STATE OF NEBRASKA
DEPARTMENT OF ROADS
ADDENDUM NO. 1
AND
ELECTRONIC BIDDING SYSTEM
AMENDMENT NO. 1
PROJECT NO. EACIM-80-4(123)
CONTROL NO. 61275
CALL ORDER F28
I-80 / US-83, NORTH PLATTE INTERCHANGE
LETTING DATE: APRIL 18, 2002

The Schedule of Items is amended to include the following:

1. Group 8B (Lighting Items) has been added.

The Schedule of Items for Group 1 and Group 10 are amended as follows:

1. The bid items “Rental of Loader, Fully Operated”, “Rental of Dump Truck, Fully Operated”, “Rental of Backhoe, Fully Operated” and “Rental of Skid Loader, Fully Operated” have been moved from Group 1 into Group 10. The quantities for these bid items remains unchanged.

The Schedule of Items for Group 8C is amended as follows:

1. The bid item “Pull Box, Type PB-6” has been added with a quantity of 4.000 Each.

2. The bid item “1 ½ Inch Conduit in Trench” has been added with a quantity of 925.000 LF

3. The bid item “Street Lighting Cable, No. 6 BARE” has been added with a quantity of 1,850.000 LF.

4. The bid item “Street Lighting Cable, No.6 USE” has been added with a quantity of 975.000 LF.

The Schedule of Items for Group 10 is amended as follows:

1. The fixed unit price for the bid item “Barricade, Type II” has been removed. The Contractor will now be required to supply a bid price for this item.

2. The bid item “Traffic Control Management” has been added with a quantity of 195.000 Day.

The EBS generated bid items sheet must show these corrections or the bid will be considered void.

* * * * *

The Special Provisions are amended to include the following:

INTERSTATE R.O.W. FOR WORK ZONE ACCESS

The Contractor may use the I-80 right-of-way to construct haul roads for access into the four quadrants of the interchange. If the Contractor elects to use this right-of-way for access, the following restrictions (which shall be at no cost to the State) shall apply:

1. The length of the haul roads shall not exceed 1 mile east or west from highway US-83.

2. Gates shall be installed in the interstate fence and shall be locked at all times when the haul routes are not in use.

3. At no time shall traffic from these haul routes cross the interstate lanes.

4. Access across private property to reach the interstate right-of-way shall be the Contractor's responsibility.

5. The Contractor shall be responsible for restoration of the haul routes to their original condition.

* * * * *

The Special Provisions are amended to include the following:

HIGH MAST TOWER FOUNDATION

Section 407 of the 1997 English Edition of the Standard Specifications is amended to include the following:

The contractor shall provide a pile foundation design for each of the two towers being relocated. The foundation design shall show the pile size and lengths, concrete footing, reinforcement and anchor bolt assembly. Foundation design shall be based on test results of soil borings taken from the area of each of the new tower locations. Soil borings, soil analysis and foundation design must be performed by individuals proficient in that line of work.

The contractor shall submit two complete Geotechnical Engineering Reports showing the soil analysis of the borings taken at each of the tower locations; six complete sets of foundation design drawings together with six complete sets of foundation design computations to the lighting engineer for review.

The foundation design drawings and computations must be signed and stamped by a registered professional engineer, licensed in Nebraska. Acceptance by the state of the foundation design(s) will be based upon this seal and signature. By applying his seal and signature to the design drawings and calculations, the engineer affirms that the foundations are of proper design and material to meet the structural requirements of the specifications.

The diameter and number of anchor bolts will be determined by the design of the existing winch housing base plate. All anchor bolts, however, must meet AASHTO M-314, Grade 55 Requirements.

The threads of all anchor bolts must be rolled in accordance with standard industry practice. The use of cut threads will not be permitted. Galvanizing the anchor bolts, heavy hex nuts and hardened flat washers will not be allowed. Prior to shipment, the top 20 inches of the anchor bolt shall be cleaned and painted with zinc rich paint to a minimum dry film thickness of 4 mils. The type of zinc rich paint and its method of application to be approved by the Materials and Research Division.

The heavy hex nuts for the anchor bolts shall meet the requirements of ASTM A-563 Grade C3 or DH3.

The hardened steel washers shall conform to the requirements of ASTM F-436, Type 3. Only flat washers shall be specified. The use of lock washers will not be allowed.

