Contractor and 50 percent for the Owner and will be limited to this contract for any one Value Engineering Change Proposal. Net savings will be determined by deducting from the estimated gross savings, the Contractor's costs of developing and implementing the proposal (including any amount attributable to a subcontractor) and the estimated amount of increased costs to the Owner resulting from the change, such as evaluation, implementation, inspection, related items, and the Owner-furnished material. Estimated gross savings will include Contractor's labor, material, equipment, overhead, profit and bond. The Contract price will be reduced by the sum of the Owner's costs and share of the net savings. For the purpose of this Article, the applicable provisions of Article 28, CHANGES, shall be used to determine the equitable adjustment to the Contract price.

31.4 The Owner will not be liable for delay in acting upon, or for failure to act upon, any proposal submitted pursuant to Paragraph 31.2 of this Article. The decision of the Owner as to the Acceptance or rejection of any such proposal under the Contract will be final. The submission of a proposal by the Contractor will not in itself affect the rights or obligations of either party under the Contract.

31.5 The Contractor shall have the right to withdraw part or all of any proposal he may make under Paragraph 31.2 of this Article at any time prior to acceptance by the Owner. Such withdrawal shall be made in writing to the Project Manager. Each such proposal shall remain valid for a period of 60 days from the date submitted. If the Contractor wishes to withdraw the proposal prior to the expiration of the 60-day period, he will be liable for the cost incurred by the Owner in reviewing the proposal.

31.6 The Contractor shall specifically identify any proposals under Paragraph 31.2 of this Article with the heading "Value Engineering Change Proposal", or the proposal will be considered as made under Paragraph 31.1 of this Article.

31.7 The Contractor, in connection with each proposal he makes for a Contract Change Notice under this Article shall furnish the following information:

31.7.1 a description of the difference between the existing Contract requirement and the proposed change, and the comparative advantages and disadvantages of each, justification when a function or characteristic of an item is being altered, and the effect of the change on the performance of the end item;

31.7.2 an analysis and itemization of the requirements of the Contract which must be changed if the Value Engineering Change Proposal is accepted and a recommendation as to how to make each such change (e.g., a suggested specification revision);

31.7.3 a separate detailed cost estimate for both the existing Contract requirement and the proposed change to provide an estimate of the reduction in costs, if any, that will result from acceptance of the Value Engineering Change Proposal taking into account the costs of development and implementation by the Contractor;

31.7.4 a prediction of any effects the proposed change would have on collateral costs to the Owner such Government-furnished property costs, costs of related items, and costs of maintenance and operation;

31.7.5 a statement of the time by which a contract modification accepting the Value Engineering Change Proposal must be issued so as to obtain the maximum cost reduction, noting any effect on the contract completion time or delivery schedule; and

31.7.6 identification of any previous submission of the Value Engineering Change Proposal to the Owner, including the dates submitted, the numbers of contracts involved, and the previous actions by the Owner, if known.

ARTICLE 32 EXTENSION OF TIME

32.1 In addition to the provisions stated in Article 38, the Contractor will be granted an extension of time and will not be assessed liquidated damages for any portion of the delay in completion of the Work, performed under the latest approved progress schedule, arising from acts of God, war, fires, floods, epidemics, quarantine restrictions, freight embargoes, or weather more severe than the norm, provided that the aforesaid causes were not foreseeable and did not result from the fault or negligence of the Contractor, and provided further that the Contractor has taken reasonable precautions to prevent further delays owing to such causes, and has notified the Project Manager in writing of the cause or causes of delay within five days from the beginning of any such delay. Within 15 days after the end of the delay, the Contractor shall furnish the Project Manager with detailed

information concerning the circumstances of the delay, the number of days actually delayed, the appropriate Contract Document references, and the measures to be taken to prevent or minimize the delay. Failure to submit such information will be sufficient cause for denying the delay claims. The Owner will ascertain the facts and the extent of the delay, and its findings thereon will be final and conclusive to provisions under Article 35, DISPUTES. The extension of time granted for these reasons shall not be the basis for additional compensation for any costs incurred during the time of delay.

32.1.1 Every effort shall be made by the Contractor to complete the project within the "Contract Time". The "Contract Time" anticipates "Normal" weather and climate. The Contractor's schedule must anticipate normal adverse weather delays on all weather dependent activities. The following specifies the procedure for determining time extensions for unusually severe weather. Listed below are the anticipated numbers of calendar days lost to normal adverse weather for each month.

Monthly Anticipated Calendar Days Lost to Adverse Weather Conditions

| | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | (7) | (4) | (4) | (4) | (6) | (3) | (4) |
| (2) | (3) | (3) | (2) | (5) | | | | | | | | | | | | | | |

The above schedule of anticipated adverse weather days will constitute the base line for monthly (or portion thereof) weather time evaluations. It is assumed that the work will be carried out Mondays through Fridays (holidays excepted) unless and approved construction schedule or written authorization from the Owner indicates otherwise.

An actual adverse weather day must prevent work for 50 percent or more of the Contractor's workday. When the Contractor anticipates documenting a weather day, he/she shall first notify the Project Manager or his/her designee observing the construction to determine whether or not work can proceed or if work is delayed due to adverse weather or the effects thereof. If in agreement, the Contractor shall formally request a weather day in writing to the Owner's Project Manager or his/her designee. The Contractor shall also notify the Owner's Project Manager in writing or his/her designee of any disagreement as to whether or not work could have proceeded on a given date within 2 calendar days of that date. The final decision regarding an adverse weather day will be made by the Project Manager or his/her designee.

The number of workdays delayed due to adverse weather or the effects thereof will then be converted to Calendar Days. Weekends and holidays will only count as calendar day delays if a workday delayed due to adverse weather is counted before and after the weekend/holiday. The number of calendar days of delay due to adverse weather or the impact thereof will then be compared to the monthly adverse weather schedule above. The Contract time period will then be increased by change order for the number of calendar days that are in excess of the above schedule and a new Contract Completion day and date will be set.

32.1.2 An extension of time will not be granted for a delay caused by a shortage of materials, except Owner-furnished materials, unless the Contractor furnishes to the Project Manager documentary

proof that he has diligently made every effort to obtain such materials from every known source within reasonable reach of the Work. The Contractor shall also submit proof that the inability to obtain such materials when originally planned did in fact cause a delay in final completion of the Work which could not be compensated for by revising the sequence of his operations. Only the physical shortage of material will be considered under these provisions as a cause for extension of time. No consideration will be given to any claim that material could not be obtained at reasonable, practical, or economical costs, unless it is shown to satisfaction of the Project Manager that such material could have been obtained only at exorbitant prices, entirely inconsistent with current rates taking into account the quantities involved and the usual practices in obtaining such quantities.

32.2 A Change Order will be furnished to the Contractor within a reasonable period of time after approval of a request for extension of time, specifying the number of days allowed, if any, and the new date for completion of the Work or specified portions of the Work.

32.3 See also Article 38, TERMINATION FOR DEFAULT--DAMAGES FOR DELAY--TIME EXTENSIONS.

ARTICLE 33 NOTICE OF POTENTIAL CLAIM

33.1 The Contractor will not be entitled to additional compensation otherwise payable for an act or failure to act by the Owner, the happening of any event or occurrence, or any other cause, unless he shall have given the Project Manager a written notice of potential claim therefore as specified in this Article.

33.2 The written notice of potential claim shall set forth the reasons for which the Contractor believes additional compensation will or may be due, the nature of the costs involved, and insofar as possible, the amount of the potential claim. If based on an act or failure to act by the Owner, such notice shall be given to the Project Manager prior to the time that the Contractor has started performance of work giving rise to the potential claim for additional compensation. Notice shall be given within five days after the happening of the event or occurrence giving rise to the potential claim.

33.3 It is the intention of this Article that differences between the parties arising under and by virtue of the contract shall be brought to the attention of the Project Manager at the earliest possible time in order that such matters may be settled, if possible, or other appropriate action promptly taken.

33.4 The notice requirements of this Article are in addition to those required in other Articles of the General Conditions.

ARTICLE 34 SUBMITTAL OF CLAIMS

34.1 Claims filed by the Contractor shall contain sufficient detail to enable the Owner to ascertain the basis and amount of said claims. The Owner will review and evaluate the Contractor's claims. It will be the responsibility of the Contractor to furnish when requested by the Project

Manager such further information and details as may be required to determine the facts or contention involved in his claims. Failure to submit such information and details will be sufficient cause for denying the Contractor's claims.

34.2 Each claim the Contractor may make for equitable adjustment on account of delay for any cause shall be accompanied by a progress schedule reflecting the effects of the delay and proposals to minimize these effects. If no progress schedule has been submitted to the Project Manager reflecting conditions prior to the delay for which relief is sought, then a progress schedule so reflecting these conditions shall be prepared and submitted with the claim.

34.3 Depending upon the grounds for relief and the nature of relief sought, additional submittals and conditions upon submitting claims may be required elsewhere in these General Conditions.

34.4 In no event shall claims be made after final payment is made under Article 27, FINAL PAYMENT, of these General Conditions.

34.5 Inasmuch as notice of potential claim requirements of Article 33, NOTICE OF POTENTIAL CLAIM, are intended to enable the Project Manager to investigate while facts are fresh and to take action to minimize or avoid a claim which might be filed thereafter, the Contractor's failure to make the required notice on time is likely to disadvantage the Owner. Therefore no claim for which a notice of potential claim is required will be considered unless the Contractor has complied with the notice of Article 33, NOTICE OF POTENTIAL CLAIM.

ARTICLE 35 DISPUTES

35.1 General: Notwithstanding any other provisions of this Contract, disputes and disagreements by and between the Owner and the Contractor shall be resolved through progressive, sequential process of negotiation, mediation, and in certain cases, arbitration. For contracts which are for \$250,000 or less, amounts in dispute which are less than \$10,000 shall not progress beyond negotiation and shall ultimately be decided by the Owner if not by mutual agreement. For contracts which are for more than \$250,000, amounts in dispute which are less than \$25,000 should not progress beyond negotiation. For all contracts, amounts in dispute greater than those amounts set forth above, but less than \$100,000 shall be resolved through a sequential process of negotiation, mediation, and binding arbitration. Amounts in dispute which are \$100,000 or more shall be resolved through a sequential process of negotiation, mediation, and thence either arbitration or litigation.

35.2 Negotiation: In the event of disputes, unsettled claims, questions or disagreements between the contractor and the City relating to or arising out of the provisions of this Contract, the representatives of those parties shall meet promptly in recognition of mutual interests and in a good faith effort to resolve the dispute. Either the Contractor or the City shall arrange for this meeting at a time and place within the City of Greeley, mutually acceptable to both parties, within fifteen (15) days of notification of the dispute, unsettled claim, question, or disagreement between the parties. Seven (7) days prior to the meeting, the initiating party shall deliver to the other party, a written and complete

summary of the evidence and arguments substantiating its claim. If the parties do not reach a solution within thirty (30) days after said initial meeting, then upon notice of either party to the other, the dispute, claim, question, or difference, may be referred to a mediator pursuant to Section 35.3. The parties can extend the negotiation period by mutual written agreement.

35.3 Mediation: If the dispute, claim, question, or difference is not resolved by negotiation within thirty (30) days after the initial meeting between the parties or within the extended period agreed upon, the parties agree to next request that the American Arbitration Association provide a mediator to assist the Owner and Contractor in resolving the dispute, claim, question, or difference. The rules of mediation shall be the Construction Industry Mediation Rules of the American Arbitration Association. A different mediation/dispute resolution agency may be selected for mediation upon the mutual written agreement between the parties. The dispute resolution agency shall select a qualified mediator who shall have a background in construction. The selected mediator may be rejected by the parties only for bias. The mediator shall have thirty (30) days from the time of appointment to meet with the parties and sixty (60) days from the time of the appointment to resolve the dispute unless the parties mutually consent to an extension of the sixty day deadline. All reasonable fees, costs, and expenses of the mediator, the mediator's association and the mediation agency, shall be borne equally by the parties. Each party shall bear the expense of its own counsel, experts, witnesses, and preparation and presentation of proofs at mediation.

The Contractor shall not cause a delay of work during mediation proceedings except by mutual agreement. All mediation proceedings shall be conducted in the City of Greeley, unless an alternate location is agreed upon in writing by the Owner and the Contractor.

Amounts in dispute which are less than \$10,000 shall not progress beyond mediation.

35.4 Litigation prerequisites: The procedures enumerated in Sections 35.2 and 35.3 shall be a prerequisite to the filing of any litigation between the parties to the Contract. Failure of the Contractor to follow the provisions of Section 35.2 and Section 35.3 shall be a complete defense, and grounds for immediate dismissal of any litigation filed prior to Contractor engaging in negotiation and mediation with the City of Greeley as provided above. Litigation may be filed only if the amount in dispute is \$100,000 or more. In the event litigation is filed by and between the parties after mediation, venue and jurisdiction of any and all suits and causes of action in connection with this Contract shall lie exclusively in Weld County, Colorado.

35.5 Arbitration: After mediation, instead of litigation, any remaining unresolved controversy or claim arising out of or relating to this Contract or the performance or breach thereof, may be settled by arbitration in accordance with the Construction Industry Arbitration Rules of the American Arbitration Association. For amounts in dispute which are \$100,000 or more, arbitration shall be engaged only upon mutual written agreement by the Owner and the Contractor, and the written agreement shall specify whether the arbitration shall be binding or nonbinding; however, amounts in dispute which are less than \$100,000 shall necessarily be settled by binding arbitration. The sole arbitrator shall be appointed by the Arbitration Association, unless a different arbitrator or dispute resolution agency is mutually agreed upon. The award of the arbitrator shall be accompanied by a

reasoned opinion, and shall include findings of fact and conclusions. All fees and expenses of the arbitration, including the expense of each party's counsel, experts, witnesses, and preparation and presentation of proofs, shall be borne by the party against whom arbitration judgment is made.

35.6 Litigation: Each party shall bear its own litigation fees and expenses, including the expense of its counsel, experts, witnesses, and preparation and presentation of proofs, regardless of the prevailing party.

ARTICLE 36 FORCE ACCOUNT WORK

36.1 This Article shall become operative upon failure of the Contractor and the Owner to arrive at an amount of compensation under Article 28, CHANGES. In the event that no equitable adjustment is arrived at either by mutual agreement or pursuant to the Article 35, DISPUTES, the compensation paid hereunder will be the total compensation.

36.2 Work Performed by or for Contractor: The Contractor will be paid for labor, materials, and equipment as hereinafter provided, except where agreement has been reached to pay in accordance with Paragraph 36.3 of this Article. The following percentages, as full compensation for profit, overhead and small tools, will be added to the totals computed as provided in subparagraphs 36.2.1 through 36.2.3 of this Article.

Labor 25 percent
Materials 20 percent
Equipment 10 percent

Labor, materials, and equipment shall be furnished by the Contractor or by a subcontractor. When work paid on a force account basis is performed by forces other than the Contractor's, the Contractor shall reach agreement with such other forces as to the distribution of the payment made by the Owner for such work and, except as specified herein, no additional payment therefore will be made by the Owner by reason of performance of work by a subcontractor or by others. In addition to the markups, if any, for labor, equipment, and materials, for subcontracted work, the Contractor may add an additional five percent markup. The cost of subcontracted work will be the actual cost to the contractor for work performed by a subcontractor as computed in accordance with this Paragraph 36.2 and its subparagraphs 36.2.1, 36.2.2, and 36.2.3.

36.2.1 Labor: The cost of labor used in performing the work, whether the employer is the Contractor or a subcontractor, will be the sum as determined on the basis of the following three subparagraphs:

36.2.1.1 The gross actual wages, including income tax withholdings but not including employer payments to or on behalf of workmen for health and welfare, pension, vacation, insurance and similar purposes.

36.2.1.2 To the gross actual wages, as defined in the previous subparagraph,

36.2.1.1, will be added a percentage based upon current State and Federal laws and applicable labor contracts concerning payments made to or on behalf of workmen other than actual wages, which percentage will constitute full compensation for all payments imposed by State and Federal laws and for all other payments made to or on behalf of the workmen, other than actual wages as defined in the previous subparagraph 36.2.1.1 and the subsistence and travel allowance as specified in the following subparagraphs 36.2.1.3. The Contractor shall compute a separate percentage for each craft, or a composite percentage for all crafts, if so approved by the Owner. Computed percentages shall be submitted to the Project Manager for approval by the Owner.

36.2.1.3 Subsistence and travel allowance paid to workmen as required by established agreements.

36.2.1.4 The charges for labor shall include all classifications up to but not including foremen, and when authorized by the Owner, shall include foremen engaged in the actual and direct performance of the work. Labor charges shall not include charges for assistant superintendents, office personnel, timekeepers, and maintenance mechanics, unless authorized by the Owner in advance of the start of work.

36.2.2 Materials: The cost of materials required for the accomplishment of the work will be delivered cost to the purchaser, whether contractor or subcontractor, from the supplier thereof, except as the following are applicable:

36.2.2.1 If a cash or trade discount by the actual supplier is offered or available to the Contractor, it shall be credited to the Owner notwithstanding the fact that such discount may not have been taken.

36.2.2.2 If materials are procured by the Contractor by a method which is not a direct purchase from and a direct purchase from and a direct billing by the actual supplier, the cost of such materials will be deemed to be the price paid to the actual supplier, as determined by the Owner. No additional markup for supplier work will be allowed except to the extent of actual cost to the Contractor in handling the material, not to exceed five percent of the price paid to actual supplier.

36.2.2.3 If the materials are obtained from a supply or source owned wholly or in part by the Contractor, payment therefore will not exceed the price paid for similar materials furnished from said source on Contract Items or the current wholesale price for such materials delivered to the work site, whichever price is lower.

36.2.2.4 If the cost of the materials is, in the opinion of Owner, excessive, then the cost of such materials will be deemed to be the lowest current wholesale price at which such materials are available in the quantities concerned, delivered to the job site, less discounts as provided in subparagraph 36.2.2.1 of this Article.

36.2.2.5 If the Contractor does not furnish satisfactory evidence of the cost of such materials from the actual supplier thereof, the cost will be determined in accordance with subparagraph 36.2.2.4 of this Article.

36.2.2.6 The Contractor shall have no claims for costs and profit on Owner-furnished materials.

36.2.3 Equipment: The Contractor will be paid for the use of contractor-owned or rented equipment at the rental rates shown in the Colorado State Department of Highways Construction Equipment Rental Rate Schedule, except as modified below, which edition shall be the latest edition in effect at the time of commencement of the Force Account work. For equipment used in excess of eight hours per day, the rental rate shall be 60 percent of the listed hourly rate. If it is deemed necessary by the Contractor to use equipment not listed in the C.D.O.H. Construction Equipment Rental Rate Schedule, the Contractor shall furnish the necessary cost data and paid invoices to the Project Manager for his use in establishment of such rental rate.

36.2.3.1 The rates paid as above provided will include the cost of fuel, oil, lubricants, supplies, small tools, necessary attachments, repairs and maintenance, depreciation, storage, insurance and incidentals.

36.2.3.2 Equipment operators will be paid for as stipulated in subparagraph 36.2.1 of this Article.

36.2.3.3 Equipment shall be in good working condition and suitable for the purpose for which the equipment is to be used.

36.2.3.4 Unless otherwise specified, manufacturer-approved modifications shall be used to classify equipment for the determination of applicable rental rates. Equipment which has no direct power unit shall be powered by a unit of at least the minimum rating recommended by the manufacturer of that equipment.

36.2.3.5 Individual pieces of equipment or tools having a net individual value of \$300 or less, whether or not consumed by use, will be considered to be small tools and no payment will be made therefore.

36.2.3.6 Compensation will not be allowed while equipment is inoperative due to breakdown. Except as specified in paragraph 36.2.3.7 of this Article, time will be computed in half and full hours. In computing the time for use of equipment, less than 30 minutes shall be considered one half hour.

36.2.3.7 Equipment at the Work Site: The time to be paid for use of equipment on the work site will be the time the equipment is in operation on the force account work being performed. The time will include the time required to move the equipment to location of the force account work and return it to the original location or to another location requiring no more time than that required to return it to its original location. Moving time will not be paid for if the equipment is used at the site of the force account work on other than such force account work. Loading and transporting costs will be allowed, in lieu of moving time, when the equipment is moved by means other than its own power. No

payment for loading and transporting will be made if the equipment is used at the site of the force account work on other than such force account work.

36.3 Special Items of Work: If the Owner and the Contractor, by agreement, determine that (a) an item of force account work does not represent a significant portion of the total Contract price, and (b) such items of work cannot be performed by the forces of the Contractor or the forces of any of his subcontractors, and (c) it is not in accordance with the established practice of the industry involved to keep the records which the procedure outlined in Paragraph 36.2 of this Article would require, charges for such special force account work items may be made on the basis of invoices for such work without complete itemization of labor, materials, and equipment rental costs. To such invoiced price, less a credit to the Owner for any cash or trade discount offered or available, will be added five percent of the discounted price, in lieu of the percentages provided in Paragraph 36.2 of this Article. In no event will the price paid exceed the current fair market value of such work plus five percent.

6.4 Records: The Contractor shall maintain his records to provide a clear distinction between the direct costs of work paid for on a force account basis and costs of other operations.

36.4.1 The Contractor shall prepare and furnish to the Project Manager, on the following work day, report sheets in duplicate of each day's work paid for on a force account basis. The daily report sheets shall itemize the materials used and shall cover the direct cost of labor and the charges for equipment, whether furnished by the Contractor, subcontractor, or other forces, except for charges described in Paragraph 36.3 of this Article. The daily report sheets shall provide names or identifications and classifications of workmen and the hourly rate of pay and hours worked. In addition, a report of the size, type and identification number of equipment and hours operated shall be furnished to the Project Manager. Daily report sheets shall be signed by the Contractor or his authorized agent.

36.4.2 Material changes shall be substantiated by valid copies of vendor's invoices or conformed copies, certified true by the Contractor. Such invoices shall be submitted with the daily report sheets. Should the vendor's invoices not be submitted within 20 days after the date of delivery of the material or 15 days after acceptance of the work, whichever comes first, the Owner reserves the right to establish the cost of such materials at the lower current wholesale prices at which such materials are available in the quantities concerned delivered to the location of the work, less any discounts provided in subparagraph 36.2.1. of this Article.

36.4.3 The Project Manager will compare his records with the daily report sheets furnished by the Contractor, make any necessary adjustment and compile the costs of work paid for on a force account basis on daily force account work report forms. When these daily reports are agreed upon and signed by the Project Manager, they shall become the basis of payment for the work performed, but shall not preclude subsequent adjustment based on a later audit.

36.4.4 The Contractor's original cost records pertaining to work paid for on a force account basis shall be retained and shall be open to inspection and audit as required by Article 28, CHANGES, and any other provisions of the Contract.

36.5 If, in the Project Manager's opinion, the Contractor or any of his subcontractors, in performing Force Account work, is not making efficient use of labor, material or equipment or is proceeding in a manner which makes Force Account work unnecessarily more expensive to the Owner, the Project Manager may, in whole or part, direct the Contractor in the deployment of labor, material and equipment. By way of illustration, inefficiency may arise in the following ways: (1) the timing of the work, (2) the use of unnecessary labor or equipment, (3) the use of a higher percentage of apprentices than in non-force account work, (4) failure to procure materials at the lowest price, or (5) using materials of quality higher than necessary.

ARTICLE 37

TERMINATION FOR CONVENIENCE OF THE OWNER

37.1 The performance of Work under this contract may be terminated by the Owner in accordance with this Article in whole, or from time to time in part, whenever such termination is in the best interest of the Owner. Such termination shall be effected by delivery to the Contractor of a Notice of Termination specifying the extent to which performance of work under the Contract is terminated, and the date upon which such termination becomes effective.

37.2 After receipt of a Notice of Termination, and except as otherwise directed by the Owner, the Contractor shall:

37.2.1 Stop work under the Contract on the date and to the extent specified in the Notice of Termination.

37.2.2 Place no further orders or subcontracts for materials, services or facilities, except as may be necessary for completion of such portion of the work under the Contract as is not terminated;

37.2.3 Terminate all orders and subcontracts to the extent that they relate to the performance of work terminated by the Notice of Termination;

37.2.4 Assign to the Owner in the manner, at the times, and to the extent directed by it, all of the rights, title and interest of the Contractor under the orders and subcontracts so terminated, in which case the Owner will have the right, in its discretion, to settle or pay any or all claims arising out of the termination of such orders and subcontracts;

37.2.5 Settle outstanding liabilities and claims arising out of such termination of orders and subcontracts, with the approval or ratification of the Owner to the extent it may require, which approval or ratification shall be final for the purposes of this Article;

37.2.6 Transfer title and deliver to the Owner in the manner, at the times, and to the extent, if any directed by it, (a) the fabricated or unfabricated parts, work in process, completed work, supplies and other material procured as part of, or acquired in connection with the performance of, the work terminated by the Notice of Termination, and (b) the completed or partially completed plans,

drawings, information, and other property, which, if the Contract had been completed, would have been required to be furnished to the Owner;

37.2.7 Use his best efforts to sell, in the manner, at the times, to the extent, and at the price or prices direction or authorized by the Owner, property of the types referred to in (37.2.5) above; provided, however, that the Contractor (a) shall not be required to extend credit to any purchaser and (b) may acquire any such property under the conditions prescribed by and at a price or prices approved by the Owner; provided further that the proceeds of any such transfer or disposition will be applied in reduction of any payments to be made by the Owner to the contractor under this Contract or will otherwise be credited to the price or cost of the work covered by this Contract or paid in such other manner as the Owner may direct;

37.2.8 Complete performance of each part of the work as shall not have been terminated by the Notice of Termination; and

37.2.9 Take such action as may be necessary, or as the Project Manager may direct, for the protection and preservation of the property related to this Contract which is in the possession of the Contractor and in which the Owner has or may acquire an interest.

37.3 After receipt of a Notice of Termination, the Contractor shall submit to the Project Manager his termination claim, in the form and with certification prescribed by the Owner. Such claims shall be submitted promptly but in no event later than the earliest of the following: (1) one year from the effective date of termination or (2) thirty days after the remainder of the project has been accepted by the owner.

37.4 Subject to the provision of Paragraph 37.3, the contractor and the Owner may agree upon the whole or any part of the amount or amounts to be paid to the Contractor by reason of the total or partial termination of work pursuant to this Article, which amount or amounts may include an allowance for profit on work done; provided that such agreed amount or amounts, exclusive of settlement costs, shall not exceed the total contract price as reduced by the amount of payments otherwise made and as further reduced by the Contract price of work terminated. The Contract will be amended accordingly, and the Contractor will be paid the agreed amount.

37.5 In the event of failure of the Contractor and the Owner to agree, as provided in Paragraph 37.4, upon the whole amount to be paid the Contractor by reason of the termination of work pursuant to this Article, the Owner will pay the Contractor the amounts determined by the Owner as follows, but without duplication of any amounts agreed upon in accordance with Paragraph 37.4;

37.5.1 With respect to contract work performed prior to the effective date of the Notice of Termination, the total (without duplication of any items) of:

37.5.1.1 The cost of such work;

37.5.1.2 The cost of settling and paying claims arising out of the termination of work under subcontracts or orders as provided in subparagraph 37.2.5 above, exclusive of the amounts paid or

payable on account of supplies or materials delivered or services furnished by the subcontractor prior to the effective date of the Notice of Termination of work under this Contract, which amounts shall be included in the cost on account of which payment is made under 37.5.1 above.

37.5.1.3 A sum, as profit on 37.5.1.1 above, determined by the Owner to be fair and reasonable; provided, however, that if it appears that the Contractor would have sustained a loss on the entire Contract had it been completed, no profit shall be included or allowed under this subparagraph 37.5.1.3 and an appropriate adjustment shall be made by reducing the amount of the settlement to reflect the indicated rate of loss.

37.5.2 The reasonable cost of the preservation and property incurred pursuant to subparagraph 37.2.9 and any other reasonable cost incidental to termination of work under this Contract, including expense incidental to the determination of the amount due to the Contractor as the result of the termination of work under this Contract.

37.5.3 The total sum to be paid to the contractor under paragraph 37.5.1 above will not exceed the total contract price as reduced by the amount of payments otherwise made and as further reduced by the Contract price of the work terminated.

37.6 In arriving at the amount due the Contractor under this Article, there will be deducted (1) any claim which the Owner may have against the Contractor in connection with this Contract, (2) the agreed price for, or the proceeds of sale, of materials, supplies or other things acquired by the contractor or sold, pursuant to the provisions of this Article, and not otherwise recovered by or credited to the Owner and (3) the full amount of any statutory or other claim against the Contractor filed with the Owner.

37.7 Unless otherwise provided for in this Contract, or by applicable statute, the Contractor, from the effective date of termination and for a period of three years after final settlement under this Contract, shall preserve and make available to the Owner at all reasonable times at the office of the Contractor but without direct charge to the Owner, all his books, records, documents, electronic/digital media and other evidence bearing on the costs and expenses of the Contractor under this Contract and related to the work terminated hereunder, or to the extent approved by the Owner, or other authentic reproductions thereof.

37.8 The Contractor shall insert in all subcontracts that the subcontractor shall stop work on the date of and to the extent specified in a Notice of Termination from the Owner and shall require that any tier subcontractors insert the same provision in any tier subcontracts.

37.9 Under no circumstances is the Contractor entitled to anticipatory, unearned profits or consequential damages as a result of a termination or partial termination under this Article.

ARTICLE 38

TERMINATION FOR DEFAULT

38.1 If, in the opinion of the Owner, the Contractor has failed to prosecute work, the Owner will notify the Contractor. The Contractor will then have 5 days to remedy the failure to prosecute work or to obtain the Owner's authorization for the delay or an extension of time as set forth in Article 32.

38.2 If the Contractor refuses or fails after reasonable notice as set forth above to prosecute Work, or any separable part thereof, with such diligence as will insure its completion within the time specified in this Contract, or refuses or fails to complete said Work within such time, the Owner may, by written notice to the Contractor, terminate for default his right to proceed with the Work or such part of the Work as to which there has been unauthorized delay. In such event the Owner may take over the work and prosecute the same to completion, by Contractor or otherwise, and may take possession of and utilize in completing the Work such materials, appliances, and plant as may be on the Work Site and necessary therefore. Whether or not the Contractor's right to proceed with the Work is terminated, he and his sureties shall be liable for any damage to the Owner resulting from his refusal or failure to complete the Work in the specified time.

38.3 If the Owner so terminates the Contractor's right to proceed, the resulting damage will consist of liquidated damages until such time as may be required for final completion of the Work together with any increased costs incurred by the Owner in completing the Work as further set forth in Article 41.

38.4 If, after Notice of Termination of the Contractor's right to proceed under the provisions of this Article, it is determined for any reason that the Contractor was not in default under the provisions of this Article or that the Contractor was entitled to an extension of time under Article 32, EXTENSION OF TIME, the rights and obligations of the parties shall be the same as if the Notice of Termination had been issued pursuant to Article 37, TERMINATION FOR CONVENIENCE OF THE OWNER.

38.5 The right to terminate for default and any other rights and remedies of the Owner provided in this clause are in addition to any other rights and remedies provided by law or under this Contract.

ARTICLE 39

TERMINATION OF RIGHT TO PROCEED FOR CERTAIN DEFAULTS

39.1 In addition to the Owner's right to terminate for default under other Articles of this Contract, the Owner will have the right to terminate the Contractor's performance of work in whole or in part for default for any of the following reasons:

39.1.1 The Contractor's or subcontractor's performance of work is in violation of the terms of the Contract.

39.1.2 The Contractor or subcontractor has violated an authorized order or requirement of the Owner.

39.1.3 Abandonment of Contract.

39.1.4 Assignment or subcontracting of the Contract or any work under the Contract without approval of the Owner.

39.1.5 Bankruptcy or appointment of a receiver for the Contractor's property.

39.1.6 Performance of the Contractor in bad faith.

39.1.7 Contractor allowing any final judgment to stand against him for a period of 48 hours (excluding weekends and legal holidays).

39.2 If, in the opinion of the Owner, the Contractor is in default of the Contract, the Owner will notify the Contractor. If the Contractor fails to remedy or commence to remedy the default within five days after receipt of such notice, the Owner may terminate the Contractor's right to proceed with the Work or that portion of the Work which the Owner determines is most directly affected by the default.

39.3 If, after Notice of Termination of Contractor's right to proceed under this Article it is determined for any reason Contractor was not in default, the rights and obligations of the parties shall be the same as if the Notice of Termination had been issued pursuant to Article 37, TERMINATION FOR CONVENIENCE OF THE OWNER.

ARTICLE 40

RIGHTS AND OBLIGATIONS OF PARTIES AT TERMINATION FOR DEFAULTS

40.1 This Article shall apply to terminations for defaults covered in Article 15, 38, and 39 of these General Conditions.

40.2 On receipt of a Notice of Termination from the Owner, the Contractor shall:

40.2.1 Stop all work under the Contract on the date and to the extent specified in the Notice of Termination.

40.2.2 Place no further orders or subcontracts for materials, equipment or services except as they relate to the performance of work covered by the Notice of Termination.

40.2.3 Cancel or terminate all orders or subcontracts to the extent that they relate to the performance of work covered by the Notice of Termination.

40.2.4 Comply with all other requirements of the Owner as may be specified in the Notice of Termination.

40.3 Upon the Owner termination of the Contractor's right to proceed with the Work because of the Contractor's default under the Contract, the Owner will have the right to complete the Work by whatever means and method it deems advisable. The Owner shall have the right to take possession of and use any or all the Contractor's materials, plat, tools, equipment and property of any kind provided by or on behalf of the Contractor for the purpose of the Work, or a portion of them, without being responsible to the Contractor for fair wear and tear. The Contractor shall have no rights in such property during their use by the Owner. The Owner will not be required to obtain the lowest prices for completing the Work but shall make such expenditures as, in the Owner's sole judgment, best accomplish such completion.

40.4 The expense of completing the Work, together with a reasonable charge for engineering, managerial and administrative services, as certified by the Owner, will be charged to the Contractor and the expense so charged will be deducted by the Owner out of such monies as may be due or may at any time thereafter become due to the Contractor. In case such expense is in excess of the sum which otherwise would have been payable to the Contractor under the Contract, the Contractor or his surety shall promptly pay the amount of such excess to the Owner upon notice from the Owner of the excess so due. The Owner may, in its sole discretion, withhold all or any part of any progress payments otherwise due the Contractor until completion and final settlement of the Work covered by the Notice of Termination of Contractor's right to proceed.

40.5 The Contractor shall insert in all subcontracts that the subcontractor will stop work on the date of or to the extent specified in a Notice of Termination from the Owner and shall require the subcontractors to insert the same provision in any tier subcontracts.

40.6 The Contractor shall immediately upon receipt communicate any Notice of Termination issued by the Owner to the affected subcontractors and suppliers at any tier.

40.7 Rights of Surety: The Surety on the Performance Bond provided for in this Contract shall not be entitled to take over the Contractor's performance of work in case of termination under this Article, except with the consent of the Owner.

ARTICLE 41 LIQUIDATED DAMAGES

41.1 Time is of the essence of the Contract. In the event the Contractor fails to achieve Substantial Completion of the Work within the Contract Time, or fails to meet any other time requirement or the time limit set forth in the Contract, after due allowance for any extension or extensions of time made in accordance with the Contract, the Contractor shall pay to the Owner as fixed, agreed and liquidated damages, pursuant to the clause of the Contract entitled TERMINATION FOR DEFAULT—DAMAGES FOR DELAY—TIME EXTENSIONS, the sum of \$500.00 for each

calendar day of delay unless otherwise stated in the Special Provisions. Such liquidated damages shall be assessed for each and every day that the Contractor shall be in default. The Owner shall have the right to deduct said liquidated damages from any amount due or that may become due the Contractor, or to collect such liquidated damages from the Contractor or its surety.

41.2 Liquidated damages in the amount stipulated do not include any sums of money to reimburse the City for actual damages which may be incurred between Substantial Completion and Final Completion because of the Contractor's failure to achieve Final Completion within the Contract Time. For such delay in Final Completion, the Contractor shall reimburse the City, as a mitigation of City damages and not as a penalty, those administrative costs incurred by the City as a result of such failure.

41.3 Liquidated damages in the amounts stipulated do not include any sums of money to reimburse the City for extra costs which the City may become obligated to pay on other contracts which were delayed or extended because of the Contractor's failure to complete the Work within the Contract Time. Should the City incur additional costs because of delays or extensions to other contracts resulting from the Contractor's failure of timely performance, the City will assess these extra costs against the Contractor, and these assessments will be in addition to the stipulated liquidated damages.

41.4 The City reserves all of its rights to actual damages from the Contractor for injury or loss suffered by the City from actions or omissions of the Contractor, including but not limited to any other breach or default of the Contract, outside of the scope of the above sections.

ARTICLE 42 USE AND POSSESSION PRIOR TO COMPLETION

42.1 The Owner shall have the right to take possession of or use any completed or partially completed parts of the Work. Such possession or use will not be deemed an acceptance of Work not completed in accordance with the Contract. While the Owner is in such possession, the Contractor, notwithstanding the provisions of Article 18, DAMAGE TO WORK AND RESPONSIBILITIES FOR MATERIALS, will be relieved of the responsibility for loss or damage to the work other than that resulting from the Contractor's fault or negligence or breach of warranty. If such prior possession or use by the Owner delays the progress of the Work or causes additional expense to the Contractor, an equitable adjustment in the Contract price or the time of completion will be made, and the Contract will be modified in writing accordingly.

ARTICLE 43 RIGHTS IN SHOP DRAWINGS AND WORKING DRAWINGS

43.1 Shop Drawings and Working Drawings, submitted to the Project Manager by the Contractor, subcontractor or any lower tier subcontractor pursuant to the Work, may be duplicated by the Owner and the Owner may use and disclose, in any manner and for any purpose, Shop Drawings and Working Drawings delivered under this Contract.

43.2 This Article, including this Paragraph 43.2, shall be included in all subcontracts hereunder at all tiers.

ARTICLE 44 PATENT AND COPYRIGHT

44.1 The Contractor shall warrant that the materials, equipment or devices used on or incorporated in the Work shall be delivered free of any rightful claim of any third party for infringement of any United States patent or copyright. If notified promptly in writing and given authority, information and assistance, the Contractor shall defend, or may settle, at his expense, any suit or proceeding against the Owner or the Project Manager based on a claimed patent or copyright infringement which would result in a breach of his warranty. The Contractor shall pay all damages and costs awarded therein against the Owner or the Project Manager due to such breach. If any use of materials, equipment or devices is held to constitute an infringement and such use is enjoined, the Contractor shall, at his expense and option, either procure for the Owner the right to continue using said materials, equipment or devices, or replace same with noninfringing materials, equipment or devices, or modify same so it becomes noninfringing. The Contractor shall report to the Owner promptly and in reasonable written detail, each notice or claim of patent or copyright infringement based on the performance of this Contract of which the Contractor has knowledge. In the event of any claim or suit against the Owner on account of any alleged patent or copyright infringement arising out of the performance of this Contract or out of the use of any supplies furnished or work or services performed hereunder, the Contractor shall furnish to the Owner when requested by the Owner, all evidence and information in possession of the Contractor pertaining to such suit or claim. Such evidence and information shall be furnished at the expense of the Owner except where the Contractor has agreed to indemnify the Owner. This clause shall be included in all subcontracts.

ARTICLE 45 HISTORICAL, SCIENTIFIC AND ARCHAEOLOGICAL DISCOVERIES

45.1 All articles of historical, scientific or archaeological interest uncovered by the Contractor during progress of the Work shall be preserved in accordance with applicable law and reported immediately to the Project Manager. Further operations of the Contractor with respect to the find, including disposition of the articles, will be decided by the Owner in accordance with applicable law.

ARTICLE 46 SUBSTITUTIONS

46.1 Where reference is made to one or more proprietary products but restrictive descriptive material of only one manufacturer is used, it is understood that the products of other manufacturers will be accepted, provided they equal or exceed the standards set forth in the plans and specifications and are compatible with the intent and purpose of the design, subject to the written approval of the Owner and the Project Manager. If the descriptive material is not restrictive, the products of other manufacturers specified will be accepted without prior approval provided they are compatible with the intent and purpose of the design.

46.2 The Contractor may propose the substitutions of any material as a supplement to his bid with the monetary amount, additive or deductive as may be the case, clearly stated. Manufacturer's information, catalog numbers, and complete descriptive information shall be included with the proposed substitution. This shall be completely apart and separate from the base bid quotation and shall be solely for the information of the Owner, and the use of such proposed substitutions shall be strictly at the decision of the Owner. If substitution is accepted by the Owner, the Contract sum shall be adjusted from the base bid either up or down as indicated on the supplementary list.

ARTICLE 47 INSURANCE

47.1 General

47.1.1 The Contractor shall provide from insurance companies, acceptable to the Owner, the insurance coverage designated hereinafter and pay all costs. The Contractor also indemnifies the Owner as further described in Article 4.

47.1.2 Before commencing work under this Agreement, the Contractor shall furnish the Owner with certificates of insurance specified herein showing the type, amount, class of operations covered, effective dates, and date of expiration of policies. Furthermore, each such certificate shall contain a valid provision or endorsement that the policy may not be cancelled, terminated, changed or modified without first giving ten (10) days written notice to the Owner, which notice must be sent registered mail, return receipt requested, to the Project Manager.

47.1.3 In case of the breach of any provision of this Article, the Owner, at his option, may take out and maintain, at the expense of the Contractor, such insurance as the Owner may deem proper at the Contractor's expense and may deduct the cost of such insurance from any monies which may be due or become due the Contractor under this Agreement.