The manufacturer of the anchor bolts and heavy hex nuts shall furnish certifications and test reports covering the steel used in each application. The test reports shall show the following:

1. Chemical analysis of the steel used.

2. Yield strength in pounds per square inch.

3. Tensile strength in pounds per square inch.

4. Percent elongation in 2 inches of material.

5. Percent reduction in area.

Each tower footing shall be neatly formed to its design dimensions. The forms shall be tightly joined, securely pinned supported to withstand the weight and pressure of the fluid concrete.

Anchor bolts shall be caged and retained with steel templates (see plans) to prevent their movement while the concrete footing is being poured. Welding on anchor bolts will not be permitted. The anchor bolt circle shall be centered in the concrete foundation. Once the concrete has set, no adjustments or realignments shall be made to the anchor bolts. Field straightening of anchor bolts will not be allowed. The anchor bolts shall be truly vertical with no more than 1/8” deviation in 12 inches of length permitted. Anchor bolt projection shall allow for the thickness of a hardened flat washer; for the capture of two full hold-down nuts plus ½” while allowing no more than two anchor bolt diameters between the top of the concrete foundation and the bottom of the tower base plate.

Top of the concrete footing shall be level (less than ¼” out of level in 3 ft.) and approximately 3” above final grade.

Concrete for tower foundations shall be Class 47B-3000.

Reinforcing steel for tower foundations shall be deformed grade 60 billet steel confirming to the requirements of ASTM A 615.

Foundation details as shown in the plans shall not be changed unless specifically requested by the contractor in a letter to the lighting engineer. Any request for a change to the contract plans will be reviewed by the department and a written determination issued addressing the request.

Method of Measurement and Basis of Payment

Reinforced concrete high mast tower-foundations, complete, in place and accepted by the engineer will be paid for by measuring and paying for the following items of work and material:

“Foundation Design" - measured and paid for by the each.

"Excavation for High Mast Foundation" – subsidiary to “Concrete for Foundation.”

"Concrete for Foundation” - measured and paid for by the cubic yard.

“Reinforcing Steel” - measured and paid for by the pound.

"Anchor Bolt Cage" - measured and paid for by the each.

“_____ Steel Piling” – measured and paid for by the linear foot.

The tower grounding system is subsidiary to the item “Reinforcing Steel.” Soil borings and soil analysis for the tower foundation are subsidiary to the item “Foundation Design.”

Each High Mast Foundation to be constructed under this contract shall be taken to require 22.5 cubic yards of excavation, 7.5 cubic yards of concrete, 596 pounds of reinforcing steel, 192 Lin. Ft. of 10” x 42 lb. steel ”H” piling and four 2”x 6’ AASHTO M-314, GR. 55 Anchor bolts with nuts in a caged assembly as shown on the plans. Each contractor will base his/her bid on these quantities. These are estimated quantities. Actual design quantities will vary.

Final payment for concrete, reinforcing steel and anchor bolts will be based on the shop plan quantities. The quantity of concrete for which payment will be made shall be the quantity arrived at using the design dimensions of the tower footing. No payment will be made for concrete placed outside of these dimensions.

Payment for the above listed items shall be full compensation for the taking and testing of soil samples; for designing and installing the foundation; for all excavation and backfilling; for the furnishing and placing of reinforcing steel, anchor bolts, conduit and concrete, for all forming, finishing and curing of the concrete and for all labor, equipment, materials, tools and incidentals necessary to complete the work.

* * * * *

The Special Provisions are amended to include the following:

RELOCATE HIGH MAST TOWERS

Existing Towers No. 10 and 12 at the North Platte Interchange are in the way of new ramp construction and will need to be relocated under this project. Tower relocation will consist of the following:

Lowering the Tower

Disconnect electrical and grounding conductors. Remove tower from its foundation and secure on timber cribbing with shaft in essentially straight alignment with no part of tower in contact with the ground. Store on cribbing until ready to install at new location. Break back existing foundation to two feet below final grade. Dispose of foundation debris and backfill the resulting hole.

Move Tower to New Location and Install on New Foundation

A new foundation, for each of the two towers being relocated, will be constructed at the location shown in the plans. The new foundation will be designed, constructed and paid for in accordance with the Special Provision titled “High Mast Foundation” which is also a part of this project.

Reset the removed tower on its new foundation supported solely by the leveling nuts. Make sure all leveling nuts are tight against the base plate. Tighten the anchor bolt hold-down nuts in accordance with the turn-of-the-nut method as outlined in Subsection 708.03, Paragraph 10 of the 1997 Specifications, English Units Edition.

Install grout between the foundation and the tower base plate in accordance with plan details and project Special Provisions.