47.1.4 The Contractor shall either: (1) require each of his subcontractors to procure and maintain during the life of his subcontract, subcontractors' comprehensive General Liability, Automobile Liability and Property Damage Liability Insurance of the type and in the same amounts as specified in this subparagraph, or (2) insure the activity of his subcontractors in his own policy.

47.1.5 Co-Insurance: The Contractor herein agrees to name the Owner as an insured party on all liability insurance policies provided for by this Article 47, INSURANCE.

47.1.6 No insurance shall be cancelled or otherwise voided during the Contract period, without at least 10 days prior written notice to the Owner, nor shall any insurance be invalidated should the insured waive any or all right of recovery against any party.

47.1.7 Liability insurance may be arranged by Comprehensive General Liability and

Comprehensive Automobile Liability policies for the full limits required; or by a combination of underlying Comprehensive Liability policies for lesser limits with the remaining limits provided by an Excess or Umbrella Liability policy.

47.1.8 The Owner shall purchase and maintain such boiler and machinery insurance as may be required by the Contract Documents or by law. This insurance shall include the interest of the Owner, the Contractor, Subcontractors and Sub-subcontractors in the Work.

47.1.9 Any loss insured under Article 47 is to be adjusted with the Owner and made payable to the Owner as trustee for the insured, as their interests may appear, subject to the requirements of any applicable mortgage clause. The Contractor shall pay each subcontractor a just share of any insurance monies received by the Contractor, and by appropriate share of any insurance monies received by the Contractor, and by appropriate agreement, written where legally required for validity, shall require each subcontractor to make payments to his subcontractors in similar manner.

47.1.10 If the Contractor requests in writing that insurance for risks other than those described in this Article or other special hazards be included in the Owner's property insurance policy, the Owner shall, if possible, include such insurance, and the cost thereof shall be charged to the Contractor by appropriate Change Order.

47.1.11 The Owner as trustee shall have power to adjust and settle any loss with the insurers.

47.1.12 If the Owner finds it necessary to occupy or use a portion or portions of the Work prior to Substantial Completion thereof, such occupancy or use shall not commence prior to a time mutually agreed to by the Owner and Contractor and to which the insurance company or companies providing the property insurance have consented by endorsement to the policy or policies. This insurance shall not be cancelled or lapsed on account of such partial occupancy or use. Consent of the Contractor and of the insurance company or companies to such occupancy or use shall not be unreasonably withheld.

47.2 Workmen's Compensation and Employer's Liability Insurance:

47.2.1 The Contractor shall provide coverage and amounts as required by the Workmen's Compensation Act of the State of Colorado.

47.2.2 The Contractor shall provide Employer's Liability Insurance in an amount not less than \$100,000 for each occurrence.

47.2.3 The Contractor shall require any subcontractor to provide Workmen's Compensation and Employer's Liability Insurance in the same amounts for all of the subcontractor's employees to be engaged in work under this Agreement.

47.3 General Liability

47.3.1 General Liability Insurance shall be on a Comprehensive General Liability form and shall provide coverage for the following: Premises and Operations, Owners and Contractors Protective, Elevators, Independent Contractors, Products and Completed Operations, Contractual, Personal Injury, and Broad Form Property Damage; "XCU" exclusions must be deleted.

47.3.2 Minimum requirements for Comprehensive General Liability are: bodily injury, \$1,000,000.00 each person, \$2,000,000.00 each occurrence; property damage, \$1,000,000.00 each occurrence.

47.4 Automobile Liability

47.4.1 Comprehensive Automobile Liability Insurance shall include coverage for all owned motor vehicles and hired and non-owned motor vehicles.

47.4.2 Minimum requirements for Comprehensive Automobile Insurance are: bodily injury, \$1,000,000.00 each person, \$2,000,000.00 each occurrence; property damage, \$1,000,000.00 each occurrence.

47.5 Property Insurance:

47.5.1 The Owner may require the Contractor to purchase and maintain "Builder's Risk" Property Insurance for all work at the site to the full insurable value thereof. The Owner and the Project Manager shall be named as co-insured.

ARTICLE 48 UNCOVERING AND CORRECTION OF WORK

48.1 During construction, whenever materials requiring inspection in place by the Project Manager and the Owner to be permanently covered up, it shall be Contractor's responsibility to notify the Project Manager at least 24 hours in advance of commencement of such covering operation. In the event of failure by Contractor to give such notification, Contractor shall, at his own expense, uncover such portions of work as required by the Project Manager or the Owner, and reinstall such covering after satisfactory inspection and correction of any and all deficiencies.

ARTICLE 49 EQUAL OPPORTUNITY

49.1 The Contractor agrees to comply with the letter and spirit of the Colorado Antidiscrimination Act of 1957, as amended, and other applicable laws respecting discrimination and unfair employment practices (24-34-402, CRS 1973, as amended). The Contractor shall be responsible for any discriminatory or unfair employment practices of his subcontractors. Neither the Contractor nor any subcontractor will discriminate against any employee or applicant for employment because of race, creed, color, national origin, sex, religion, ancestry, mental or physical handicap, or age. Contractor shall take affirmative action to insure that applicants are employed, and that employees are treated during employment without regard to their race, creed, color, national

origin, sex, religion, ancestry, mental or physical handicap, or age. Such action shall include, but not be limited to the following: employment, upgrading, demotion, or transfer; recruitment, or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the policies of non-discrimination.

49.2 Contractor and all subcontractors shall, in all solicitations or advertisement for employees placed by them or on their behalf, state that qualified applicants will receive consideration for employment without regard to race, creed, color, national origin, sex, religion, ancestry, mental or physical handicap, or age.

ARTICLE 50 CLAIMS

50.1 The Contractor shall not assert any claim arising out of any act or omission by any officer, agent or employee of the Owner in the execution or performance of this Contract against such officer, agent or employee in his or her individual or official capacities.

50.2 The Contractor shall require each Separate Contract Design Professional or Contractor to agree in his Contract not to make any claim against the Owner, its officers, agents or employees, by reason of such Contract with the contractor.

50.3 Nothing in this Contract shall be construed to give any person other than the Owner and the Contractor any legal or equitable right, remedy or claim under this Contract; and it shall be held to be for the sole and exclusive benefit of the Owner and the Contractor.

ARTICLE 51 NOTICES

51.1 Except as otherwise provided herein, any notice, approval, acceptance, request, bill, demand or statement hereunder from either party to the other shall be in writing and shall be deemed to have been given when either delivered personally or deposited in a U.S. mailbox in a postage prepaid envelope, addressed to the other party via certified mail. Notices to the Owner shall be addressed to the Project Manager by name. Either party may at any time change such address by delivering or mailing, as aforesaid, to the other party a notice stating the change and the changed address.

ARTICLE 52 LEGAL INSERTIONS, ERRORS, INCONSISTENCIES, OR DISCREPANCIES IN CONTRACT

52.1 It is the intent and understanding of the parties to this Contract that each and every provision of law required to be inserted in this Contract shall be and is inserted herein. Furthermore, it is hereby stipulated that every such provision is deemed to be inserted herein, and if through mistakes or otherwise, any such provision is not inserted in correct form, then this Contract shall upon application of either party, be amended by such insertion so as to comply strictly with the law and without prejudice to the right of either party.

52.2 If this Contract contains any errors, inconsistencies, ambiguities, or discrepancies, including typographical errors, the Contractor shall request a clarification of same by writing to the Project Manager whose decision shall be binding upon the parties.

ARTICLE 53 CAPTIONS OR HEAD NOTES

53.1 The captions or head notes on articles or sections of this Agreement, and marginal notes are intended for convenience and reference purposes only and in no way define, limit or describe the scope or intent hereof, or of this Agreement not in any way affect this Agreement.

ARTICLE 54 EFFECTIVE AND BINDING

54.1 This Contract shall not become effective or binding upon the Owner unless it has been authorized and executed in accordance with the ordinances of the City of Greeley.

ARTICLE 55 CONTRACTOR

55.1 All personnel assigned to the Project by the Contractor shall be required to cooperate fully with personnel of the Owner and if in the sole discretion of the Owner the Contractor's personnel fails so to cooperate, the Contractor shall relieve them of their duties on the Project when required by the Owner.

55.2 Within seven (7) consecutive calendar days after date of written notice to commence work, the Contractor shall designate in writing one person who, on his behalf, shall be responsible for coordinating all of the services to be rendered by the Contractor hereunder. Such designee shall be subject to the approval of the Owner. Any change to the approved designee shall be proposed in writing seven (7) days in advance and subject to Owner approval.

55.3 The Contractor shall engage, at his sole expense, all engineers, architects, cost estimators, lawyers, experts and Contractors as may be required for the proper performance of the Contract. The Contractor shall be responsible for the performance of the work of all architects, engineers, cost estimators, lawyers, experts and Contractors so engaged by him, including maintenance of schedules, correlation of their work and resolution of all difference between them. It is understood that all architects, engineers, cost estimators, lawyers, experts and Contractors are employees of the Contractor and not of the Owner, and the Contractor alone is responsible for their work.

55.4 All drawings, tracings, specifications, digital media/electronic files and other material prepared and furnished under and for this Contract shall become the property of the Owner upon substantial completion and/or their acceptance by the Owner and/or upon termination of the services

of the Contractor. Such documents shall be promptly delivered to the Owner upon demand and thereafter may be used by the Owner in whole or in part or in modified form, for those purposes it may deem advisable without further employment of, or payment of additional compensation to, the Contractor.

55.5 The Contractor shall not, without the prior written approval of the Owner, specify for the project, or necessarily imply the required use of any article, product, material, fixture or form of construction, the use of which is covered by a patent, or which is otherwise exclusively controlled by a particular firm or group of firms.

55.6 Should any claim be made or any action brought against the Owner relating to the design and satisfactory operation of the Project herein, the Contractor shall diligently render to the Owner without additional compensation any and all assistance which may be requested by the Owner.

55.7 The Owner's Project Manager's decision shall be final and binding upon the Contractor as to all matters arising in connection with or relating to this Contract. The Project Manager shall determine the amount, quality, acceptability and fitness of the work being performed hereunder and shall determine all matters relative to the fulfillment of this Contract on the part of the Contractor and such determination shall be final and binding on the Contractor. Acceptance by the Owner of any document hereunder and all supporting documents shall not relieve the Contractor of sole responsibility for work performed under this contract, including, but not limited to, the final design of the Project, including the plans, specifications and all supporting documents, except as to any feature thereof which the Owner had specifically directed in writing to be included over the written objection of the Contractor. In case any question shall arise, the decision of the Owner's Project Manager, who is hereby accepted by the Contractor as the arbiter, shall be a condition precedent to the right of the Contractor to receive any money under this Contract.

ARTICLE 56 APPEALS

56.1 Except as otherwise provided in this Contract, any dispute concerning a question of fact arising under this Contract which is not disposed of by Agreement shall be decided by the Project Manager, who shall reduce his decision to writing and mail or otherwise furnish a copy thereof to the Contractor. The decision of the Project Manager shall be final and conclusive unless, within fifteen (15) days from the date of receipt of such copy, the Contractor mails or otherwise furnishes to the Project Manager a written notice of appeal.

56.2 In the event a decision of the Project Manager is the subject of an appeal, such dispute may be settled by appropriate legal proceeding, or, if the parties mutually agree, through arbitration or administrative process. Pending any binding arbitative or administrative decision, appeal, or judgment referred to in this section or the settlement of any dispute arising under this Contract, the Contractor shall proceed diligently with the performance of this Contract.

56.3 Venue and jurisdiction of any suit, right, or cause of action arising under or in connection with this Contract shall lie exclusively in Weld County, Colorado.

**ARTICLE 57
PROHIBITED INTEREST**

57.1 No member, officer or employee of the City of Greeley shall have any financial or pecuniary interest, direct or indirect, in this Contract or the proceeds thereof.

**ARTICLE 58
FINDINGS CONFIDENTIAL**

58.1 Any reports, information, data, etc., available to or prepared or assembled by Contractor under this Contract shall not be made available to any individual or organization by Contractor without consent in writing from the Owner subject to applicable law.

**ARTICLE 59
GENERAL PROVISIONS**

59.1 Services and work performed by Contractor under this Contract shall conform to reasonable and normal professional standards known and accepted within the community.

59.2 No reports, graphics or other material produced directly or indirectly for the Owner under this Contract shall be the subject of an application for copyright or trademark by or on behalf of Contractor.

59.3 The laws of the State of Colorado and applicable Federal, state and local laws, regulations and guidelines shall govern hereunder.

59.4 The headings of the articles, clauses, and paragraphs of this Contract are inserted for reference purposes only and are not restrictive as to content.

59.5 This Contract and any subsequent amendment shall be deemed an original having identical legal effect, and all of which together constitute one and the same instrument.

59.6 Nothing contained herein shall be deemed to give any third party any claim or right of action against the Owner which does not otherwise exist without regard to this Contract.

59.7 Where a number of days is specified in this Contract it shall mean calendar days unless otherwise specified.

59.8 This Contract shall not be assigned, in whole or in part, without the written consent of the Project Manager and Contractor.

59.9 The Owner certifies the following;
A. An amount of money equal to or greater than the Contract amount has

been appropriated and budgeted for the Project which this Contract concerns.

B. No Change Order which requires additional compensable work to be performed by the Contractor will be issued by the Owner unless an amount of money has been appropriated and budgeted sufficient to compensate the Contractor for such additional compensable work unless such work is covered under the remedy-granting provisions of this Contract.

C. As used in this paragraph, "remedy granting provision" shall mean any clause of this Contract which permits additional compensation in the event of a specific contingency or event occurs. This term shall include, but not be limited to, change clauses, differing site conditions clauses, variation in quantities clauses, and termination for convenience clauses.

ARTICLE 60 CONTRACTOR ACCEPTANCE

60.1 The acceptance by the Contractor, his successors or assigns of any payment made on the final acceptance of the Project under this Contract or of any final payment due on termination of this Contract, shall constitute a full and complete release of the Owner from any and all claims, demands and causes of action whatsoever which the Contractor, his successors or assigns have or may have against the Owner under the provisions of this Contract.

60.2 No action shall be maintained by the Contractor, its successors or assigns, against the Owner on any claims based upon or arising out of this Contract or out of anything done in connection with this Contract unless such action shall be commenced within 180 days after the date of filing of the voucher for final payment hereunder in the office of the Finance Director, or within 180 days of the termination of this Contract.

ARTICLE 61 SUCCESSORS AND ASSIGNS

61.1 The Contractor binds itself, its partners, successors, assigns and legal representatives to the other party to this Contract and to the partners, successors, assigns and legal representatives of such other party with respect of all covenants of this Agreement. The Contractor shall not transfer, assign, or subcontract any interest in this Agreement.

ARTICLE 62 SEVERABILITY CLAUSE

62.1 If any provision of this Agreement is subsequently declared by legislative or judicial authority to be unlawful, unenforceable, or not in accordance with applicable laws, statutes, and regulations of the United States of America and the State of Colorado, all other provisions of this Agreement shall remain in full force and effect.

ARTICLE 63 AGREEMENT

63.1 This Agreement represents the entire and integrated Agreement between the Owner and the Contractor and supersedes all prior negotiations, representations or agreements, either written or oral. This Agreement may be amended only by written instrument signed by both Owner and Contractor.

ARTICLE 64 COLORADO LABOR

64.1 In accordance with C.R.S. §8-17-101, all parties contracting with the City of Greeley on public works projects shall employ Colorado labor to perform the work to the extent of not less than eighty percent (80%) of each type or class of labor in the several classifications of skilled and common labor employed on this project.

ARTICLE 65 ELECTRONIC SIGNATURE

65.1 The Contract Documents may be executed in two or more counterparts, each of which shall be deemed an original but all of which together shall constitute one and the same document. The Contract Documents, including all component parts set forth above, may be executed and delivered by electronic signature by any of the parties and all parties consent to the use of electronic signatures.

ARTICLE 66 FORCE MAJEURE

66.1 To the extent that either party is not able to perform an obligation under this Agreement due to fire; flood; acts of God; severe weather conditions; strikes or labor disputes; war or other violence; acts of terrorism; plague, epidemic, pandemic, outbreaks of infectious disease or any other public health crisis, including quarantine or other employee restrictions; act of authority whether lawful or unlawful, compliance with any law or governmental order, rule, regulation or direction, curfew restriction, or other cause beyond that Party's reasonable control, that Party may be excused from such performance so long as such Party provides the other Party with prompt written notice describing the condition and takes all reasonable steps to avoid or remove such causes of nonperformance and immediately continues performance whenever and to the extent such causes are removed.



SECTION 520
SUBCONTRACTORS/MATERIALS SUPPLIERS AND RELATED DATA

Firm Name: _____ City Contractors License # _____

Primary Contractor _____

PROJECT: _____ Address: _____

For each Subcontractor and/or Materials Suppliers to be utilized, please provide the following information
(use additional sheets as necessary):

Phone Number: _____ Fax Number: _____

Proposed work and percentage of total work to be assigned _____
Percentage: _____ %

Firm Name: _____ City Contractors License # _____

Address: _____

Phone Number: _____ Fax Number: _____

Proposed work and percentage of total work to be assigned _____
Percentage: _____ %

Firm Name: _____ City Contractors License # _____

Address: _____

Phone Number: _____ Fax Number: _____

Proposed work and percentage of total work to be assigned _____
Percentage: _____ %

Firm Name: _____ City Contractors License # _____

Address: _____

Phone Number: _____ Fax Number: _____

Proposed work and percentage of total work to be assigned _____
Percentage: _____ %

Firm Name: _____ City Contractors License # _____

Address: _____

Phone Number: _____ Fax Number: _____

Proposed work and percentage of total work to be assigned _____
Percentage: _____ %

If the Primary Contractor adds any Subcontractors or Materials Suppliers during the duration of the project, the Primary Contractor will supply the City with an updated form before the Subcontractor or Materials Supplier will be allowed to work on the project.

DR 160 (9/87)
DEPARTMENT OF REVENUE
1375 SHERMAN STREET
DENVER, COLORADO 80261

THIS LICENSE IS NOT TRANSFERABLE

State of Colorado

CERTIFICATE OF EXEMPTION FOR SALES AND USE TAX ONLY

GREELEY CITY OF
1000 10TH ST
GREELEY CO 80631-3982



A handwritten signature in dark ink, likely of the Executive Director, is written over the seal.

Executive Director
Department of Revenue

| ACCOUNT NUMBER | LIABILITY INFORMATION | ISSUE DATE |
|----------------|-----------------------|-------------|
| | | |
| 98-03320 | 03 057 8600 9 120180 | SEP 02 1988 |
| 1000 10TH ST | GREELEY CO | |

This image shows a full page of blank white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page, providing a template for writing or drawing. There are no margins, text, or other markings on the paper.

SECTION 00620 - SPECIAL PROVISIONS

2022 KGM PAVEMENTS

GENERAL

Prime Contractor Participation; Perform at least 48 percent of the original contract amount with the contractor's own organization. The contractor's own organization is defined as workers the contractor employs and pays directly as well as equipment the contractor owns or rents, either with or without operators. Submit documentation accordingly to indicate what work the contractor's own organization is performing and the dollar value of that work. Use the following calculation and this shall be submitted with the bid:

Contractor's share = P / C

P = Work the prime contractor performs. The prime may include materials the prime purchases and installs or that the prime purchases, but others install. Do not include equipment and associated operators the prime leases to others performing work.

C = Total contract amount.

1. The City of Greeley, Colorado, "Design Criteria and Construction Specifications Manual" (DCCSM) latest edition is made a part of these specifications. All manuals referenced in these Special Provisions shall be latest edition.
 - A. The Colorado Department of Transportation (CDOT) Standard Specifications for Road and Bridge Construction, the CDOT M&S Standards, and MGPEC are made a part of these specifications.
 - B. In case of conflict, documents will have the following priorities: (1) General Conditions, (2) Special Provisions, (3) Plans, (4) The City of Greeley, Colorado, "Design Criteria and Construction Specifications Manual" (DCCSM), (5) CDOT Specifications and Standards.
 - C. **ALL CONSTRUCTION WILL MEET THE AMERICANS WITH DISABILITIES ACT (ADA) CONSTRUCTION SPECIFICATIONS.**
2. The Contractor, prior to commencement of work, will be required to obtain a City permit for construction/maintenance work. The fee for this permit for the City of Greeley will be waived due to Keep Greeley Moving tax funding.
3. Experience: All bidders will furnish with their bid a complete written list of clients for projects completed in the past two years. List shall include project title, name and contact information.
4. Contractor will observe the following sections from the Colorado Department of Labor and Employment:

Section 8-17-101, C.R.S. – "...Colorado labor will be employed to perform the work in the extent of not less than 80 percent of each type or class of labor..."

Section 8-17-102, C.R.S. – "...all contracts let for public works will contain provisions for the preference in employment of Colorado labor."

PROJECT SCHEDULING

Contract Estimated Start Date: June 1st, 2022

Contract Estimated Completion Date: November 18th 2022 or approved completion date.

Liquidated damages will be assessed in the amount of \$3,000 per day if contract is not completed by November 18th, 2022.

All work near schools must be completed by August 5th, 2022.

Weather Days – Every effort shall be made by the Contractor to complete the project within the “Contract Time.” The “Contract Time” anticipates “Normal” weather and climate. The Contractor’s schedule must anticipate normal adverse weather delays on any weather dependent activities. For additional information regarding adverse weather see Article 32, “Extension of Time” in the General Conditions.

A schedule will be provided with the bid showing each street with an estimated start date and completion date for each roadway based on the estimated start date of June 1st, 2022. Project schedules will be constructed in Microsoft Project or approved equal.

The work in this contract will consist of furnishing all labor, equipment, and materials for the replacement or construction of elements described in these Special Provisions and other related and incidental work required to complete the project.

When additional work is added or deleted to the contract the completion date may be adjusted based on the contractor’s performance and schedule. This will be mutually agreed upon.

PRE-CONSTRUCTION MEETING

The date for the pre-construction meeting will be announced after the bids are opened and the contract has been awarded. The Contractor will be expected to present the City with the following items at least 3 business days in advance of the pre-construction meeting:

1. Bar Graph Construction Schedule. Required and updated each week.
2. Approved Traffic Control Plan:
 - A. For Paving Operations.
 - B. For Adjusting Manholes and Water Valves.
 - C. For Milling of Streets.
3. Traffic Control Supervisor & Flagger certifications
4. Materials Suppliers List - (see Section 520).
5. Subcontractors List - (see Section 520).
6. All HMA and Concrete Mix Designs for year of construction.
7. Submittals for base course and steel (inlet grates, detectable warning plates, etc)
8. Material Cut Sheet/C.O.C.’s.
9. Permits for other agencies (State, Railroad, etc.).

The City will not be responsible for any construction downtime due to failure on the Contractor's part to notify utility companies of conflicts. Utility Notification Center Company can be called at 811. In the event of a delay, the contractor is solely responsible for ensuring locates pertinent to the construction area are renewed as needed if work is required to be performed past 30-day expiration.

PROJECT SUPERINTENDENT

The Contractor's Project Foreman, designated at the pre-construction meeting, will be on the work site during all construction. If the Foreman is unable to be on the job site, then a designee will be assigned with the authority to make all required decisions. A copy of the Special Provisions will be with the Project Foreman or his designated representative at all times. The Project Foreman is **required** to attend the pre-construction meeting.

The City of Greeley requires an English-speaking Superintendent/Project Manager on the job site at all times to ensure clear communication between City Staff and Contractor.

INFORMATION MANAGER

The Information Manager, designated at the pre-construction meeting by the Contractor, will be responsible for the handling of all requests for information or complaints concerning the contract. A local telephone number will be established two weeks prior to commencement of construction. The Information Manager will respond to all requests within four (4) hours. A log of all requests will be kept including name, telephone number, address, nature of request, and action taken. The log will be provided every week to the Project Representative.

TRAFFIC CONTROL

The primary function of Traffic Control is to provide for the reasonably safe and effective movement of road users through or around Traffic Control zones while reasonably protecting road users, workers, responders to traffic incidents, and equipment.

1. The Contractor will comply with the requirements of Section 01010, Paragraph 1.3G of the Street Construction Specifications (DCCSM). The Contractor will not do any construction work in the public right-of-way before receiving written approval of the Traffic Control Plan from the City. A Traffic Control Plan Review form must be completed, reviewed and approved by the City. A copy is attached behind the Special Provisions.
2. The Contractor will appoint a Traffic Control Supervisor (TCS) to this project. The TCS will not be required to be on site but must be available twenty-four (24) hours a day, 7 days a week. The **name, mobile, and office phone number for the TCS** will be provided to the City at the pre-construction meeting. Certification of all TCSs and/or Flaggers (Either CCA or ATSSA) will be submitted to the City before work starts and as new personnel is added. The Contractor will also provide the name and phone number of a local traffic control company that will act as an alternate in case the designated TCS cannot be reached.
3. The Contractor will be notified when the traffic control for any work site is not acceptable. The Contractor will not be allowed to continue work at that location until the problems are corrected. Failure to correct the traffic control deficiencies before continuance of the work will result in non-payment for the work at the locations in question.

4. Traffic control is to be paid as part of the unit price for all overlay work and will not be paid for separately. Specialty items for traffic control outside of the normal submittals will be paid for at additional cost if City of Greeley requires the contractor to provide these items.
5. No work shall be performed on local streets before 7:00 a.m. or after 7:00 p.m. each workday, Monday through Friday, unless otherwise approved by the Project Manager. Costs incurred by the City to inspect the work performed outside these hours will be deducted from progress payments to the Contractor. Inspector overtime costs are \$250.00/hour.
6. No work shall be performed on Arterial or Collector streets before 8:30 a.m. or after 4:00 p.m. each workday unless otherwise approved by the Project Manager.
7. There shall be no work allowed on Saturdays or Sundays unless approved by the Project Manager 48 hours in advance of these days. Work performed on these days is considered overtime hours.
8. Work adjacent to State Highways need to receive CDOT permit approval and must comply with state requirements.
9. No work will take place in or around Island Grove Park – Arterial, Collector Streets, or Local Roads – within a mile of Island Grove Park during the weeks of June 20, 2022, to July 8, 2022.

Traffic Control for all project locations:

1. Submit Request Form along with the site plan (MHT) per location of work zone. Forms will be fully filled out with Dates, Hours, location, etc.
2. Master chronological list of locations and dates per location.
3. ADA Standards shall be met for pedestrians during work at each site.
4. Traffic Control shall meet MUTCD, CDOT and City of Greeley Standards. (Signs, Pavement Markings).
5. Traffic Control in School Zones are as follows: No traffic control setups between 7:00 and 8:30 am and 3:30 to 6:30 pm. During rush hours and school terms or approved by Project Manager. Emergencies are the exception.
6. No full road closures will be allowed except in special conditions or as approved by the Project Manager. Full closures refer to hard/impassable, overnight closures. Work zones shall continuously allow local traffic.
7. No work will be permitted on Holidays except in case of an emergency or as approved by the Project Manager.

8. Construction may not begin until all traffic control devices are in place.
9. The Contractor shall remove all traffic control devices immediately upon completion of work, when no longer needed, or upon Project Manager's request.
10. When the traffic control is deemed insufficient, notice to the contractor will be given in writing and by text to rectify the insufficiency. If the contractor after one hour has not corrected the insufficiency the City Project Representative reserves the right to temporarily suspend operations until compliance is obtained.
11. Nighttime or Holiday work will be allowed only upon Project Manager approval.
12. Intersections and driveways will be closed only for a minimum amount of time. The Contractor will coordinate driveway closures with property owners with final approval by the City Project Representative.
13. Removal of any and all signs will be coordinated with the City Project Representative.
14. The City of Greeley may supply the Contractor with four portable information signs, which will be moved by the Contractor to the various construction sites as the work progresses. This will be coordinated with the Project Representative. The Contractor will maintain the signs in good condition. (Cost per sign is \$500 each.) At the completion of the project, the signs will be cleaned and returned to the City Project Representative. Costs associated with this requirement will be included in the unit price of the work and will not be paid separately. Final payment will not be made until all signs are returned. Cost of the sign may be deducted from final payment.

MATERIALS INSPECTION & TESTING

Process Control (Quality Control): The selected Contractor will do all Quality Control testing. It will be the Contractor's responsibility to pay for any and all failing tests. Testing may include, but is not limited to, tests associated with the placing of concrete (slump, air content, etc.) and tests associated with sub-grade preparation (density tests, moisture tests, etc.) and tests associated with the placing of asphalt (density tests, cores, extractions, etc.) All quality control testing performed by the Contractor will be provided to the Project Representative throughout the project. Contractor will perform necessary testing required by the City of Greeley Project Management Manual (GPMM). The Contractor must submit Certificates of Compliance with each shipment of AC, fabric, CSS-1h, and anti-striping material to be used prior to placement. In addition, the City may contract with an independent testing lab to verify compliance with material specifications.

No payment will be issued for material that fails to meet specifications regardless of whether it has already been placed. Prior to commencing paving operations, the City may gather samples of HMA from the Contractor's materials supplier to be analyzed by an independent assurance testing laboratory. Tests will be performed to assure compliance with design mix formula, which was supplied by the Contractor.

During paving operations, the City may gather samples and/or contract with an independent assurance testing laboratory to assure compliance with material and construction specifications.

Owner Acceptance (Quality Assurance): The City will procure Owner Acceptance sampling and testing to the extent the City deems necessary for project acceptance. The Contractor shall coordinate with the

City as to when the work will be or is ready for testing in a manner that does not hinder testability or test accuracy. The Contractor shall assist the City or Owner Acceptance in obtaining samples for testing. The Contractor shall uncover and recover at no cost to the City any work completed prior to testing and allow the City or Owner Acceptance to test at the City's discretion. Process Control (QC) testing is required as a part of the contract and process control logs shall be made available to City upon request. Process control shall obtain samples for Owner Acceptance when testing side by side. Dispute testing will be taken to a third party for dispute resolution and only considered if samples are obtained at the same time and split according to standards called out within these Special Provisions.

SURVEYING

Requests for surveying by the Contractor must be made a minimum of 7 days in advance of the work. Replacement of stakes lost or destroyed by the Contractor will be charged to the Contractor. The City's surveying consultant will replace lost or destroyed stakes at the rate of \$250 per hour at the request of the Contractor. A minimum of one (1) hour will be charged to the contractor for each request.

PORTABLE RESTROOM FACILITIES

All worksites shall have portable restroom facilities on job site. This item is not bid for separately and is included in the cost of the work.

WORKSITE CONDITION

At the completion of each location, the Contractor will cleanup all construction materials and leave the construction site in a condition approved by the City Project Representative.

Waste material, which is deemed not reusable by the City Project Representative, will be disposed of by the Contractor at his expense. Millings from overlay are to be delivered to City of Greeley stockpile located at 1140 East 8th Street.

NOTIFICATIONS

The Contractor shall post/deliver, at all properties adjacent to construction or as instructed, a notification supplied by the City before commencement of work. The Contractor, based on their submitted and accepted schedule of streets/roadways, will deliver a notification at a per hour cost to all homes, apartments, and businesses. The City will supply the contractor notifications prior to posting/delivery. It is the Contractor's responsibility to notify the City Representative of the correct start and finish dates and the number of notifications needed for each street or location 7 business days prior to delivering the notifications. For each street or location, the start dates of construction will be typed on the notifications by City staff. The Contractor will receive the completed notifications at a location to be determined at the pre-construction meeting. The notifications will only be delivered between the hours of 8:00 a.m. and 6:00 p.m. When delivering the notifications, the Contractor shall make personal contact with each resident or business to advise them of the construction process on their street. If there is a delay due to poor weather, equipment breakdowns, and/or other causes, the Contractor will re-post on all properties a new notification, twenty-four hours before commencement of work. The contractor will be supplied with printed notifications and new dates of construction shall be handwritten by the Contractor before posting. A copy of notifications will be supplied by the City of Greeley to the Contractor at the pre-construction meeting for his review. The contractor shall notify the City Representative by phone when the notifications are being delivered/posted and also when completing delivery/posting. If the contractor fails to properly post notifications, no work will take place. (Posting/Delivery shall not be placed in mailboxes; **it is a federal offense for anyone other than a postal employee to place anything in mailboxes.**) An additional posting may be required of the contractor for Arterial and Collector streets in the project year. This will be directed by the by the Project Representative.

RAILROAD REQUIREMENTS

The Contractor shall be responsible to have railroad insurance and have a railroad flagman when working on or near UPRR property. The Contractor shall be responsible for obtaining the Right-of-Entry from the UPRR. All required fees for obtaining the Right-of-Entry will be the Contractor's responsibility. The Contractor shall be responsible for notifying the UPRR of work and shall make arrangements for railroad flagmen. Two to three weeks' notice shall be required for scheduling railroad flagmen. More information can be obtained at www.uprr.com.

The local contact for the UPRR is Manager of Track Maintenance, Chad Ohleheiser 402-547-1178, Kyle Nodgaard 402-501-3849, Greg Hinken of Cheyenne 307-778-3557, or John Gutierrez, at telephone number 303-964-4745.

RAILROAD INSURANCE

The Contractor shall carry insurance of the following types and amounts:

A. CONTRACTOR'S PUBLIC LIABILITY AND PROPERTY DAMAGE LIABILITY INSURANCE.

The Contractor shall furnish evidence to the Department with respect to the operations the Contractor performs, the Contractor carries Contractor's Public Liability insurance providing for a limit of not less than One Million Dollars (\$1,000,000) for all damages arising out of bodily injuries to, or death of one person and subject to that limit for each person, a total limit of Two Million Dollars (\$2,000,000) for all damages arising out of bodily injuries to, or death of two or more persons in any one occurrence; and Contractor's Property Damage Liability insurance providing for a limit of not less than One Million Dollars (\$1,000,000) for all damages arising out of injury to, or destruction of property in any one occurrence and subject to that limit per occurrence, a total (or aggregate) limit of Two Million Dollars (\$2,000,000) for all damages arising out of injury to, or destruction of property during the policy period.

If any part of the work affecting railroad property or facilities is sublet, similar insurance shall be provided by or on behalf of the subcontractor(s) involved.

B. CONTRACTOR'S PROTECTIVE PUBLIC LIABILITY AND PROPERTY DAMAGE LIABILITY INSURANCE.

The Contractor shall furnish evidence to the Department with respect to the operations performed for the Contractor by subcontractors, the Contractor carried in its own behalf Contractor's Protective Public Liability Insurance providing for a limit of not less than One Million Dollars (\$1,000,000) for all damages arising out of bodily injuries to, or death of one person and subject to that limit for each person a total limit of Two Million Dollars (\$2,000,000) for all damages arising out of bodily injuries to, or death of two or more persons in any one occurrence; and Contractor's Protective Property Damage Liability Insurance providing for a limit of not less than One Million Dollars (\$1,000,000) for all damages arising out of injury to, or destruction of property in any one occurrence, and subject to that limit per occurrence, a total (or aggregate) limit of Two Million Dollars (\$2,000,000) for all damages arising out of injury to, or destruction of property during the policy period.

C. RAILROAD'S PROTECTIVE LIABILITY AND PROPERTY DAMAGE INSURANCE.

In addition to the above, the Contractor shall furnish evidence to the Department with respect to the operations the Contractor or any of its subcontractors perform, the Contractor has provided for and in behalf of the Railroad Company, and each Railroad Company when more than one is involved, Railroad Protective Public Liability and Property Damage insurance providing for a combined single limit of Two

Million Dollars (\$2,000,000) per occurrence with an aggregate limit of six Million Dollars (\$6,000,000) applying separately for each annual period for:

- 1) All damages arising out of bodily injuries to or death of one or more persons.
- 2) All damages arising out of injury to or destruction of property.

D. GENERAL

Said policy or policies of insurance shall be deemed to comply with the requirements of this Special Provision if each of said policies contains a properly completed and executed "Railroad Protective Liability form," reference copies of which are available from the Agreements Engineer of the Colorado Department of Transportation, 4201 East Arkansas Avenue, Denver, Colorado 80222.

Certificates of insurance required under A and B above, and policy or policies of Insurance required under C above shall be furnished to the Department's Agreements Engineer for transmittal to the Railroad Company's Insurance Department.

The insurance herein before specified shall be carried until all work required to be performed under the terms of the Contract is satisfactorily completed as evidenced by the formal acceptance of the Department. The Railroad Company shall be furnished with the original of each policy carried in its behalf.

NO PARKING SIGNS

The Contractor will be required to notify residents and businesses along streets and possibly side streets where construction is to be performed. The use of portable NO PARKING SIGNS (supplied by the City to be mounted on approved stands), will be required to aid in removing cars parked in construction zones. These signs shall meet MUTCD Standards, Section 2B.46 & 47, governing regulatory signs. "No Parking" signs will be placed at no more than 200 ft. intervals or a minimum four per block on both sides of streets in areas of construction or as needed. These signs will be placed on streets no sooner than 48 hours and no later than 24 hours in advance of work taking place. These signs shall be kept in a new condition, as instructed by the project manager, or may be removed and replaced with new signs. These signs shall have the dates of construction, as well as the time of day the work will be performed. These dates and times may be added to the signs with a black erasable marker. If dates cannot be met due to scheduling or other problems, these dates and times will be changed on signs, or signs will be removed. The sign area to be written on shall be cleaned thoroughly and all new markings shall be visible and understandable to all who can read. In accordance with ADA, signs shall meet Brail standards. Signs shall be returned to the project manager at end of project.

LOAD RESTRICTIONS

Truckload restrictions will comply with Section 105.18 of the Supplemental Specifications to the CDOT Standard Specifications for Road and Bridge Construction.

The Contractor will keep fully informed of and comply with all federal, state, local laws, ordinances, and regulations and all orders and decrees of bodies or tribunals having any jurisdiction or authority that may affect the conduct of the work.

The Contractor will supply the City with the axle load limits for the trucks he plans to use on this project.

All trucks and equipment used on job site will have backup beepers. Any truck or piece of equipment without a backup beeper will be removed from the job site until repaired.

TARPING OF AGGREGATE MATERIAL

Colorado Legislature passed two laws as of August 6, 1998. These were added to subsections 42-4-1407, HB-1144, and HB-1001. All contractors shall comply with this change while working in the City of Greeley. (All trucks will have tarps.)

WARRANTY

The Contractor is responsible for providing a TWO-YEAR warranty to the City of Greeley for all work completed under this contract. The beginning of the TWO-YEAR warranty period will be established with the issuance of the Certificate of Substantial Completion. There will be no additional cost to the City for material, equipment, labor, and/or traffic control for warranty work. Warranty work will be completed in accordance with these contract specifications and within thirty (30) days of written notification by the City of Greeley Public Works Department, Engineering Division, and Street Infrastructure Management.

PAYMENT

Actual payments will be based upon mutually accepted As-Built quantities. The As-Built quantities will be determined in the field with measurements jointly collected by the Construction Inspector and the Contractor's Representative. No payment will be made on work sites that have not been completed, including clean up. Request for payments shall be made at least monthly unless approved otherwise by the Project Manager.

FINAL PAYMENT

Payment will be made in conformance with the General Conditions of the Contract and normally processed on a monthly basis.

LOCATION OF WORK

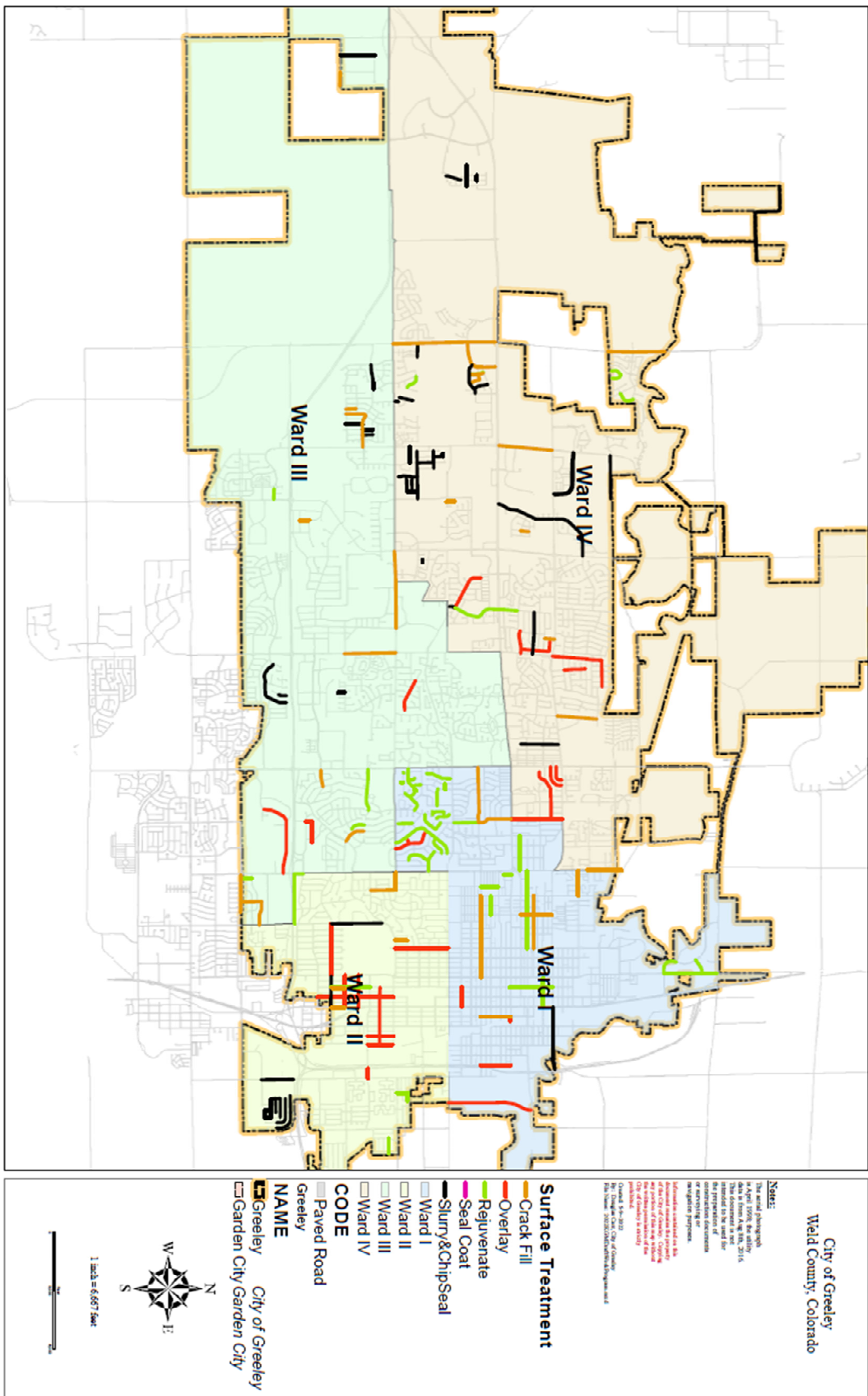
The attached list of streets gives the general location of the work to be performed under this contract. The final designation of locations will be verified after the contract has been awarded. The City reserves the right to alter quantities (both increase and decrease) from those shown on the plan and bidders' documents.