Make up all electrical and grounding connections. Run a 1/10 AWG. Copper bonding jumper from the ground lug inside the tower to the grounding lug in the winch housing and connect to the ground rod in a manner as shown in the plan details. There will be two such grounding systems for each tower.

Testing and Adjusting Lowering System

Test the luminaries. Test the lowering system for proper operation. Operate lowering system for three consecutive cycles to assure proper functioning of all components.

Method of Measurement and Basis of Payment

The work of relocating the two high mast towers in a manner as described in the plans and these Special Provisions, complete, in place and accepted by the engineer, shall be measured as a single unit and paid for at the contract unit price, per each, for the item "Relocate High Mast Lighting Unit." This price and payment shall be full compensation for lowering the tower; moving the tower to its new location; setting the tower on its new foundation; making up all necessary electrical and grounding connections; grouting between the concrete footing and winch housing base plate; testing and adjusting the lowering system including luminaries and for all labor, equipment, tools, materials, transportation and incidentals necessary to complete the work.

* * * * *

The Special Provisions are amended to include the following:

DIRECTIONS FOR GROUTING HIGH MAST TOWERS

1. Chip out any unsound concrete from the top of the foundation. Steel brush the top of the foundation to remove laitance and scale. Use compressed air to remove all loose particles and dust from the prepared surface.

2. Plug the top of all conduit sections within the base of the tower or winch housing so grout cannot enter the conduit. This will keep the conductors free and accessible should future maintenance be needed.

3. Install a section of ½" PVC conduit to be used as a drainage pipe as shown on the plans. The top of the drainpipe must end up level with the top of the base plate and be spaced equidistant between the electrical conduit and the inside edge of the plate. To achieve this, place a temporary plug in the top of the drainage pipe and install with top of pipe 2" to 3" higher than elevation of top of base plate. (Pipe will be cut level with top of grout after grout has set.)

4. Place a tight form around the outside perimeter of the base plate to contain the grout. Provide an opening in the form for the drainage pipe to exit.

5. Place a non-shrink grout (Masterflow 928 manufactured by Chem Rex Inc.; Sika Grout 212 manufactured by Sika Corporation or an approved equal) through the tower hand hole to a level even with with the top of the base plate. Place grout in accordance with Manufacturer's recommendations. Rodding and/or external vibration of mixture may be necessary to eliminate voids and consolidate grout. Grout must tightly encompass all leveling nuts.

6. After the grout has set (minimum of 6 hours), cut the conduit drainpipe off flush with the grout fill and remove form.

* * * * *

The Special Provisions are amended to include the following:

LUMINAIRE, TYPE HPS-150

The Contractor shall furnish and install one 15OW high pressure sodium luminaire per sign, unless otherwise indicated on the plans. Use Holophane Panel-vue wide-angle sign light Catalogue No. PANL-15AHP-MTLDG-PS, General Electric Versaflood 11 Signliter V2FS 15SO MISS N4 GR, Metrolux PA-17-W-150-HPS-MOG, or approved equal.

The Contractor shall furnish and install additional conduit, wire and other electrical items as needed to connect the luminaires to a junction box in the bridge curb, or panel box near the base of the structure. Electrical service locations are shown on the roadway lighting or signing plans. One photo-electric control is required on each overhead structure unless the sign lights are connected into roadway lighting circuits. Photo-electric controls when required shall be mounted near the hand hole or as directed by the engineer.

The disconnect switch, photo-electric control (if applicable), conduit, wire mounting hardware, labor, equipment, and all incidentals necessary to put the luminaire in working condition shall be considered subsidiary to the item, "LUMINAIRE, TYPE HPS-150" for which direct payment is made.

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The Special Provisions are amended to include the following:

TEMPORARY TRAFFIC CONTROL DEVICES

The last sentence of paragraph 2.b.(i) of Subsection 422.04 in the Supplemental Specifications is void.

Paragraphs 3.b. and 3.c. of Subsection 422.05 are void and superseded by the following:

b. Vertical panels shall be paid for at ½ the contract unit price for the item “Barricade, Type II”.

c. “42 inch (1070 mm) Reflectorized Cones”, “Reflectorized Drums”, and “Barricades Type II” shall be paid for at the contract unit price bid for the item “Barricade, Type II”.

* * * * *

The Special Provisions are amended to include the following:

TRAFFIC CONTROL MANAGEMENT

Description and General Requirements

Paragraph 1. of Subsection 422.01 of the Specifications is void and superseded by the following:

1. This work consists of furnishing, installing at the locations shown on the plans, operating, maintaining, and when work is complete, removing the temporary traffic control devices described in this Section. This work shall also consist of providing Traffic Control Management by furnishing one or more qualified individuals who shall be specifically responsible for performing or supervising the installation, inspection, maintenance, and removal of those devices.

2. When project conditions warrant, the Engineer may suspend the need for Traffic Control Management and will notify the Contractor accordingly. The Contractor shall be given at least three days' notice of the suspension, but the work may be suspended in a lesser time if mutually acceptable to the Department and the Contractor. During periods when no payment is being made for Traffic Control Management under this Special Provision, this provision will not apply.

Paragraphs 2.i., 2.j.(2)(ii), and 2.k. of Subsection 422.01 of the Specifications are void; and Paragraph 2. of Subsection 422.01 of the Specifications and Supplemental Specifications is amended to include the following:

p.(1) The Contractor shall designate an individual to be the Traffic Control Manager for the project. This person shall be certified as a Traffic Control Supervisor or Traffic Control Technician by the American Traffic Safety Services Association (ATSSA). Other certifications may be accepted if approved by the Engineer. The Traffic Control Manager shall also possess a current Flagger Certification Card. Copies of the Traffic Control Manager's certifications shall be provided to the Engineer prior to the installation of any traffic control devices on the project.

(2) The Contractor may also designate one or more Assistant Traffic Control Managers for the project. These individuals shall be qualified by certification as a Traffic Control Technician by the American Traffic Safety Services Association (ATSSA) or other training or qualification satisfactory to the Engineer.

q. The Traffic Control Manager or Assistant Traffic Control Manager shall be available and reasonably accessible (within 30 minutes) to the project during normal working hours on every day that work is being performed on the project and always on call at other times. During other than normal working hours, these individuals shall respond and be on the project within 60 minutes of notice being given that traffic control items on the project are in need of attention. The Contractor may elect to have an employee or employees perform this function simultaneously on more than one project, but shall not be relieved from the sanctions or disincentives that may be imposed for failure to meet the deadlines specified herein.

r. The Traffic Control Manager's or Assistant Traffic Control Manager's activities on the project shall be dedicated to the purpose of monitoring and maintaining the traffic control devices. The performance of other crafts or trades will be permitted, but shall be secondary to the performance of duties associated with traffic control.

s. The Contractor shall provide prior to the installation of any traffic control devices on the project two to four telephone numbers where the Traffic Control Manager or an Assistant Traffic Control Manager may be reached 24 hours a day, seven days a week.

t. The Traffic Control Manager or Assistant Traffic Control Manager shall have available at all times an approved, current version of the Traffic Control Plan.

u. If corrective action is not taken by the Contractor within the times specified in Paragraph 2.q., the Engineer may suspend all work on the project until the problem is corrected. The Engineer shall make reasonable allowance for existing weather conditions in the case of materials whose installation is governed by temperature or other atmospheric conditions.

Construction Methods

Subsection 422.03 of the Standard Specifications is amended to include the following:

19. The Traffic Control Manager's or Assistant Traffic Control Manager's duties shall include:

    a. Insuring that all traffic control devices are functioning properly, are clean, and are correctly located as shown on the Traffic Control Plan or as directed by the Engineer. This provision in no way restricts the cleaning, repair, and maintenance of traffic control devices to the Traffic Control Manager or his or her assistants.

    b. Inspecting all traffic control devices on every calendar day that traffic control devices are in place, whether in use or covered. Inspections shall take place a minimum of twice daily, and at least two inspections shall be eight hours apart. However, during or following periods of inclement weather or when the situation warrants for other reasons, inspections shall be done more frequently. At least 1 inspection each week shall occur during hours of darkness. The Traffic Control Manager or Assistant Traffic Control Manager shall perform the inspections.

c. Monitoring the cleaning and maintenance of all traffic control devices and the placement of temporary pavement markings.

d. Completing a Traffic Control Inspection form provided by the Engineer at the completion of each inspection. These forms shall be submitted daily to the Engineer, either in person or via facsimile transmission.

e. Monitoring flagging operations on the project. The Traffic Control Manager or Assistant Traffic Control Manager shall not act as a flagger, except in an emergency or when providing relief for short periods of time.

f. Coordinating all traffic control operations, including those of subcontractors and suppliers.

g. Coordinating traffic-related activities with the appropriate law enforcement, fire, and emergency medical agencies.

h. Attending all project scheduling meetings.

Method of Measurement

Subsection 422.04 of the Standard Specifications and Supplemental Specifications is amended to include the following:

21. (1) Traffic Control Management is measured by the day for the actual number of days management and inspection are required and provided. Payment will only be made for one day of Traffic Control Management during each midnight-to-midnight period regardless of the number of Traffic Control Managers or assistants required to adequately perform the work.