ATTACHMENTS

The following attachments apply to the entire project:

- 2022 KGM Pavements Location Map (Map is provided for reference only and is not to be used to calculate bid quantities.)
- Inlet Protection Detail
- City of Greeley Stormwater Requirements
- City of Greeley Street, Curb & Gutter Replacement and Construction
- City of Greeley Traffic Control Form

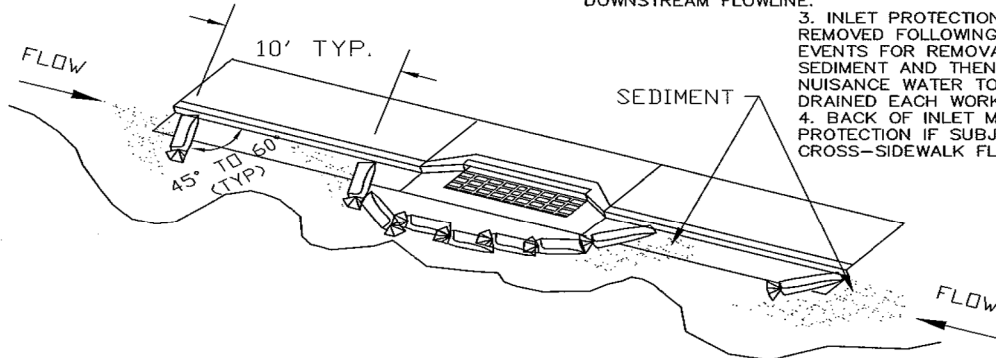
2022 KGM Draft Work Program (Pavement Maintenance, Asphalt Overlay, Surface Treatments)



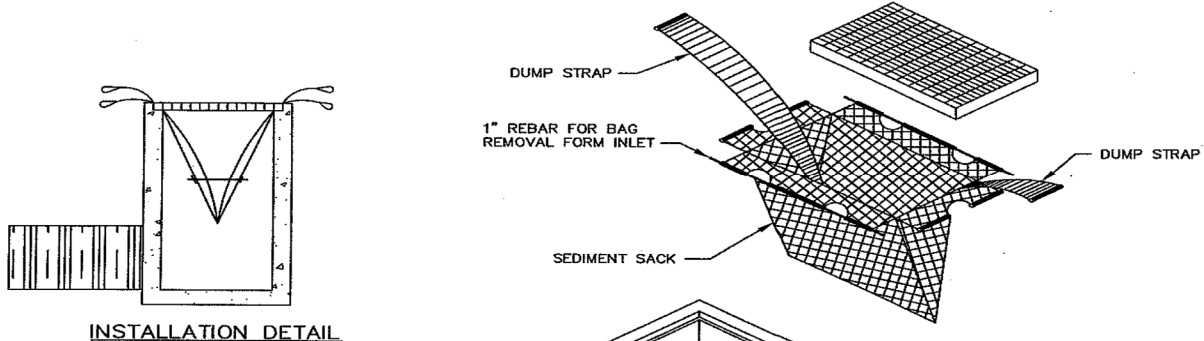
NOTES:

1. INLET PROTECTION SHALL BE SPACED MINIMUM 10' APART.
2. INLET PROTECTION SHALL BE PLACED AT AN ANGLE OF 45 TO 60 DEGREES FROM THE DOWNSTREAM FLOWLINE.

3. INLET PROTECTION SHALL BE REMOVED FOLLOWING STORM EVENTS FOR REMOVAL OF SEDIMENT AND THEN REPLACED, NUISANCE WATER TO BE DRAINED EACH WORKING DAY.
4. BACK OF INLET MAY REQUIRE PROTECTION IF SUBJECT TO CROSS-SIDEWALK FLOWS.



IP-6. INLET PROTECTION FOR LOCAL OR LOW VOLUME STREETS



NOTE:
BAGS SHOULD BE CLEANED OUT
AFTER EVERY RAIN EVENT AND/
OR AS NEEDED.

IP-7. INLET PROTECTION FOR ARTERIALS AND HIGH VOLUME STREETS

| REVISIONS | |
|-----------|------------|
| 1/3/13 | NEW DETAIL |



**EROSION & SEDIMENT CONTROL
INLET PROTECTION DETAIL (30F4)
DETAIL 13-9c**

DATE: JANUARY 2013

SCALE: N.T.S.



DEPARTMENT OF PUBLIC WORKS **STORMWATER MANAGEMENT DIVISION** **REQUIREMENTS: MANDATORY AS INDICATED BELOW**

Activities such as asphalt application, slurry saw cutting, and directional boring can contribute high concentrations of toxic hydrocarbons, other toxic organic compounds, oils and greases, solids, and heavy metals to stormwater runoff. Concrete pouring can contribute suspended solids and heavy metals to stormwater runoff and cause pH increases in receiving waters.

The following Best Management Practices, (BMPs), or equivalent measures, methods, or practices are required if you are engaged in saw cutting, concrete pouring or asphalt application in right-of-ways within the City Of Greeley.

Slurry from Sawcutting:

Storm drains can carry saw cutting slurry and other pollutants from the streets and gutters directly to local waterways. This slurry can be toxic to fish and wildlife. The slurry can clog storm drains and catch basins which increase maintenance costs and could cause flooding.

If saw cut slurry from your job runs down the gutter uncontained, you have violated City Code. This also is a violation of state and federal regulations. Offenders may be subject to fines and clean up costs.

| Concrete Pouring and Asphalt Applications EFFECTIVE IMMEDIATELY | Saw Cut Slurry And Directional Boring Mud |
|--|--|
| <p>1. Use drip pans, ground cloths, and perhaps heavy plywood whenever concrete, asphalt, and asphalt emulsion chunks and drips are likely to fall unintentionally, such as beneath exit points from mixing equipment.</p> <p>2. Place storm drain barriers or similarly effective containment devices over all nearby drains at the beginning of the work day. All accumulations of runoff, aggregate chunks, and other solids must be collected with a shovel or other mechanism for proper disposal at the end of the work day (or more frequently) prior to removing the containment device(s). Drain barriers and other containment devices are commercially available.</p> <p>3. Contain and collect the slurry from exposed aggregate washing, where the top layer of unhardened concrete is hosed or scraped off to leave a rough finish. Use a storm drain barrier or other containment device, as mentioned above. All collected runoff must be properly disposed.</p> <p>4. Concrete and concrete pumping vehicles shall not, under any circumstances, discharge any concrete, slurry, or rinse water into street gutters, storm drains or drainage ditches. and detention ponds. GREELEY CODE 14.16.170</p> <p>Designate a wash-out area on-site where cleaning of application and mixing equipment can take place and where the rinse water is controlled. It is also acceptable to dispose of rinse water and slurry in a hole in the ground big enough to contain the slurry and rinse material. Commercial products and services are also available for concrete, slurry, and rinse water disposal</p> <p><u>Routine Maintenance:</u> Sweep the pouring area at the end of each day to collect loose aggregate chunks and dust. DO NOT hose down the area to a storm drain.</p> | <p>1. Block Gutters: EFFECTIVE IMMEDIATELY Dam up gutters to contain slurry and minimize the containment area.</p> <p>Know the location of all nearby storm drain inlets, culverts, and catch basins through which slurry discharges may enter a waterway.</p> <p>If you are within access of a storm drain inlet, block the path to the nearest drain. Either divert flows or berm inlets to pool water away from the drains.</p> <p>2. Minimize Slurry Movement: EFFECTIVE IMMEDIATELY</p> <p>Slurry and sediment from saw cutting or boring operations should be confined to the immediate work area by using temporary berms, sand bags or diversion structures. Minimize the tracking of slurry off site by cars and pedestrians.</p> <p>3. Remove Slurry: MANDATORY JANUARY 1, 2005</p> <p>Efficiently and effectively collect and remove all slurry and runoff from the saw cutting operation as soon as possible. Be sure to include removal of any slurry collected in or near storm drain inlets by pumping to a collection vessel or using a wet/dry vac. It may be necessary to use a street sweeper or wash down the area and collect the water.</p> <p>No slurry or wash water is allowed to drain off site. Slurry and wash water may be disposed of on site, with owners permission, where it can filter into bare soil. Otherwise, dispose of all collected slurry and wash water properly. One way is to allow collected slurry to settle and decant the water onto the ground or, with approval, into the sanitary sewer. Contact Water Pollution Control Facility for approval at 350-9360. Must obtain approval prior to discharging to sanitary sewer. Dispose of the solids appropriately.</p> |

DO NOT HOSE DOWN WORK AREAS INTO THE GUTTER, STREET, OR STORM DRAIN. DO NOT WASH IT DOWN PAST THE PROJECT AREA WHERE IT BECOMES “SOME ONE ELSE'S PROBLEM”.

Issued: 4/20/2004 Revised: 3/25/2008

STREET, CURB, AND GUTTER REPLACEMENT AND CONSTRUCTION

Activities involving the replacement and construction of streets, curbs, and gutters have the potential to impact Stormwater quality. Materials involved in these activities should be used efficiently and disposed of properly.

Applicable sediment and erosion controls should be installed; such as: inlet protection, silt fence, sediment traps, erosion control logs, check dams, and vehicle tracking control. Sediment and erosion controls will be installed and maintained in accordance with approved design criteria and/or industry standards.

When saw cutting, ensure that no slurry enters the storm drain.

- **Block gutters**
 - To contain slurry and minimize the containment area.
 - Protect inlets and pool water away from the drains.
- **Minimize Slurry Movement**
 - Confine slurry and sediment from saw cutting to immediate work area by using temporary berms, sand bags, or diversion structures.
 - Minimize the tracking of slurry from the job site by cars and pedestrians.
- **Remove Slurry**
 - Sweep or vacuum slurry and properly dispose of the sweepings or vacuum while saw cutting.
 - Monitor construction equipment for leaks and use drip pans as necessary.
 - Leaking material containers should be properly discarded and replaced.
 - Store materials in containers under cover when not in use and away from any storm drain inlet.
 - Wash out mixers, delivery trucks, or other equipment in the designated concrete washout area only.
 - Locate concrete washout, portable toilets, and material storage away from storm drain inlets.
 - Material stockpiles will not be stored in or near storm water flow lines. Temporary sediment controls will be used during temporary, short-term placement while work is actively occurring.
 - Sweep or vacuum the roadway as needed, during construction and once construction is complete.
 - Best management practices will be periodically inspected and maintained as necessary.
 - Where practicable, non-structural controls will be used, such as phased construction, dust control, good Housekeeping practices, and spill prevention and response.
 - Absorbent material should be kept on job site.
- **Concrete Work**
 - Minimize the drift of chemical cure on windy days by using the curing compound sparingly and applying as close to the concrete surface as possible.
 - Ensure that there is a concrete truck washout area available or require the contractor to wash out at the batch plant.
- **Asphalt Work**
 - Control the placement of road base or asphalt used in embankments or shoulder backing; do not allow these materials to fall into any storm drain or watercourse.
 - Whenever possible, recycle unused asphalt.
 - Traffic Control Devices; such as cones, may be needed to guard inlet protection devices during certain traffic setup and flows.



TEMPORARY TRAFFIC CONTROL WORK ZONES REVIEW FORM
CITY OF GREELEY / DEPARTMENT OF PUBLIC WORKS
1001 9TH AVE GREELEY, CO. 80631
Office – (970) – 336-4091
Cellular – (970) – 539- 6213
Fax – (970) – 336-4142

Fax or return to the Transportation Services Division Office for Review.

BY SIGNING THIS DOCUMENT YOU WILL ASSUME ALL RESPONSIBILITY FOR SETTING UP THE TEMPORARY TRAFFIC CONTROL WORK ZONE BY MEETING OR EXCEEDING SET STANDARDS AND FOLLOWING THE M.U.T.C.D. MANUAL REQUIREMENTS, ALONG WITH THE STATE, FEDERAL, AND CITY OF GREELEY SPECIFICATIONS AND REGULATIONS.

I have been offered a copy of this form and I have been advised to read it carefully.

Full Road Closures with complete Detour Routes will require a five (5) working day advance notice to have Method of Handling Traffic Plans reviewed. A 72 hour notice is strongly recommended prior to construction. This form and the (MHT) Plan SHALL be on the job site at all times.

In consideration of the acceptance of my entry, I do hereby acknowledge that I assume all risks and liability resulting from work performed. That I have acquired all permits, licenses, and fees required by the City of Greeley, and submitted a Method of Handling Traffic Control (MHT) along with this form.

I acknowledge that I have carefully read this "Temporary Traffic Control Review Form" and fully understand that I am (trained and/or certified) about the fundamental principles of TTC and responsible for the proper temporary traffic control setup and maintenance thru-out the duration ON the jobsite.

Print Name _____ Signature _____ Date _____

Description of Work: _____ City Permit No. _____

Project Location and/or Street Address: _____

Does job require: (Please Circle Appropriate One(s)) ROAD CLOSURE LANE CLOSURE SHOULDER CLOSURE SIDEWALK CLOSURE

OTHER _____

Work Schedule: Start Date _____ Finish Date _____ Requested Time(s) from: _____ am/pm to _____ am/pm

CONTRACTOR / SUBCONTRACTOR / CITY DEPT. PERFORMING WORK

TRAFFIC CONTROL COMPANY USED

Company Name _____

Company Name _____

Address _____

Address _____

City _____ State _____ Zip _____

City _____ State _____ Zip _____

Office Phone _____

Office Phone _____

Mobile Phone _____

Mobile Phone _____

Fax _____

Fax _____

Work Site Contact: _____

Work Site Contact: _____

Temporary Traffic Control Supervisor (TCS) Responsible for Job Site:

Temporary Traffic Control Supervisor (TCS) Responsible for Job Site:

TCS Contact Name _____

TCS Contact Name _____

PLEASE CHECK APPROPRIATE BOX(S)

- ☐ PRIVATE JOB ☐ CIP ☐ CITY MAINTANCE ☐ OTHER ☐ TRAFFIC CONTROL CO. DOING TRAFFIC CONTROL SETUP
☐ CONTRACTOR / CITY DEPT. SETTING UP OWN TRAFFIC CONTROL ☐ EQUIP. RENTAL ONLY FROM TRAFFIC CONTROL COMPANY

OFFICE USE

COMMENTS: _____

☐ MHT Accepted ☐ MHT Resubmitted For Extension Date(s) From _____ To _____

☐ MHT Denied

REVIEWED BY: _____ Date: _____

SECTION 00620 - SPECIAL PROVISIONS

2022 KGM PAVEMENTS

OVERLAY

The contractor will, at the direction of the Project Representative, construct all parts of the 2022 Overlay Program (listed in the table below). The following are directions on critical portions of the Overlay Program for the City of Greeley. Selected streets will be full width or edged machine milled (240,350 square yards). The Contractor will deliver the asphalt millings material to the City of Greeley and stockpile at Cities location (see removal of asphalt mat). Remaining work will consist of laying of leveling courses, laying of paving fabric, and applying asphalt concrete on overlay streets. Adjustments will be made to existing City of Greeley water valves (230), and manholes (154) on designated Streets and Avenues. It is estimated this program will consist of approximately (12,835 tons), HMA Cass S Modified (Arterial, Top Lift, Grading S, Rap up to 20%, N100, either (minimum) PG 64-28 or PG 76-28, CDOT mix production shift), See Form 9 HMA, Class SX, (992 tons) (Top Lift, Grading SX, Rap up to 20%, N75, either PG 64-22, CDOT mix production shift), See Form 9, (20,546 tons) (Top Lift, Grading S, Rap up to 20%, N75, either PG 64-22, CDOT mix production shift), See Form 9. HMA Class S, (20,029 tons) of leveling course is scheduled. Grading S, Rap up to 20%, N75, PG 64-22, CDOT mix production shift, (96,402) square yard of paving fabric (Tensar GlasPave 25 Paving Mat), (142,698) square yard of Geo-textile paving fabric. Asphalt planing / roto-mill patching (12,017) square yards at (4) inches of HMA in thickness. Class 6 base course using City of Greeley specifications (3,800 tons). Sub-ex to 16" and Shape and Compact (0) square yards.

The Paving Contractor will meet with City of Greeley officials at a time to be determined to plan traffic routing. The contractor will address all businesses in the project area. The contractor will develop a plan to limit impact during construction in this area. The Contractor will meet with the City weekly at a time to be determined to review the project. Location of the meeting will be the City of Greeley Public Works office at 2835 10th Street unless an alternate location is determined.

The Contractor will temporarily stripe all roto-milled, leveled or bottom mat surfaces at the completion of each day's work prior to opening for traffic, in accordance with MUTCD Standards. Painted temporary markings will be used on all roto-milled and leveling mat surfaces. Failure to complete temporary pavement markings each day will result in a \$1,500.00 per day deduction from the contract owed amount (this charge is separate from any liquidated damages assessed at the conclusion of the contract time). The contractor will also be responsible for reimbursement to the City of Greeley for any related charges for temporary striping cost. The cost per day will be deducted from the contract owed amount.

LIST OF OVERLAY STREETS

| <u>Street</u> | <u>From</u> | <u>To</u> | <u>Readiness to Pave</u> | <u>For Concrete Quantities, See Table:</u> |
|--|-------------------------------|-------------------------------|--|--|
| <u>ARTERIALS, COLLECTORS, REQUESTS</u> | | | | |
| 29 th Street | 23 rd Avenue | 3000 Blk. | Concrete Work | 1 |
| 27 th Avenue | 29 th Street | End of Pavement South | Concrete Work | N/A |
| Ash Avenue | 8 th Street | 16 th Street | Ready | N/A |
| 14 th Avenue | 16 th Street | 20 th Street | Concrete Work | N/A |
| 47 th Avenue | 4 th Street | End Of Pavement North | Concrete Work | 5 |
| 28 th Avenue | 10 th Street | 4 th Street | Concrete Work | 6 |
| 25 th Street | 11 th Avenue | 17 th Avenue | Concrete Work | 7 |
| <u>CARRY OVER</u> | | | | |
| 15 th Street | 8 th Avenue | 10 th Avenue | Concrete Work | 8 |
| 10 th Street | 7 th Avenue | RR Tracks East | Concrete Work | 9 |
| 26 th Avenue | 20 th Street | 26 th Avenue Court | Ready | N/A |
| 19 th Street Road | 26 th Avenue | 26 th Avenue Court | Concrete Work | N/A |
| <u>BROADVIEW SUB-DIVISION</u> | | | | |
| 4 th Street Road | 4 th Street | 35 th Avenue | Concrete Work | 12 |
| 5 th Street Road | 4 th Street | 35 th Avenue | Concrete Work | 13 |
| 5 th Street | 28 th Avenue | 6 th Street | Concrete Work | 14 |
| 6 th Street Road | 6 th Street | Cul-de-sac (West) | Concrete Work | 15 |
| <u>ALTA VISTA SUB-DIVISION</u> | | | | |
| 4 th Avenue | 20 th Street | 22 nd Street | Possible Storm Water | 16 |
| 5 th Avenue | 20 th Street | 22 nd Street | Concrete Work | 17 |
| 21 st Street | 4 th Avenue | 10 th Avenue | Concrete Work | 18 |
| <u>ARLINGTON PARK SUB-DIVISION</u> | | | | |
| 9 th Avenue | 20 th Street | 26 th Street | Possible Storm Water Repairs @ 22 nd Street | 19 |
| 23 rd Street | 8 th Avenue | 11 th Avenue | Possible Atmos Gas Repairs | 20 |
| 24 th Street | 8 th Avenue | 11 th Avenue | Possible Atmos Gas Repairs | 21 |
| <u>MISCELLANEOUS SUB-DIVISION WORK</u> | | | | |
| 28 th Avenue | 27 th Street | 26 th Street Road | Concrete Work | N/A |
| 26 th Street Road | 28 th Avenue | 25 th Avenue | Concrete Work | 23 |
| 25 th Avenue | 25 th Avenue | Cul-de-sac (East) | Concrete Work | N/A |
| B Street Road | 44 th Avenue | 47 th Avenue | Concrete Work | N/A |
| 46 th Avenue | 1 st Street | 3 rd Street | Concrete Work | N/A |
| 53 rd Avenue / 13 th Street | 11 th Street Road | 50 th Avenue | Concrete Work | N/A |
| 17 th Street | 44 th Avenue Court | Thru 41 st Avenue | Concrete Work | 28 |
| 9 th Street | 47 th Avenue | 49 th Avenue | Concrete Work | 29 |
| 47 th Avenue Court/5 th Street | 7 th Street | 49 th Avenue | Concrete Work | 30 |

CONCRETE QUANTITIES PER LOCATION

| Table 1 29th St from 23rd Ave to 3000 Blk | | | |
|--|--|------|-----|
| Item # | Description | Unit | Qty |
| 27 | Remove Curb & Gutter (0 to 2' Pan) | LF | 140 |
| 28 | Remove Concrete Flatwork - Thickness Varies | SY | 79 |
| 29 | Removal of Rollover C&G/Sidewalk | LF | 0 |
| 30 | Remove Asphalt (Thickness Varies) | SY | 0 |
| 31 | Concrete Sawcut Demo | LF | 5 |
| 32 | New 6" C&G 0-2' Pan (i.e. Vertical Curb and Gutter: Sim to S-16) | LF | 140 |
| 33 | New High Back Curb and Gutter (8" and above) | LF | 0 |
| 34 | High Early Mix - Up Charge | CY | 10 |
| 35 | New Rollover C&G and SW | LF | 0 |
| 36 | New 4" Concrete | SY | 0 |
| 37 | New 6" Concrete | SY | 79 |
| 38 | New 8" Concrete | SY | 0 |
| 39 | Unclassified Excavation | CY | 0 |
| 40 | Compacted Stabilization Subgrade Import (6" Base) | TON | 10 |
| 41 | Major Re-landscaping (Sprinklers, etc.) | HR | 4 |
| 42 | Adjust Meter Pit | EA | 0 |
| 43 | Landscape Curb 0-6" | LF | 121 |
| 44 | Landscape Curb 7-18" | LF | 0 |
| 45 | Landscape Curb 19-48" | LF | 0 |
| 46 | ADA Detectable Warning plates/domes | SF | 66 |
| 47 | Remove and Reset mailbox | EA | 0 |
| 48 | Tree and Root Pruning | HR | 0 |
| 49 | Saw Cut to Preserve Asphalt | LF | 120 |
| 50 | Pre-Fabricated Concrete Washout Structure | LS | 0 |
| 51 | 4" PVC Installed Under Sidewalk | LF | 0 |

| Table 5 47th Ave - 4th St to EOP | | | |
|---|--|------|-------|
| Item # | Description | Unit | Qty |
| 27 | Remove Curb & Gutter (0 to 2' Pan) | LF | 1,187 |
| 28 | Remove Concrete Flatwork - Thickness Varies | SY | 403 |
| 29 | Removal of Rollover C&G/Sidewalk | LF | 244 |
| 30 | Remove Asphalt (Thickness Varies) | SY | 24 |
| 31 | Concrete Sawcut Demo | LF | 0 |
| 32 | New 6" C&G 0-2' Pan (i.e. Vertical Curb and Gutter: Sim to S-16) | LF | 1,187 |
| 33 | New High Back Curb and Gutter (8" and above) | LF | 0 |
| 34 | High Early Mix - Up Charge | CY | 30 |
| 35 | New Rollover C&G/ Sidewalk | LF | 244 |
| 36 | New 4" Concrete | SY | 160 |
| 37 | New 6" Concrete | SY | 348 |
| 38 | New 8" Concrete | SY | 266 |
| 39 | Unclassified Excavation | CY | 0 |
| 40 | Class 6 Base Course (Concrete) | TON | 0 |

| | | | |
|----|---|----|-----|
| 41 | Major Re-landscaping (Sprinklers, etc.) | HR | 5 |
| 42 | Adjust Meter Pit | EA | 0 |
| 43 | Landscape Curb 0-6" | LF | 416 |
| 44 | Landscape Curb 7-18" | LF | 0 |
| 45 | Landscape Curb 19-48" | LF | 0 |
| 46 | ADA Detectable Warning plates/domes | SF | 168 |
| 47 | Remove and Reset mailbox | EA | 0 |
| 48 | Tree and Root Pruning | HR | 0 |
| 49 | Saw Cut to Preserve Asphalt | LF | 108 |
| 50 | Pre-Fabricated Concrete Washout Structure | LS | 0 |
| 51 | 4" PVC Installed Under Sidewalk | LF | 0 |

Table 6 28th Ave-10th St to 4th St

| Item # | Description | Unit | Qty |
|--------|--|------|-------|
| 27 | Remove Curb & Gutter (0 to 2' Pan) | LF | 4,025 |
| 28 | Remove Concrete Flatwork - Thickness Varies | SY | 933 |
| 29 | Removal of Rollover C&G/Sidewalk | LF | 1,545 |
| 30 | Remove Asphalt (Thickness Varies) | SY | 0 |
| 31 | Concrete Sawcut Demo | LF | 0 |
| 32 | New 6" C&G 0-2' Pan (i.e. Vertical Curb and Gutter: Sim to S-16) | LF | 4,025 |
| 33 | New High Back Curb and Gutter (8" and above) | LF | 0 |
| 34 | High Early Mix - Up Charge | CY | 0 |
| 35 | New Rollover C&G/ Sidewalk | LF | 1,545 |
| 36 | New 4" Concrete | SY | 608 |
| 37 | New 6" Concrete | SY | 293 |
| 38 | New 8" Concrete | SY | 44 |
| 39 | Unclassified Excavation | CY | 0 |
| 40 | Class 6 Base Course (Concrete) | TON | 0 |
| 41 | Major Re-landscaping (Sprinklers, etc.) | HR | 5 |
| 42 | Adjust Meter Pit | EA | 1 |
| 43 | Landscape Curb 0-6" | LF | 264 |
| 44 | Landscape Curb 7-18" | LF | 0 |
| 45 | Landscape Curb 19-48" | LF | 0 |
| 46 | ADA Detectable Warning plates/domes | SF | 290 |
| 47 | Remove and Reset mailbox | EA | 0 |
| 48 | Tree and Root Pruning | HR | 2 |
| 49 | Saw Cut to Preserve Asphalt | LF | 40 |
| 50 | Pre-Fabricated Concrete Washout Structure | LS | 0 |
| 51 | 4" PVC Installed Under Sidewalk | LF | 0 |

Table 7 25th St-11th Ave to 17th Ave

| Item # | Description | Unit | Qty |
|--------|---|------|-------|
| 27 | Remove Curb & Gutter (0 to 2' Pan) | LF | 3,517 |
| 28 | Remove Concrete Flatwork - Thickness Varies | SY | 954 |
| 29 | Removal of Rollover C&G/Sidewalk | LF | 816 |
| 30 | Remove Asphalt (Thickness Varies) | SY | 51 |
| 31 | Concrete Sawcut Demo | LF | 0 |

| | | | |
|----|--|-----|-------|
| 32 | New 6" C&G 0-2' Pan (i.e. Vertical Curb and Gutter: Sim to S-16) | LF | 3,517 |
| 33 | New High Back Curb and Gutter (8" and above) | LF | 0 |
| 34 | High Early Mix - Up Charge | CY | 60 |
| 35 | New Rollover C&G/ Sidewalk | LF | 816 |
| 36 | New 4" Concrete | SY | 576 |
| 37 | New 6" Concrete | SY | 235 |
| 38 | New 8" Concrete | SY | 221 |
| 39 | Unclassified Excavation | CY | 0 |
| 40 | Class 6 Base Course (Concrete) | TON | 0 |
| 41 | Major Re-landscaping (Sprinklers, etc.) | HR | 1 |
| 42 | Adjust Meter Pit | EA | 1 |
| 43 | Landscape Curb 0-6" | LF | 154 |
| 44 | Landscape Curb 7-18" | LF | 0 |
| 45 | Landscape Curb 19-48" | LF | 0 |
| 46 | ADA Detectable Warning plates/domes | SF | 218 |
| 47 | Remove and Reset mailbox | EA | 0 |
| 48 | Tree and Root Pruning | HR | 2 |
| 49 | Saw Cut to Preserve Asphalt | LF | 228 |
| 50 | Pre-Fabricated Concrete Washout Structure | LS | 0 |
| 51 | 4" PVC Installed Under Sidewalk | LF | 0 |

| Table 8 15th St from 8th Ave to 10th Ave | | | |
|---|--|------|-----|
| Item # | Description | Unit | Qty |
| 27 | Remove Curb & Gutter (0 to 2' Pan) | LF | 60 |
| 28 | Remove Concrete Flatwork - Thickness Varies | SY | 93 |
| 29 | Removal of Rollover C&G/Sidewalk | LF | 0 |
| 30 | Remove Asphalt (Thickness Varies) | SY | 0 |
| 31 | Concrete Sawcut Demo | LF | 25 |
| 32 | New 6" C&G 0-2' Pan (i.e. Vertical Curb and Gutter: Sim to S-16) | LF | 60 |
| 33 | New High Back Curb and Gutter (8" and above) | LF | 0 |
| 34 | High Early Mix - Up Charge | CY | 2 |
| 35 | New Rollover C&G and SW | LF | 0 |
| 36 | New 4" Concrete | SY | 24 |
| 37 | New 6" Concrete | SY | 69 |
| 38 | New 8" Concrete | SY | 0 |
| 39 | Unclassified Excavation | CY | 2 |
| 40 | Compacted Stabilization Subgrade Import (6" Base) | TON | 10 |
| 41 | Major Re-landscaping (Sprinklers, etc.) | HR | 4 |
| 42 | Adjust Meter Pit | EA | 0 |
| 43 | Landscape Curb 0-6" | LF | 234 |
| 44 | Landscape Curb 7-18" | LF | 0 |
| 45 | Landscape Curb 19-48" | LF | 0 |
| 46 | ADA Detectable Warning plates/domes | SF | 140 |
| 47 | Remove and Reset mailbox | EA | 0 |
| 48 | Tree and Root Pruning | HR | 2 |
| 49 | Saw Cut to Preserve Asphalt | LF | 66 |
| 50 | Pre-Fabricated Concrete Washout Structure | LS | 0 |
| 51 | 4" PVC Installed Under Sidewalk | LF | 0 |

| Table 9 10th St from 7th Ave to RR Tracks | | | |
|--|--|------|-----|
| Item # | Description | Unit | Qty |
| 27 | Remove Curb & Gutter (0 to 2' Pan) | LF | 66 |
| 28 | Remove Concrete Flatwork - Thickness Varies | SY | 33 |
| 29 | Removal of Rollover C&G/Sidewalk | LF | 0 |
| 30 | Remove Asphalt (Thickness Varies) | SY | 0 |
| 31 | Concrete Sawcut Demo | LF | 0 |
| 32 | New 6" C&G 0-2' Pan (i.e. Vertical Curb and Gutter: Sim to S-16) | LF | 66 |
| 33 | New High Back Curb and Gutter (8" and above) | LF | 0 |
| 34 | High Early Mix - Up Charge | CY | 0 |
| 35 | New Rollover C&G and SW | LF | 0 |
| 36 | New 4" Concrete | SY | 19 |
| 37 | New 6" Concrete | SY | 14 |
| 38 | New 8" Concrete | SY | 0 |
| 39 | Unclassified Excavation | CY | 1 |
| 40 | Compacted Stabilization Subgrade Import (6" Base) | TON | 5 |
| 41 | Major Re-landscaping (Sprinklers, etc.) | HR | 2 |
| 42 | Adjust Meter Pit | EA | 0 |
| 43 | Landscape Curb 0-6" | LF | 24 |
| 44 | Landscape Curb 7-18" | LF | 0 |
| 45 | Landscape Curb 19-48" | LF | 0 |
| 46 | ADA Detectable Warning plates/domes | SF | 40 |
| 47 | Remove and Reset mailbox | EA | 0 |
| 48 | Tree and Root Pruning | HR | 1 |
| 49 | Saw Cut to Preserve Asphalt | LF | 40 |
| 50 | Pre-Fabricated Concrete Washout Structure | LS | 0 |
| 51 | 4" PVC Installed Under Sidewalk | LF | 0 |

| Table 12 4th St Rd from 4th St to 35th Ave | | | |
|---|--|------|-----|
| Item # | Description | Unit | Qty |
| 27 | Remove Curb & Gutter (0 to 2' Pan) | LF | 25 |
| 28 | Remove Concrete Flatwork - Thickness Varies | SY | 44 |
| 29 | Removal of Rollover C&G/Sidewalk | LF | 60 |
| 30 | Remove Asphalt (Thickness Varies) | SY | 0 |
| 31 | Concrete Sawcut Demo | LF | 0 |
| 32 | New 6" C&G 0-2' Pan (i.e. Vertical Curb and Gutter: Sim to S-16) | LF | 25 |
| 33 | New High Back Curb and Gutter (8" and above) | LF | 0 |
| 34 | High Early Mix - Up Charge | CY | 10 |
| 35 | New Rollover C&G and SW | LF | 60 |
| 36 | New 4" Concrete | SY | 11 |
| 37 | New 6" Concrete | SY | 0 |
| 38 | New 8" Concrete | SY | 41 |
| 39 | Unclassified Excavation | CY | 1 |
| 40 | Compacted Stabilization Subgrade Import (6" Base) | TON | 5 |
| 41 | Major Re-landscaping (Sprinklers, etc.) | HR | 2 |
| 42 | Adjust Meter Pit | EA | 0 |
| 43 | Landscape Curb 0-6" | LF | 55 |
| 44 | Landscape Curb 7-18" | LF | 0 |
| 45 | Landscape Curb 19-48" | LF | 0 |

| | | | |
|----|---|----|----|
| 46 | ADA Detectable Warning plates/domes | SF | 16 |
| 47 | Remove and Reset mailbox | EA | 0 |
| 48 | Tree and Root Pruning | HR | 0 |
| 49 | Saw Cut to Preserve Asphalt | LF | 0 |
| 50 | Pre-Fabricated Concrete Washout Structure | LS | 0 |
| 51 | 4" PVC Installed Under Sidewalk | LF | 0 |

Table 13 5th St Rd from 4th St to 35th Ave

| Item # | Description | Unit | Qty |
|--------|--|------|-----|
| 27 | Remove Curb & Gutter (0 to 2' Pan) | LF | 39 |
| 28 | Remove Concrete Flatwork - Thickness Varies | SY | 51 |
| 29 | Removal of Rollover C&G/Sidewalk | LF | 52 |
| 30 | Remove Asphalt (Thickness Varies) | SY | 0 |
| 31 | Concrete Sawcut Demo | LF | 14 |
| 32 | New 6" C&G 0-2' Pan (i.e. Vertical Curb and Gutter: Sim to S-16) | LF | 39 |
| 33 | New High Back Curb and Gutter (8" and above) | LF | 0 |
| 34 | High Early Mix - Up Charge | CY | 10 |
| 35 | New Rollover C&G and SW | LF | 52 |
| 36 | New 4" Concrete | SY | 17 |
| 37 | New 6" Concrete | SY | 0 |
| 38 | New 8" Concrete | SY | 41 |
| 39 | Unclassified Excavation | CY | 1 |
| 40 | Compacted Stabilization Subgrade Import (6" Base) | TON | 5 |
| 41 | Major Re-landscaping (Sprinklers, etc.) | HR | 2 |
| 42 | Adjust Meter Pit | EA | 56 |
| 43 | Landscape Curb 0-6" | LF | 0 |
| 44 | Landscape Curb 7-18" | LF | 0 |
| 45 | Landscape Curb 19-48" | LF | 16 |
| 46 | ADA Detectable Warning plates/domes | SF | 0 |
| 47 | Remove and Reset mailbox | EA | 1 |
| 48 | Tree and Root Pruning | HR | 0 |
| 49 | Stamped Concrete (Add On) | SY | 0 |
| 50 | Pre-Fabricated Concrete Washout Structure | LS | 0 |
| 51 | 4" PVC Installed Under Sidewalk | LF | 0 |

Table 14 5th St from 28th Ave to 6th St

| Item # | Description | Unit | Qty |
|--------|--|------|-----|
| 27 | Remove Curb & Gutter (0 to 2' Pan) | LF | 0 |
| 28 | Remove Concrete Flatwork - Thickness Varies | SY | 44 |
| 29 | Removal of Rollover C&G/Sidewalk | LF | 357 |
| 30 | Remove Asphalt (Thickness Varies) | SY | 32 |
| 31 | Concrete Sawcut Demo | LF | 14 |
| 32 | New 6" C&G 0-2' Pan (i.e. Vertical Curb and Gutter: Sim to S-16) | LF | 0 |
| 33 | New High Back Curb and Gutter (8" and above) | LF | 0 |
| 34 | High Early Mix - Up Charge | CY | 21 |
| 35 | New Rollover C&G/ Sidewalk | LF | 357 |
| 36 | New 4" Concrete | SY | 0 |
| 37 | New 6" Concrete | SY | 0 |

| | | | |
|----|---|-----|-----|
| 38 | New 8" Concrete | SY | 76 |
| 39 | Unclassified Excavation | CY | 3 |
| 40 | Class 6 Base Course (Concrete) | TON | 20 |
| 41 | Major Re-landscaping (Sprinklers, etc.) | HR | 6 |
| 42 | Adjust Meter Pit | EA | 0 |
| 43 | Landscape Curb 0-6" | LF | 216 |
| 44 | Landscape Curb 7-18" | LF | 0 |
| 45 | Landscape Curb 19-48" | LF | 0 |
| 46 | ADA Detectable Warning plates/domes | SF | 96 |
| 47 | Remove and Reset mailbox | EA | 0 |
| 48 | Tree and Root Pruning | HR | 0 |
| 49 | Saw Cut to Preserve Asphalt | LF | 0 |
| 50 | Pre-Fabricated Concrete Washout Structure | LS | 0 |
| 51 | 4" PVC Installed Under Sidewalk | LF | 0 |

| Table 15 6th St Rd from 6th St to CDS West | | | |
|---|--|------|-----|
| Item # | Description | Unit | Qty |
| 27 | Remove Curb & Gutter (0 to 2' Pan) | LF | 0 |
| 28 | Remove Concrete Flatwork - Thickness Varies | SY | 1 |
| 29 | Removal of Rollover C&G/Sidewalk | LF | 134 |
| 30 | Remove Asphalt (Thickness Varies) | SY | 0 |
| 31 | Concrete Sawcut Demo | LF | 0 |
| 32 | New 6" C&G 0-2' Pan (i.e. Vertical Curb and Gutter: Sim to S-16) | LF | 0 |
| 33 | New High Back Curb and Gutter (8" and above) | LF | 0 |
| 34 | High Early Mix - Up Charge | CY | 2 |
| 35 | New Rollover C&G and SW | LF | 134 |
| 36 | New 4" Concrete | SY | 0 |
| 37 | New 6" Concrete | SY | 0 |
| 38 | New 8" Concrete | SY | 1 |
| 39 | Unclassified Excavation | CY | 1 |
| 40 | Compacted Stabilization Subgrade Import (6" Base) | TON | 5 |
| 41 | Major Re-landscaping (Sprinklers, etc.) | HR | 2 |
| 42 | Adjust Meter Pit | EA | 0 |
| 43 | Landscape Curb 0-6" | LF | 96 |
| 44 | Landscape Curb 7-18" | LF | 0 |
| 45 | Landscape Curb 19-48" | LF | 0 |
| 46 | ADA Detectable Warning plates/domes | SF | 64 |
| 47 | Remove and Reset mailbox | EA | 0 |
| 48 | Tree and Root Pruning | HR | 1 |
| 49 | Saw Cut to Preserve Asphalt | LF | 0 |
| 50 | Pre-Fabricated Concrete Washout Structure | LS | 0 |
| 51 | 4" PVC Installed Under Sidewalk | LF | 0 |

| Table 16 4th Ave from 20th St to 22nd St | | | |
|---|---|------|-----|
| Item # | Description | Unit | Qty |
| 27 | Remove Curb & Gutter (0 to 2' Pan) | LF | 52 |
| 28 | Remove Concrete Flatwork - Thickness Varies | SY | 115 |
| 29 | Removal of Rollover C&G/Sidewalk | LF | 0 |

| | | | |
|----|--|-----|-----|
| 30 | Remove Asphalt (Thickness Varies) | SY | 23 |
| 31 | Concrete Sawcut Demo | LF | 16 |
| 32 | New 6" C&G 0-2' Pan (i.e. Vertical Curb and Gutter: Sim to S-16) | LF | 127 |
| 33 | New High Back Curb and Gutter (8" and above) | LF | 0 |
| 34 | High Early Mix - Up Charge | CY | 20 |
| 35 | New Rollover C&G and SW | LF | 0 |
| 36 | New 4" Concrete | SY | 4 |
| 37 | New 6" Concrete | SY | 40 |
| 38 | New 8" Concrete | SY | 104 |
| 39 | Unclassified Excavation | CY | 4 |
| 40 | Compacted Stabilization Subgrade Import (6" Base) | TON | 15 |
| 41 | Major Re-landscaping (Sprinklers, etc.) | HR | 24 |
| 42 | Adjust Meter Pit | EA | 0 |
| 43 | Landscape Curb 0-6" | LF | 58 |
| 44 | Landscape Curb 7-18" | LF | 0 |
| 45 | Landscape Curb 19-48" | LF | 0 |
| 46 | ADA Detectable Warning plates/domes | SF | 30 |
| 47 | Remove and Reset mailbox | EA | 0 |
| 48 | Tree and Root Pruning | HR | 2 |
| 49 | Saw Cut to Preserve Asphalt | LF | 145 |
| 50 | Pre-Fabricated Concrete Washout Structure | LS | 0 |
| 51 | 4" PVC Installed Under Sidewalk | LF | 0 |

| Table 17 5th Ave from 20th St to 22nd St | | | |
|---|--|------|-----|
| Item # | Description | Unit | Qty |
| 27 | Remove Curb & Gutter (0 to 2' Pan) | LF | 40 |
| 28 | Remove Concrete Flatwork - Thickness Varies | SY | 11 |
| 29 | Removal of Rollover C&G/Sidewalk | LF | 0 |
| 30 | Remove Asphalt (Thickness Varies) | SY | 0 |
| 31 | Concrete Sawcut Demo | LF | 0 |
| 32 | New 6" C&G 0-2' Pan (i.e. Vertical Curb and Gutter: Sim to S-16) | LF | 40 |
| 33 | New High Back Curb and Gutter (8" and above) | LF | 0 |
| 34 | High Early Mix - Up Charge | CY | 0 |
| 35 | New Rollover C&G and SW | LF | 0 |
| 36 | New 4" Concrete | SY | 0 |
| 37 | New 6" Concrete | SY | 11 |
| 38 | New 8" Concrete | SY | 0 |
| 39 | Unclassified Excavation | CY | 1 |
| 40 | Compacted Stabilization Subgrade Import (6" Base) | TON | 5 |
| 41 | Major Re-landscaping (Sprinklers, etc.) | HR | 2 |
| 42 | Adjust Meter Pit | EA | 0 |
| 43 | Landscape Curb 0-6" | LF | 24 |
| 44 | Landscape Curb 7-18" | LF | 0 |
| 45 | Landscape Curb 19-48" | LF | 0 |
| 46 | ADA Detectable Warning plates/domes | SF | 18 |
| 47 | Remove and Reset mailbox | EA | 0 |
| 48 | Tree and Root Pruning | HR | 1 |
| 49 | Saw Cut to Preserve Asphalt | LF | 15 |
| 50 | Pre-Fabricated Concrete Washout Structure | LS | 0 |

| | | | |
|----|---------------------------------|----|---|
| 51 | 4" PVC Installed Under Sidewalk | LF | 0 |
|----|---------------------------------|----|---|

| Table 18 21st St from 4th Ave to 10th Ave | | | |
|--|--|------|-----|
| Item # | Description | Unit | Qty |
| 27 | Remove Curb & Gutter (0 to 2' Pan) | LF | 193 |
| 28 | Remove Concrete Flatwork - Thickness Varies | SY | 213 |
| 29 | Removal of Rollover C&G/Sidewalk | LF | 0 |
| 30 | Remove Asphalt (Thickness Varies) | SY | 0 |
| 31 | Concrete Sawcut Demo | LF | 22 |
| 32 | New 6" C&G 0-2' Pan (i.e. Vertical Curb and Gutter: Sim to S-16) | LF | 193 |
| 33 | New High Back Curb and Gutter (8" and above) | LF | 0 |
| 34 | High Early Mix - Up Charge | CY | 10 |
| 35 | New Rollover C&G and SW | LF | 0 |
| 36 | New 4" Concrete | SY | 59 |
| 37 | New 6" Concrete | SY | 153 |
| 38 | New 8" Concrete | SY | 0 |
| 39 | Unclassified Excavation | CY | 4 |
| 40 | Compacted Stabilization Subgrade Import (6" Base) | TON | 25 |
| 41 | Major Re-landscaping (Sprinklers, etc.) | HR | 10 |
| 42 | Adjust Meter Pit | EA | 0 |
| 43 | Landscape Curb 0-6" | LF | 377 |
| 44 | Landscape Curb 7-18" | LF | 0 |
| 45 | Landscape Curb 19-48" | LF | 7 |
| 46 | ADA Detectable Warning plates/domes | SF | 302 |
| 47 | Remove and Reset mailbox | EA | 0 |
| 48 | Tree and Root Pruning | HR | 5 |
| 49 | Saw Cut to Preserve Asphalt | LF | 164 |
| 50 | Pre-Fabricated Concrete Washout Structure | LS | 0 |
| 51 | 4" PVC Installed Under Sidewalk | LF | 0 |

| Table 19 9th Ave from 20th St to 26th St | | | |
|---|--|------|-----|
| Item # | Description | Unit | Qty |
| 27 | Remove Curb & Gutter (0 to 2' Pan) | LF | 252 |
| 28 | Remove Concrete Flatwork - Thickness Varies | SY | 403 |
| 29 | Removal of Rollover C&G/Sidewalk | LF | 0 |
| 30 | Remove Asphalt (Thickness Varies) | SY | 25 |
| 31 | Concrete Sawcut Demo | LF | 0 |
| 32 | New 6" C&G 0-2' Pan (i.e. Vertical Curb and Gutter: Sim to S-16) | LF | 252 |
| 33 | New High Back Curb and Gutter (8" and above) | LF | 0 |
| 34 | High Early Mix - Up Charge | CY | 30 |
| 35 | New Rollover C&G/ Sidewalk | LF | 0 |
| 36 | New 4" Concrete | SY | 0 |
| 37 | New 6" Concrete | SY | 327 |
| 38 | New 8" Concrete | SY | 101 |
| 39 | Unclassified Excavation | CY | 0 |
| 40 | Class 6 Base Course (Concrete) | TON | 0 |
| 41 | Major Re-landscaping (Sprinklers, etc.) | HR | 1 |

| | | | |
|----|---|----|-------|
| 42 | Adjust Meter Pit | EA | 0 |
| 43 | Landscape Curb 0-6" | LF | 1,176 |
| 44 | Landscape Curb 7-18" | LF | 0 |
| 45 | Landscape Curb 19-48" | LF | 0 |
| 46 | ADA Detectable Warning plates/domes | SF | 420 |
| 47 | Remove and Reset mailbox | EA | 0 |
| 48 | Tree and Root Pruning | HR | 2 |
| 49 | Saw Cut to Preserve Asphalt | LF | 154 |
| 50 | Pre-Fabricated Concrete Washout Structure | LS | 0 |
| 51 | 4" PVC Installed Under Sidewalk | LF | 0 |

Table 20 23rd St from 8th Ave to 11th Ave

| Item # | Description | Unit | Qty |
|--------|--|------|-----|
| 27 | Remove Curb & Gutter (0 to 2' Pan) | LF | 102 |
| 28 | Remove Concrete Flatwork - Thickness Varies | SY | 132 |
| 29 | Removal of Rollover C&G/Sidewalk | LF | 0 |
| 30 | Remove Asphalt (Thickness Varies) | SY | 0 |
| 31 | Concrete Sawcut Demo | LF | 20 |
| 32 | New 6" C&G 0-2' Pan (i.e. Vertical Curb and Gutter: Sim to S-16) | LF | 102 |
| 33 | New High Back Curb and Gutter (8" and above) | LF | 0 |
| 34 | High Early Mix - Up Charge | CY | 0 |
| 35 | New Rollover C&G/ Sidewalk | LF | 0 |
| 36 | New 4" Concrete | SY | 0 |
| 37 | New 6" Concrete | SY | 132 |
| 38 | New 8" Concrete | SY | 0 |
| 39 | Unclassified Excavation | CY | 0 |
| 40 | Class 6 Base Course (Concrete) | TON | 0 |
| 41 | Major Re-landscaping (Sprinklers, etc.) | HR | 1 |
| 42 | Adjust Meter Pit | EA | 0 |
| 43 | Landscape Curb 0-6" | LF | 476 |
| 44 | Landscape Curb 7-18" | LF | 0 |
| 45 | Landscape Curb 19-48" | LF | 0 |
| 46 | ADA Detectable Warning plates/domes | SF | 170 |
| 47 | Remove and Reset mailbox | EA | 0 |
| 48 | Tree and Root Pruning | HR | 1 |
| 49 | Saw Cut to Preserve Asphalt | LF | 40 |
| 50 | Pre-Fabricated Concrete Washout Structure | LS | 0 |
| 51 | 4" PVC Installed Under Sidewalk | LF | 0 |

Table 21 24th St fr 8th Ave to 11th Ave

| Item # | Description | Unit | Qty |
|--------|--|------|-----|
| 27 | Remove Curb & Gutter (0 to 2' Pan) | LF | 78 |
| 28 | Remove Concrete Flatwork - Thickness Varies | SY | 126 |
| 29 | Removal of Rollover C&G/Sidewalk | LF | 0 |
| 30 | Remove Asphalt (Thickness Varies) | SY | 8 |
| 31 | Concrete Sawcut Demo | LF | 10 |
| 32 | New 6" C&G 0-2' Pan (i.e. Vertical Curb and Gutter: Sim to S-16) | LF | 78 |

| | | | |
|----|--|-----|-----|
| 33 | New High Back Curb and Gutter (8" and above) | LF | 0 |
| 34 | High Early Mix - Up Charge | CY | 0 |
| 35 | New Rollover C&G/ Sidewalk | LF | 0 |
| 36 | New 4" Concrete | SY | 0 |
| 37 | New 6" Concrete | SY | 101 |
| 38 | New 8" Concrete | SY | 34 |
| 39 | Unclassified Excavation | CY | 0 |
| 40 | Class 6 Base Course (Concrete) | TON | 0 |
| 41 | Major Re-landscaping (Sprinklers, etc.) | HR | 1 |
| 42 | Adjust Meter Pit | EA | 0 |
| 43 | Landscape Curb 0-6" | LF | 364 |
| 44 | Landscape Curb 7-18" | LF | 0 |
| 45 | Landscape Curb 19-48" | LF | 0 |
| 46 | ADA Detectable Warning plates/domes | SF | 130 |
| 47 | Remove and Reset mailbox | EA | 0 |
| 48 | Tree and Root Pruning | HR | 1 |
| 49 | Saw Cut to Preserve Asphalt | LF | 78 |
| 50 | Pre-Fabricated Concrete Washout Structure | LS | 0 |
| 51 | 4" PVC Installed Under Sidewalk | LF | 0 |

| Table 23 26th St Rd from 28th Ave to 25th Ave | | | |
|--|--|------|-----|
| Item # | Description | Unit | Qty |
| 27 | Remove Curb & Gutter (0 to 2' Pan) | LF | 0 |
| 28 | Remove Concrete Flatwork - Thickness Varies | SY | 100 |
| 29 | Removal of Rollover C&G/Sidewalk | LF | 245 |
| 30 | Remove Asphalt (Thickness Varies) | SY | 33 |
| 31 | Concrete Sawcut Demo | LF | 0 |
| 32 | New 6" C&G 0-2' Pan (i.e. Vertical Curb and Gutter: Sim to S-16) | LF | 0 |
| 33 | New High Back Curb and Gutter (8" and above) | LF | 0 |
| 34 | High Early Mix - Up Charge | CY | 40 |
| 35 | New Rollover C&G and SW | LF | 245 |
| 36 | New 4" Concrete | SY | 0 |
| 37 | New 6" Concrete | SY | 0 |
| 38 | New 8" Concrete | SY | 133 |
| 39 | Unclassified Excavation | CY | 3 |
| 40 | Compacted Stabilization Subgrade Import (6" Base) | TON | 25 |
| 41 | Major Re-landscaping (Sprinklers, etc.) | HR | 6 |
| 42 | Adjust Meter Pit | EA | 0 |
| 43 | Landscape Curb 0-6" | LF | 150 |
| 44 | Landscape Curb 7-18" | LF | 0 |
| 45 | Landscape Curb 19-48" | LF | 0 |
| 46 | ADA Detectable Warning plates/domes | SF | 108 |
| 47 | Remove and Reset mailbox | EA | 0 |
| 48 | Tree and Root Pruning | HR | 3 |
| 49 | Saw Cut to Preserve Asphalt | LF | 116 |
| 50 | Pre-Fabricated Concrete Washout Structure | LS | 0 |
| 51 | 4" PVC Installed Under Sidewalk | LF | 0 |

| Table 28 17th St from 44th Ave Ct to 41st Ave | | | |
|--|--|------|-----|
| Item # | Description | Unit | Qty |
| 27 | Remove Curb & Gutter (0 to 2' Pan) | LF | 0 |
| 28 | Remove Concrete Flatwork - Thickness Varies | SY | 108 |
| 29 | Removal of Rollover C&G/Sidewalk | LF | 372 |
| 30 | Remove Asphalt (Thickness Varies) | SY | 16 |
| 31 | Concrete Sawcut Demo | LF | 34 |
| 32 | New 6" C&G 0-2' Pan (i.e. Vertical Curb and Gutter: Sim to S-16) | LF | 0 |
| 33 | New High Back Curb and Gutter (8" and above) | LF | 0 |
| 34 | High Early Mix - Up Charge | CY | 10 |
| 35 | New Rollover C&G and SW | LF | 372 |
| 36 | New 4" Concrete | SY | 0 |
| 37 | New 6" Concrete | SY | 3 |
| 38 | New 8" Concrete | SY | 122 |
| 39 | Unclassified Excavation | CY | 1 |
| 40 | Compacted Stabilization Subgrade Import (6" Base) | TON | 5 |
| 41 | Major Re-landscaping (Sprinklers, etc.) | HR | 1 |
| 42 | Adjust Meter Pit | EA | 0 |
| 43 | Landscape Curb 0-6" | LF | 216 |
| 44 | Landscape Curb 7-18" | LF | 0 |
| 45 | Landscape Curb 19-48" | LF | 0 |
| 46 | ADA Detectable Warning plates/domes | SF | 130 |
| 47 | Remove and Reset mailbox | EA | 0 |
| 48 | Tree and Root Pruning | HR | 1 |
| 49 | Saw Cut to Preserve Asphalt | LF | 205 |
| 50 | Pre-Fabricated Concrete Washout Structure | LS | 0 |
| 51 | 4" PVC Installed Under Sidewalk | LF | 0 |

| Table 29 9th St from 47th Ave to 49th Ave | | | |
|--|--|------|-----|
| Item # | Description | Unit | Qty |
| 27 | Remove Curb & Gutter (0 to 2' Pan) | LF | 87 |
| 28 | Remove Concrete Flatwork - Thickness Varies | SY | 362 |
| 29 | Removal of Rollover C&G/Sidewalk | LF | 271 |
| 30 | Remove Asphalt (Thickness Varies) | SY | 24 |
| 31 | Concrete Sawcut Demo | LF | 21 |
| 32 | New 6" C&G 0-2' Pan (i.e. Vertical Curb and Gutter: Sim to S-16) | LF | 87 |
| 33 | New High Back Curb and Gutter (8" and above) | LF | 0 |
| 34 | High Early Mix - Up Charge | CY | 36 |
| 35 | New Rollover C&G and SW | LF | 271 |
| 36 | New 4" Concrete | SY | 9 |
| 37 | New 6" Concrete | SY | 101 |
| 38 | New 8" Concrete | SY | 278 |
| 39 | Unclassified Excavation | CY | 5 |
| 40 | Compacted Stabilization Subgrade Import (6" Base) | TON | 20 |
| 41 | Major Re-landscaping (Sprinklers, etc.) | HR | 6 |
| 42 | Adjust Meter Pit | EA | 0 |
| 43 | Landscape Curb 0-6" | LF | 188 |
| 44 | Landscape Curb 7-18" | LF | 0 |

| | | | |
|----|---|----|----|
| 45 | Landscape Curb 19-48" | LF | 0 |
| 46 | ADA Detectable Warning plates/domes | SF | 96 |
| 47 | Remove and Reset mailbox | EA | 0 |
| 48 | Tree and Root Pruning | HR | 1 |
| 49 | Saw Cut to Preserve Asphalt | LF | 87 |
| 50 | Pre-Fabricated Concrete Washout Structure | LS | 0 |
| 51 | 4" PVC Installed Under Sidewalk | LF | 0 |

| Table 30 47th Ave Ct/5th St fr 7th St to 49th Ave | | | |
|--|--|------|-----|
| Item # | Description | Unit | Qty |
| 27 | Remove Curb & Gutter (0 to 2' Pan) | LF | 0 |
| 28 | Remove Concrete Flatwork - Thickness Varies | SY | 312 |
| 29 | Removal of Rollover C&G/Sidewalk | LF | 330 |
| 30 | Remove Asphalt (Thickness Varies) | SY | 24 |
| 31 | Concrete Sawcut Demo | LF | 42 |
| 32 | New 6" C&G 0-2' Pan (i.e. Vertical Curb and Gutter: Sim to S-16) | LF | 0 |
| 33 | New High Back Curb and Gutter (8" and above) | LF | 0 |
| 34 | High Early Mix - Up Charge | CY | 42 |
| 35 | New Rollover C&G and SW | LF | 330 |
| 36 | New 4" Concrete | SY | 0 |
| 37 | New 6" Concrete | SY | 52 |
| 38 | New 8" Concrete | SY | 293 |
| 39 | Unclassified Excavation | CY | 11 |
| 40 | Compacted Stabilization Subgrade Import (6" Base) | TON | 25 |
| 41 | Major Re-landscaping (Sprinklers, etc.) | HR | 10 |
| 42 | Adjust Meter Pit | EA | 0 |
| 43 | Landscape Curb 0-6" | LF | 192 |
| 44 | Landscape Curb 7-18" | LF | 0 |
| 45 | Landscape Curb 19-48" | LF | 0 |
| 46 | ADA Detectable Warning plates/domes | SF | 80 |
| 47 | Remove and Reset mailbox | EA | 0 |
| 48 | Tree and Root Pruning | HR | 0 |
| 49 | Saw Cut to Preserve Asphalt | LF | 266 |
| 50 | Pre-Fabricated Concrete Washout Structure | LS | 0 |
| 51 | 4" PVC Installed Under Sidewalk | LF | 0 |

TIME TO COMPLETE OVERLAY LOCATIONS

The City of Greeley has listed below the following Streets and time each street must be completed by. Failure to complete listed streets by the date listed will result in a daily charge of \$1,500 per day to the contractor until work is complete.

Individual Street Completion of listed streets by date:

Streets to be completed by a set date in 2022 are listed below:

Location Number 1 – 29th Street – 23rd Avenue to change of pavement West in 3000 block can be started after May 26th 2022, must be completed by August 5th, 2022.

Location Number 2 -27th Avenue –29th Street to end of pavement South can be started after May 26th, 2022, must be completed by August 5th, 2022.

Location Number 5 – 14th Avenue – 16th Street to 20th Street can be started after May 19th, 2022, must be completed by August 5th, 2022.

Location Number 23 – 21st Street – 4th Avenue to 10th Avenue can be started after May 6th, 2022, must be completed by August 5th, 2022.

Location Number 25 – 9th Avenue – 20th Street to 26th Street can be started after May 6th, 2022, must be completed by August 5th, 2022.

Location Number 26 – 23rd Street – 8th Avenue to 11th Avenue can be started after May 6th, 2022, must be completed by August 25th, 2022.

Location Number 27 – 24th Street – 8th Avenue to 11th Avenue can be started after May 6th, 2022, must be completed by August 5th, 2022.

Overlay List Items Number 1 - Number 2 – Number 5 – Number 23 – Number 25 – Number 26 – and Number 27 must be completed between May 5th and August 5th, 2022.

Remaining Streets must be completed by November 18th, 2022.

Final Complete Schedule for 2022 Overlay Program

Complete Schedule with information for each location will include:

- number and name of street including “from and to”
- individual task such as traffic control, flyers distributed, lowering utilities (manholes and water valves), milling, leveling course, fabric, final paving mat, raising utilities (manholes and water valves)

Asphalt Cost Allowance – Not to be used in 2022 Overlay Program.

SURFACE PREPARATION

Prior to commencing paving or tacking operations, the roadway surface will be completely cleaned and made free of loose and foreign material to the complete satisfaction of the City Project Representative.

The Contractor is required to remove the weed growth in cracks in the pavement and at the interface between the curb and gutter and pavement. The removal may be done by cutting or burning, or a combination of both, or by another method approved by the City. The weeds will be removed ½ inch below the existing surface leaving no upward projections.

Weed removal costs will be included in the unit price of the overlay work and will not be paid separately.

PAVING FABRIC

Work will consist of furnishing and placing a fabric between pavement layers for the purpose of incorporating a waterproofing and stress relieving membrane within the pavement structure.

Fabric rolls will be furnished with suitable wrapping for protection against moisture and extended ultraviolet exposure prior to placement. Each roll will be labeled or tagged to provide product identification sufficient for inventory and quality control purposes.

Fabric will be placed into the asphaltic cement binder with minimum wrinkling prior to the time the binder has cooled and lost its tackiness. As directed by Project Representative, the wrinkles or folds in

excess of one-half inch (1/2") will be slit and laid flat. Brooming and/or rolling by pneumatic tire rollers will be required to maximize fabric contact with the pavement surface. Steel wheel rollers will not be used.

Geo-textile paving fabric will have a grab tensile strength of 90 lbs.

Overlap on fabric joints will be sufficient to ensure full closure of the joint but should not exceed six (6") inches or less than two (2") inches. Transverse joints will be lapped in the direction of paving to prevent edge pickup by the paver. A second application of asphaltic cement binder to fabric overlaps will be required, if in the judgment of the inspector, additional binder is needed to ensure proper bonding of the double fabric layer. Removal and/or replacement of fabric that is damaged will be the responsibility of the Contractor and completed at no extra cost to the City.

To protect the paving fabric during paving operations, a dusting of asphalt will be applied to fabric so as not to damage the fabric. This dusting will be applied before paving operations start. As ambient temperatures rise during paving operations, more dusting may be required as designated by the City Project Representative.

Payment of in-place pavement fabric will be for total area coverage (Square Yards), not number of rolls used.

The Contractor must submit Certificates of Compliance.

NOTE: See MPGEC, Item 10, Paving Fabric.

NOTE: See Fabric Placement, roll sizes vary per street.

GlasPave 25 or GlasPave 50 paving fabric shall be installed on all listed streets in the City of Greeley 2022 Overlay Program as instructed by City of Greeley Representative. GlasPave 25 or GlasPave 50 will be installed according to manufacturer's specifications.

MATERIALS:

Materials will meet the requirements set forth in the City of Greeley "Design Criteria and Construction Specifications Manual" (DCCSM) latest edition, made a part of these specifications, or MGPEC. Approved MGPEC Grading placing HMA pavement Grading SX, Grading S, Grading S modified, Grading SG, Grading F mixes will be used for all overlays. CSS-1h emulsified asphalt will be used as a tack coat material.

HOT BITUMINOUS PAVING MIXES:

Mix designs will conform to the MGPEC design, Form 9 attached, for each paving mix needed. An HMA Design Mix will be submitted to the Project Manager for his review three (3) days prior to the pre-construction meeting.

Reclaimed asphalt pavement (RAP) will meet the CDOT requirements in Section 703.04, except that the mix will not contain more than 20% RAP material. This work will consist of placing HMA pavement Grading S, and SX in designated areas.

The surface will be "tacked" with CSS-1h emulsified asphalt prior to placement of the asphalt mat, except where asphalt stabilization fabric is used. CSS-1h will be paid as part of the unit price for overlay work and not paid separately.

LEVELING COURSE

When directed by the Project Representative, the Contractor will place with the lay-down machine a hot bituminous pavement as a leveling course prior to the application of the final overlay. Before the leveling course is placed, the area will be "tacked" with CSS-1h emulsified asphalt. CSS-1h will be paid as part of the unit price for leveling work and not paid separately. Measurement for payment of leveling course will be determined by load tickets submitted to the City. Payment will be made for each ton of leveling course placed. All trucks will have tonnage tickets for each load delivered to the project.

OVERLAY WITH STABILIZATION FABRIC

The areas specified on the plans and/or contract documents for Overlay with Stabilization Fabric will consist of applying an asphaltic cement binder, applying fabric, and placing a hot bituminous pavement on the surface of the street.

A PG 64-22 or approved asphalt cement binder will be applied to the existing pavement prior to the application of the fabric. The PG 64-22 will normally be applied at a rate of 0.18 to 0.25 gallons per square yard. PG 64-22 cement binder will be part of the unit cost of fabric installed.

The areas where fabric is not covering the street will be tacked with CSS-1h asphaltic cement binder. The contractor will have a sufficient amount of trucks to deliver HMA to maintain not less than two full trucks in front of the paver/pavers.

Compaction of the HMA will be 94% +/-2% of the approved submitted job-mix formula.

PAINT - MATERIALS AND EXECUTION

A. Pavement Markings with Paint (Waterborne)

Description – Low VOC, ready mixed, one component, 100% acrylic waterborne traffic paints.

All paints shall be suitable for application to Asphaltic or Portland Cement concrete pavements when applied with or without glass beads.

Striping shall be done when the air and pavement temperatures are at least 50° F and rising. The pavement surface and weather conditions shall be conducive to satisfactory results.

Equipment shall be capable of painting a reasonably clean-edged stripe of the designated width ($\pm \frac{1}{4}$ in.) and shall have a bead dispenser directly behind synchronized with the paint applicator. For center lines and lane lines, an automatic skip control shall be used that will paint a stripe with a gap as shown on the plans. Machines having multiple applicators shall be used for center lines with "no passing zones." In areas where machines are not practical, suitable hand-operated equipment shall be used. All stripes shall be protected until dry. Paint and beads shall be applied within the following limits:

APPLICATION RATE OR COVERAGE PER GALLON OF PAINT

MINIMUM - Paint 100 sq. ft.

Beads 5 lbs. 13 oz.

MAXIMUM – Paint 110 sq. ft. (approximately 15 miles when wet) –

Beads 6 lbs. 3 oz.

Pavement marking paint shall conform to the requirement listed in the tables. All proportions are by weight. Pigment composition and vehicle composition shall not vary by more than 1.0 percent of each amount specified.

REMOVAL OF ASPHALT MAT (Planing)

Removal of asphalt mat will consist of planing areas designated by the Project Representative. Planing equipment will be capable of self-loading removed material into trucks for disposal and will be capable of planing a minimum section four feet (4') to twelve (12') feet wide. The planer will have sufficient power, traction, and stability to maintain an accurate depth of cut. The propulsion and guidance system of the planer will be maintained in such condition that the planer may be operated to straight and true lines without excessive lateral deviation. The planer will be able to maintain a uniform slope and depth using electronic grade control. Operation with broken or missing teeth will not be allowed. Worn teeth will be replaced if the planer does not produce a uniform surface.

All fines will be broomed from the surface immediately after the planing operation. The purpose of this portion of work is to mill a minimum of two inches (2") below existing lip of curb or a depth as designated by Project Representative. Edge Milling will be a minimum depth as stated above and then tapered to no depth as directed in distance from the curb lip. Tie-in points shall be roto-milled from the depth listed above, 30 feet from tie-in tapered to no depth. Special notes add to end estimated milling depths. During the milling operation, the Contractor as approved by the Project Representative will be directed to excavate areas of thin or unstable pavements. The Project Representative will designate areas to be excavated for the purpose of patching. Costs for milling excavation will be paid for per square yard in unit price for asphalt roto-mill patching.

At the completion of the day's work, vertical cuts will not be allowed to remain in areas being paved and the roadway will be left in a safe, usable condition. Milled fines or tailings can be used for temporary overnight transitions. The work site will be left in an acceptable condition as directed by the City Project Representative. If the Contractor fails to adequately clean the roadway, work will cease until the Project Representative has approved the Contractor's revised written proposal to adequately clean the roadway.

The Contractor will deliver, as directed by the Project Representative, the asphalt roto-milled material to the City of Greeley stockpile site, which is located at 1140 East 8th Street and stockpile as directed. The Project Representative will approve all methods and equipment used to mill and stockpile mill tailings.

Final asphalt pavement surface will be completed within ten days. Each street milled will be resurfaced there after within ten (10) days as scheduled, unless approved by the City Project Representative. If roads are not resurfaced within ten (10) days, the contractor will be responsible, at his own expense, to repair roads if damage occurs. The contractor will be charged \$1,500 per day until final asphalt surface is completed per site location.

SPECIAL NOTE: SEE TABULATION OF ADJUSTMENTS, MISCELLANEOUS WORK, AND DETAILS OF EDGE TREATMENT ESTIMATED MILLING DEPTHS.

REHABILITATION OF STREET

Mill & Replace

All milled areas will be swept with a pickup broom, unless otherwise specified, before being opened to traffic. A sufficient number of brooms will be used immediately after planing to remove all milled material remaining on the roadway. The Project Representative will approve all methods and equipment used.

If the Contractor fails to adequately clean the roadway, work will cease until the Project Representative has approved the Contractor's revised written proposal to adequately clean the roadway.

At the completion of each day's work, vertical edges caused by planing that are greater than one inch (25mm) in height will be: Longitudinal - tapered to not less than a 3:1 slope; Transverse - tapered to not less than a 50:1 slope.

The roadway will be left in a safe and usable condition at the end of each workday. All required pavement markings and striping removed by the planing, will be restored at the Contractor's expense before the roadway is opened to traffic. All milled arterials and collector roadways will be cleaned and restriped by a paint truck. There will be no tabbing of such roadways. Contractor will submit a temporary striping plan at pre-construction for each street requiring striping, including machine type, methods, and materials.

All planing will be completed parallel to the travel lanes unless otherwise directed by the Project Manager. All planing will be completed full width before resurfacing commences with a mill depth as directed by the Project Representative. The Project Representative will approve all methods and equipment used at the time of the pre-construction meeting.

The Contractor will deliver the asphalt material to the City of Greeley and stockpile it at the following location – 1140 East 8th Street.

Transitions After Milling

The contractor shall provide a three foot (3') in length transition for every 2" in pavement removal. This transition is to provide the motoring public a smooth and safe ride in work areas. Transitions will be removed prior to paving top mat.

Temporary ADA Ramp access after Milling

When milling is completed each day the roadway in front of existing ADA ramps will have a temporary asphalt access installed to provide a safe, travelable rise from the milled surface of the street to the front lip of the gutter. These assess will be hot mix asphalt at a ½" per foot rise and the width of the existing ramp in place. These will be removed prior to Top Mat Paving.

Unclassified Excavation

Unclassified excavation is to a depth of 5.5" for the full width of the section or as directed by the Project Representative. The Contractor will legally dispose of all materials (off the project site) that are deemed unusable by the Project Manager. At the time of excavation to 5.5" any soft or yielding material and other portions of the sub-grade, which will not compact, when removed as directed by the Project Manager and replaced with suitable material. Removal of material for unstable sub-grade will be paid at this time, at the same rate as unclassified excavation per square yard/inch price.

Shape-N-Compaction of Sub-grade

If the Contractor's scheduling of work, methods, or inclement weather caused a naturally stable sub-grade to become unstable, the area will be sub-excavated and stabilized as directed above at the Contractor's expense.

Soil Sterilization

Soil sterilization costs will be included in the unit price of the sub-grade preparation work and not paid separately.

Manholes & Water Valves

The Contractor is required to lower all manholes and valve boxes prior to Asphalt Mat Removal and raise to finish elevation all manholes and valve boxes after final placement of HMA overlay. These manholes and valve boxes will be paved over and then raised to finished grade to City specifications and encircled by a ring of concrete. This includes survey monuments and gas valves. (See Bid Tab for details.)

Refer to the Manhole and Water Valve Details in City of Greeley Design Criteria, DETAIL NOS. S-32, S-33, and S-34. All manholes and water valves left down for milling will be left in a safe position to accommodate the traveling public. Type III cement will be substituted for Type II cement. This work will only be conducted in lanes closed to traffic using an approved traffic plan. Only one lane in each direction will be closed at any time unless approved for full closure prior to commencement of work to be done. A high-early strength concrete mix (Fast Track) may be used, if approved by the Project Representative, but will not be paid as an extra cost.

Manhole and valve box adjustments will be paid separately at the unit price bids. Replacement parts for manholes and water valves will be supplied by the City of Greeley. If requested, manhole and/or water valve access at various locations will be made accessible for entry within twenty-four (24) hours from notice. These manholes and valve boxes will be paved over, and then raised to finished grade, and encircled by a ring of concrete. Concrete will be 1/4 - 3/8" below asphalt surface.

MATERIALS

Emulsified Asphalt: Emulsified asphalt (CSS-1h) will normally be applied on the roadway surfaces prior to the placement of any overlay or leveling courses at the application rate of 0.05 to 0.10 gallons per square yard. The emulsified asphalt will be diluted one (1) to one (1) with water prior to application. Weight tickets for the amount of CSS-1h used each day will be supplied by the Contractor to the City.

Asphalt Interlayer Fabric: A non-woven, synthetic fabric resistant to chemical attack, mildew, and rot will be placed with a suitable asphaltic cement binder (PG 64-22), or as approved, between the existing asphalt and the leveling course or on a milled surface.

Fabric Specifications:

| <u>Property</u> | <u>Requirements</u> | <u>Test Method</u> |
|---------------------------|--------------------------|----------------------|
| Weight | 4.1 oz/S.Y. | (Min.) ASTM D-5261 * |
| Grab strength | 101 lb. | ASTM D-4362 * |
| Grab elongation | 50% | ASTM D-4362 * |
| Trapezoid tears strength | 65 lbs. | ASTM D-4533 * |
| Asphalt Retention | 0.20 gal/yd ² | ASTM D-6140 * |
| Melting Point, degrees F. | 300 or greater | ASTM D 276 * |

* Minimum – Value in a weaker principle direction. All numerical values are minimum average roll values (i.e., any roll in a lot will meet or exceed the values in the table).

Acceptable products include Tencate Mirafi MPV 500 or approved equivalent. PG 64-22 asphaltic cement binder will normally be placed at 0.18 to 0.25 gallons per square yard.

HOT BITUMINOUS PAVING MIXES:

Mix designs will conform to the MGPEC design (Form 9 attached). Reclaimed asphalt pavement (RAP) will meet the CDOT requirements in Section 703.04, except that the mix will not contain more than 20% RAP material.

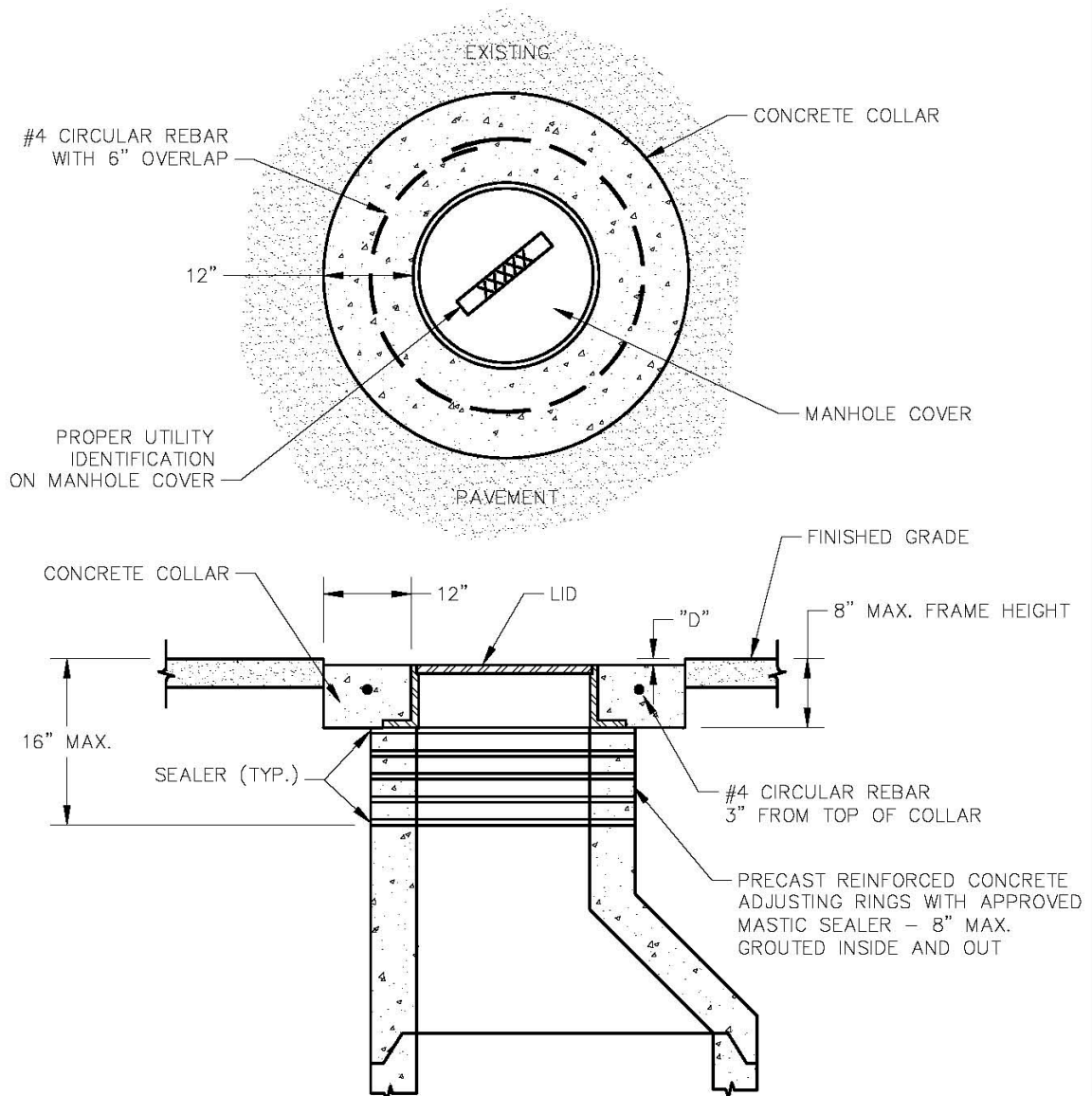
CONSTRUCTION

Construction requirements set forth in the latest revision of the "Design Criteria and Construction Specifications Manual" (DCCSM), most current CDOT Standards and Specifications for Road and Bridge Construction, or MGPEC should be consulted for the requirements for street construction. Pavements will be prepared as described under the "Surface Preparation" portion of this document. The Stabilization Fabric will be installed per the manufacturer's recommendations and suggestions. The Contractor will be required to raise, to finished elevation, all manholes and valve boxes. These manholes and valve boxes will be paved over, and then raised to finished grade, and encircled by a ring of concrete.

Concrete will be 1/4" - 3/8" below asphalt surface (modified asphalt).

Refer to the Manhole and Water Valve Details – Type III cement will be substituted for Type II cement. This work will only be conducted in lanes closed to traffic using an approved traffic plan. Only one lane in each direction will be closed at any time. A high-early strength concrete mix (Fast Track) may be used if approved by the Project Representative but will not be paid as an extra cost.

Prior to any removal of pavement markings – The Contractor will provide the City with an inventory of all existing pavement markings. The Contractor will be responsible for temporary pavement marking prior to opening the street to traffic. A copy of all field drawings or field data will be provided to the City before removal begins for each location.



NOTES:

1. "D" = 1/2" FOR HOT MIX ASPHALT PAVEMENT OVERLAYS, SURFACE TREATMENTS, PAVEMENT RECONSTRUCTION OR NEW CONSTRUCTION.
2. "D" = 1/4" FOR CONCRETE STREETS.
3. A SEALER SHALL BE USED BETWEEN ALL ADJUSTING RINGS AS REQUIRED.
4. DROP-IN RISER RINGS NOT ALLOWED.
5. SET AND TILT RING AND COVER TO MATCH SLOPE OF FINISHED STREET.