(2) No measurement will be made when the Engineer has suspended the need for Traffic Control Management and notified the Contractor accordingly.

Basis of Payment

Paragraph 1. of Subsection 422.05 of the Standard Specifications and Supplemental Specifications is amended to include the following:

Traffic Control Management Day (d)

Paragraph 15. of Subsection 422.05 of the Supplemental Specifications is renumbered to be Paragraph 16. Subsection 422.05 of the Standard Specifications and Supplemental Specifications is amended to include the following:

15. With regard to inspection, maintenance, and repair of temporary traffic control devices, an assessment in the amount of $500 per occurrence per day shall be charged to the Contractor when any of the following occur (these assessments shall be in addition to any other liquidated damages which may be assessed):

a. The Contractor fails to respond within the timeframe specified in Paragraph 2.q. of the amended Subsection 422.01 of the Standard Specifications. Response time shall begin when:

1) The Engineer notifies the Contractor of deficiencies in person;
2) The Engineer makes notification of deficiencies via the 24-hour phone number(s) provided by the Contractor; or
3) The Engineer leaves a message or receives no answer at the number(s) provided;

b. The Contractor fails to begin corrective actions to repair, replace, remove, relocate, or clean any traffic control devices or pavement markings within two hours of the completion of an inspection that uncovers deficiencies or within two hours of notification of deficiencies by the Engineer.

c. The Contractor fails to begin corrective actions to repair, replace, remove, relocate, or clean any traffic control devices or pavement markings within two hours of documented notification by an official law enforcement agency.

d. The Contractor fails to make or report the inspections prescribed in this specification.

e. The Engineer observes and documents any occurrence of the Contractor or his or her subcontractors flagrantly disregarding the necessary maintenance of traffic control devices that are in obvious need of attention.

* * * * *

The Special Provisions are amended to include the following:

SPECIAL PROSECUTION AND PROGRESS
(Structural Foundations, Ground Water & Geotechnical Information)

It is likely that ground water will be encountered in the construction of structural foundations. The Department does not have data available to indicate an approximate ground water elevation.

The Contractor shall be responsible for determining the ground water elevation and geotechnical information relative to structural foundations. These determinations will not be measured for payment but shall be considered subsidiary to other items of work for which direct payment is made.

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On page 44 of the Special Provisions, the second paragraph of the provision titled BITUMINOUS FOUNDATION COURSE is amended to read:

Material used in constructing Bituminous Foundation Course 6" shall be obtained from existing stockpile sites located at the I-80 Maxwell Interchange or the I-80 Hershey Interchange, as directed by the Engineer.

* * * * *

On plan sheet 2T, in the typical cross-section at the top of the page, the shoulder dimension of 11'-0" is amended to read 10'-0".

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On plan sheet 2P1, in the PROPOSED PHASING SEQUENCE notes, the second sentence of the first paragraph is amended to read:

I-80 and Hwy US-83 traffic may be reduced to one inside lane while any construction is underway adjacent to these roadways

* * * * *

Plan sheets 10 and 12 will be revised as per the attached sheets. The changes on these plan sheets are circled.

* * * * *

Plans sheets 19A, 19B, 19C and 19D will be added sheets to the plans. See the attached sheets for detail.

Upon execution of the contract, the plans will be revised to reflect these changes.