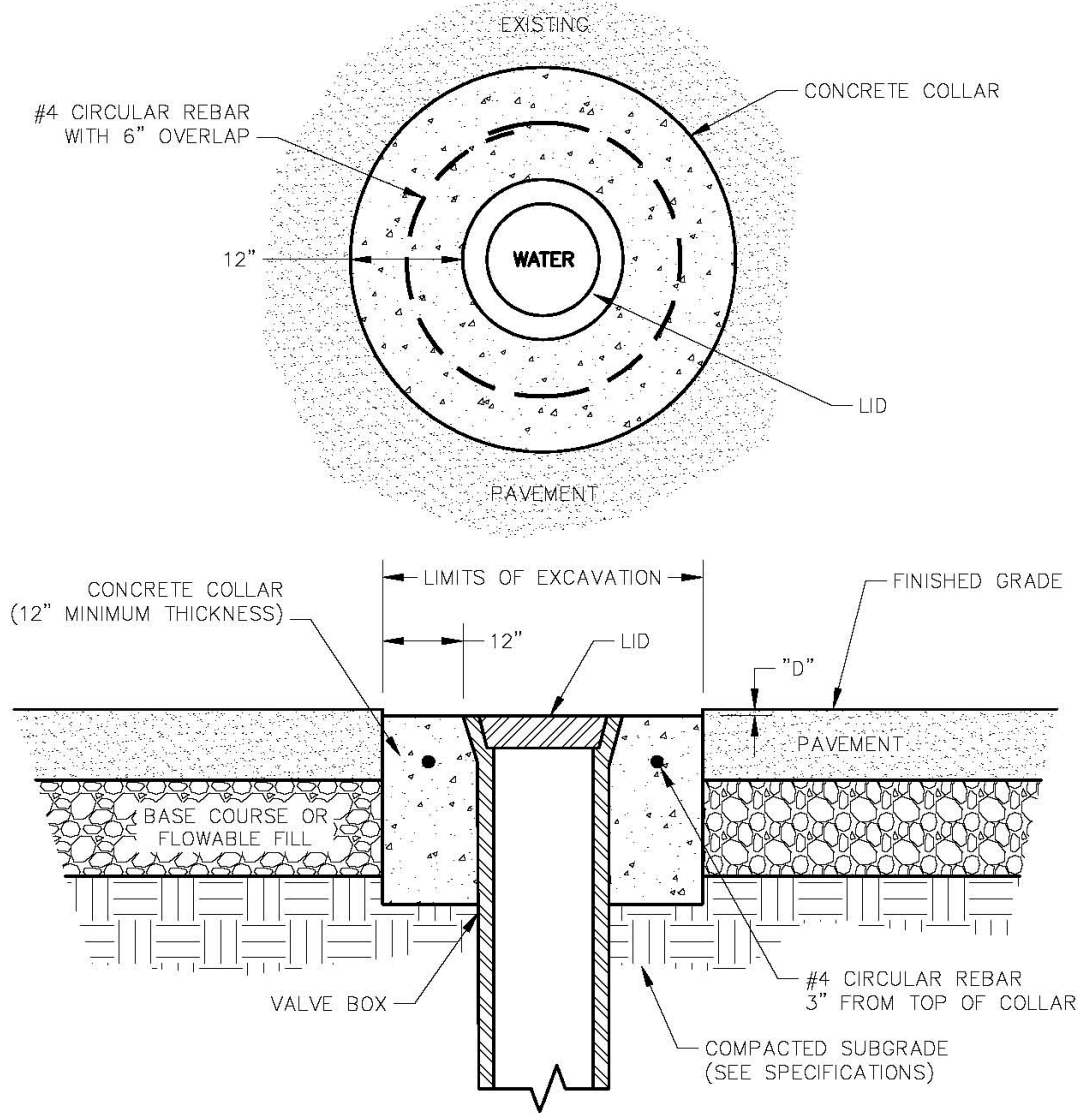


MANHOLE RAISING DETAIL

DETAIL NO. S-34

DATE: JANUARY, 2007

SCALE: N.T.S.



NOTES:

1. "D" = 1/2" FOR HOT MIX ASPHALT PAVEMENT OVERLAYS, SURFACE TREATMENTS, PAVEMENT RECONSTRUCTION OR NEW CONSTRUCTION.
2. "D" = 1/4" FOR CONCRETE STREETS.
3. VALVE BOX MUST BE PLUMB AND CENTERED OVER THE VALVE NUT.
4. THIS DETAIL APPLIES TO BOTH ASPHALT AND CONCRETE STREETS.



**WATER VALVE DETAIL
FOR RAISING TO FINISHED GRADE
DETAIL NO. S-33**

DATE: JANUARY, 2007

SCALE: N.T.S.

2. Project Special Provision Sheet for Hot Mix Asphalt Pavements (HMA)

This MGPEC Form #9 is a **mandatory part of the bid documents** and shall be filled out by the AGENCY for each mix specified. The Contractor shall include a copy of this form with each Mix Design submittal after the contract is awarded.

Street Classification: _____ – (examples: Residential, Collector, Arterial, Industrial, Parking Lot or actual name for Project)

→ Construction Application: ☐ Top Lift ☐ Intermediate Lift(s) ☒ Bottom Lift

☐ Patching ☐ Other _____

→ Aggregate Gradation: ☐ Grading ST (1.5" or less lifts, 3/8" NMPS)

☐ Grading SX (2.5" or less lifts)

☐ Grading S (2.5+ to 3.5" lifts)

☒ Grading SG*¹ (3.5" or thicker lifts)
SMA (Top lift only) ☐ 3/8" ☐ 1/2" ☐ 3/4"

*¹Note = Grading SG depends on approved texture of mix, Grading SG lower lift(s) only.

→ RAP Quantity, Maximum: ☐ 0% ☒ 20% ☐ 25%

Notes: - A quality control plan for RAP will be required when RAP is used

- Top lift Maximum RAP content allowed is 20%

→ Superpave Gyratory Mix Design Compaction Level, Recommended usage and Recommend binder(s):

Design Level

☐ N_{design}=50

☒ N_{design}=75

☐ N_{design}=100

Recommended Traffic Levels

Low volume

0 to <3 million ESALs

3 million to <30 million ESALs

Recommended PG Binder(s)

☐ PG 58-28 or ☐ PG 64-22

☒ PG 64-22

☐ PG 64-28 or ☐

Notes:

- The binders are shown in order they should be considered.

- Polymer modified PG Binders are typically used in the top lift only

- PG 58-28 Binder recommended for residential developments with less than 2 million ESAL's

3. Target job Mix Optimum Asphalt Content Selection, Choose target % as close to 4.0 as possible (3.5% to 4.5% air voids per MGPEC 2008)

4. Target Job Mix optimum Binder content for SMA grading at 3.0% to 4.0% air voids

****Warm mix asphalt (WMA) is allowed as an alternate to hot mix asphalt provided that all material requirements and specification standards are met and as approved by the Agency.**

A completed MGPEC Form #9 shall supplement the MGPEC Construction Specifications defining the contract specific requirements of Item 9: Hot Mix Asphalt Pavement (HMA). Refer to the Specifications for details.

6. Project Special Provision Sheet for Hot Mix Asphalt Pavements (HMA)

This MGPEC Form #9 is a **mandatory part of the bid documents** and shall be filled out by the AGENCY for each mix specified. The Contractor shall include a copy of this form with each Mix Design submittal after the contract is awarded.

Street Classification: _____ – (examples: Residential, Collector, Arterial, Industrial, Parking Lot or actual name for Project)

→ Construction Application: ☒ Top Lift ☒ Intermediate Lift(s) ☒ Bottom Lift

☐ Patching ☐ Other _____

→ Aggregate Gradation: ☐ Grading ST (1.5" or less lifts, 3/8" NMPS)

☐ Grading SX (2.5" or less lifts)

☒ Grading S (2.5+ to 3.5" lifts)

☐ Grading SG*¹ (3.5" or thicker lifts)

SMA (Top lift only) ☐ 3/8" ☐ 1/2" ☐ 3/4"

*¹Note = Grading SG depends on approved texture of mix, Grading SG lower lift(s) only.

→ RAP Quantity, Maximum: ☐ 0% ☒ 20% ☐ 25%

Notes: - A quality control plan for RAP will be required when RAP is used

- Top lift Maximum RAP content allowed is 20%

→ Superpave Gyrotory Mix Design Compaction Level, Recommended usage and Recommend binder(s):

Design Level

☐ N_{design}=50

☒ N_{design}=75

☐ N_{design}=100

Recommended Traffic Levels

Low volume

0 to <3 million ESALs

3 million to <30 million ESALs

Recommended PG Binder(s)

☐ PG 58-28 or ☐ PG 64-22

☒ PG 64-22

☐ PG 64-28 or ☐

Notes:

- The binders are shown in order they should be considered.

- Polymer modified PG Binders are typically used in the top lift only

- PG 58-28 Binder recommended for residential developments with less than 2 million ESAL's

7. Target job Mix Optimum Asphalt Content Selection, Choose target % as close to 4.0 as possible (3.5% to 4.5% air voids per MGPEC 2008)

8. Target Job Mix optimum Binder content for SMA grading at 3.0% to 4.0% air voids

****Warm mix asphalt (WMA) is allowed as an alternate to hot mix asphalt provided that all material requirements and specification standards are met and as approved by the Agency.**

A completed MGPEC Form #9 shall supplement the MGPEC Construction Specifications defining the contract specific requirements of Item 9: Hot Mix Asphalt Pavement (HMA). Refer to the Specifications for details.

10. Project Special Provision Sheet for Hot Mix Asphalt Pavements (HMA)

This MGPEC Form #9 is a **mandatory part of the bid documents** and shall be filled out by the AGENCY for each mix specified. The Contractor shall include a copy of this form with each Mix Design submittal after the contract is awarded.

Street Classification: _____ – (examples: Residential, Collector, Arterial, Industrial, Parking Lot or actual name for Project)

- Construction Application: ☒ Top Lift ☐ Intermediate Lift(s) ☐ Bottom Lift
☐ Patching ☐ Other _____
→ Aggregate Gradation: ☐ Grading ST (1.5" or less lifts, 3/8" NMPS)
☐ Grading SX (2.5" or less lifts)
☒ Grading S (2.5+ to 3.5" lifts)
☐ Grading SG*¹ (3.5" or thicker lifts)
SMA (Top lift only) ☐ 3/8" ☐ 1/2" ☐ 3/4"

*¹Note = Grading SG depends on approved texture of mix, Grading SG lower lift(s) only.

- RAP Quantity, Maximum: ☐ 0% ☒ 20% ☐ 25%

Notes: - A quality control plan for RAP will be required when RAP is used
- Top lift Maximum RAP content allowed is 20%

→ Superpave Gyrotory Mix Design Compaction Level, Recommended usage and Recommend binder(s):

| Design Level | Recommended Traffic Levels | Recommended PG Binder(s) |
|--|--------------------------------|--|
| <input type="checkbox"/> N _{design} =50 | Low volume | <input type="checkbox"/> PG 58-28 or <input type="checkbox"/> PG 64-22 |
| <input type="checkbox"/> N _{design} =75 | 0 to <3 million ESALs | <input type="checkbox"/> PG 64-22 |
| <input checked="" type="checkbox"/> N _{design} =100 | 3 million to <30 million ESALs | <input checked="" type="checkbox"/> PG 64-28 or <input type="checkbox"/> |

Notes: - The binders are shown in order they should be considered.
- Polymer modified PG Binders are typically used in the top lift only
- PG 58-28 Binder recommended for residential developments with less than 2 million ESAL's

11. Target job Mix Optimum Asphalt Content Selection, Choose target % as close to 4.0 as possible (3.5% to 4.5% air voids per MGPEC 2008)

12. Target Job Mix optimum Binder content for SMA grading at 3.0% to 4.0% air voids

****Warm mix asphalt (WMA) is allowed as an alternate to hot mix asphalt if all material requirements and specification standards are met and as approved by the Agency.**

A completed MGPEC Form #9 shall supplement the MGPEC Construction Specifications defining the contract specific requirements of Item 9: Hot Mix Asphalt Pavement (HMA). Refer to the Specifications for details.

SECTION 00620 - SPECIAL PROVISIONS

2022 KGM PAVEMENTS

CONCRETE

NOTICE TO BIDDERS: It is anticipated that all concrete work in this contract, apart from that associated with raising and lowering manholes, will be confined to ADA ramps and crossspans that connect to ramps at intersections that will receive overlay paving.

PROJECT DESCRIPTION – The contractor shall adhere to all traffic control and erosion control standards including submission of documents, reporting and maintenance for all locations. This year's KGM Pavement Program will be concentrated within Cranford, Arlington Park, Broadview, Alta Vista and Westmoor Neighborhoods. See attached PDF with locations of the work.

Please note that the estimated quantities in "Section 00130 – Bid Schedule" are only estimates, the total meant to correspond with Owner's construction budget. Actual work scope quantities will be dependent on the successful Bidder's unit bid prices.

CONSTRUCTION – Subgrade shall be properly compacted, moisture treated and deemed suitable by the City prior to any placement of concrete.

The Contractor must possess and use a stamp that includes the Contractor's name and the year in which the work is being done. The stamp will be used to permanently identify the Contractor that performed the concrete work. Locations will be as directed by the City. The Contractor will not be allowed to place concrete until the City has approved the stamp for use.

The Contractor will cleanly remove only enough existing asphalt to allow for installation of formwork. Contractor will be careful that subgrade exposed by excavations or removals does not become overly saturated. Any subgrade materials that become unstable or are unable to obtain proper compaction due to the entry of excessive moisture must be excavated, replaced with suitable material, and approved by the City. Additionally, removal of existing work may be required to ensure all damaged subgrade is removed and replaced. No additional payment will be made for this work. Areas where the existing concrete has heaved or where, in the opinion of the City, newly placed concrete has the potential to heave, shall receive special sub-base treatment. These areas will be over excavated a minimum of 8 inches and the void filled with Compacted Stabilization Material approved by the City. Over excavation will be included in the cost of the concrete work unless the excavation exceeds one foot.

Hot-mix asphalt shall be used to fill the void remaining after removal of formwork until a permanent Asphalt Patch is placed by others. Contractor shall remove all deleterious material as well as any large non compactable material leaving a minimum depth of 2.5 inches for HMA to be placed and compacted. Contractor shall wait 24 hours after concrete placement before temporary patching. This item is not paid for separately but is included in the cost of the work.

All concrete edges will be formed unless allowed or directed otherwise by the City. The new work will be cured and protected by the Contractor from bikes, dogs, foot traffic, vandalism, etc. until the concrete has reached a stage where it cannot be defaced or marred. New work left

unattended and disfigured or defaced may be grounds for the work to be rejected at the discretion of the City and replaced at Contractor's expense.

The City strongly recommends the use of an approved concrete sealer, even when not *required* by City Standards, to protect the Contractor's work which will be exposed to salts, chemicals, or other elements. The City's approval of a particular sealer does not relieve the Contractor of any Warranty responsibilities (see below).

The Contractor will protect the asphalt (both existing and new) from solvents and oils. Equipment leaking any fluid will be removed from the work site immediately and may not be returned to the work site until all leaks are repaired. If any piece of equipment leaks fluid a second time, it will be removed from the work site immediately and will not be allowed on the work site again for the remainder of the project unless proof can be provided that the leak has in fact been fixed.

Barricades and signage shall remain in place during the course of the work until concrete reaches 80% of design strength or at the discretion of City. Contractor is to provide 48-hour notice to the City of when barricades and signage are expected to be removed.

Each work site will be cleaned and have traffic control removed within seven days of final concrete placement. Forms will be removed, concrete debris will be picked up, the work area will be swept, sprinklers will be raised, lowered, adjusted, replaced and/or repaired, voids will be filled with suitable topsoil material and/or sodded, and all other work related to cleanup, irrigation, and landscape repair will be completed to the satisfaction of the City. The Contractor's topsoil material used for backfill shall be visually inspected by the City prior to use.

VEHICULAR ACCESS – Driveways and other vehicular access points will be closed for a minimum amount of time but shall in no case be closed longer than seven calendar days without the approval of the City. The Contractor will coordinate driveway and major access closures (such as multiple family entrances or commercial driveways) with property owners one week prior to construction by written notification, with final approval by the City. If directed by the City, individual driveways and other concrete may be required to be open within 48 hours of placement. At such locations, an appropriate High Early Strength (HES) concrete mix may be required. When used at the direction of the City, HES concrete will be paid for at the Unit Bid Price.

PERMANENT STREET SIGNAGE – Permanent street signage work will be done by the City at no cost to the Contractor. Removal of all signs will be coordinated with the City. The Contractor shall not remove any City signs. It shall be the responsibility of the Contractor to notify the City Traffic Division when street and traffic signs are ready to be permanently re-set (48 hours prior to removal of traffic control devices). Prior to any removals, Contractor is to note and document any pavement and curb markings that may be removed or obliterated by construction activities.

GRADING – Costs associated with subgrade preparation will be included in the unit price of the concrete work and will not be paid for separately. The exception to this would be if an area requires excavations greater than one foot to encounter acceptable subgrade material. Payment for the excavation over one foot will be paid for at the Unclassified Excavation Unit Bid Price. CDOT Class 6 Aggregate Base Course or suitable Compacted Stabilization Material will only be

paid when use has been directed or approved by the City and shall not be paid in conjunction with Unclassified Excavation unless otherwise approved by the City.

EROSION CONTROL & PROTECTION OF STORM DRAINS – Contractor is responsible for control and routing of storm water runoff draining around and from the construction area to prevent erosion, sedimentation or other damage to storm drain systems. The requirements of saw-cutting and concrete placement are provided in the Storm Drain Management Division Best Practices document attached herein.

BID ITEM DESCRIPTIONS

| <u>Item No.</u> | <u>Description</u> |
|-----------------|--------------------|
|-----------------|--------------------|

- | | |
|-----|---|
| 27. | Remove Curb and Gutter (0 to 2' pan) – This item includes Vertical-Face Curb and Gutter (Detail S-16); Median Curb and Gutter (Detail S-18); 6" Vertical-Face Barrier Curb (Detail S-18); Drive-Over Curb and Gutter (Detail S-15A); and includes sections with high-back curb and occasionally typical curb and gutter sections. Any excess width of pans over two-foot (2') wide will be paid for as denoted in Item No. 2. Paid per linear foot (LF). |
| 28. | Remove Concrete Flatwork (Thickness Varies) – Includes all concrete sidewalks, driveways, alley aprons, access ramps, cross pans, aprons, and concrete pavements and any portion of a gutter pan in excess of the typical two-foot (2') wide gutter pan normally associated with "curb and gutter." Paid per measured square yard (SY). |
| 29. | Removal of Rollover C&G/Sidewalk – Includes any type of drive-over curb, gutter, and sidewalk regardless of width. Payment is based upon linear foot (LF) distances running parallel to the flowline at the mid-point in the width. |
| 30. | Remove Asphalt (Thickness Varies) – Includes the removal of existing asphalt walk-path or removal of asphalt to accommodate for larger area of concrete placement. Removal of asphalt for concrete forms will not be paid for with this item. Paid per measured square yard (SY). |
| 31. | Concrete Sawcut Demo – Sawcut shall be paid by the linear foot (LF) and only in those areas not being removed at an existing joint. |
| 32. | New 6" C&G 0-2' Pan (i.e. Vertical Curb and Gutter: Sim to S-16) – This item shall be paid for in linear feet (LF) and shall encompass any curb up to 6" in height and a gutter width of up to 2 feet and 6" in depth. See Standard Detail Nos. S-16, S-18 and S-15A. |
| 33. | New High Back Curb and Gutter (8" and above) – This item shall be paid for in linear feet (LF) and shall encompass any curb with a height over 8". See Standard Detail Nos. S-16 and S-18. |

34. **High Early Mix – Up Charge** – If directed by the City, individual driveways and other concrete may be required to be open within 48 hours of placement. At such locations, an appropriate High-Early Strength (HES) concrete mix may be required. When used at the direction of the City, HES concrete will be paid for in cubic yards (CY). Written permission from the Construction Inspector or the Project Manager is required prior to installation.
35. **New Rollover C&G and SW**– See Standard Detail No. S-15. The width shall vary depending on the location, but in most cases shall match existing. Item shall be paid for as linear feet (LF) and based upon distances running parallel to the flowline at the mid-point in the width.
36. **New 4" Concrete** – In general this thickness shall include items such as sidewalks, (those similar to, but not limited to, Standard Details S-16 and S-21). Payment is in measured square yards (SY).
37. **New 6" Concrete** – In general this thickness shall include items such as sidewalks (where vehicular traffic is possible), residential driveway aprons, curb ramps, concrete paving, etc., (those similar to, but not limited to, Standard Details S-11, S-12, S-12-4, S-13, S-14, S-16, S-21, S-26, S-27, and S-29). Paid by measured square yards (SY).
38. **New 8" Concrete** – In general this thickness shall include items such as sidewalks (where vehicular traffic such as trash trucks is possible), cross pans, commercial driveway aprons, concrete paving, etc., (those similar to, but not limited to, Standard Details S-11, S-12, S-12-4, S-16, S-21, S-26, S-27, S-28 and S-29). Paid per measured square yard (SY).
39. **Unclassified Excavation (greater than 1 ft.)** – Costs associated with this bid item will be included in the unit price of the concrete work and will not be paid for separately. The exception to this would be if an area requires excavations greater than one foot (1 ft.) to encounter acceptable subgrade material. At that point the over-excavation would be paid for in cubic yards (CY).
40. **Class 6 Base Course (Concrete)** – This bid item applies to base course associated with concrete construction such as curb/gutter and sidewalks. Materials shall conform to the City of Greeley's Construction Specifications, Streets, Section 02229, Aggregate Base Course. Where possible the City would recommend the usage of recycled crushed concrete. RAP is not an acceptable material. Contractor shall submit batch tickets at time of delivery to the City for reimbursement of this bid item. This bid item shall be paid for in ton units.
41. **Major Re-landscaping (Sprinklers, etc.)** – Includes final grading or laying back of adjacent existing grades or other such re-shaping of an area to blend to and match the grade of the new work. For grading to be considered for payment under this bid item, the extent of the re-grading must be such that equipment or machinery is required to perform the work.

Existing landscaping adjacent to concrete work will be restored under this line item and will include all costs associated with restoration (labor, equipment, materials). Restoration includes but is not limited to the removal and replacement of fencing, rock, brick, and grass. Grass is to be restored by the laying of new sod in accordance with City of Greeley specifications. Contractor shall notify residents, and in the case of rental units, the Property Owner as well, when areas are newly sodded as a consequence of the work. Contractor is to provide property owners with written recommendations on maintaining and caring for newly installed landscaping in order to ensure successful establishment of the new landscaping. A record of such notices and copies of same shall be kept by the Contractor and made available to the City when requested. Failure of the Contractor to maintain these records may result in Contractor replacing the landscaping at Contractor's own cost if the new landscaping fails to establish itself. Payment under this bid item will only be made for disturbances to landscaping that are necessary to set concrete forms.

Sprinkler System Repair includes the lengthening or shortening of line over five feet, installation of new heads (does not include replacement of heads damaged by Contractor), and removal and replacement of large sections of a system. For work to be paid for under this bid item, the City must authorize all work to Sprinkler System Repairs prior to making adjustments. Payment for Sprinkler System Repair will be paid for by the hour and includes all material, labor, and equipment costs. Minor sprinkler adjustments will be included in the cost of the concrete and will include shortening of lines, or lengthening the lines five feet or less, and raising or lowering sprinkler heads. Breakage by the Contractor of existing sprinkler heads or lines shall be repaired by the Contractor at no cost to the City or the property owner. Contractor is to notify the property owner 72 hours in advance when sprinkler adjustments, repairs, or replacements are scheduled. All sprinkler work is to be tested with the property owner present. The Owner may waive this requirement if unwilling or unable to be present. Contractor shall obtain this waiver in written form from the Owner. Paid per hour (HR) of labor.

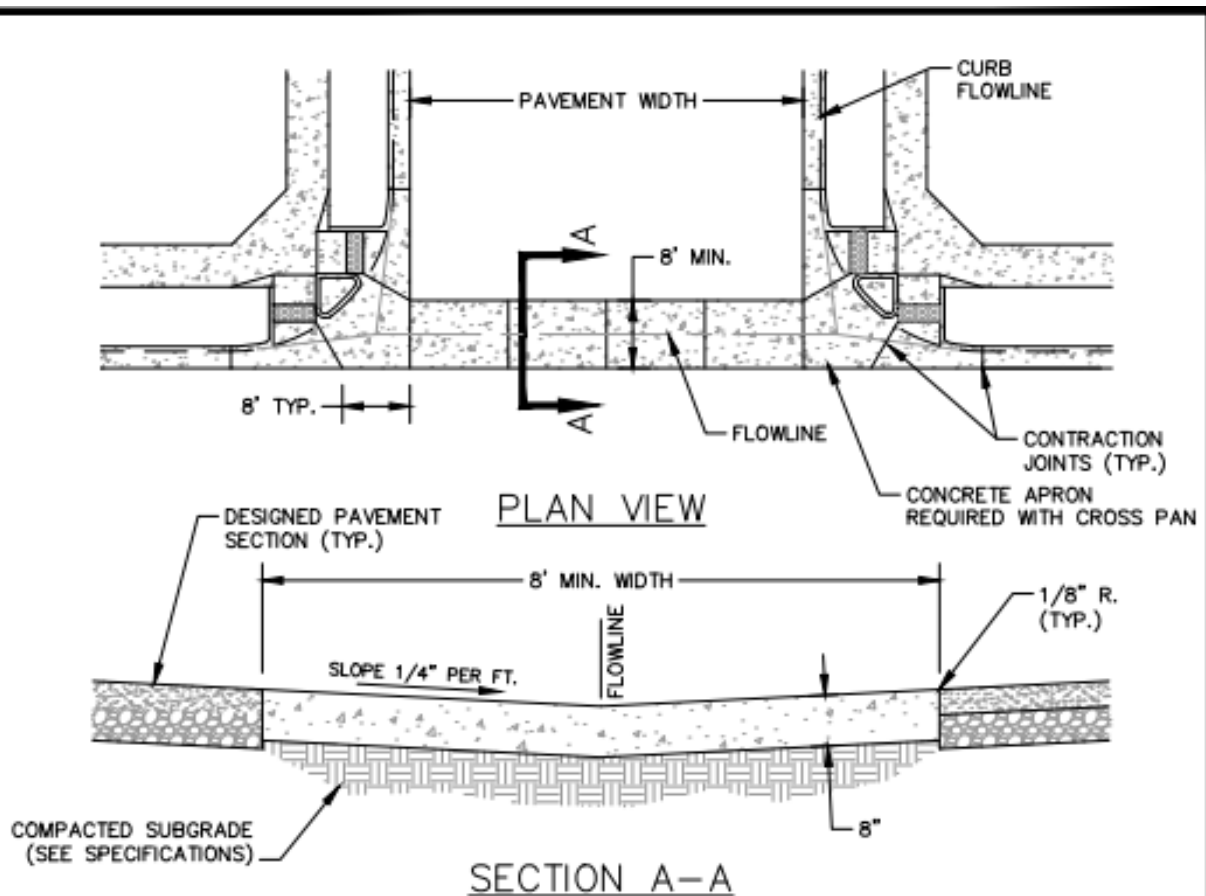
- 42. **Adjust Meter Pit** – Adjust up or down to finish grade. Payment is for each (EA) meter pit adjustment.
- 43. **Landscape Curb 0" – 6"** – Per the detail attached to these Special Provisions. To be used only where directed in lieu of grading out finish grade to match new construction. Paid per linear foot (LF).
- 44. **Landscape Curb 7" – 18"** – Per the detail attached to these Special Provisions. To be used only where directed in lieu of grading out finish grade to match new construction. Paid per linear foot (LF).
- 45. **Landscape Curb 19" – 48"** – Per the detail attached to these Special Provisions. To be used only where directed in lieu of grading out finished grade to match new construction. Paid per linear foot (LF).
- 46. **ADA Detectable Warning plates/domes** – shall be ADA compliant. The plates are to provide integral lugs or anchors such that anchorage is provided to

mechanically secure the plates into the concrete. The plates are to be approved by the City prior to use. Detectable Warning Plates will be paid for by the square foot (SF). Detectable Warning Plates will be paid for in addition to the concrete into which they are set.

47. **Remove and Reset Mailbox** – Per the detail attached to these Special Provisions. For bidding purposes, assume reuse of the existing posts and boxes. If directed by the City, provide new post and/or box. Payment for new materials will be cost plus 20%. Material costs plus 20% will be paid in addition to the unit bid price for “Remove and Reset Mailbox”. Payment is for each (EA) reset mailbox.
48. **Tree and Root Pruning** – The Contractor must engage the services of a licensed arborist, as licensed by the City of Greeley Forestry Division, for all tree root pruning of roots larger than two inches in diameter. If the Contractor can satisfy the requirements of the City Forester by performing the work with Contractor’s own personnel, the services of a licensed arborist may not be necessary. Root pruning only applies to live trees. Any other root removal shall be designated as incidental to subgrade preparation and not paid for separately. This item shall be paid by the hour (HR).
49. **Saw-Cut Asphalt** – When directed by the City, provide a clear full depth saw-cut at the existing asphalt/concrete interface to aid in a clean separation, or use wherever cutting into existing asphalt is necessary. Paid per linear foot (LF).
50. **Pre-Fabricated Concrete Washout Structure** – A watertight, moveable container designed to contain liquid and solid waste from concrete washout with sufficient capacity to keep pace with steady concrete pavement operations. Washout structure shall be approved by the City prior to start of construction and must be continuously present on site throughout the duration of concrete operations. Paid in lump sum (LS).
51. **4” PVC Installed Under Sidewalk** – At the discretion of the city inspector, the contractor will install PVC sleeves for sprinkler line tie-ins under the Work. Paid per linear foot (LF).

ATTACHED DOCUMENTS – The following documents shall be a part of the Special Provisions:

1. Concrete Curb and Gutter Detail – 1 page
2. Concrete Cross Pan Detail – 1 page
3. Landscape Curb/ Retaining Wall Detail – 1 page
4. Remove & Reset Mailbox Detail – 1 page



NOTES:

1. MINIMUM OF 0.6% LONGITUDINAL SLOPE FOR CROSS PANS.
2. MAXIMUM SPACING OF CONTRACTION JOINTS - TEN (10) FEET.
3. CONCRETE APRON SHALL BE POURED MONOLITHICALLY WITH CURB AND SHALL BE 8" THICK (SEE CURB RAMP DETAILS).
4. CROSS PAN AND APRON MAY BE POURED MONOLITHICALLY OR IF POURED SEPARATELY SHALL BE DOWELLED TOGETHER.
5. SEE STREET DESIGN STANDARDS FOR PERMISSIBLE LOCATIONS OF CROSS PANS.
6. MID-BLOCK CROSS PANS SHALL BE A MINIMUM OF TEN (10) FEET WIDE.
7. LARGER WIDTHS MAY BE REQUIRED BY THE CITY.
8. DOWELING MAY BE REQUIRED AT CERTAIN COLD JOINTS AT THE CITY'S DIRECTION, BASED ON SPECIAL SUBGRADE CIRCUMSTANCES.
9. CONCRETE SURFACES TO RECEIVE A LIGHT BROOM FINISH.

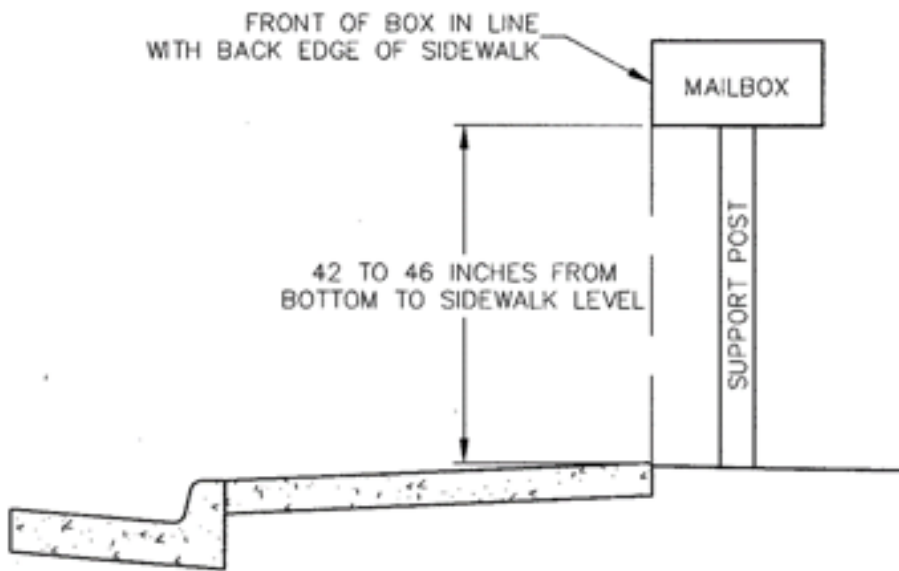


CONCRETE CROSS PAN DETAIL

DETAIL NO. S-28

DATE: JULY, 2015

SCALE: N.T.S.



NOTES;

1. MAILBOXES SHALL BE SECURELY FASTENED TO ITS SUPPORT. THE POST MUST BE OF ADEQUATE STRENGTH AND SIZE.
2. MAILBOXES SHALL BE MADE LEVEL AND THE POST FIRMLY PLANTED.
3. CONTRACTOR SHALL PLACE 2 MAILBOXES AT MUTUAL PROPERTY LINES, WHEREVER POSSIBLE.
4. MAILBOXES CANNOT BE ALTERED OR LOCKED, UNLESS THE MAILBOX MEETS OFFICIAL STANDARDS.



TYPICAL CURBSIDE MAILBOX
INSTALLATION
SPECIAL DETAIL

DATE: JULY, 2008

SCALE: N.T.S.

SECTION 00620 - SPECIAL PROVISIONS

2022 KGM PAVEMENTS

PATCHING

A list of patching locations will be provided to the Contractor at the pre-construction meeting and have been marked at specific locations.

SPECIAL COMPLETION DATES

Rejuvenate, slurry seal, chip seal and cape seal streets shall be completed by July 1st, 2022.

All patches close to school areas shall be completed prior to the start of school.

Patches on 5th St between 14th Ave & 23rd Ave shall be completed no later than 14 calendar days after construction ends on the 5th St Sidewalk Reconstruction contract.

Failure to complete the above listed patches will result in a charge of \$1,500 per day to the Contractor until work is complete.

Remaining Streets shall be completed by November 18th, 2022.

SURFACE PREPARATION

After the patching is completed, the surface area surrounding the patch will be completely cleaned and made free of loose and foreign material to the complete satisfaction of the City Project Representative.

The Contractor will be required to remove all weed growth surrounding the patching area. Weed removal costs will be included in the unit price of the patching work and will not be paid separately.

PATCHING

The specified locations for patching will consist of removal of asphalt surface areas in streets/parking lots/bike paths/roadways, shall be a minimum of thirty-six inches (36") wide and pavement will be removed to clean, straight, vertical lines. Contractor will saw-cut the pavement to obtain a straight edge; it will be paid as part of the asphalt work and will not be paid separately. The Project Representative will approve all methods and equipment used.

Edges of all existing asphalt and concrete will receive a tack coat. A pressurized sprayer will apply the tack coat to ensure 100 % coverage. Hot Mix Asphalt (HMA): Will be placed in lifts, not greater than three inches (3") in compacted depth, unless directed by the Project Manager. This work will consist of placing HMA pavement Grading SX, Grading S, Grading SG, Grading F in designated areas.

HMA patches will be full depth and meet the following requirements:

Local Streets/Parking Lots/Bike Paths patching is a minimum of five and one-half inches (5½") or equal to the existing pavement, whichever is greater. Depth is greater than, five & one-half inches (5 and ½") will be paid at per-inch cost proportional to bid price. The City Of Greeley will pay up to five and one-half inches (5 and ½") will the price per square yard of bid. Depths of existing asphalt roadway, greater than five and one-half inches (5 and ½") will be paid at a proportional rate to bid price. This will mean that a pavement depth of nine inches (9") will have an additional three and one-half inches (3 and 1/2") paid proportional to the unit bid cost. The selected Contractor will call the Project Representative and allow a reasonable amount of time (a minimum of 30 minutes) for him to respond to the site to verify the depths.

Collector & Arterial: Street patching is a minimum of seven inches (7") or equal to existing pavement, whichever is greater. Depths greater than seven inches (7") will be paid at per-inch cost proportional to bid price. The City Of Greeley will pay up to seven inches (7") the price per square yard of bid. Depths of existing asphalt roadway, greater than eight inches (8"), will be paid a proportional rate to bid price. This will mean that a pavement of ten inches (10") will have an additional three inches (3") paid proportional to the unit bid cost for this item. The selected Contractor will call the Project Representative and allow a reasonable amount of time (a minimum of 30 minutes) for him to respond to the site to verify the depths.

Asphalt patches larger than 40 square yards will be placed with a paving machine unless otherwise approved. All compaction equipment used by the Contractor will be capable of achieving a minimum density of HMA that will be 93% of the design-mix formula.

SKIN PATCH

Skin patching will be used only upon Project Manager's request. Skin patching can be used to fill depressions, adjust grade of the existing pavement, to stop water penetration, to improve the ride quality, or to hold a surface together until proper patching can take place. The repair area is to be properly cleaned prior to tack coat application of (0.10) gallon per square yard. When the area is cleaned and dried, a tack coat will be applied to entire repair area. When tack coat has set, hot mix pavement will be placed on the entire area and feathered to a zero thickness around the edges of the patch or as directed by the Project Manager. Compaction will be completed with equipment best suited for the job approved by the Project Manager. All patches will be neatly squared off or as directed by the Project Manager. Skin patches are usually one inch (1") to one point five inches (1.5") thick but can be up to or greater than 4 inches thick. A tack coat shall be applied in between lifts.

ROTOMILL AND FILL SPECIFICATIONS

Rotor mill and fill eight (8') feet minimum width. Rotor mill and fill eight (8') plus is using an asphalt rotor mill to remove the existing surface to a depth of four inches (4") of the existing pavement, then fill with new asphalt. (Combined Price).

Removal of asphalt mat will consist of planing areas designated by the City Project Representative. Milling equipment will be capable of self-loading removed material into trucks for disposal, and capable of milling a minimum section four feet (4') to ten (10') feet wide. The milling equipment will have sufficient power, traction, and stability to maintain an accurate depth of cut. The propulsion and guidance system of the mill will be maintained in such condition that the mill may be operated to straight and true lines without excessive lateral

deviation. Operation with broken or missing teeth is not allowed. Worn teeth will be replaced if the planer does not produce a uniform surface.

All milled or planed areas will be broomed with a pickup broom, unless otherwise specified, before being opened to traffic. A sufficient number of brooms will be used immediately after planing to remove all planed material remaining on the roadway. The Project Representative will approve all methods and equipment used.

If the Contractor fails to adequately clean the roadway, work will cease until the Project Representative has approved the Contractor's revised written proposal to adequately clean the roadway.

The roadway shall be in a safe and usable condition at the end of each workday. All areas of removed pavement will be filled at the end of the working day unless approved by the Project Manager. All required pavement markings removed by the milling equipment will be restored at the Contractor's expense before leaving the job site.

At the completion of each day's work, vertical edges caused by planing that are greater than one inch (25mm) in height will be: 1) Longitudinal – tapered to not less than a 3:1 slope; 2) Transverse – tapered to not less than a 50:1 slope.

APPLICABLE SPECIFICATIONS

Project soils compaction requirements are as follows:

The purpose of this work shall be to provide a stabilized subgrade platform section on which paving materials shall be placed. It shall consist of removing any base or subgrade materials deemed as soft, wet, or unusable to place a new patch. The section shall be sub-excavated to a depth of 16" or less and then excavated material shall be replaced with a base course (CDOT Class 6 Aggregate Base) or equivalent material approved by the Project Manager.

Subgrade will be compacted to a minimum of 95% of maximum dry density (AASHTO T-99). The material will be worked at or near (+ or - 2 %) optimum moisture. Aggregate base course will be compacted to a minimum of 95% of maximum dry density (AASHTO T-180). The material will be worked at or near (+ or - 2 %) optimum moisture.

The area under repair will be proof-rolled by the Contractor if requested by the City Representative/Project Manager. The method of proof rolling will be as determined by the City Representative/Project Manager. All soft and yielding material, will be removed, and replaced with a granular material. Asphalt will not be used as a stabilizing material.

Costs associated with excavation will be included in bid tab sub-excavation to 16" for work and will not be paid for separately. Payment for this type of excavation will be made as stated in the bid tab.

The most recent edition of the City of Greeley Street Design Criteria Construction Specifications should be consulted for the requirements for street construction.

Edges of all existing asphalt and concrete will receive a tack coat. A pressurized sprayer to ensure 100% coverage will apply the tack coat. Hot Mix Asphalt (HMA) - will be placed in lifts not greater than three inches (3") in compacted depth unless directed by the Project Manager. This work will consist of placing HMA pavement Grading SX, Grading S, Grading SG, and Grading F in designated areas.

Skin Patches may be allowed on minor settled areas. Skin Patches will be installed only where directed by the City Representative.

WEATHER AND TEMPERATURE

Follow the most recent edition of the City of Greeley Street Design Criteria Construction Specifications for the requirements for street construction as to patching paving scenarios for temperatures: 40 degrees & rising for bottom mat, 50 degrees & rising for top mat.

MATERIALS

Materials will meet the requirements set forth in the latest revision of the CDOT Standard Specifications for Road and Bridge Construction or MGPEC. Approved CDOT Grading placing HMA pavement Grading SX, Grading S, Grading SG, and Grading F mixes will be used for all patching. CSS-1h emulsified asphalt will be used as a tack coat material.

HOT BITUMINOUS PAVING MIXES

Mix designs will conform to the MGPEC design Form 9 attached.

Reclaimed Asphalt Pavement (RAP) will meet the CDOT requirements in Section 703.04 except that the mix will not contain more than 20% RAP material.

PAYMENT

Payment will be made in conformance with the General Conditions of the Contract and normally processed on a monthly basis.

The pay item for this work will be complete in place per square yard. Cost per square yard in place includes traffic control.

Full-Depth Asphalt Patch seven inches (7") in depth - per sq. yd. of asphalt.

Full-Depth Asphalt Patch five and one-half inches (5½") in depth - per sq. yd. of asphalt.

Skin Patch - per tons of asphalt.

Individual invoices will be created for each project account with a master invoice of all work completed.

Additional depths of asphalt greater than standard replacement depths, as stated in specifications, will be paid proportional to the unit bid cost for this item.

PAVEMENT MARKINGS

The contractor, prior to opening the street to normal traffic, will replace all Painted Pavement Markings.

ATTACHMENTS

Form 9 for HMA mix information.

14. Project Special Provision Sheet for Hot Mix Asphalt Pavements (HMA)

This MGPEC Form #9 is a **mandatory part of the bid documents**, and shall be filled out by the AGENCY for each mix specified. The Contractor shall include a copy of this form with each Mix Design submittal after the contract is awarded.

Street Classification: _____ – (examples: Residential, Collector, Arterial, Industrial,
Parking Lot or actual name for Project)

→ Construction Application: ☒ Top Lift ☒ Intermediate Lift(s) ☐ Bottom Lift
☐ Patching ☐ Other _____

→ Aggregate Gradation: ☐ Grading ST (1.5" or less lifts, 3/8" NMPS)
☒ Grading SX (2.5" or less lifts)
☐ Grading S (2.5+ to 3.5" lifts)
☐ Grading SG*¹ (3.5" or thicker lifts)
SMA (Top lift only) ☐ 3/8" ☐ 1/2" ☐ 3/4"

*¹Note = Grading SG depends on approved texture of mix,
Grading SG lower lift(s) only.

→ RAP Quantity, Maximum: ☐ 0% ☒ 20% ☐ 25%

Notes: - A quality control plan for RAP will be required when RAP is used
- Top lift Maximum RAP content allowed is 20%

→ Super pave Gyratory Mix Design Compaction Level, Recommended usage and Recommend binder(s):

| Design Level | Recommended Traffic Levels | Recommended PG Binder(s) |
|---|--------------------------------|--|
| <input type="checkbox"/> N _{design} =50 | Low volume | <input type="checkbox"/> PG 58-28 or <input type="checkbox"/> PG 64-22 |
| <input checked="" type="checkbox"/> N _{design} =75 | 0 to <3 million ESALs | <input checked="" type="checkbox"/> PG 64-22 |
| <input type="checkbox"/> N _{design} =100 | 3 million to <30 million ESALs | <input type="checkbox"/> PG 64-28 or <input type="checkbox"/> PG 76-28 |

Notes: - The binders are shown in order they should be considered.
- Polymer modified PG Binders are typically used in the top lift only
- PG 58-28 Binder recommended for residential developments with less than 2 million ESAL's

15. Target job Mix Optimum Asphalt Content Selection, Choose target % as close to 4.0 as possible
(3.5% to 4.5% air voids per MGPEC 2008)

16. Target Job Mix optimum Binder content for SMA grading at 3.0% to 4.0% air voids

****Warm mix asphalt (WMA) is allowed as an alternate to hot mix asphalt provided that all material requirements and specification standards are met and as approved by the Agency.**

A completed MGPEC Form #9 shall supplement the MGPEC Construction Specifications defining the contract specific requirements of Item 9:
Hot Mix Asphalt Pavement (HMA). Refer to the Specifications for details.

SECTION 00620 - SPECIAL PROVISIONS

2022 KGM PAVEMENTS

CHIP & SLURRY SEAL

SCOPE

Construction for the 2022 Chip & Slurry Seal Program shall be June 20th through July 22nd. Failure to complete all chip and slurry work in the above-mentioned time frame will result in a charge to the Contractor of \$1,500 per day.

City of Greeley parking lots will require special coordination between Contractor and Project Representative. It is the intent that once parking lots are ready, the Project Representative will notify the Contractor and he will schedule Slurry Seal coating to take place at each site between day six (6) and no later than day ten (10) after notification.

DRAWINGS

There are no separate contract drawings for this project. A vicinity map of the locations to be chip sealed has been included with this document. Locations for the program are listed in the table below:

| <u>NO.</u> | <u>STREET</u> | <u>FROM</u> | <u>TO</u> |
|------------|----------------------------|---------------|-----------------------|
| 1 | 1st Ave | 30th St. | 28th St |
| 2 | 1st St. / 63rd Ave | 4th St. | 59th Ave |
| 3 | 11th St. | 80th Ave | 77th Ave |
| 4 | 12th St. | 102nd Ave | 103rd Ave |
| 5 | 13th St. | 101st Ave Ct. | End of Pavement (W) |
| 6 | 17th St. | 67th Ave | 70th Ave |
| 7 | 25th St. | 8th Ave | 11th Ave |
| 8 | 18th St. Rd. | 66th Ave | 65th Ave Ct. |
| 9 | 19th St. | 71st Ave | 68th Ave |
| 10 | 19th St. | 66th Ave | 65th Ave Ct. |
| 11 | 22nd St. | Talon Parkway | 79th Ave |
| 12 | 22nd St. | 82nd Ave | Talon Parkway |
| 13 | 28th St. Rd. | Apple Ave | CDS (W) |
| 14 | 28th St. Dr. | Apricot Ave | Apple Ave |
| 15 | 28th St. Ln. / Arbor Ave | Apricot Ave | 29th St. Dr. |
| 16 | 29th St. | Apricot Ave | Apple Ave |
| 17 | 29th St. Dr. / Alpine Ave. | 29th St. Rd. | Arbor Ave |
| 18 | 29th St. Rd. | Apricot Ave | Arbor Ave |
| 19 | 30th St. | 29th St. | End of Pavement (E) |
| 20 | 65th Ave Ct. | 18th St. | 19th St. |
| 21 | Grizzly Dr. / 66th Ave | 71st Ave | 4th St. |
| 22 | 69th Ave | 17th St. | 16th St. Rd. |
| 23 | 72nd Ave Ct. | 22nd St. | 21st St. Rd. |
| 24 | 73RD AVE | 22ND ST | 21ST ST RD |
| 25 | 73RD AVE CT | 22ND ST | 23RD ST RD |

| | | | |
|----|-----------------|-------------------|--------------------------|
| 26 | 78TH AVE | 12TH ST | 11TH ST |
| 27 | 102nd Ave | 13th St. Rd. | 15th St. |
| 28 | 117th Ave | 24th St | Thru 21st St. |
| 29 | CR 64 & 3/4 | CR 24 & 1/2 | CR 23 |
| 30 | 16th St. Rd. | 68th Ave | CDS (W) |
| 31 | 17th St. Rd. | 58th Ave | CDS (E) |
| 32 | 66th Ave | 18th St. | CDS (S) |
| 33 | 68th Ave | 17th St. | End of Pavement (S) |
| 34 | 73rd Ave | 22nd St | End of Pavement (S) |
| 35 | 76th Ave Ct. | Thru 19th St. Rd. | CDS (N) |
| 36 | 41ST AVE | 29TH ST | 28TH ST RD |
| 37 | 42ND AVE | 29TH ST | CDS (N) |
| 38 | 43RD AVE | 23RD ST RD | CDS (S) |
| 39 | 30TH AVE CT (N) | 30TH AVE (E ST) | CDS (S) |
| 40 | 37TH AVE | 4TH ST | CDS (S) |
| 41 | C ST | 71ST AVE | 66th Ave End of Pavement |

MATERIALS – Chip Seal

A. Liquid Asphalt Material (Polymerized)

Polymerized asphalts shall consist of a rapid set cationic emulsified asphalt (CRS-2P, CRS-2R or its equivalent) and a polymerized material, non-foaming when heated to 185° F and capable of being fluxed with a suitable solvent. The Contractor, or the supplier as their agent, shall deliver to the Project Manager, a certification signed by an authorized representative of the supplier to cover the quality and quantity of material and the condition of the container for each shipment. The asphaltic materials shall meet the following specifications:

SPECIFICATIONS FOR CATIONIC EMULSIFIED ASPHALTS

TABLE NO.1

| TYPE | RAPID SETTING | |
|--------|--|--|
| GRADE: | CRS-2P (POLYMERIZED) (3% by weight of asphalt cement), CRS-2R (POLYMERIZED) (3% by weight of asphalt cement) | |

TESTS ON EMULSIONS: AASHTO M208-87, ASTM D2397-79, T59, CP_L2212 **MINIMUM MAXIMUM**

| | | |
|---|----------|-----|
| Viscosity Saybolt Furol @122° F sec. | 80 -100 | 450 |
| Storage Stability Test @ 1 Day, % | | 1.0 |
| Demulsibility (b) 35ml., 0.8% sodium diacetyl sulfosuccinate, % | 40 | |
| Particle Charge Test | Positive | |
| Sieve Test, % | | 0.1 |
| Oil Distillate, by volume of emulsion | | .5 |
| Residue (c), % | 70 | |

TEST ON RESIDUE OF OVEN EVAPORATION, 325° F: T49, T59, T44, CP-L2210,

| | | |
|--|---------|-----|
| Penetration, 77° F (25C), 100g. 5 sec. | 60 - 70 | 150 |
|--|---------|-----|

| | | |
|---|-----------|--|
| Ductility, (25 C), 5 cm. per. min., cm. | 100 - 125 | |
| Ductility, (4 C), 5 cm. per. min., cm. | 45 | |
| Toughness, in-lb. | 70 - 75 | |
| Solubility in Trichloroethylene, % | 97.5 | |
| Soften Point, Ring and Ball, C | 57 | |
| Elastic Recovery 77° F, 20 cm., % | 75 - 80 | |
| Tenacity in LB | 45 - 75 | |

1. The test requirements for settlement may be waived when the emulsified asphalt is used in less than five (5) days' time; or the purchase may require that the settlement test be run from the time the sample is received until it is used, if the elapsed time is less than five (5) days.
2. The 24-hour (1-day) Storage Stability test may be used instead of the 5-day Settlement test.
3. The Demulsibility test shall be made within 30 days from the date of shipment.
4. Distillation; shall be determined by AASHTO Test T59, oven evaporation method.
5. The asphalt cement shall be polymerized & Certified by Supplier prior to emulsification. City prefers Latex Modified 3%.
6. The Contractor shall supply samples for testing upon request of the City.
7. The material shall be accepted at the distributor.

B. Cover Aggregate

The chip of cover aggregate shall be washed, hard, sound, broken stone, or crushed gravel free from dirt, organic matter, clay balls, and adherent films of clay, dust, or other objectionable matter. The aggregate shall contain at least 100% by weight of crushed pieces having two or more surfaces of faces produced by fracture. Aggregate shall be gray in color.

When tested in accordance with AASHTO T-182-70, the aggregate shall have a retained bituminous film above 95%. Aggregates, which do not meet this requirement, may be used for surface treatments and seal coats provided a satisfactory chemical additive or wetting agent is used to provide a water-resistant film.

The cover aggregate, when tested by the standard method of test for abrasion (AASHTO Method T96-70), shall show a loss of no more than 20%. The moisture content of the cover aggregate at the time of application shall not exceed 2% and less than 1% of the weight of dry aggregate. (See Table 2 next page)

The cover aggregate shall conform to the following gradation:

| Table 2 | | | | |
|-------------------|---------------|---------------|---------------|---------------------|
| <u>Sieve Size</u> | 1/2 Inch Chip | 3/8 Inch Chip | 1/4 Inch Chip | 3/8 Inch Blend Chip |
| 5/8" | 100 | 100 | 100 | 100 |
| 1/2" | 90-100 | 100 | 100 | 100 |

| | | | | |
|---------|------|--------|--------|--------|
| 3/8" | 0-50 | 90-100 | 100 | 90-100 |
| 1/4" | 0-10 | 0-50 | 90-100 | 40-60 |
| No. 8 | 0-3 | 0-3 | 0-3 | 0-3 |
| No. 200 | 0-2 | 0-2 | 0-2 | 0-2 |

NOTE: Recommended target value of Number 200 Sieve is 0 to 1%.

NOTE: All gradations are percentage by Weight Passing Square Mesh Sieves.

Optimum coverage shall be determined as follows:

Cover aggregate will be distributed over a measured square yard with the aggregate spreader until coverage appears to be slightly over or right at a layer one-rock thick. The aggregate will be collected & weighed. This procedure will be repeated six times. Optimum coverage will then be the average weight of the six samples thus prepared. The Project Representative will at times test application rate of the cover aggregate.

The Contractor shall submit certification of the cover-coat material to the City Representative with bid for approval. The contractor shall supply samples as needed for testing upon request of the City Representative.

CONSTRUCTION REQUIREMENTS:

A. QUANTITIES OF MATERIALS PER SQUARE YARD. The polymerized asphalt and aggregate cover material shall be applied at the following rates:

CRS-2P shall be applied between 0.30 to 0.42 net gallons per square yard. Targeted range is 0.40 for 1/2" chip. Targeted Range is 0.38 for 3/8" chip. Targeted Range is 0.32 for 1/4" chip. Aggregate cover shall be in the range of 22 to 28 lbs. per square yard. A 200 square yard test section (150' x 12') strip shall be placed to determine actual application rates of aggregates and emulsion. Note; all items used on this project may need certified weight tickets before use and after.

Table No. 3

| Application Rate | 1/2 Inch Chip | 3/8 Inch Chip | 1/4 Inch Chip | 3/8" Blend Chip |
|--|----------------------|----------------------|----------------------|----------------------|
| CRS-2P/CRS-2R: Gallons Per Square Yard | 0.38 to 0.42 | 0.36 to 0.40 | 0.30 to 0.34 | 0.35 to 0.39 |
| Aggregate | 25 Pounds Minimum | 23 Pounds Minimum | 22 Pounds Minimum | 23 Pounds Minimum |

| | | | | |
|-------------------------------|--------------------|--------------------|--------------------|--------------------|
| Fog Seal/Per Square Yard Min. | 0.12 to .15 per SY | 0.13 to .15 per SY | 0.12 to .14 per SY | 0.12 to .14 per SY |
| Target Application is: | .14 Per SY | .14 Per SY | .13 Per SY | .13 Per SY |

B. WEATHER LIMITATIONS.

Bituminous material shall not be applied on a wet surface, or when the air temperature is below 60° F, or the pavement temperature is below 70° F, unless otherwise specified, or when weather conditions would prevent the proper construction of the seal coat.

C. EQUIPMENT. The following equipment or its equivalent shall be required:

1. Bituminous distributor and equipment for heating bituminous material shall be designed, equipped, maintained, and operated so that bituminous material can be heated and an even temperature maintained. The distributor must be able to apply the material uniformly on variable widths of surface up to 20 feet at readily determined and controlled rates of 0.05 to 1.0 gallons per square yard. Distributors shall be self-powered and include computerized spray controls, a tachometer, pressure gauges, accurate volume measuring devices, calibrated tank, and a thermometer for measuring temperatures of the tank contents. Distributors shall be equipped with a power unit for the pump, and full circulation spray bars adjustable laterally and vertically. Pump screen shall be cleaned in the morning every day or when needed during the work day and observed by the Project Representative. Any leaking, especially at the pump, will not be allowed.

The Contractor shall take necessary precautionary measures to prevent diesel fuel or other cleaning solvents from contaminating bituminous material.

2. A rotary broom or other approved sweeping or blowing equipment meeting applicable U.S. Environmental Protection Agency Standards.
3. A minimum of three (3) rubber-tired rollers shall be on the project unless otherwise requested by the Project Manager. (Note: Rollers not to exceed 10 MPH.) The pneumatic tire rollers shall be self-propelled and the gross load adjustable to apply 200 to 350 pounds per inch of rolling width, as directed. Tire pressures or contact pressures may be specified for the pneumatic tire rollers. Tire pressures on each roller shall not vary more plus or minus than 2.0 psi. The wheels on the rollers shall be equipped with adjustable scrapers, which shall be used when necessary to clean the wheel surface. The rollers shall be maintained in good condition and be operated by experienced roller operators.
4. One self-propelled aggregate spreader of approved design minimum twelve (12) feet wide supported by at least four (4) wheels equipped with pneumatic tires on two (2) axles. The aggregate spreader shall be equipped with the means of applying the cover-coat material to the surface with computerized controls so that the required amount of material will be deposited uniformly over the full width of the bituminous material. A computer rate-controlled aggregate spreader shall be required.
5. All equipment used on the project work sites will have backup alarms, warning lights. All

warning lights and vehicle lights will be kept clean and operational at all the times while on the work site.

PREPARATION OF EXISTING ROADWAY

All sweeping and cleaning of the street before Chip Seal applications will be the Contractor's responsibility. The surface shall be cleaned (the full width to be treated) immediately prior to application of the bituminous material. Dust and other material in depressions or other places not removed by mechanical sweepers shall be swept with hand brooms or removed by use of flushers. The Project Manager may require washing of the pavement when other methods of cleaning do not provide an acceptable surface. Bituminous material shall not be spread until the area to receive Chip Seal application has been cleaned by the Contractor to the satisfaction and approval of the Project Manager.

The Contractor shall be responsible for the removal of all vegetation from the surface to be sealed prior to any Chip Seal placement. The work shall be performed within two weeks of surfacing. The Contractor shall remove any dead or remaining vegetation before sweeping and applying the Chip Seal. Vegetation may be removed by cutting, burning, or a combination of both or by another method; when in the opinion of the Project Representative, such burning, or other method or methods causes no safety hazard or air pollution nuisance.

Manholes, valve boxes, and survey monuments, including concrete rings, shall be covered with roofing paper or other suitable material prior to the sealing. Coverings shall be removed and disposed of in a lawful manner immediately after the sealing is completed.

APPLICATION OF BITUMINOUS MATERIAL

Bituminous material shall be applied by means of a pressure distributor in a uniform, continuous spread over the section to be treated and within the temperature range of 125-185° F. The quantity of bituminous material to be used per square yard will be as specified. The distributor shall be moving forward at the proper application speed when the spray bar is opened. A strip of building paper, at least three (3) feet in width and with a length equal to that of the spray bar of the distributor plus one (1) foot shall be used at the beginning of each spread. If the cut-off is not positive, the use of paper may be required at the end of each spread. The paper shall be disposed of in a lawful manner. Any skipped areas or deficiencies shall be corrected. Junctions of spreads shall be carefully made to assure a smooth riding surface.

The length of spread of bituminous material shall not be in excess of that which trucks loaded with cover-coat material can immediately cover.

The spread of bituminous material shall not be more than four (4") inches wider than the width to be covered with aggregate from the spreading device, and shall not spread onto the concrete gutter pan. Under no circumstances shall operations proceed in such a manner that the bituminous material be allowed to chill, set up, dry, or otherwise impair retention of the cover coat. Application rate shall be sufficient to prevent streaked appearance in the final surface.

The distributor, when not spreading, shall be parked so that the spray bar or mechanism will

not drip bituminous materials onto the surface of the street, gutters, or private property. During all applications, the surface of adjacent structures shall be protected in such a manner as to prevent their being spattered or marred. Any areas inaccessible to the distributor shall be sprayed by hand. The Contractor shall immediately clean all sidewalks, gutters, and other surfaces where spatter is excessive in the opinion of the Project Manager.

APPLICATION OF AGGREGATE COVER

Immediately following the application of bituminous material, aggregate cover material shall be spread in quantities shown in Section 3A Table of these specifications. This aggregate shall be kept moist at all times.

Spreading shall be accomplished in such a manner that the tires of the trucks or aggregate spreader at no time contact the uncovered newly applied bituminous material. After the aggregate has been spread upon the asphaltic emulsion, any piles, ridges, or uneven distribution shall be carefully removed to ensure against permanent ridges, bumps, or depressions in the completed surface.

Additional aggregate shall be spread in whatever quantities may be required to prevent picking up by the rollers or traffic, after which the surface shall be rolled.

If directed by the Project Manager, the cover material shall be moistened with water to eliminate or reduce the dust coating of the aggregate; however, excess dust will be a cause for rejection of the aggregate. Immediately after the cover coat is spread, any deficient areas shall be covered by additional material. Rolling shall begin with self-propelled, pneumatic-tire rollers. Rolling shall proceed in a longitudinal direction, beginning at the outer edges of application and working toward the center. Each pass shall overlap the previous pass by one-half of the width of the front wheel or roller. There will be a minimum of three (3) passes with each pneumatic-tire roller over the entire surface prior to moving ahead. One pass will be considered the number of trips to cover the entire surface from one side of the street to the other and for the length being worked. The first rolling of the aggregate shall be made before the asphalt emulsion breaks (roller shall complete the first rolling within approximately five (5) minutes of the emulsion spray application).

All rolling will be done using low gear and will not exceed 10 mph.

In no event shall traffic be allowed on the treated surface until all rolling has been completed. The aggregate shall not be applied in such a thickness as to cause blanketing. It is intended that the minimum chip embedment will be 70%.

SWEEPING

After the application of the cover-coat material, the surface shall be lightly broomed or otherwise maintained as directed by the Project Manager for a period of not more than 24 hours. (Proper warning signs shall be in place at all times). Maintenance of the surface shall include the distribution of cover-coat material over the surface to absorb any free bituminous material and cover any area deficient in cover-coat material. In those areas requiring additional cover-coat material, the surface should be rolled with a rubber-tire roller to embed the aggregate in the bituminous material. The maintenance shall be conducted so as not to

displace imbedded material. At the proper time, as determined by the Project Manager, the Contractor shall remove all excess cover-coat material. Sweepers: A minimum of two vacuum designed sweepers having only negative air pressure at the road surface capable of removing excess aggregate and debris material shall be used on this project. The body hoppers of the vacuum sweepers shall be a minimum capacity of ten cubic yards, and the negative air pressure at the intake shall be rated at forty-six inches of negative water pressure. Sweepers shall meet applicable U.S. Environmental Protection Agency Standards. No mechanical pick-up brooms will be allowed on the project. Reuse of excess aggregate, which is clean, may be stockpiled and reused in subsequent locations at the discretion of the Project Manager. The Project Manager may reject aggregate, which has been previously applied by visual observation of the stockpile. Sweeping will take place from 6 a.m. to 11 a.m. in the morning of the work week, Monday through Friday, unless approved for longer hours by the Project Manager. All streets swept shall be thoroughly cleaned with no loose material remaining. All cleaning shall be approved by the Project Manager prior to the application of the armor coat.

APPLICATION OF ARMOR COAT

Two days after the application of the Chip Seal, the Contractor shall sweep all excess aggregate from the roadway and adjacent areas and then apply a fog seal of diluted CRS-2P to all areas chip sealed under this contract. The CRS-2P emulsion shall be diluted to 60% percent emulsion with 40% percent water or approved equal by the project manager. COC'S will be supplied by the emulsion manufacture. The application rate shall vary between 0.12 to 0.15 gallons per square yard, as deemed necessary by the Project Manager. All appropriate requirements and restrictions of Section 5 shall apply for the application of the final fog seal. Target application rate 0.13 gallons per square yard. Speed of the applicator will not be greater than 450 feet per minute for Number 1 nozzle - Target speed will be 350 feet per minute and 400 feet per minute for Number 2 nozzle - Target speed will be 300 feet per minute.

MANHOLES and VALVE BOXES

Manholes, valve boxes, and concrete rings on streets to be chip sealed shall be covered during the operation, and shall be cleaned when the work is completed. The covering shall be removed immediately after the street is chip sealed. The Contractor is responsible for locating all exposed manholes and valve boxes prior to chip sealing.

STORAGE SITES

The Contractor shall be responsible for obtaining sites for storage and material stockpiles. A list of sites shall be submitted to the Project Manager for approval at least ten (10) days prior to any use. The Contractor shall be responsible for the following:

1. The Contractor shall submit to the Project Manager written permission from the property owner.
2. Keeping stockpiles and equipment confined to the approved area.
3. Providing security for his material and equipment and for public safety at the site.
4. Keeping all access roads clean and in good condition.

Materials -Slurry Seal

SCOPE OF WORK

The bituminous slurry surface shall consist of properly proportioned and mixed mineral aggregate and filler, asphalt emulsion and water, spread evenly on the surface, as specified herein and as directed by the City Project Representative. The slurry, when cured, shall have a homogeneous appearance, fill all cracks, adhere firmly to the adjacent surface, and have friction resistance texture. Material to be used on project is as follows:

| <u>Slurry Material to Use</u> | <u>Emulsion to Use</u> |
|---|---|
| Type Three (#3) Material <input type="text"/> | CQS1HL <input type="text"/> (3% Latex Polymer) |
| Type Two (#2) Material <input type="text"/> | CQS1H <input type="text"/> (3% Latex Polymer) |

The work to be performed in this contract includes traffic control, cleaning of streets to be slurry sealed, permanent pavement marking removal, application of slurry seal, and site cleanup.

Oil spots shall be cleaned and approved by Project Representative. Methods shall be submitted at pre-construction meeting. The Contractor shall supply all labor, equipment, and material necessary to complete the work in accordance with these specifications.

APPLICABLE SPECIFICATIONS

General:

The following agencies' specifications and test methods form a part of this guideline.

AASHTO – American Association of State Highway and Transportation Officials.

ASTM – American Society for Testing Materials.

ISSA – International Slurry Seal Association.

Aggregate and Mineral Filler:

| | | |
|--------------------|-------------|---|
| AASHTO T-2 | ASTM D-5 | Sampling Aggregates |
| AASHTO T-27 | ASTM C-132 | Sieve Analysis of Aggregates |
| AASHTO T-11 | ASTM C-117 | Materials finer than No. 200 Sieve mineral aggregate |
| AASHTO T-176 | ASTM D-2419 | Sand Equivalent value for soils and finer aggregate |
| AASHTO T-19 | ASTM C-29 | Unit weight of aggregate |
| AASHTO T-96 | ASTM C-131 | Resistance to abrasion of small size coarse aggregate by use of the Los Angeles Test Method |
| AASHTO T-37 | ASTM D-546 | Sieve analysis of mineral filler |
| AASHTO T-104 or | ASTM C-88 | Soundness of aggregates by use of sodium sulfate magnesium sulfate |

Emulsified Asphalt:

| | | |
|-------------|------------|-------------------------------|
| AASHTO T-40 | ASTM D-140 | Sampling Bituminous Materials |
|-------------|------------|-------------------------------|

| | | |
|--------------|-------------|--|
| AASHTO T-59 | ASTM D-244 | Testing Emulsified Asphalt |
| AASHTO M-140 | ASTM D-977 | Specification for Emulsified Asphalt |
| AASHTO M-208 | ASTM D-2397 | Specification for Cationic Emulsion |
| ASTM D-3910 | | Design, Testing and Construction for Slurry Seal |

SLURRY SEAL TEST METHODS:

| | |
|------------|--|
| ISSA T-100 | Test Method for Wet Track Abrasion of Slurry Seals, 6 Day Soak |
| ISSA T-106 | Measurement of Slurry Seal Consistency |
| ISSA T-109 | Test Method for Measurement of Excess Asphalt in Bituminous Mixtures by use of Loaded Wheel Tester and Sand Adhesion |
| ISSA T-111 | Optimum Emulsion Content by Graphical Determination |
| ISSA T-113 | Trial Mix Procedures for Slurry Seal Design |
| ISSA T-114 | Wet Stripping Test for Cured Slurry Seal Mixes |
| ISSA T-115 | Determination of Slurry Seal Compatibility |
| ISSA T-139 | Test Method to Classify Emulsified Asphalt/Aggregate Mixture Systems by Modified Cohesion Tester Measurement of Set and Cure Characteristics |
| ISSA T-144 | Classification of Bitumen-Aggregate compatibility by Schulze, Breur, and Ruck Procedures |

MATERIALS

Asphalt Emulsion:

The emulsified asphalt shall be quick setting latex polymer modified and conformed to the requirements of the ASTM specification for type CQS-1HhL (3% Latex Polymer) Quick Setting Emulsified Asphalt. Slow setting emulsions will not be allowed. The minimum amount and type of polymer modifier shall be determined by the laboratory performing the mix design. Minimum 3% Latex Polymer to be added to the conventional slurry type 2 or 3, as specified in the bid tab.

CQS-1hL shall be an emulsified blend of asphalt, water, styrene-butadiene rubber (SBR) latex and emulsifiers. The emulsion shall be pumpable and suitable for use in slurry seal mixing and spreading equipment and suitable for application through a distributor truck. The emulsion shall contain a minimum of 3% by weight of styrene-butadiene rubber (SBR) polymer solids based on weight of residual asphalt. The polymer shall be added as SBR latex by high shearing mixing by co-milling or post milling.

| Property | Min. | Max. | Test Method |
|-------------------------------------|------|----------|------------------------|
| Viscosity, Saybolt Furol, 77 Deg. F | 20 | 50 | ASTM D88 |
| Storage stability test, 24-h, %A | | 1 | ASTM D244(82 to 88) |
| Partial Charge Test | | Positive | ASTM D244(28 to 33) |
| Sieve test, %A | 0.1 | | ASTM D244 (58 to 63) |
| Distillation B; Residue, % | 60 | | ASTM D@\$\$ (11 to 15) |

| Test on residue from oven evaporation test ASTM D244 (21 to 27)B | | | |
|--|------|----|------------|
| Penetration 77F, 110g, 5s | 40 | 90 | ASTM D5 |
| Ductility, 77F | 40 | | ASTM D113 |
| Solubility in trichloroethylene, % | 97.5 | | ASTM D2042 |
| Elastic recovery, 77F, 10cm, 1h, % | 40 | | ASTM D6084 |
| | | | |

A-This test requirement or representative samples is waived if successful application of the material has been achieved in field.

B-distillation to 550F (d244 11 to 15) shall be the reference method for percent distillate and percent residue by evaporation and percent residue. Residue by evaporation at 325F (D244 21 to 27) shall be referenced method to obtain material for test on residue. Residue from distillation shall not be used for test on residue due to polymer degradation at 500F.

The minimum amount required will be based on the bitumen weight content and will be certified by the emulsion supplier. In general, a three percent (3%) polymer solids, based on weight, is considered minimum.

Aggregate:

The mineral aggregate used shall consist of natural or manufactured sand, stone, slag, crusher fines, and others, or a combination thereof and shall be gray in color. (Note: Alternate aggregates may be submitted.) The aggregate shall be 100% crushed smooth-textured sand of less than 1.25% water absorption and shall not exceed 50% of the total combined aggregate, Grading Type II and/or Type III.

The aggregate shall be clean and free from organic matter and other deleterious substances. The aggregate shall meet the following:

| <u>TEST</u> | | <u>QUALITY</u> | <u>SPECIFICATION</u> |
|---------------|-------|-----------------------------|---|
| <u>AASHTO</u> | | <u>ASTM</u> | |
| T-176 | | D-2419 (Cleanness) | Sand Equivalent 65 min. |
| T-104 | C-88 | Soundness | 15% max. Using NA2 SO4 or 25% max. Using MGSO4 |
| T-96 | C-131 | Abrasion Wear (Hardness) | 30% max. |

Mineral fillers such as Portland cement, limestone dust, lime fly ash and others shall be considered as part of the blended aggregate and shall be used in the minimum amount required and be manufactured in the project year. They shall meet the graduation requirements of

AASHTO M-17 or ASTM D-242. Mineral fillers shall be used for one or more of the following reasons only:

1. To improve the gradation of the aggregate.
2. To control the time of break of the emulsion.
3. To provide improved stability and workability of the slurry.
4. To increase the durability of the cured slurry.

The total aggregate, including mineral filler, shall conform to the following gradations when tested by AASHTO T-17 or ASTM C-136:

PERCENT PASSING

| <u>Sieve Size</u> | <u>Type II</u> | <u>Type III</u> | <u>Stockpile Tolerance</u> |
|-------------------|----------------|-----------------|----------------------------|
| 3/8" | 100 | 100 | + or - 4% |
| No. 4 | 90 - 100 | 70 - 90 | + or - 4% |
| No. 8 | 65 - 90 | 45 - 70 | + or - 4% |
| No. 16 | 45 - 70 | 28 - 50 | + or - 4% |
| No. 30 | 30 - 50 | 19 - 34 | + or - 4% |
| No. 50 | 18 - 30 | 12 - 25 | + or - 4% |
| No. 100 | 10 - 21 | 7 - 18 | + or - 4% |
| No. 200 | 5 - 15 | 5 - 15 | + or - 4% |

Pure Asphalt required %

| | | |
|------------------|----------|-----------|
| Of Dry Aggregate | Type II | 12% - 16% |
| | Type III | 10% - 15% |

(Actual value to be determined by mix procedure)

The job mix Target Gradation shall be within the gradation band for the desired type of material. After the Target Gradation, based on the job mix design, has been submitted, the percent passing each sieve shall not vary by more than the stockpile tolerance and still remain within the gradation band. The percent passing shall not go from the high to the low end of the range for any two consecutive screens.

The aggregate will be accepted at the job site stockpile or when loading the aggregate into the support units for delivery to the lay-down machine. The stockpile shall be accepted based on five gradation tests in accordance with (AASHTO T2 (ASTM D75)). If the average of the five tests is Within the gradation tolerances, then the materials will be accepted. If the tests show the material to not meet the gradation tolerances, the Contractor will be given the choice to either remove the material from the job site or blend other aggregate with the stockpiled material to bring it into gradation tolerances. Materials used in the blending must meet the quality tests prior to blending and shall be blended in a manner to produce a consistent gradation. This may require a new mix design. Screening shall be required at the stockpile prior to delivery to the paving machine.

ENGINEERING

At least three days prior to the pre-construction meeting, the Contractor shall submit, at the Contractor's expense, a signed job mix design for current construction year covering the specific

material to be used on the project.

This design shall be performed by a qualified independent laboratory. Once the materials are approved, no substitution will be permitted unless first tested and approved by the laboratory preparing the mix design.

Suggested laboratories are:

- | | |
|----------------|----------------|
| 1. Alpha Labs, | Xenia, Ohio |
| 2. Scan-Roads, | Waco, Texas |
| 3. Astec, | Sacramento, CA |
| 4. Eraon Inc. | Jackson, MS |

Other laboratories qualified in the slurry seal mix design and testing shall be approved by the City Project Representative. All materials to be applied throughout the course of this project shall be in strict accordance with these specifications. If required by the City Project Representative, the Contractor shall provide documentation verifying the compliance with the mix design specifications.

Mix Design:

The qualified laboratory shall develop the job mix design and present certified test results for approval. Compatibility of the aggregate and emulsion shall be verified by the mix design. Once the materials are approved, no substitutions will be permitted, unless first tested and approved by the laboratory preparing the mix design.

SPECIFICATIONS:

The City Project Representative shall approve the design mix and all slurry seal materials and methods prior to use. The component materials shall be within the following limits:

| | |
|--------------------|---|
| Residual Asphalt | 7.5% to 18% by dry weight of aggregate |
| Mineral Additive | 0.5% to 3% by dry weight of aggregate |
| Additive | As required to provide the specific mixing and setting properties |
| Water | As required to produce proper mix consistency and cohesion. All water used in making slurry shall be potable and free of dissolved ingredients that may prove harmful. The effect of moisture content on the specific weight of the aggregate, and the moisture content of the aggregate being used, shall be taken into account in calibrating the machine to deliver asphalt in the correct proportion. |
| Laboratory Testing | Sources of all material shall be selected and identified prior to the pre-construction meeting. All materials shall be pre-tested by the Contractor at their expense in a qualified independent laboratory, as to their suitability for use in slurry seal and conformance with the project specifications. |

Laboratory Report The laboratory report will show the results of tests performed on the individual materials, comparing their values to those required by this specification. The report will provide the following information on the slurry seal mixture:

| <u>Test Purpose</u> | <u>Method</u> | <u>Spec.</u> |
|----------------------------|--|---|
| Slurry Seal Consistency | ISSA T106 | 2-3 cm |
| Wet Stripping Test | ISSA T114 | 90-100% Coated Surface |
| Compatibility | ISSA T115 | *Pass Excess Asphalt Loaded |
| Wheel | ISSA T109 | 50 gms/sq. ft. max. |
| Wet Track Abrasion | ISSA T102 | 75 gms/sq. ft. max. 6-day Soak |
| Cohesion Test | ISSA T139 | 12 kg/cm at 30 minutes & 20 kg/cm at 3hrs |
| Schulze-Breuer & Ruck Test | ISSA T144 | 9 grade points |
| | (optional and may be minimum required) | |
| * | Mixing tests must pass at the maximum expected air temperature of 100 degrees F. | |
| ** | Using job aggregate only. | |

The laboratory shall further report the quantitative effects of moisture content on the unit weight of the aggregate (bulking effect). The laboratory report must clearly show the proportions of aggregate, mineral filler (min. & max.), water (min. & max.), additive(s) (usage), and asphalt based on the dry aggregate weight.

A complete laboratory analysis and test report accompanied by abraded and un-abraded slurry seal samples (ISSA 100) shall be submitted by the Contractor before the job starts. The City Project Representative shall be allowed to observe all testing.

The City reserves the right to have an independent laboratory perform testing on materials and on the mix design for this project. This testing will be at the City expense. The Contractor shall supply material samples at no expense to the City of Greeley.

STOCKPILING OF AGGREGATE

Precautions shall be taken to ensure that stockpiles are carefully mixed just prior to use to ensure uniform distribution of the moisture, and that they do not become contaminated with over-sized seed rock, clay, silt or excessive amounts of moisture. The stockpile shall be kept in areas that drain readily. Segregation of the aggregate will not be permitted.

STORAGE

The Contractor shall provide suitable storage facilities for the asphalt emulsion, using containers equipped to prevent water from entering the emulsion. If necessary, suitable heat shall be provided to prevent freezing. All valves shall be locked or handles removed when the stockpile site is unoccupied.

TESTING & SAMPLING

Samples of materials and of the finished slurry / seal coat surface will be furnished by the Contractor as directed by the City Project Representative prior to and during progress of the

work at no expense to the City. The Contractor will submit certificates of compliance with each shipment of material to be used upon the project. The City may contract with an independent testing lab to verify compliance with material specifications. Initial testing costs will be paid by the City, but costs of additional testing due to failure of material to meet specifications will be the responsibility of the Contractor. Test reports, such as gradations, oil content, certificates of compliance, etc., will be required from the Contractor as additional materials arrive on the project. Materials determined not to meet job specifications will not be paid for whether they are installed or not. The City Project Representative will perform testing as required during the project. Emulsion samples will be delivered with certificate of testing or compliance with each delivery.

EQUIPMENT

All equipment, tools and machines used in the performance of this work shall be maintained in satisfactory working condition at all times to ensure a high-quality product. Descriptive information on the slurry mixing and applying equipment to be used shall be submitted for approval prior to the pre-construction meeting.

SLURRY MIXING EQUIPMENT

The slurry mixing machine shall be a continuous flow mixing unit, capable of delivering accurate pre-determined proportions of aggregate, water and asphalt emulsion to a revolving spiraled multi-blade mixer tank, and of discharging the thoroughly mixed product on a continuous basis. The aggregate shall be pre-wetted immediately prior to mixing with the emulsion. The mixing unit shall be capable of thoroughly blending all ingredients together without violent action. The mixing machine shall be equipped with suitable means of accurately metering each individual material being fed into the mixer. The units shall be equipped with approved devices so that the machine can be accurately calibrated and the quantities of materials used during any one period estimated.

The mixing machine shall be equipped with a water pressure system, and fog type spray bar adequate for completely fogging the surface with up to 0.55 gallons per square yard, immediately ahead of the spreading equipment. The machine shall be capable of mixing materials at pre-set proportions regardless of the speed of the machine engine and without changing machine settings.

PROPORTIONING DEVICES

Individual volume or weight controls for proportioning each material to be added to the mix; i.e., aggregate, emulsified asphalt, mineral and field control additives, and water shall be provided and properly marked. These proportioning devices are usually revolution counters or similar devices and are used in material calibration and determining the materials output at any time.

CALIBRATION

Each slurry mixing unit to be used in performance of the work shall be calibrated in the presence of the City/Town/School/ University Project Representative prior to construction.

Documentation shall be provided by the Contractor, which includes an individual calibration of

each material at various settings, which can be related to the machine's metering device(s).

No machine will be allowed to work on the project until the calibration has been completed and/or accepted. Previous calibration documentation covering the exact materials to be used may be accepted provided they were made during the calendar year. Calibration of all units to be used on the project will be required in project year. Calibration shall be submitted two weeks prior to pre-construction meeting.

VERIFICATION

Test strips will be made by each machine after calibration and prior to construction. Samples of the slurry seal will be taken and verification made as to mix consistency and proportioning. Verification of rate of application will also be made. Upon failure of any of the tests, additional test strips, at no cost to the City, will be required until each unit is authorized to work. Any unit failing to pass the tests after the third trial will not be permitted to work on the project. Test strips must be accepted or rejected within 24 hours after application.

SLURRY SPREADING EQUIPMENT

The surfacing mixture shall be spread uniformly by means of a mechanical type spreader box attached to the mixer equipped with paddles to agitate and spread the materials throughout the box. A front seal shall be provided to ensure no loss of the mixture at the road contact point. The rear seal shall act as final strike off and shall be adjustable. The mixture shall be spread to fill cracks and minor surface irregularities and leave a uniform skid resistant application of material on the surface. The spreader box and rear strike off shall be so designed and operated that a uniform consistency is achieved to produce a free flow of material to the rear strike off. The longitudinal joint where two passes join shall be neat appearing, uniform and lapped. All excess material shall be removed from the job site prior to opening the road. The spreader box shall have suitable means provided to side shift the box to compensate for variations in pavement width, longitudinal alignment, and pavement geometry.

JOINTS

Longitudinal joint overlap shall not exceed six inches over the previously placed slurry unless approved by City/Town/ School/University Project Representative.

Only burlap overlap drags will be permitted. Other types of drags/strike offs will be permitted only with consent of the City Project Representative.

When burlap drags are used, they must be kept relatively clean, free of excessive build up, tears, and replaced a minimum of twice daily or at the discretion of the City Representative.

CLEANING EQUIPMENT

Pick-up type street sweepers shall be used to clean the pavement. Power blowers, air compressors, water flushing equipment and hand brooms may also be required to clean the surface and cracks prior to slurry seal being placed.

AUXILIARY EQUIPMENT

Suitable crack and surface cleaning equipment, traffic control equipment, hand tools, and any support equipment shall be provided as necessary to perform the work.