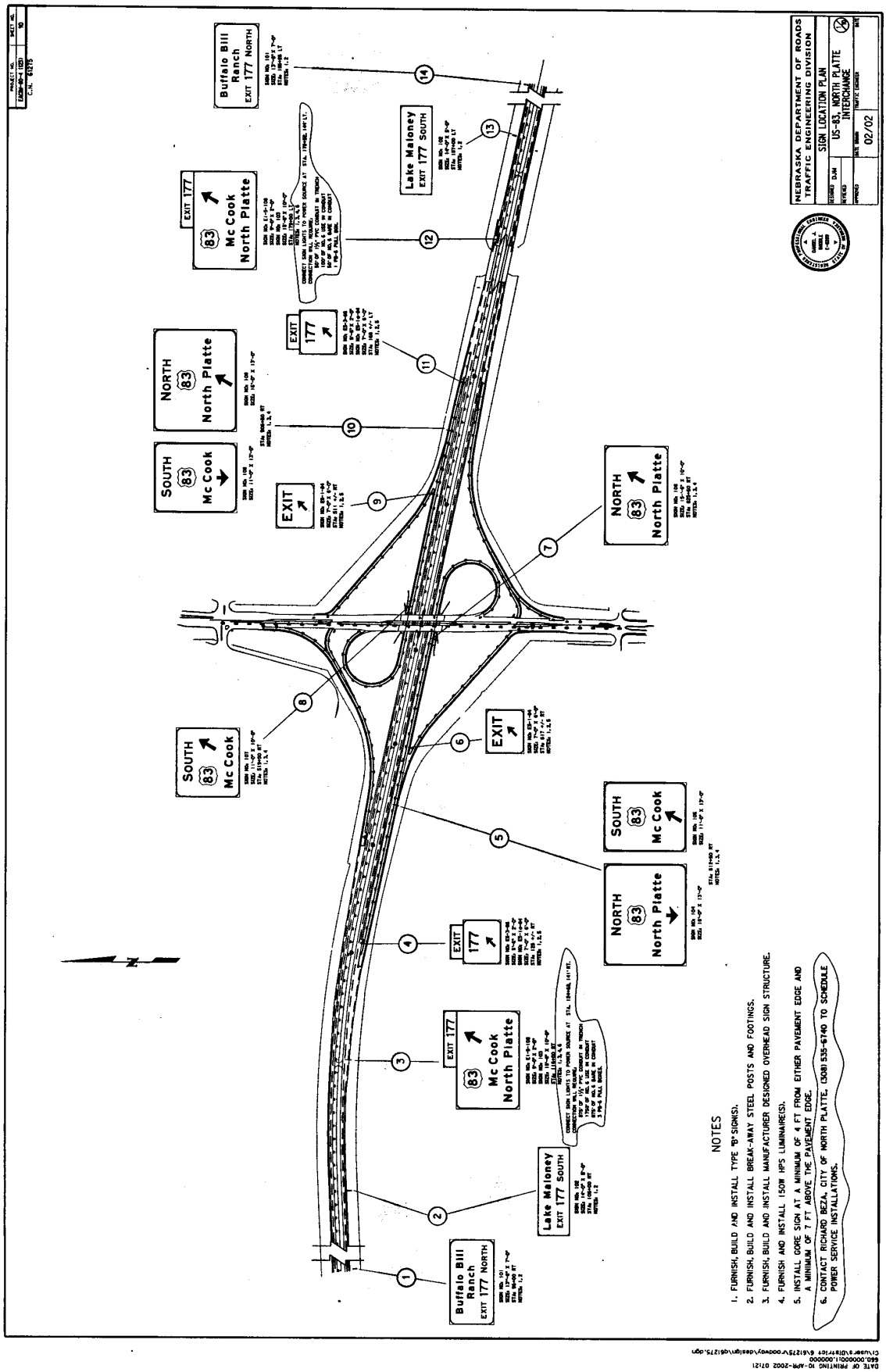
DEPARTMENT OF ROADS

Claude Oie
Construction Engineer

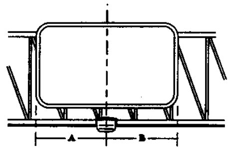
Issued: April 15, 2002

CO:CH:F28AD104

NOTICE: Only the contractors issued bidding proposals receive this addendum and responsibility for notifying any potential subcontractors or suppliers remains with the contractor.


NEBRASKA DEPARTMENT OF ROADS
TRAFFIC ENGINEERING DIVISION
SIGN LOCATION PLAN
US-83, NORTH PLATTE INTERCHANGE
02/02
Buffalo Bill Ranch EXIT 177 NORTH
Lake Maloney EXIT 177 SOUTH
EXIT 177
83 Mc Cook North Platte
NORTH 83 North Platte
SOUTH 83 Mc Cook
EXIT
NOTES
1. FURNISH, BUILD AND INSTALL TYPE "B" SIGNS).
2. FURNISH, BUILD AND INSTALL BREAK-AWAY STEEL POSTS AND FOOTINGS.
3. FURNISH, BUILD AND INSTALL MANUFACTURER DESIGNED OVERHEAD SIGN STRUCTURE.
4. FURNISH AND INSTALL 150W HPS LUMINAIRE(S).
5. INSTALL GORE SIGN AT A MINIMUM OF 4 FT FROM EITHER PAVEMENT EDGE AND A MINIMUM OF 7 FT ABOVE THE PAVEMENT EDGE.
6. CONTACT RICHARD BEZA, CITY OF NORTH PLATTE, (308) 535-6740 TO SCHEDULE POWER SERVICE INSTALLATIONS.