PREPARATION OF SURFACES

Immediately prior to applying the slurry, the Contractor shall be responsible for insuring that the surface is cleaned of all loose material, split spots, vegetation, and other objectionable material.

The City/Town/School/University Project Representative shall give final approval that the surface has been prepared properly. The Contractor must sterilize the pavements with an approved sterilizing agent if required and shall be included in the cost of the contract. Contractor must remove all weeds from all pavement surfaces and from the interface of the concrete curb and asphalt prior to the application of any slurry seal. Costs associated with these requirements shall be included in the unit price of the slurry seal work and shall not be paid for separately. Each City will perform concrete repair, patching, and crack sealing on the streets to be surfaced prior to the application of the slurry seal.

COMPOSITION AND RATE OF APPLICATION OF THE SLURRY MIX

The amount of asphalt emulsion to be blended with the aggregate shall be determined in the laboratory, subject to final adjustment in the field to allow for absorption by the existing surface. The amount of water added must be controlled accurately to ensure production of readily spreadable, yet completely stable slurry.

Proper water content shall be determined by an appropriate consistency test on freshly made slurry.

The slurry shall be a homogeneous mixture, sufficiently stable during the entire mixing/spreading period so that the emulsion does not break; and that there is no segregation of fines from the coarser aggregate and the liquid portion of the mix does not float to the surface. Total time of mixing, from introduction of emulsion to spreading shall be 2 minutes or less.

The weight of dry aggregate applied per unit area shall be determined by mix design(s) submitted and approved. Final calibration of dry aggregate will be used for quality control verification. The Contractor shall place a test strip of 100 square yards in the area designated by the City Project Representative. The test section shall be placed using the same equipment and methods to be used on the job. Slurry mixtures placed in test strips shall conform to design mix with minor variations to obtain crack filling, bond to pavement and desired skid resistance texture. In the event the materials do not meet the requirements for fluidity, non-segregation, or surface texture, a new job mix shall be formulated and tested. Work shall not proceed before approval of a design mix and acceptance following the placing of a test strip.

WEATHER LIMITATIONS

No slurry shall be applied:

1. When there is any danger that the finished product will freeze before it cures completely.
2. When the pavement or air temperature is 50 degrees F or below and falling.

3. In the period following a rain while puddles of water remain on the surface to be coated.
4. Slurries that cure by evaporation shall not be laid during periods of within four (4) hours. Slurries shall not be laid during periods of high humidity above 40%.

APPLICATION OF THE SLURRY SURFACES

General:

The surface shall be uniformly fogged with water directly preceding the spreader. The slurry mixtures shall be of the desired consistency as it leaves the mixer, and no additional elements shall be added. A sufficient amount of slurry shall be carried in all parts of the spreader at all times so that complete coverage is obtained. No lumping, balling, unmixed, or oversized aggregates shall be permitted. No segregation of the emulsion and aggregate fines from the coarse aggregate will be permitted. If the coarse aggregate settles to the bottom of the mix, the slurry will be removed from the pavement. No excessive breaking of the emulsion will be allowed in the spreader box. No longitudinal streaks caused by oversized aggregate or transverse rippling will be left in the finished pavement.

Hand Work:

Approved methods shall be agreed upon at pre-construction meeting for hand work. Lutes and squeegees shall be used to spread slurry in areas not accessible to the slurry mixer.

Care shall be exercised to leave a pleasing appearance. The use of building paper or an approved equal shall be required at beginning and ending points or as directed by the Project Representative.

Mix Stability:

The mixture shall possess sufficient stability so that premature breaking of the material in the spreader box or pug mill does not occur. The mixture shall be homogenous during and following mixing and spreading, it shall be free of excess water or emulsion and free of segregation of the emulsion and aggregate fines from the coarser aggregate.

LINES

Care shall be taken to ensure straight lines along curbs and shoulders. No runoff onto these areas will be permitted. Lines at intersections will be kept straight to provide a good looking appearance. Lines at intersections or beginning and ending points shall be kept straight to provide a good looking appearance.

FINISH

No streaks, such as those caused by oversized aggregate, will be left in the finished surface. No ripples or chatter marks will be allowed. If these conditions develop, the job will be stopped until the Contractor proves to the City Project Representative that the situation has been corrected.

After the lay-down work is completed and before final acceptance by the City Project Representative, spot application of slurry seal material may be required to correct any deficiencies; such as, streaking, scuff marks, tire tracks, gaps, etc. to improve the ride quality and overall appearance. Slurry seal material required to repair deficiencies due to unsatisfactory workmanship shall not be paid for but shall be placed entirely at the Contractor's expense.

CURING

Slurry treated areas shall be allowed to cure until the City Project Representative permits their opening to traffic. Cure time must be in 1-3 hours.

APPLICATION RATES - TOLERANCES

Application rates shall be as follows per street:

| | |
|-------------------------------------|---------------------------------|
| Type II Slurry | 18 - 22 pounds per square yard |
| Type III Slurry | 28 -30 pounds per square yard |
| Micro surfacing | .30 - 34 pounds per square yard |
| Rut filling as determined in field. | |

Manholes and Valves:

Manholes and valves including concrete ring on streets to be slurry sealed shall be clean when the work is completed. They shall be covered in a suitable manner prior to sealing, and the covering shall be removed immediately after the street is sealed. A method for covering manholes and water valves shall be approved by the Project Representative prior to construction.

Amount below Minimum:

| <u>Application Rate Aggregate, Emulsion or Mineral Filler</u> | <u>Percent Reduction in Final Payment for Aggregate, Emulsion or Mineral Filler</u> |
|---|---|
| 1-3% | 10% |
| 3-5% | 15% |
| 5-7% | 20% |
| 7-10% | to be negotiated |
| 10+% | No Pay |

The City will continually be checking quantities. The Contractor is encouraged to also check quantities to avoid the penalties as described above. Responsibility for ensuring proper spread rates and material proportions is solely the Contractors.

| | <u>Variation Amount</u> | <u>Unit Price Reduction</u> |
|------------------|-------------------------|---------------------------------|
| Application rate | 5% - 10% | 5% |
| | 10% - 20% | 10% |
| | 20% + | 20% |

PAY ITEM

PAY UNIT

- | | | |
|----|--|-------------|
| 1) | Slurry Seal using Type II Asphalt paving aggregate | Square Yard |
| 2) | Slurry Seal using Type III Asphalt paving aggregate | Square Yard |

PAVEMENT MARKERS & TRAFFIC CONTROL

The Contractor shall be responsible for the placement of temporary raised pavement markers. All markers shall be placed at the direction of the Project Representative and shall be placed prior to the Chip Sealing-Slurry Seal operation. Temporary Reflective Raised Pavement Markers (Flexible Chip Seal Markers) at all 8" lane lines, turn lane tapers and curved markings, the tabs shall be placed at 10' intervals; on straight sections, with a 4" to 6" lane lines, the tabs shall be placed at 30' intervals. 50' from all intersections.

After the Chip Seal-Slurry Seal has been placed and prior to the Fog Sealing operation, the Contractor shall remove the paper over the reflective tab on every other tab placed. After the fog sealing, all adhesive tabs shall be exposed. The Contractor shall ensure that the temporary markings conform to the existing City striping plans.

Full-compliance, temporary markings shall be in place before removal of Traffic Control Devices from street.

Methods of masking and material to be used shall be approved by the City of Greeley Traffic Division and Street Infrastructure Management personnel and will be discussed at the time of the pre-construction meeting. The Contractor shall make an inventory of all pavement markings, with a representative of the City of Greeley Traffic Division and Street Infrastructure Management Program, 14 days prior to the beginning of construction and this shall determine which markings are to be protected.

The Contractor shall, for a period of seven (7) days, provide and maintain 4x4 warning signs at the beginning of chip sealed streets and at 1,500-foot intervals in both directions. The signs shall be lighted and warn drivers to slow down for loose gravel.

MEASUREMENT AND PAYMENT

Chip Seal shall be measured and paid for by the Square Yard of street surface properly sealed and accepted by the Project Manager. The area or payment will be the measured width of the street from lip-to-lip of gutters multiplied by the length of Seal Coat applied. It is the contractor's responsibility to check measurements 48 hours prior to beginning work on each street listed by the City to complete. The contractor will notify the Project Manager within 48 hours if there is a discrepancy in the measurements. Payment is Square Yards in place only. The Contractor shall furnish the Project Manager with weight tickets for cover-coat aggregate and gallons of CRS-2P actually used on the project. Such tickets shall serve as a check on the application rate. It shall be the Contractor's responsibility to notify the Project Manager prior to delivery of materials so that a representative may be present to collect delivery receipts. The unit price bid per square yard shall include the furnishing, storing, weighing, heating, hauling, distributing, rolling, and maintaining the bituminous and cover-coat materials, including all labor, equipment, tools, materials, and incidentals necessary to complete work in accordance with the plans and specifications, as directed by the Project Manager.

Quantities for bidding purposes were calculated using the following application rates:

| | |
|-----------------|------------------------------|
| CRS-2P | See Target Ranges in Table 3 |
| Cover Aggregate | See Aggregate in Table 3 |

The range of acceptable aggregate and emulsion rates is shown in Section 3 of this specification. At the conclusion of the project, emulsion and aggregate tickets will be compared with the area of Chip Seal placed to determine the average coverage rates for the project. If the material delivery tickets indicate that the average application rates were below the minimum application rates, the final payment will be reduced as shown below:

| Amount below Minimum | Percentage Reduction in Final |
|--|-------------------------------|
| Application Rate Payment for Aggregate or Emulsion | |
| Aggregate or Emulsion | |
| 1-5% | 10% |
| 5-10% | 20% |
| 10%+ | to be negotiated |

The Contractor is solely responsible for ensuring proper spread rates.

SECTION 00620 - SPECIAL PROVISIONS

2022 KGM PAVEMENTS

REJUVENATE

SCOPE OF WORK

Start date for the Rejuvenate Program will be June 1st, 2022, and Contractor has 45 days to complete work. Failure to complete all rejuvenate work within this timeframe will result in a daily charge of \$1,500 per day to the contractor until work is complete. The rejuvenating sealer material will be either PMG OR GSB88 and meet its manufacturer's specifications. The manufacturer's specifications for PMG, or the material selected by the City, shall become part of the job specifications. PMG prices quoted shall be complete in place square yards (SY). Material is manufactured by Cobitco, Inc. of Denver, Colorado, 5301 N. Bannock St., Denver, Colorado, 80216-1623. Phone 1-(800)-783-8575. GSB88 is manufactured by ASI (Asphalt Systems, Inc.) Salt Lake City, Utah, 84125. Manufactured suppliers can provide this material to bidders. Phone 1-801-972-2757.

Special Response – City of Greeley Parking Lots listed will require special coordination between Contractor and Project Representative. It is the intent that once parking lots are ready, the Project Representative will notify the contractor, and he will schedule Seal Coating to take place at each site between day 6 and no later than day 10 after notification.

FAILURE TO RESPOND

All work will be completed within forty-five days from Notice to Proceed, unless otherwise notified by the Project Representative. Upon failure to complete such work, the Contractor will be charged \$1,500 per day after the forty-five days, until all work is complete.

SURFACE PREPARATION

Prior to commencing the Seal Coat application, the roadway surface shall be completely cleaned and made free of loose and foreign material to the satisfaction of each Project Representative.

Oil spots shall be cleaned and approved by the project representative. Methods shall be submitted at the pre-construction meeting for approval.

The Contractor shall be required to remove the weed growth in the cracks in the pavement to be sealed and at the interface between the curb, gutter, crossspan and pavement. Weed removal may be done by cutting, burning, or a combination of both. Other methods of weed removal may be approved if detailed methods are submitted prior to construction. Weeds shall be removed to below the existing surface leaving no upward projections.

Weed removal costs shall be included in the unit price for the seal coating work and shall not be paid for separately.

Any Seal Coating work which is determined to have been done under this contract without the required street preparation will be deleted as a pay item without compensation for any labor,

materials, traffic control, etc.

All manhole and water valve covers, including concrete rings, shall be covered with building paper or approved material. Immediately after the seal coat has cured, cover material shall be removed from the job site. The method for covering manholes and water valves shall be submitted at the pre-construction meeting. All spots missed by the distributor truck shall be properly treated with Seal Coat material.

When applying Rejuvenate Seal Coat on streets in the City of Greeley that have pavement markings either painted or permanent (such as RR crossing, center line, edge lines, bike path lines, turn bay lines, crosswalk bars, stop bars, and arrow and only symbols) the contractor will follow the outlined procedure below:

- 1) All long-line painted markings shall be a minimum of three (3') feet long, by the width of the lane line (4", 8" etc.) covered and protected at the beginning and ending of each marking with no greater than 40' spacing on straight runs and 20' spacing on curved runs, between each tab applied to existing marking. This pattern shall continue the entire length of the street.
- 2) All symbols painted/permanent markings identified by Traffic Division shall be protected with approved method.
- 3) Full compliance temporary markings shall be in place before removal of Traffic Control Devices from street.
- 4) Temporary markings shall remain in place until rejuvenate has cured and will be painted by the City's Striping Contractor.
- 5) Methods of masking and material to be used shall be approved by the City of Greeley Traffic Division and Pavement Management personnel and will be discussed at the time of the pre-construction meeting. All marking blocked out or pavement surface not treated with Seal Coat material will be painted in to cover the untreated pavement to the Project Representative's satisfaction. An inventory of all pavement markings shall be made with a representative of the City of Greeley Traffic Division and Pavement Management Program 14 days prior to beginning of construction and this shall determine which markings are to be protected.

MATERIALS

The Rejuvenating Sealer material will be either GSB88 meet its manufacturer's specifications. The manufacturer's specifications for the material selected by the City, shall become part of the job specifications. Prices quoted shall be complete in place square yards (S.Y.). GSB88 is manufactured by ASI (Asphalt Systems, Inc.) Salt Lake City Utah, 84125. Manufactured suppliers can provide this material. Phone 1-801-972-2757

The materials shall be applied at a rate supplied by the manufacturer's specifications submitted in bid proposal for all types of pavement encountered on the job site. The contractor should estimate a target application rate of 0.11 per gallon, + or - 0.01 gallon, per square yard. The exact rates may be varied, as directed by product manufacturer, to meet specific field conditions without adjustments to contract unit prices. Rejuvenate material delivery tickets shall be supplied

to the Project Representative per application load. Each ticket shall include weight of material, truck empty weight, date, batch number, and unit weight of material. Seal Coat material shall be applied only when the existing surface has been dry for 24 hours prior to application, ambient air, and pavement temperature is 50 degrees F and rising, with no possibility of rain eight (8) hours after application of the Seal Coat, and when the weather is not foggy or humidity level is above 45%.

Certificate of Compliance shall include all ingredients and referenced test for a full material profile.

Sanding is required on all streets which are sealed prior to opening. The Contractor may also be required to do other sanding because of the specific type of rejuvenator used or because of weather conditions. The cost for sanding shall be included in the bid price of the rejuvenating sealer.

“Slippery When Wet” or “Loose Gravel” warning signs shall be posted and maintained for seven (7) days after Rejuvenator is applied to the street surface. (W8-5 Orange)

TESTING

The Contractor must submit certificates of compliance with each shipment of material to be used. Each batch lot, a sample will be supplied by the Contractor to the Project Representative prior to application.

CONSTRUCTION

All equipment, tools, and machines used in the application of Seal Coat material to the streets shall be maintained in satisfactory working condition at all times.

- A. The Seal Coat distributor shall be so designed to distribute a uniform, continuous coverage over the section to be treated within Seal Coat material supplier’s specified temperature.

Seal Coat material shall be applied immediately following the preparation of the street surface. The Seal Coat material shall be applied so that a uniform coverage is achieved over the entire surface of the street to be treated. Unless the distributor is equipped to obtain satisfactory results at the junction of previous and subsequent applications, building paper shall be spread on the surface for a sufficient distance back from the ends of each application so that the flow through the sprays may be started and stopped on the paper. All sprayer bars shall be operated at the manufacturer’s recommended pressures and nozzle sizes. Particular attention shall be made to keep Seal Coat material off concrete curbs, gutters, sidewalks and cross pans. Seal Coat material that is applied to the aforementioned concrete surfaces shall be cleaned by a method approved at pre-construction meeting by the Project Representative.

In compliance with City Municipal Code 14.16.140 Discharge Prohibitions and City’s MS4 Discharge Permit with Water Quality Control Division, it shall be the contractor’s responsibility to furnish storm water inlet protection. Inlet protection is to be placed on all storm water inlets within the work zone, or work-zone adjacent, in the event of either rain or at the city project representative’s request. Compliant inlet protection is illustrated in the attached detail, and any

inlet protection used must either meet or exceed the capabilities of the inlet protection there illustrated.

NO PARKING SIGNS

Any Seal Coating work which is determined to have been done under this contract without the required No Parking Signs will be deleted as a pay item without compensation for any labor, materials, traffic control, etc.

NOTIFICATION

Any Seal Coating work which is determined to have been done under this contract without the required Notification will be deleted as a pay item without compensation for any labor, materials, traffic control, etc.

PAYMENT

Payment will be made in conformance with the General Conditions of the Contract and normally processed on a monthly basis. The pay item for this work will be complete in place per square yard. Cost per square yard in place includes traffic control.

LOCATION OF WORK

The intent of the attached list of streets is to give the general locations of the work to be performed under this contract. Final locations will be verified after the contract has been awarded.

Location of Work:

| # | Street | Class | Sq. Yds |
|----|---|-----------|----------|
| 1 | 27th Ave -- 23rd St to 22nd St | Local | 2875.89 |
| 2 | 33rd Ave – 19th St Rd to CDS (NW) | Local | 2946.18 |
| 3 | 19th St Rd – 35th Ave to 29th Ave | Local | 6740.77 |
| 4 | 19th St Rd – 19th St Rd to CDS (N) | Local | 578.56 |
| 5 | 19th St Dr – 19th St Dr to CDS (SW) | Local | 817.54 |
| 6 | 29th Ave Ct - 29th Ave to 28th Ave | Local | 4090.10 |
| 7 | 29th Ave – 28th Ave to CDS (N) | Local | 3455.38 |
| 8 | 17th St Rd /27th Ave/18th St Rd – 28th Ave to C.O.A | Local | 5422.56 |
| 9 | 26th Ave Pl – 26th Ave Ct to 25th Ave | Local | 3720.56 |
| 10 | 12th St, 21st Ave to 18th Ave | Local | 3511.78 |
| 11 | 17th Ave / H St, 11th Ave to O St | Collector | 27312.31 |
| 12 | M St, 17th Ave to 11th Ave | Collector | 4246.67 |
| 13 | 17th St, 31st Ave to 29th Ave Pl | Local | 3411.18 |

| | | | |
|----|---|-----------|---------|
| 14 | 18th St, 25th Ave to 23rd Ave | Local | 4384.22 |
| 15 | 29th St, 65th Ave to Roundabout E/S | Collector | 3737.06 |
| 16 | 20th St Rd, Birch Ave to Beech Ave | Local | 2429.73 |
| 17 | 22nd Ave, 13th St to 11th St | Local | 3426.94 |
| 18 | 24th Ave Ct, 24th Ave to 18th St | Local | 5035.23 |
| 19 | 27th Ave / 19th St, 28th Ave to CDS (S) | Local | 6030.00 |
| 20 | 28th Ave, 16th St to 13th St | Collector | 7269.57 |
| 21 | 79th Ave, 12th St to 11th St | Local | 3301.26 |
| 22 | 9th St, 26th Ave to 23rd Ave | Local | 7078.77 |
| 23 | 21st Ave, 5th St to 10th St | Collector | 6270.62 |
| 24 | 16th St 71st Ave to C.O.A (E) | Collector | 6649.56 |

SECTION 00620 - SPECIAL PROVISIONS

2022 KGM PAVEMENTS

CRACK FILL

SCOPE

CRACK PREPARATION

Any Crack Sealing work which is determined to have been done under this contract without the required crack preparation determined by the Project Representative to be insufficient will be deleted as a pay item, without compensation for any labor, materials, traffic control, etc.

The following methods will be used to compute pay item deletion:

1. Routed Cracks, (Route and Seal)
Average length per pound of material in place (4 LF)
2. Blown Cracks, (Blow and Go)
Average length per pound of material in place (6 LF)

Routing Method - No Sealing

All cracks greater than 1/8 inch and less than 1/2 inch width shall be routed to 3/4 inch in width and 7/8 inch in depth. Cracks less than 1/8 inch in width shall not be routed. Immediately after routing and prior to filling of cracks, a pickup type sweeper will be used to clean the work area. This cost is to be included in the unit price. These criteria will be verified with the City Project Representative during construction. The blow-and-go method will be used to fill all routed cracks. Cost for this method will include routing, blowing, and filling of cracks. The City Project Representative will designate which cracks, or previously filled cracks, shall be routed.

Pavement Edge Preparation

Contractor will rout the space between the lip of the curb and the adjoining asphalt mat as directed by the Project Representative. Routing at adjoining edge of pavement will be 7/8" inch in depth and 3/4" width.

Blow-and-Fill Method

All cracks greater than 1/8 inch shall be cleaned and filled to the level of the surface of the pavement. Cracks less than 1/8 inch in width shall not be filled. These criteria will be verified with each City Project Representative during construction. All cracks shall then be cleaned with compressed air (min. 120 P.S.I.) and the surface application areas shall be dried. This includes cracks around manholes, water vaults, and riser rings. The use of a heat lance shall proceed immediately ahead of placing the hot sealant. Cracks shall be free of dust, dirt, moisture, vegetation, or other materials that prevent bonding of the hot sealant. The asphalt/concrete joint along the edge of streets with curb and gutter shall be prepared and sealed unless otherwise approved by each City Project Representative.

The heat lance shall meet the following requirements. Heat lance equipment will consist of an air compressor capable of delivering a steady flow of air at a minimum of 120 psi and a heating apparatus capable of sustaining air temperatures at a minimum of 750 degrees F. Cost for this method does not include routing. Heat lance will be used to heat Pavement temperature, within Crack to a minimum of 40 Degrees and above.

Special Route & Filling

Streets that require the surface area to be routed shall be routed as described in the Routing Method – No Sealing. Blow-and-fill method will be used. Contractor will keep quantities separate for each method used on each individual street.

MATERIALS

Hot Pour Rubberized Asphalt Crack Fill

Crack filler material shall be hot pour polymer rubberized asphalt crack filler and shall not contain vulcanized or reclaimed rubber. The Contractor shall submit a Certificate of Compliance with the specifications of the proposed crack filler to the Project Representative prior to any placement. Crack filler material shall meet or exceed the following requirements.

1.D6690-01 Standard Specification for Joint and Crack Sealants, Hot Applied, for Concrete and Asphalt Pavements Type 2.

2.Standard specification for joint and crack sealants, hot applied, for concrete and asphalt pavements.

1. SCOPE

- 1.1 This specification covers joint and crack sealants of the hot applied type intended for use in sealing joints and cracks in Portland Cement Concrete and Asphaltic Concrete Pavements.
- 1.2 The values stated in SI units are the standard.
- 1.3 This standard does not purport to cover the properties required of sealants for use in areas of Portland Cement concrete or asphaltic pavement subject to jet fuel or other fuel spillage such as vehicle and/or aircraft refuel and maintenance areas.
- 1.4 This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory requirements prior to use.

2. REFERENCED DOCUMENTS

2.1 ASTM Standards:

D 1190 Specification for Concrete Joint Sealer, Hot-Applied Elastic Type ²

D 3405 Specification for Joint Sealants, Hot-Applied, for Concrete and Asphalt Pavements ²

D 5167 Practice for Melting of Hot-Applied Joint and Crack Sealant and Filler for Evaluation ²

D 5249 Specification for Backer Material for use with Cold and Hot-Applied Joint Sealants in Portland Cement Concrete and Asphalt Joints ²

D 5329 Test Methods for Sealants and Filler, Hot-Applied for Joints and Cracks in Asphaltic and Portland Cement Concrete Pavements ²

- 2.2 Federal Specification; ³
SS-S-1410C

3. GENERAL REQUIREMENTS

- 3.1 The sealant shall be composed of a mixture of materials that will form a resilient and adhesive compound capable of effectively sealing joints and cracks in concrete and asphaltic pavements against the infiltration of moisture and foreign material throughout repeated cycles of expansion and contraction with temperature changes, and that will not, at ambient temperatures, flow from the joint or be picked up by vehicle tires. The material shall be capable of being brought to a uniform pouring consistency suitable for completely filling the joints without inclusion of large air holes or discontinuities and without damage to the material. It shall remain relatively unchanged in application characteristics for at least 6 h at the recommended application temperature in the field.

4. CLASSIFICATION

- 4.1 *Type I* – A joint and crack sealant capable of maintaining an effective seal in moderate climates. The material is tested for low temperature performance at -18° C using 50 percent extension (formerly Specification D 1190).
- 4.2 *Type II* – A joint and crack sealant capable of maintaining an effective seal in moist climates. Material is tested for low temperature performance at -29° C using 50 percent extension (formerly Specification D 3405).
- 4.3 *Type III* – A joint and crack sealant capable of maintaining an effective seal in moist climates. Material is tested for low temperature performance at -20° C using 50 percent extension. Special tests are included (formerly Federal Spec SS-S-1401C).
- 4.4 *Type IV* – A joint and crack sealant capable of maintaining an effective seal in climates experiencing very cold temperatures. Material is tested for low temperature performance at -29° C using 200 percent extension.

Note 1: - It is the responsibility of the user agency to determine which type is most applicable to their conditions.

5. PHYSICAL REQUIREMENTS

- 5.1 *Maximum Heating Temperature* – The maximum heating temperature is the highest temperature to which a sealant can be heated, and still conform to all the requirements specified herein. For purposes of testing as specified hereinafter, the

application temperature shall be the same as the maximum heating temperature. The maximum heating temperature shall be set forth by the manufacturer, shall be shown on all containers, and shall be provided to the testing agency before any laboratory tests are begun.

5.2 The sealant shall conform to the requirements prescribed in Table 1.

6. SAMPLING AND HEATING

6.1 *Sampling:*

- 6.1.1 Samples may be taken at the plant or warehouse prior to delivery or at the time of delivery, at the option of the purchaser. If sampling is done prior to shipment, the inspector representing the purchaser shall have free access to the material to be sampled. The inspector shall be afforded all reasonable facilities for inspection and sampling which shall be conducted so as not to interfere unnecessarily with the operation of the works.
- 6.1.2 Samples shall consist of one of the manufacturer's original sealed containers selected at random from the lot or batch of finished material. A batch or lot shall be considered as all finished material that was manufactured simultaneously or continuously as a unit between the time of compounding and the time of packaging or placing in shipping containers.
- 6.1.3 Obtain the sealant portion for testing from the selected manufacturer's original sealed container in accordance with Practice D 5167. The sample portion added to and heated in the melter shall weigh 800 ± 50 g for Types I, II, IV, and 1600 ± 50 g for Type III. Both pots of the melter described in Practice D 5167 shall be used for Type III.

6.2 *Heating* – Heat the material in accordance with Practice D 5167.

- 6.2.1 The oil bath in the melter shall be heated to a temperature between the sealant's maximum heating temperature and 42°C above the sealant's maximum heating temperature. (Never allow the oil temperature to exceed 288°C). Add the sealant to the melter according to the instructions in Practice D 5167. After the sample has been added to the melter, regulate the oil temperature within the listed temperature limits while raising the sealant's temperature to manufacturer's recommended maximum heating temperature within the required 1 hour of time, as stated in Practice D 5167. Immediately upon reaching the maximum heating temperature, pour samples for testing, except for Type III which shall be heated for 3 h from the time of first addition to the melter.

7. TEST METHODS

- 7.1 *Specimen Conditioning* – Condition all specimens at standard laboratory conditions for 24 ± 4 h as specified in test method D 5329 prior to beginning any testing.
- 7.2 *Cone Penetration* – Determine cone penetration according to Method D 5329 for Cone Penetration, non-immersed.

- 7.3 *Flow* – Determine the flow according to Method D 5329. Test the specimen for 5 h.
- 7.4 *Bond, Non-Immersed* – Determine the bond according to Test Method D 5329, non-immersed.
- 7.4.1 After final scrubbing and blotting specified in test Method D 5329, air dry the blocks on their 12.7 mm x 25.4 mm ends at standard laboratory conditions for 1 h ± 10 minutes prior to pouring bond specimens.
- 7.4.2 Immediately after conditioning the blocks as in 7.4.1, assemble the blocks with spacers as specified in test Method D 5329 so the opening between the blocks will form a cured sealant block that is 25.4 mm ± 0.1 mm wide for Type I and 12.7 ± 0.1 mm wide for Type II, Type III, and Type IV.
- 7.4.3 After pouring material into the block opening, condition the specimen as in 7.1. After conditioning, remove spacers and trim off excess material with a hot knife being careful not to pull sealant from the block. Condition the test specimens not less than 4 h at the temperature specified in Table 1 for the specific type of Sealant. Immediately extend the specimen to the prescribed percentage in Table 1 using the apparatus and rate described in D 5329.
- 7.4.4 Re-compress and re-extend according to test Method D 5329 for the total number of cycles prescribed in Table 1. The required cycles shall be completed within a 5-day period from the time of pouring for Type II, III, and IV, and a 7-day period for Type I.
- 7.4.5 *Bond, Water Immersed, Type III Only* – Determine the Bond according to ASTM D 5329. Prepare the specimens as in section 7.4 except after conditioning, immerse in water for 96 hours as described in D 5329. Testing shall be completed in 5 days from removal from the water for Types III.
- 7.4.6 *Resilience* – Use Test Method D 5329 for Resilience.
- 7.4.7 *Oven-Aged Resilience* – Age specimen @ 70° C for 168 h. Use Test Method D 5329.
- 7.4.8 *Asphalt Compatibility* – Test asphalt compatibility according to Test Method D 5329.

TABLE 1

| Cone Penetration At 25° C | Type I – 90 max. | Type II – 90 max. | Type III – 90 max. | Type IV (90 – 150) |
|------------------------------|---|---|---|--|
| Flow at 60° C. mm | 5.0 max. | 3.0 max. | 3.0 max. | 3.0 max. |
| Bond, non- immersed | Two out of three 25.4 mm specimens pass ^A 5 cycles at 50% ext. at - 18° C | Three 12.7 mm specimens pass ^A 3 cycles at 50% ext. at - 29° C | Three 12.7 mm specimens pass ^A 3 cycles at 50% ext. at - 29° C | Three 12.7 mm specimens pass ^A 3 cycles at 200% ext. at -29° C |
| Bond, water immersed | - | - | Three 12.7 mm specimens pass ^A 3 cycles at 50% ext. at - 29° C | - |
| Resilience, % | - | 60 min. | 60 min. | 60 min. |

| | | | | |
|-------------------------|-------------------|-------------------|-------------------|-------------------|
| Oven-Aged Resilience, % | - | - | 60 min. | - |
| Asphalt Compatibility | Pass ^B | Pass ^B | Pass ^B | Pass ^B |

^A The development at any time during the test procedure of a crack, separation, or other opening that at any point is over 6 mm deep, in the sealant or between the sealant and concrete block shall constitute failure of the test specimen. The depth of the crack, separation, or other opening shall be measured perpendicular to the side of the sealant showing the defect.

^B There shall be no failure in adhesion, formation of an oily exudates at the interface between the sealant and asphaltic concrete or other deleterious effects on the asphaltic concrete or sealant when tested at 60° C.

8. PACKAGING AND MARKING

- 8.1 The sealing compound shall be delivered in the manufacturer's original containers. Each container shall be legibly marked with the name of the manufacturer, the trade name of the sealant, the manufacturer's batch, or lot number and specification number and type, the minimum application temperature, and the maximum heating temperature. The maximum heating temperature must be at least 11° C (20° F) higher than the minimum application temperature.

CURING

Product shall cure sufficiently within thirty (30) minutes of application, over the manufacturer's recommended ambient temperature range for application, to allow normal traffic with tracking.

MATERIAL DELIVERY, HANDLING, AND STORAGE

Material used for the project will be delivered to a designated storage area in the City of Greeley. The Contractor shall notify the Project Representative twenty-four (24) hours in advance of any delivery of materials to the storage site. At that time the Project Representative shall meet with Contractor to verify the weights and conformance of the material. The Contractor is solely responsible for the loading and unloading of all materials while at the storage site. Certified scale tickets will be required for each delivered load of material. Weights shall be marked on each pallet of material on the top and sides in at least 4" high letters or numbers. The City reserves the right to have the Contractor verify delivered loads for weights at no cost to the city. The City Project Representative will maintain records of materials delivered, installed, and accepted.

All material used on this project shall not be removed, transported, or used on other work sites during the contract time. Melters/pots used to heat and store material to be applied on these projects shall not be used on other work sites for the duration of the contract, unless otherwise approved by the Project Representative.

All delivered/stored material determined to be damaged or unsuitable for use shall be inventoried by Contractor and Project Representative, then removed from storage site within twenty-four (24) hours. The Contractor will weigh the packaging and pallets, and this weight will be deducted from the delivered weights to determine the pounds of material, which the City will pay for under this contract.

CONSTRUCTION

Cracks will be prepared for sealing as described under "Crack Preparation."

An approved squeegee method shall be used to smooth the material tightly against the surface so that when the sealant is cured its surface in the crack is from 1/8 inch below to flush with the adjacent pavement surface.

All sealants applied and not meeting the minimum 1/4-inch outface tolerance shall be refilled to meet this criteria for acceptance.

The total width of the sealant band on the pavement surface over the centerline of the crack shall not be less than two (2) inches or greater than three (3) inches after it has been smoothed.

Traffic shall be kept off the freshly sealed cracks until the sealant has cured or has been treated with an approved blotter material to prevent tracking. Blotting, if done, will not be paid for separately but will be considered done for the Contractor's benefit and shall be incidental to the project. The City Project Representative will approve blotting material. The City Project Representative may at any time require the Contractor to use blotter material in all intersections and a minimum of fifty (50') feet in any direction from intersections.

Crack sealing shall be accomplished only when the ambient or surface temperature is forty (40) degrees F or rising and weather conditions are dry for 24 hours. Unless otherwise approved by each Project Representative.

Unless authorized by the City of Greeley's Project Representative, routing shall not proceed ahead of the sealing crew by more than twenty-four (24) hours.

Prior to the Contractor leaving each work area, the driveways and sidewalks shall be thoroughly cleaned. The material shall be blown a minimum of 10 feet away from the flowline of curb and gutter or edge of street and deposited near the center of the street where City street sweeping crews can then pick up the material.

EQUIPMENT

All equipment, tools and machines used in the execution of this work shall be maintained in satisfactory working condition at all times to ensure a high-quality product. Descriptive information on the crack filling and applying equipment to be used shall be submitted for approval prior to the pre-construction meeting.

The equipment used to apply the sealant shall be capable of heating the sealant to 340 degrees F minimum and 400 degrees F maximum and shall have a positive means to keep the sealant agitated and thoroughly mixed during sealing activities. The equipment shall also have a minimum melting capacity of 100 gallons per hour and shall be in conformance to the material supplier's recommendations.

* Equipment found to be leaking or malfunctioning shall be repaired or replaced immediately after notification by project representative.

* Material that is incorrectly applied to the street's surface will be deducted at crack preparation unit determination and bid prices.

The sealant shall be held in the mixing tank at application temperature until very little separation of the asphalt and rubber occurs when a bead of sealant material is placed on the pavement.

Additional sealant may be added to the mixing tank as long as the minimum temperature stated by the material's manufacturer is maintained. Wands used to deliver hot crack fill material shall not leak and have a positive shut off.

TESTING

The Contractor must submit Certificates of Compliance with each shipment of material to be used prior to placement.

Samples for testing will be taken from the stockpiled material. Shipments of materials with failing samples will be rejected.

WARRANTY

The Contractor is responsible for providing a TWO-YEAR (2) warranty to the City/for all work completed under this contract. The beginning of the TWO-YEAR (2) Warranty period will be established with the issuance of the Certificate of Substantial Completion. If any cracks open or if any of the material is removed from cracks due to traffic, weathering, or for any other reason, the cracks shall be resealed. There shall be no additional cost to the City for material, equipment, labor and/or traffic control for Warranty work.

Warranty work will be completed in accordance with these contract specifications and within 30 days of written notification by the City.

PAYMENT

Payment will be made in conformance with the General Conditions of the contract on a timely basis. Prices quoted shall be per pound in place for crack-filling material and per pound for routing method. Normally, payments will be processed on a monthly basis.

LOCATION OF WORK

It is intended that the attached list of streets for this project give the general locations of the work to be performed for bidding purposes. The final locations will be designated after the contract has been awarded.

| <u>Crack Fill List</u> | | |
|-------------------------------|--------------------------|---------------------|
| 1) | 10th Ave | 25th St to 24th St |
| 2) | 11th St Rd / 78th Ave Ct | 12th St to 79th Ave |
| 3) | 12th St / 80th Ave | 10th St to 83rd Ave |
| 4) | 12th St | 11th St to 83rd Ave |

| | | |
|-----|-------------|--------------------------|
| 5) | 13th St | 21st Ave to 14th Ave |
| 6) | 13th St | 14th Ave to 11th Ave |
| 7) | 13th St | 35th Ave to 28th Ave |
| 8) | 15th Ave | 20th St to Glenmere Blvd |
| 9) | 18th Ave | 9th St to 5th St |
| 10) | 20th Ave | 32nd St to 30th St Rd |
| 11) | 20th St | 59th Ave to 50th Ave |
| 12) | 20th St | 23rd Ave to 21st Ave |
| 13) | 21st Ave | 22nd St to 20th St |
| 14) | 22nd St | 74th Ave to 71st Ave |
| 15) | 23rd Ave | 1st St to C St |
| 16) | 24th St | EOP to 115th Ave |
| 17) | 25th St | 35th Ave to Mountair Ln |
| 18) | 28th Ave | 13th St to 10th St |
| 19) | 2nd St | 23rd Ave to 21st Ave |
| 20) | 30th St Rd | 20th Ave to 17th Ave |
| 21) | 32nd St | 23rd Ave to 19th Ave |
| 22) | 40th Ave | 4th St to B St |
| 23) | 47th Ave | 24th St to 20th St |
| 24) | 49th Ave | 6th St to 4th St |
| 25) | 61st Ave Ct | 6th St Rd to 7th St |
| 26) | 63rd Ave | 27th St to 26th St |
| 27) | 64th Ave Ct | 16th St to CDS (N) |
| 28) | 71st Ave | 10th St to 4th St |
| 29) | 74th Ave Ct | 23rd St to 22nd St |
| 30) | 74th Ave Ct | 23rd St Rd to 23rd St |
| 31) | 79th Ave | 11th St Rd to 12th St |
| 32) | 7th Ave | 13th St to 10th St |
| 33) | 7th St | 21st Ave to 14th Ave |
| 34) | 83rd Ave | COA (100 Blk) to ECL (N) |
| 35) | 83rd Ave | 20th St to 10th St |
| 36) | 8th Ave | 25th St to 24th St |
| 37) | Cranford Pl | 11th Ave to 10th Ave |
| 38) | Panorama Dr | Reservoir Rd to 22nd St |

SECTION 00620 - SPECIAL PROVISIONS

2022 KGM PAVEMENTS

PAVEMENT MARKINGS

A. PAVEMENT MARKINGS

The Transportation Services Division maintains the pavement markings on all public rights-of-way after completion of the two (2) year warranty period. All installed pavement markings shall be installed in accordance with the standards and latest revisions of the (MUTCD) Manual on Uniformed Traffic Control Devices, Federal Highway Administration Standard Specifications for Road and Bridge Construction, Colorado DOT, and the City of Greeley.

At intersections, all markings shall be of a permanent type marking to include, but not limited to, Crosswalks, Stop Bars, Arrows, and Only.

The midsections shall be painted using epoxy paint unless otherwise approved by the City of Greeley and shall be painted with a full striping width of 15 mils when applied. Drop-on glass beads shall be applied at the rate of no less than seventeen (17), and no more than twenty-five (25) pounds per gallon of paint.

PART I – GENERAL

All pavement markings shall be placed in accordance with the following requirements: When the term “full compliance” is used, it means pavement markings shall meet the requirements of these specifications.

- A. *Pavement Marking Plan:* When pavement marking location, details are not provided in the Contract, the Contractor shall submit a layout of existing conditions to the City for approval or modification. This layout is to be used as the final pavement marking plan. The layout of pavement marking shall be the responsibility of the contractor. The City’s Project Representative will review each project site for final marking placement.
- B. *Roadways Closed to Traffic During Construction:* Full compliance pavement markings shall be in place on all roadways prior to opening traffic. The City’s Project Representative will determine the location and need for full compliance prior to roadways being open to traffic.
- C. *Roadways Constructed Under Traffic:* Full compliance final pavement markings shall be placed within two (2) weeks after final surfacing is completed. Full compliance pavement markings shall also be placed on any roadways open to traffic when the project pavement work is discontinued for more than two (2) weeks. The City’s Project Representative will be responsible for coordinating the schedule for the installation of the markings within this two (2) week period.
- D. Temporary pavement markings and control points for the installation of those pavement markings for roadways that are being constructed under traffic are as follows:

1. When one roadway of a normally physically divided highway is closed, and a crossover is constructed, full compliance pavement marking shall be placed along the tapers and through the median crossovers to the two-way traffic section. Pavement marking through the two-way traffic section shall be as shown on the plans.

When a two-lane highway is closed, and a bypass detour is provided, full compliance pavement markings shall be placed the full length of the detour prior to operation of the detour.

In either case, the type of marking materials applied to a final surface, when removed, shall not leave a scar that will conflict with permanent markings.