PROJECT NO.	SHEET NO.
EACIM-80-4 (123)	12
C.N. 61275	



OVERHEAD SIGN LUMINAIRE SPACING

		POWER SERVICE LOC.				LUMINAIRE SPACING (INCHES)			
LOC. NO.	SIGN NO.	STATION NO.	HPS WATTAGE	LUMINAIRES # REQUIRED	SIGN WIDTH (FT)	A	B	SIGN HEIGHT (FT)	VERTICAL SUPPORTS REQUIRED
3	103	124+68.62, 141' RT	150	1	15'-6"	93	93	10'-0"	~~3~~ 4
5	104	612+50, 27' RT	150	1	16'-0"	96	96	13'-0"	~~3~~ 4
	105		150	1	11'-0"	66	66	13'-0"	3
7	106	149+00, 200' RT	150	1	15'-6"	93	93	10'-0"	~~3~~ 4
8	107	522+00, 75' RT	150	1	11'-0"	66	66	10'-0"	~~4~~ 3
10	108	506+50, 27' RT	150	1	11'-0"	66	66	13-0"	3
	109		150	1	16'-0"	96	96	13'-0"	~~3~~ 4
12	103	178+51.73, 144' LT	150	1	15'-6"	93	93	10'-0"	4
			TOTAL	8					

SIGNS OVER 12 FT WIDE REQUIRE A WIDE ANGLE LUMINAIRE: USE HOLOPHANE PANL-15AHP-MTLDG-PS, GE VERSAFLOOD II SIGNLIGHTER V2FS 15S0 MISS N4 GR, METROLUX SIGNLIGTER PA-17-W-150-HPS-MOG OR APPROVED EQUAL.

~~SIGN LIGHTS WILL BE FED FROM ROADWAY LIGHTING CIRCUITS (SEE LIGHTING PLANS).~~

LOCATIONS 3 AND 12: SIGN LIGHTS WILL BE CONNCETED TO AN OUTSIDE POWER SOURCE AND PHOTOCELLS WILL BE REQUIRED.

LOCATIONS 5, 7, 8, AND 10: SIGN LIGHTS WILL BE FED FROM ROADWAY LIGHTING CIRCUITS (SEE LIGHTING PLANS), CONNECTIONS WILL BE MADE FROM PULL-BOXES.

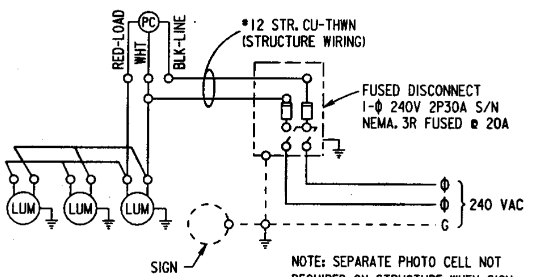
SOILS INFORMATION

THE FOLLOWING SOIL VALUE MAY BE USED AT THE LOCATION SHOWN FOR SIGN STRUCTURES:

LOCATION	STATION	COHESION P.S.F.	INTERNAL FRICTION DEGREES	WET DENSITY P.C.F.
3	116+00 RT	0	30	125
5	612+50 RT	0	30	125
7	625+50 RT	0	30	125
8	519+50 RT	0	30	125
10	506+50 RT	0	30	125
12	179+00 LT	0	30	125

NITRATES WILL BE ENCOUNTERED IN THE GROUND WATER.

WIRING DIAGRAM



NOTE: SEPARATE PHOTO CELL NOT REQUIRED ON STRUCTURE WHEN SIGN LIGHTS ARE CONNECTED INTO ROADWAY LIGHTING CIRCUITS.

SERVICE CONDUCTORS (SERVICE POINT TO DISCONNECT)

2 - 1/C #10 STR CU TYPE THW OR THWN
1 - 1/C #10 STR CU BARE

BRANCH CIRCUIT CONDUCTORS (DISCONNECT TO LUMINARES)

2 - 1/C #12 STR CU TYPE THW OR THWN
1 - 1/C #12 STR CU BARE

1 1/2" GRS OR PVC CONDUIT IN TRENCH
3/4" CONDUIT HUNG ON BRIDGE
1 1/2" GRS CONDUIT ON SIGN STRUCTURE FROM PULL BOX TO DISCONNECT
3/4" GRS CONDUIT ON OVERHEAD SIGN STRUCTURES