2. The following criteria apply to all construction and maintenance on roadways open to traffic other than (D-1) above.

Control points, four-inch by two-foot marks at 40-foot intervals, are guide markers for the installation of temporary and/or full compliance markings.

All temporary broken-line pavement markings shall be installed daily and shall be at least 18 inches long with a maximum gap of 38 feet. An 18-inch stripe with a maximum gap of 18 feet shall be used on curves for roadways with severe curvature. A severe curve is defined as a curve whose safe speed is 10 mph or more below the approach posted speed limit.

Temporary pavement markings for “no passing zones” shall be full compliance. For a short-term situation (3 calendar days or less) where temporary broken center lines are installed, “no passing” restrictions may be identified by appropriate signs including R4-1 and R4-2 until final markings are installed.

For roadways with a volume of 750 ADT or less, “no passing” restrictions can be identified for up to two (2) weeks with appropriate signs.

Temporary pavement stencils (school, railroad, etc.) are not required unless detailed on the plans.

Temporary pavement markings shall be installed per manufacturer’s recommendations in such a way that the markings adequately delineate the desired alignment.

- E. Control points, temporary pavement markings, and Contractor pavement marking plans will not be paid separately but shall be included in the work.

PART II – MATERIALS AND EXECUTION

- A. Temporary Pavement Markings with Paint (Waterborne):

General

Temporary markings are used in construction areas and at locations where a temporary hazard must be properly marked until the necessary repairs or improvements can be made. Temporary pavement markings will require an acrylic fast dry waterborne traffic paint.

Temporary pavement markings shall be installed according to the manufacturer's recommendations in such a way that the markings adequately follow the desired alignment. This work consists of furnishing and applying pavement marking, and furnishing, installing, and removing temporary pavement marking in accordance with these specifications, the Manual on Uniform Traffic Control Devices for Streets and Highways (MUTCD), the Colorado supplement thereto, and in conformity to the lines, dimensions, patterns, locations and details shown on the plans or established.

All pavement marking materials shall be selected from the Colorado Department of Transportation's Approved Products List (APL). Prior to start of work, a Certificate of Compliance (COC) for all pavement marking materials shall be submitted in accordance with subsection 106.12 of the CDOT's *Standard Specifications for Road and Bridge Construction*.

Description: Low VOC, ready mixed, one component, 100% acrylic waterborne traffic paints.

All paints shall be suitable for application to Asphaltic or Portland cement concrete pavements when applied with or without glass beads.

Striping shall be done when the air and pavement temperatures are at least 50° F and rising. The pavement surface and weather conditions shall be conducive to satisfactory results.

Equipment shall be capable of painting a reasonably clean-edged stripe of the designated width ($\pm \frac{1}{4}$ in.) of layout line or existing lane line and shall have a bead dispenser directly behind synchronized with the paint applicator. For centerlines and lane lines, an automatic skip control shall be used that will paint a stripe with a gap, as shown on the plans. Machines having multiple applicators shall be used for centerlines with "no passing zones." In areas where machines are not practical, suitable hand-operated equipment may be used, subject to the City of Greeley project manager's approval. All stripes shall be protected until dry. Paint and beads shall be applied within the following limits using Potters P20+, 20% DM 80% round.

Excess glass beads shall be removed immediately from pedestrian areas and roadway.

Application Rate or Coverage per Gallon of Paint

| | MINIMUM | MAXIMUM |
|---------------|---------------|--|
| Paint: | 100 sq. ft | 110 sq. ft (approximately 15 miles when wet) |
| Beads: | 5 lbs. 13 oz. | 6 lbs. 3 oz. |

The color of the pavement marking paint, without drop-on beads, shall meet the following requirements:

White – Federal Standard No. 595B-17925. The Yellowness Index (YI) of white shall not exceed 8.0 per ASTM E313 initially. The color after drying shall be a flat-white, free from tint, and shall provide the maximum amount of opacity and visibility under both daylight and artificial light.

Yellow – Materials for pavement markings shall meet the initial daytime chromaticity that falls within the box created by the following corner points:

Initial Daytime Chromaticity Coordinates (Corner Points)

| | 1 | 2 | 3 | 4 |
|---|-------|-------|-------|-------|
| x | 0.530 | 0.510 | 0.455 | 0.472 |
| y | 0.456 | 0.485 | 0.444 | 0.400 |

Temporary acrylic waterborne pavement marking paint shall conform to the requirement listed in the table below.

Pigment composition and vehicle composition shall not vary by more than 1.0 percent of each amount specified.

ACRYLIC WATERBORNE PAINT

| Property | White | Yellow | Test Method |
|---|---|------------|--|
| Nonvolatile portion of vehicle (white and yellow), % | 41.0 (min) | 41.0 (min) | ASTM D2205 |
| Pigment Composition | | | |
| Percent by weight ♦ | 58-62 | 58-62 | ASTM D4451 ASTM D3723 |
| Paint | | | |
| Titanium Dioxide Content, lb./gal | 1.0 (min) | | ASTM D5381 |
| Properties of the Finished Paint | | | |
| Total Non-volatiles, (solids) % by weight | 75.0 (min) | 75.0 (min) | FTMS 141C - Method 4053.1, ASTM D2369, or ASTM D4758 |
| Density, lbs./gal | 13.3-13.9 | 13.1-14.0 | ASTM D2205 |
| Consistency (Viscosity) White and Yellow, Krebs-Stormer Units | 75-85 | 75-85 | ASTM D562 |
| Freeze Thaw Stability | Shall complete 5 or more test cycles successfully | | ASTM D2243 |
| Fineness of Grind, Cleanliness Rating B, | 3 | 3 | ASTM D1210 |

| | | | |
|---|------------|------------|------------|
| minimum | | | |
| Scrub Resistance | 800 | 800 | ASTM D2486 |
| Directional Reflectance: [15 mil Wet Film] | 88 (min) | 50 (min) | ASTM E1347 |
| Dry Opacity (Contrast Ratio): [15 mil Wet Film] | 0.98 (min) | 0.98 (min) | ASTM D2805 |
| ♦Percent by weight shall include percent of organic yellow pigment. 798 | | | |

B. Permanent Pavement Marking with Paint (High Build):

Striping shall be done when the air and pavement temperatures are at least 50° F and rising. The pavement surface and weather conditions shall be conducive to satisfactory results. The pavement surface and weather condition shall be conducive to satisfactory results.

Equipment shall be capable of painting a reasonably clean-edged stripe of the designated width ($\pm \frac{1}{4}$ in.) of layout line or existing lane line and shall have a bead dispenser directly behind, synchronized with the paint applicator. For centerline and lane lines, an automatic skip control shall be used that will paint a stripe with a gap, as shown on the plans. Machines having multiple applicators shall be used for centerlines with “no passing zones.” In areas where machines are not practical, suitable hand-operated equipment may be used subject to the City of Greeley project manager’s approval. Stripes shall be protected until dry. Paint and beads shall be applied within the following limits using Potters P20+, 20% DM 80% round.

The pavement marking paint for permanent markings shall be a High Build acrylic waterborne pavement marking paint that is fast-drying, water-based, acrylic resin-type paint capable of withstanding air and roadway temperatures without bleeding, staining, discoloring or deforming. It also shall be ready-mixed, one component, water-borne lead-free traffic line paint, of the correct color, to be applied to either asphaltic or Portland cement.

No paint shall be used that is more than 12 months old.

The acrylic emulsion polymer used in the manufacture of the paint shall be Rohm and Haas Company Rhoplex Fastrack HD-21A resin technology. A listing of the resin and pigment products which appear to be compatible to the requirements are as follows:

Rohm and Haas Rhoplex Fastrack HD-21A

Dow Chemical DT 400NA

Rohn and Hass Rhoplex Fastrack 3427

Dow Chemical DT 300MA

Rohm and Haas Rhoplex Fastrack 2706

Dow Chemical DT 211NA

Or equivalent fast dry traffic paint resin product that can be proven to match the function and performance of the listed products.

Excess glass beads shall be removed immediately from pedestrian areas and roadway.

Paint and beads shall be applied within the following limits:

Application Rate or Coverage per Gallon of Paint

| | MINIMUM | MAXIMUM |
|--------|--------------|-------------|
| Paint: | 100 sq. ft. | 110 sq. ft. |
| Beads: | 5 lbs.13 oz. | 6 lbs.3 oz. |

The color of the pavement marking paint, without drop-on beads, shall meet the following requirements:

White – Federal Standard No. 595B-17925. The Yellowness Index (YI) of white shall not exceed 8.0 per ASTM E313 initially. The color after drying shall be a flat-white, free from tint, and shall provide the maximum amount of opacity and visibility under both daylight and artificial light.

Yellow – Materials for pavement markings shall meet the initial daytime chromaticity that falls within the box created by the following corner points:

Initial Daytime Chromaticity Coordinates (Corner Points)

| | 1 | 2 | 3 | 4 |
|---|-------|-------|-------|-------|
| x | 0.530 | 0.510 | 0.455 | 0.472 |
| y | 0.456 | 0.485 | 0.444 | 0.400 |

High Build pavement marking paint shall conform to the requirements listed below. All proportions are by weight.

Pigment composition and vehicle composition shall not vary by more than 1.0 percent of amount specified.

HIGH BUILD ACRYLIC WATERBORNE PAINT

| Property | White | Yellow | Test Method |
|---|---|------------|--|
| Nonvolatile portion of vehicle (white and yellow), % | 43.0 (min) | 43.0 (min) | ASTM D2205 |
| Pigment Composition | | | |
| Percent by weight ♦ | 60-62 | 60-62 | ASTM D4451 ASTM D3723 |
| Paint | | | |
| Titanium Dioxide Content, lb./gal | 1.0 (min) | | ASTM D5381 |
| Properties of the Finished Paint | | | |
| Total Non-volatiles, (solids) % by weight | 77.0 (min) | 77.0 (min) | FTMS 141C - Method 4053.1, ASTM D2369, or ASTM D4758 |
| Density, lbs./gal | 14.0-14.6 | 13.7-14.3 | ASTM D2205 |
| Consistency (Viscosity) White and Yellow, Krebs-Stormer Units | 85-95 | 85-95 | ASTM D562 |
| Freeze Thaw Stability | Shall complete 5 or more test cycles successfully | | ASTM D2243 |
| Fineness of Grind, Cleanliness Rating B, minimum | 3 | 3 | ASTM D1210 |
| Scrub Resistance | 800 | 800 | ASTM D2486 |
| Directional Reflectance: [15 mil Wet Film] | 88 (min) | 50 (min) | ASTM E1347 |
| Dry Opacity (Contrast Ratio): [15 mil Wet Film] | 0.98 (min) | 0.98 (min) | ASTM D2805 |
| ♦Percent by weight shall include percent of organic yellow pigment. | | | |

C. Epoxy Pavement Markings:

The epoxy pavement-marking compound shall be applied with equipment that will precisely meter the two components.

The equipment shall produce the required amount of heat at the mixing head and gun tip to provide and maintain the temperatures specified.

Before mixing, the individual components A and B shall each be heated to a temperature of 80° F to 140° F. After mixing the application temperature for the combined material at the gun tip shall be 80° F to 140° F. The 140° F upper limit is the maximum temperature under any circumstances.

Both pavement and air temperatures shall be at least 50° F at the time of epoxy pavement markings application.

Equipment shall be capable of painting a reasonably clean-edged stripe of the designated width ($\pm \frac{1}{4}$ in.) of layout line.

The surface areas of new Portland cement concrete pavement and decks that are to receive markings shall be hydro-blasted or sandblasted prior to placement of the epoxy pavement marking. The amount of hydro-blasting or sandblasting shall be sufficient to remove all dirt and curing compound residue.

The surface areas of new asphalt pavement, existing asphalt pavement, and existing concrete pavement that are to receive markings shall be cleaned by sweeping and/or use of high-pressure air spray to remove loose material prior to placement of the epoxy pavement marking. Any area that cannot otherwise be satisfactorily cleaned shall be scrubbed with a biodegradable chemical. Any pavement which has become dirty from tracked mud, etc., as determined by the Project Representative or Construction Services Representative, shall be cleaned prior to the placement of the epoxy pavement marking.

When recommended by the epoxy manufacturer, a high-pressure water blast integrated into the gun carriage shall be used to clean the pavement surface prior to epoxy pavement marking application. The water blast shall be followed by a high-pressure air blast to remove all residual water leaving only a damp surface.

Epoxy pavement marking shall be applied to the road surface according to the epoxy manufactures recommended methods at **18 mils minimum thickness**. Glass beads shall be applied into the epoxy pavement marking by means of a pressurized bead applicator at a rate of no less than (23), and no more than (25) pounds per gallon.

Excess glass beads shall be removed immediately from pedestrian areas and roadway.

Retroreflectivity: The Contractor shall meet or exceed CDOT Special Provisions Exhibit A for Region 4 retro-reflectivity minimums for white and yellow painted markings.

Yellow painted markings below 225 MCD will be rejected.

White painted markings below 375 MCD will be rejected.

A test with a Retroreflectometer will be performed within 1 week after striping. The City of Greeley will provide a Retroreflectometer for this test.

Epoxy pavement marking and beads shall be applied within the following limits:

| | MINIMUM | MAXIMUM |
|--------|------------|------------|
| Paint | 85 sq. ft. | 90 sq. ft. |
| Beads: | 23 lbs. | 25 lbs. |

Epoxy Pavement Marking Material:

1. *Formulation:* Epoxy pavement marking material shall be a two component, 100% solids, material formulated to provide simple volumetric mixing ratio of two volumes of component A and one volume of component B, unless otherwise recommended by the material manufacturer.

2. *Composition:* The component A of both white and yellow shall be within the following limits:

| | | |
|-------------|---|--|
| Pigments: | White: | Yellow: |
| | Min% by weight 18% Titanium Dioxide, (ASTM D 476 Type II) | Min% by weight 23% Chrome Yellow, (ASTM D 211, Type III) |
| Epoxy Resin | 75-82% | 70-77% |

3. *Epoxy Number:* The epoxy number of the epoxy resin shall be 0.38 ± 0.05 as determined by ASTM D1652 for white and yellow Component A on pigment free basis.
4. *Amine Number:* The Amine number on the curing agent (Component B) shall be 410 ± 50 per ASTM D2071.
5. *Toxicity:* Upon heating to application temperature, the material shall not produce fumes, which are toxic or injurious to persons or property.
6. *Color and Weather Resistance:* The mixed epoxy compound, both white and yellow, when applied to 3-inch by 6-inch aluminum panels at $15 \pm \frac{1}{2}$ mils of thickness with no glass beads and exposed in the Q.U.V. Environmental Testing Chamber as described in ASTM G 53 shall conform to the following minimum requirements: (The test shall be conducted for 75 hours at 50° C, 4 hours humidity, and 4 hours U.V., in alternating cycles. The prepared panels shall be cured at 77° F for 72 hours prior to exposure.) The color of the white epoxy system shall not be darker than Federal Standard No. 595A17778. The color of the yellow epoxy system shall conform to Federal Standard No. 595A13538. The gloss values of both samples shall not be less than 70° after the test.
7. *Drying Time:* The epoxy pavement marking material shall have a setting time to a no-tracking condition of not more than 25 minutes at a temperature of 73° F and above.
8. *Curing:* The epoxy material shall be capable of fully curing under the constant surface temperature condition of 25° F and above.
9. *Adhesion to concrete:* The catalyzed epoxy pavement marking material, when tested according to ACI Method 503, shall have such a high degree of adhesion to the specified (4,000 psi minimum) concrete surface that there shall be a 100% concrete failure in the performance of this test.
10. *Hardness:* The epoxy pavement marking materials, when tested according to ASTM D 2240, shall have a Shore D Hardness between 75 and 100. Samples shall be allowed to cure at room temperature ($75^{\circ} \text{F} \pm 2^{\circ}\text{F}$) for a minimum of 12 hours and a maximum of 48 hours prior to performing the indicated test.

11. *Abrasion Resistance:* The abrasion resistance shall be evaluated on Taber Abrader with a 1000-gram load and CS-17 wheels. The wear index shall be calculated based on ASTM test Method C-501 and the wear index for the catalyzed material shall not be more than 70. The test shall be run on cured samples of material, which have been applied at film thickness of $15 \pm \frac{1}{2}$ mils to code S-16 stainless steel plates. The samples shall be allowed to cure at $75^{\circ} \pm 2^{\circ}$ F for a minimum of 48 hours prior to performing the indicated tests.
12. *Tensile Strength:* When tested according to ASTM D 638, the epoxy pavement marking materials shall have a tensile strength of not less than 6,000 pounds per square inch. The Type IV Specimens shall be cast in a suitable dynamic testing machine. The samples shall be allowed to cure at room temperature (75° F $\pm 2^{\circ}$ F) for a minimum of 12 hours and a maximum of 48 hours prior to performing the indicated tests.
13. *Compressive Strength:* When tested according to ASTM D 695, the catalyzed epoxy pavement marking materials shall have a compressive strength of not less than 12,000 pounds per square inch. The cast sample shall be conditioned at room temperature (75° F $\pm 2^{\circ}$ F) for a minimum of 12 hours and a maximum of 48 hours prior to performing the tests. The rate of compression of these samples shall be no more than 1/4-inch per minute.

D. Extruded / Spray Thermoplastic Pavement Marking:

Equipment – General:

The material shall be applied to the pavement by an extrusion method wherein one side of the shaping die is the pavement and the other three sides are contained by, or are part of, suitable equipment for heating, mixing, and controlling the flow of the material.

The equipment shall be constructed to provide continuous mixing and agitation of the material. Conveying parts of the equipment between the main material reservoir and the shaping die shall be so constructed as to prevent accumulation and clogging. All parts of the equipment, which come in contact with the material, shall be easily accessible and exposable for cleaning and maintenance.

All mixing and conveying parts – up to and including the shaping die – shall maintain the material at the plastic temperature.

The equipment shall be so constructed as to assure continuous uniformity in the dimensions of the stripe. Equipment shall be capable of painting a reasonably clean-edged stripe of the designated width ($\pm \frac{1}{4}$ in.) of layout line. The applicator shall provide a means for cleanly cutting off square stripe ends and shall provide a method of applying “skip” lines. The use of pans, aprons, or similar appliances, which the die overruns, will not be permitted under this specification.

An attached automatic bead dispenser shall apply beads for the surface of the completed stripe. The applicator should operate in such a manner that the beads are dispensed almost instantly upon the completed line.

The bead dispenser shall be equipped with an automatic cutoff control synchronized with the cutoff of the thermoplastic material.

Excess glass beads shall be removed immediately from pedestrian areas and roadway.

The equipment shall be so constructed as to provide for varying die widths to produce varying widths of traffic markings.

The equipment shall be so designed to permit agitation of the material to prevent scorching, discoloration, or excessive high temperatures of any part of the material. A special kettle shall be provided for melting and heating the composition. The kettle shall be equipped with an automatic thermoplastic control device so that heating can be done by controlled heat transfer liquid rather than direct flame.

The applicator and kettle shall be so equipped and arranged as to satisfy the requirements of the National Fire Underwriters.

The equipment shall be so equipped as to permit preheating of the pavement immediately prior to application of the material.

The applicator shall be mobile and maneuverable to the extent that straight lines can be followed and normal curves can be made in a true arc.

Types of equipment:

1. *Portable applicator:* The portable applicator shall be a device typically used for painting crosswalk lines, stop bars, short lane lines, and short lane center lines. The applicator shall be easily maneuverable and capable of being propelled by the operator.
2. *Mobile applicator:* The mobile applicator shall contain equipment to provide for automatic installation of skip lines in any combination of line and skip up to 40 feet. The mobile applicator shall be moved in conjunction with the melting and heating kettles in such a manner as to provide continuous highway operation of the kettles and the mobile applicator as an integral unit.
3. *Epoxy Primer Equipment:* The epoxy primer application shall be accomplished using equipment having the following features:
 - a. The main storage tank shall be equipped with a visible gauge which will allow the Engineer to readily ascertain the rate of application.
 - b. The main storage tank shall be equipped with a heating device which will maintain the epoxy at a constant efficient temperature.
 - c. The spray nozzle and epoxy spray shall be protected from the action of wind to ensure placement where needed.
4. *Cleaning Equipment:* Equipment shall be provided to ensure removal of dust,

debris, paint, and other foreign matter from the road surface immediately prior to the installation of the composition, or immediately prior to the application of primer.

Application of Material:

The stripe shall be applied to the pavement either to the right or left of the application indicator, dependent upon roadway lane being used. The unit shall not occupy more than one lane of roadway while operating.

The finished lines shall have well defined edges and be free of waviness. All of the equipment necessary for the preheating and the application of the material shall be so designed that the temperature of the material can be controlled within the limits necessary to its pour ability for good application.

At the time of installation of thermoplastic materials, the pavement shall be clean, dry, and free of oil, dirt, grease, paint, or other foreign contaminants. Pavement and ambient temperatures shall be at least 50° F.

The marking material shall not be applied until the epoxy resin primer reaches the tacky stage, approximately 15 minutes under normal conditions. An infrared heating device may be employed to shorten the curing time of the epoxy. To ensure the best possible adhesion, the marking material as specified, shall be installed at the manufacturer's recommended temperature.

The minimum thickness of thermoplastic lines as viewed from a lateral cross section shall not be less than 3/32 inch at the edges, nor less than 1/8 inch at the center. Measurement shall be taken as an average throughout any 36-inch section of the line. The material, when formed into traffic stripes, shall be readily renewable by placing an overlay of new material directly over an old line of compatible material. Such new material shall bond itself to the old line in such a manner that no splitting or separation takes place.

Thermoplastic Marking Material:

Thermoplastic marking material shall conform to AASHTO M 249 except for the following:

1. In paragraph 3.1.2. of the AASHTO specifications:

The material manufacturer shall have the option of formulating the material according to its own specifications. However, the binder shall be composed of alkyd resins wherein a minimum of 70% (by weight) of the binder shall be maleic modified glycerol ester of rosin. The physical and chemical properties contained in this specification shall apply regardless of the type of formulation used.

2. In paragraph 4.3 of the AASHTO specifications:

The infrared spectra of the extracted binder will be compared to the characteristic absorption bands of maleic modified glycerol ester of rosin.

3. In paragraph 6.1 of the AASHTO specifications:

The containers of thermoplastic material shall weigh approximately 50 pounds (23 kg).

E. Pavement Primers:

The type and application rate of epoxy resin primer shall be as recommended by the thermoplastic or preformed plastic pavement marking manufacturer.

A primer application rate of zero will not be accepted, except for thermoplastic marking and inlaid preformed plastic pavement marking placed on new asphalt surfaces as recommended by the manufacturer and approved in writing by the Engineer. However, if the Engineer determines that a new asphalt surface has become soiled, prior to placement of the pavement markings, pavement primer will be required and shall be applied as approved.

The epoxy resin primer material may be accepted at the job site on the basis of a manufacturer's certification, or a sample may be sent to the Laboratory for testing, in which case three weeks shall be allowed between sampling and intended use.

F. Preform Thermoplastic / Existing Overlay or Older Top Surface Application:

Pavement markings installation crew size shall be a minimum of six (6) persons when installing markings on a Collector and/or Arterial street. Pavement markings installation crew size shall be a minimum of four (4) persons when installing markings on a Local street.

- a. All symbols and legends shall comply with the Manual on Uniformed Traffic Control Devices including metric requirements.
- b. After the marking has cooled down, a chisel test shall be performed to ensure that a proper bond has been achieved.
- c. Road and ambient temperature should have no effect on the performance of the marking material.
- d. Dry asphalt of existing moisture. Do not install marking if it is raining or snowing. Wait to install marking 24 hours after it has stopped raining.
- e. Do not apply marking on top of salt or other deicers. Wait for 2 or 3 heavy rainfalls prior to installing the marking material, or use a pressure washer.
- f. The road shall be free of dirt, dust, chemicals, and significant oily substances.

- g. The material can be placed over existing preformed thermoplastic, if existing material has been heated with a torch, and the majority has been lifted with a shovel. A thermoplastic sealer shall be used to enhance bonding with asphalt.
- h. A pavement marking sealer shall be used to ensure a proper bond on all Roads. **(Check manufacturer's recommended instructions for installations.)**
- i. Curing compounds shall be hydro-blasted, sandblasted or grinded on new Portland cement concrete to ensure adequate bonding.
- j. All pavement marking approach edges, from the vehicle direction of travel shall be tapered to avoid snowplow damage.**
- k. Glass beads shall be sprinkled generously onto the pavement marking material surface. This will enhance initial retro-reflectivity and aide in cooling the markings. It is important to keep all traffic off the pavement marking material to prevent damage during installation.
- l. Crosswalks, stop bars, sidewalks, and access ramps that have any loose glass beads shall be cleaned thoroughly with a broom and shovel, then a leaf blower immediately after pavement marking is installed.

Pavement marking tape (removable) shall be installed in accordance with the manufacturer's recommendations and maintained throughout the required construction phase at no additional cost to the City of Greeley.

Pavement marking tape designated in the pay item as removable shall conform to ASTM D 4592, Type I, and shall be 4 ± 0.1 inches wide.

- 1. *Description:* The marking tape shall consist of weather and traffic resistant yellow or white colored reflective material. The material shall consist of conformable (metal foil) backing with a pressure-sensitive adhesive design for adhesion to asphalt or concrete surfaces.
- 2. *Requirements:*
 - a. *Color:* The color of the visible or outer surface shall closely match the white or yellow traffic marking paint specified for highway delineation. Glass beads shall be strongly adhered to the tape.
 - b. *Reflectance:* The white and yellow tapes shall have the following initial minimum reflectance values at 0.2° and 0.5° observation angles and 86.0° entrance angles as measured in accordance with the testing procedures of Federal Test Method Standard 370. The photometric quantity measured is specific luminance (SL) and is expressed as millicandelas per square foot per foot-candle.

| Color | White | | Yellow | |
|--------------------|-------|------|--------|------|
| Observation Angle | 0.2° | 0.5° | 0.2° | 0.5° |
| Specific Luminance | 1360 | 760 | 820 | 510 |

- a. *Adhesive:* The striping tape shall be supplied in rolls ready for application and have a protected pressure sensitive adhesive, which shall not have a protective liner nor require a solvent activator.
- b. *Adhesion:* The material shall adhere to asphalt and concrete surfaces when applied at surface temperatures of 35° F and above. Once applied, the tape shall adhere to the pavement at sub-freezing temperatures.
- c. *Conformability:* The material shall be thin, flexible, conformable, and show no cracking, flaking, or bead loss. Following application, the tape shall remain conformed to the texture of the pavement surface. The thickness shall not be less than 17 mils.
- d. *Removability:* The tape shall be removable by following manufacturer's recommendations, so long as the material is substantially intact. Removal shall not require sandblast, solvents, or grinding methods.
- e. *Durability:* The striping material applied in accordance with manufacturer's recommended procedures shall be weather resistant and show no appreciable fading, lifting, or shrinkage during the useful life of the line.
- f. *Packaging and Delivery:* The striping material as supplied shall be of good appearance and free of cracks. The edges shall be true, straight, and unbroken.
- g. The Contractor shall specify the material used for temporary pavement markings. Materials shall be durable enough to maintain a minimum reflectivity of 100 millicandelas throughout the life of the detour or their intended use. This may require many applications of temporary pavement markings as determined by the City of Greeley.
- h. Where temporary pavement marking materials are used on new or existing pavement surfaces, temporary pavement markings, or other material shall be used so it can be removed from surface without scarring. After final long line striping is complete, all temporary markings will be removed in 14 days.
- i. The striping material shall be packaged in accordance with accepted commercial standards to prevent damage during shipment and storage. The tape, as supplied, shall be suitable for use for a period of at least one year following delivery when stored at temperatures of 100° F or below.
- j.

G. Temporary Marking Tabs

Raised pavement markers (temporary) shall be installed on centerlines, edge lines, and lane lines where specified in the contract. Single markers shall be installed at 20' intervals for solid lines. A group of three markers at three-foot spacing and at 40-foot

intervals shall be installed for skip lines.

When chip seals, slurry seals, or tack coats are used, temporary marking tabs with covers shall be used, or protect the markers with an approved protective cover, which is removed after the asphalt material is sprayed.

I. Grooved Concrete for Inlay Applications

Prior to installation operation, the Contractor shall submit to the Engineer the instructions from the preformed plastic pavement manufacturer detailing surface preparation, grooving requirements, and material application. The instructions shall include the following:

1. Equipment Requirements
2. Approved Work Methods and Procedures
3. Material Application Temperature Requirements
4. Weather Limitations
5. Special Limitations
6. Special Precautions
7. Any other requirements necessary for successful installation and satisfactory performance of the material.

All materials for use by the City shall have manufacture's installation specifications for installation and shall be supplied to the project managers.

The bottom of the groove shall have a smooth, flat finished surface. This shall be accomplished by utilizing gang-stacking cutting heads having diamond tipped cutting blades. The spacers between each blade shall be such that there will be less than a 10-mil rise in the finished groove between the blades.

The edges of the preformed plastic pavement marking shall be straight and uniform, and uniformly adhere to the pavement.

Grooves shall be clean, dry and free of oil, dirt, grease, paint, or other foreign contaminants. Contractor shall protect the grooves from traffic and clean the grooves as necessary prior to application of the preformed plastic pavement markings.

Grooved width shall be the tape width plus $\nabla \frac{1}{4}$ ". Grooved depth shall be 100% of the tape and adhesive thickness plus 15%. For Series A380-I or A381-I tape, the grooved depth shall be 80 mils ∇ 10 mils.

Groove position shall be a minimum of 2" from the edge of the tape to the longitudinal pavement joint.

Pavement Plastic Pavement Marking (Type A) (Inlaid) shall be 3-M "Staymark" Pavement Marking, Series A380-I or 381-I Tape of any other equivalent and approved product.

All pavement markings installed on a *concrete* surface shall use enhanced contrast

material.

J. Pavement Marking and Striping Installation:

City of Greeley shall make the final determination in regards to the type and location of pavement markings and striping within the right-of-way during the review of the project signing and striping plans.

1. Pavement Markings (Symbols and Legends):

All symbols and legends shall comply with the Manual on Uniformed Traffic Control Devices including metric requirements.

Glass beads shall be sprinkled generously onto the pavement marking material surface. This will enhance initial retro-reflectivity and aid in cooling the markings. It is important to keep all traffic off the pavement marking material to prevent damage while properly cooling. All glass beads shall be blown off the preform thermoplastic when it has cooled down.

The use of preformed pavement markings shall be used with the installation of all symbols and legends; such as, all arrows, “onlys,” school x-ings, bike lane symbols, railroad, etc. on new and overlay streets. “The use of reversible arrows will not be accepted on any new overlay or chip seal streets.”

2. Crosswalks:

General – Crosswalks shall be used at all signalized intersections where pedestrian signal indications are located and approved pedestrian and school crossing locations.

- a. *Standard Crosswalk.* White 9' long x 24" wide “Continental” or standard style bars. The placement of these bars shall be 5'- 6' centers. When present center crosswalk bars on lane lines.
- b. *Transverse Crosswalk.* Where applicable, shall be a white 24" Crosswalk bar on both sides of the designated walkway area, and shall be installed the full asphalt or concrete width of the roadway minus the gutter pans.

Glass beads shall be sprinkled generously onto the pavement marking material surface. This will enhance initial retro-reflectivity and aid in cooling the markings. It is important to keep all traffic off the pavement marking material to prevent damage while properly cooling. All glass beads shall be blown off the preform thermoplastic when it has cooled down.

3. Stop Bars:

- a. Stop bars are required at all signalized intersections and locations specified by the City of Greeley.

- b. All stop bars shall be white 24" wide, the full width of the appropriate travel lane including the designated bike lane, not closer than 4' minimum 5' preferred from the closest edge of the crosswalk.

Glass beads shall be sprinkled generously onto the pavement marking material surface. This will enhance initial retro-reflectivity and aid in cooling the markings. It is important to keep all traffic off the pavement marking material to prevent damage. All glass beads shall be blown off the preform thermoplastic when it has cooled down.

4. Bicycle Markings:

- a. Bike lane markings shall be used on all streets where designated bike lanes are established. These lanes require a bike rider symbol and the Greeley Bikeways arrow symbol. (Flint Trading part # CRM:0188142)
- b. Share Lane Markings, if used in a shared lane with on-street parallel parking, Shared Lane Markings should be placed so that the centers of the markings are at least 11 feet from the face of the curb, or from the edge of the pavement where there is no curb. If used on a street without on-street parking that has an outside travel lane that is less than 14 feet wide, the centers of the Shared Lane Markings should be at least 4 feet from the face of the curb, or from the edge of the pavement where there is no curb.

Glass beads shall be sprinkled generously onto the pavement marking material surface. This will enhance initial retro-reflectivity and aid in cooling the markings. It is important to keep all traffic off the pavement marking material to prevent damage. All glass beads shall be blown off the preform thermoplastic when it has cooled down.

K. **Striping Requirements:**

The Contractor's Crew Foreman will contact by phone the City Project Representative no less than 30 minutes prior to performing any type of work in the public right-of-way. Failure to contact by phone the City Project Representative shall result in the loss of payment for the unauthorized work.

Striping over existing markings shall not vary 1/4" along the edge of existing marking. The Contractor may be required to apply markings by means of hand-operated equipment subject to the City of Greeley project manager's discretion in order to accurately match existing striping at tight radius curves.

The Contractor shall provide flaggers, signs, barricades, cones, or other devices needed to ensure sufficient safety for the motoring public and pedestrian traffic at no additional cost to the City of Greeley.

When parked vehicles interfere with the installation of any pavement markings, the Contractor shall provide a (3) three-day notification to the homeowner, tenant, or any business for vehicle removal at no additional cost to the City of Greeley.

Any tire tracking of paint shall be the Contractor's responsibility for the removal.

1. Parking Lot and On-Street Painting:

- a. Parking stall shall have a minimum width of 8', however, a 9' stall is preferred.
- b. All parking line striping of stalls, gores, and edge line widths shall be 4" white, **with drop on glass beads applied.**

2. Fire Lanes:

- a. Fire lane legends will be positioned by the City of Greeley prior to installation.
- b. Fire lanes shall be 4" red painted line no closer than 20' from any permanent building.

3. Curb Painting:

- a. On new concrete where curing compound is used, all concrete shall be pressure-washed prior to painting applications.
- b. Curb shall be scraped where paint is loose or chipping away prior to painting.
- c. The top of curb shall be fully cleaned prior to painting.
- d. Raised Island "Bull Noses" shall be painted, and then glass beads applied before the paint dries.
- e. Yellow curb painting shall indicate no parking zones.
- f. Red and white curb painting shall indicate passenger drop-off and loading zones. (5' alternating each color)
- g. Black and white curb painting shall indicate materials and equipment loading and unloading zones. (5' alternating each color)
- h. Blue curb shall indicate handicap parking zones.

4. Stencil Painting:

All stencils used shall conform to MUTCD standards for shapes and sizes.

L. **Removal:**

Pavement markings removal will be paid by the square foot.

The Contractor shall remove all pavement markings listed in Tabulation of Adjustments.

The following are the required procedures / practices for removal:

- a. Pavement markings shall be removed by using a rotary type grinder (a drum type grinder manufactured for this purpose), sandblasting, or by hydro-blasting.
- b. Preform plastic material may require using a weed-burning torch.
- c. The roadway shall have no more than 1/4" damage after removal of pavement markings.
- d. Disposal of materials, as a result of removal, are the responsibility of the Contractor.
- e. The Contractor at its own expense, shall legally and properly dispose of the material.

PAYMENT

Payment will be made in conformance with the General Conditions of the Contract and normally processed on a monthly basis.

The pay items for this work will be completely in place; removal is per square foot, replacement per lineal foot, and/or each unit item. *See bid tabulation sheet.

LOCATION OF WORK

Projects include 2022 Overlay Program presently (20) striping installation locations, 2022 Chip Seal and Slurry Seal Program presently (16) striping installation locations and 2022 Parking Lot Program presently (2) location within the city limits of Greeley.

The final designation of locations will be verified after the contract has been awarded. The Cities/Towns reserve the right to alter quantities (both increase and decrease) from those shown on the plan and bidders' documents. Such alterations of quantities will not change the unit price of the accepted contract.

| | Overlay Locations | Description of Work |
|----------|---|---|
| | | |
| 1 | Ash Ave – 8 th St to 16 th St | LAYOUT REQUIRED |
| | | |
| 2 | 14 th Ave – 16 th St to 20 th St | SURFACE APPLIED MARKINGS, LAYOUT REQUIRED |
| | | |
| 3 | 29 th St – 23 rd Ave to 3000 BLK | SURFACE APPLIED MARKINGS, LAYOUT REQUIRED |
| | | |
| 4 | 47 th Ave – 4 th St to EOP (N) | SURFACE APPLIED MARKINGS, LAYOUT REQUIRED |
| | | |

| | | |
|----|--|--|
| 5 | 28 th Ave – 10 th St to 4 th St | SURFACE APPLIED MARKINGS, LAYOUT REQUIRED |
| | | |
| 6 | 25 th St – 11 th Ave to 17 th Ave | SURFACE APPLIED MARKINGS, LAYOUT REQUIRED |
| | | |
| 7 | 15 th St – 8 th Ave to 10 th Ave | SURFACE APPLIED MARKINGS, LAYOUT REQUIRED |
| | | |
| 8 | 10 th St – RR Track to 7 th Ave | SURFACE APPLIED MARKINGS, LAYOUT REQUIRED |
| | | |
| 9 | 4 th St Rd – 4 th St to 35 th Ave | SURFACE APPLIED MARKINGS |
| | | |
| 10 | 5 th St Rd – 4 th St to 35 th Ave | SURFACE APPLIED MARKINGS |
| | | |
| 11 | 5 th St – 28 th Ave to 6 th St | SURFACE APPLIED MARKINGS |
| | | |
| 12 | 6 th St Rd – 6 th St to CDS (W) | SURFACE APPLIED MARKINGS |
| | | |
| 13 | 21 st St – 4 th Ave to 10 th Ave | SURFACE APPLIED MARKINGS, LAYOUT REQUIRED |
| | | |
| 14 | 9 th Ave – 20 th St to 26 th St | SURFACE APPLIED MARKINGS, LAYOUT REQUIRED |
| | | |
| 15 | 23 rd St – 8 th Ave to 11 th Ave | SURFACE APPLIED MARKINGS, LAYOUT REQUIRED |
| | | |
| 16 | 24 th St – 8 th Ave to 11 th Ave | SURFACE APPLIED MARKINGS, LAYOUT REQUIRED |
| | | |
| 17 | 46 th Ave – 1 st St to 3 rd St | SURFACE APPLIED MARKINGS |
| | | |
| 18 | 22 nd St – 85 Bypass to 1 st Ave | SURFACE APPLIED MARKINGS, LAYOUT REQUIRED |
| | | |
| 19 | 27 th St – 23 rd Ave to 17 th Ave | SURFACE APPLIED MARKINGS, LAYOUT REQUIRED |
| | | |
| 20 | 24 th St – 1 st Ave to City Limits | SURFACE APPLIED MARKINGS, LAYOUT REQUIRED |
| | | |

| | Chip Seal/ Slurry Seal Locations | Description of Work |
|-----------|--|----------------------------|
| | | |
| 1 | 1 st Ave – 30 th St to 28 th St | SURFACE APPLIED MARKINGS |
| | | |
| 2 | 1 st St/63 rd Ave – 4 th St to 59 th Ave | SURFACE APPLIED MARKINGS |
| | | |
| 3 | 16 th St – 23 rd Ave to 35 th Ave | SURFACE APPLIED MARKINGS |
| | | |
| 4 | 20 th St – 23 rd Ave to 35 th Ave | SURFACE APPLIED MARKINGS |
| | | |
| 5 | 20 th St – 35 th Ave to 47 th Ave | SURFACE APPLIED MARKINGS |
| | | |
| 6 | 18 th St Rd – 66 th Ave to 65 th Ave Ct | SURFACE APPLIED MARKINGS |
| | | |
| 7 | 19 th St – 71 st Ave to 68 th Ave | SURFACE APPLIED MARKINGS |
| | | |
| 8 | 19 th St – 66 th Ave to 65 th Ave Ct | SURFACE APPLIED MARKINGS |
| | | |
| 9 | 22 nd St – Talon Parkway to 79 th Ave | SURFACE APPLIED MARKINGS |
| | | |
| 10 | 22 nd St – 82 nd Ave to Talon Parkway | SURFACE APPLIED MARKINGS |
| | | |
| 11 | 59 th Ave – 20 th St to 10 th St | SURFACE APPLIED MARKINGS |
| | | |
| 12 | 63 rd Ave – 10 th St to 4 th St | SURFACE APPLIED MARKINGS |
| | | |
| 13 | 65 th Ave Ct – 18 th St to 19 th St | SURFACE APPLIED MARKINGS |
| | | |
| 14 | Grizzly Dr/66 th Ave – 71 st Ave to 4 th St | SURFACE APPLIED MARKINGS |
| | | |
| 15 | 117 th Ave – 24 th St to Thru 21 st St | SURFACE APPLIED MARKINGS |
| | | |
| 15 | CR 64 & $\frac{3}{4}$ - CR 24 & $\frac{1}{2}$ to CR 23 | SURFACE APPLIED MARKINGS |
| | | |
| 16 | Two River Parkway/83 rd Ave – 37 th St | SURFACE APPLIED MARKINGS |
| | | |

| | Parking Lot Locations | Description of Work |
|----------|------------------------------|----------------------------|
| | | |
| 1 | City Hall North | COMPLETE LAYOUT REQUIRED |
| | | |
| 2 | UCCC Parking Lot | COMPLETE LAYOUT REQUIRED |