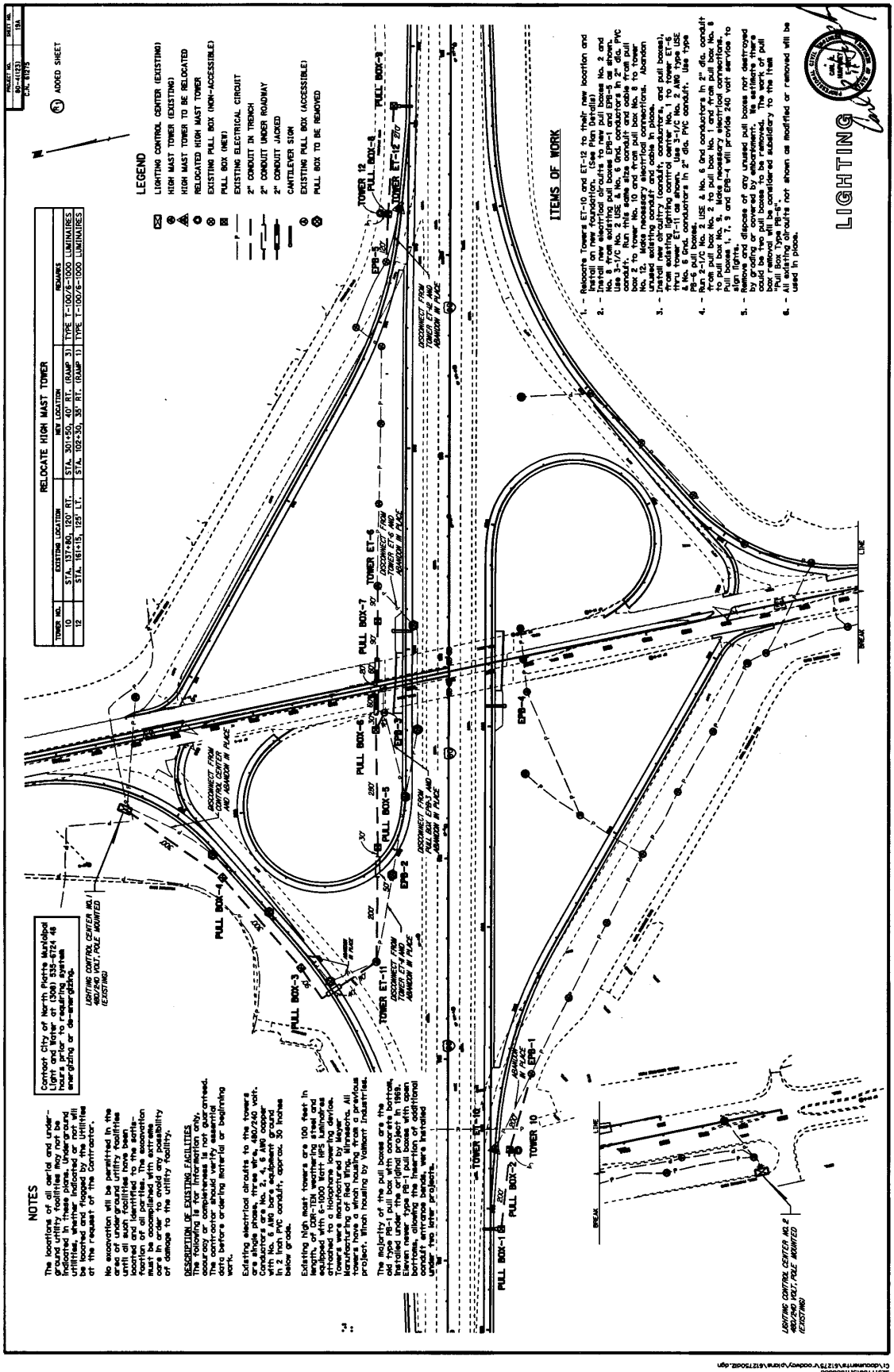
NOTES:
1. USE A 5/8" x 10' COPPER CLAD GROUND ROD AT EACH STRUCTURE AND AT EACH SERVICE POINT.
2. A DISCONNECT SWITCH SHALL BE PLACED NEAR THE LUMINAIRE(S), AT A LOCATION CONVENIENCE FOR MAINTENANCE.
3. A FUSED DISCONNECT SHALL BE INSTALLED AT THE POWER SERVICE LOCATION WHEN SIGN LIGHTS ARE NOT SERVED BY ROADWAY LIGHTING.

NEBRASKA DEPARTMENT OF ROADS
TRAFFIC ENGINEERING DIVISION

DESIGN DETAILS
SPECIAL GUIDE SIGNS

LUMINIARE SPACING AND WIRING

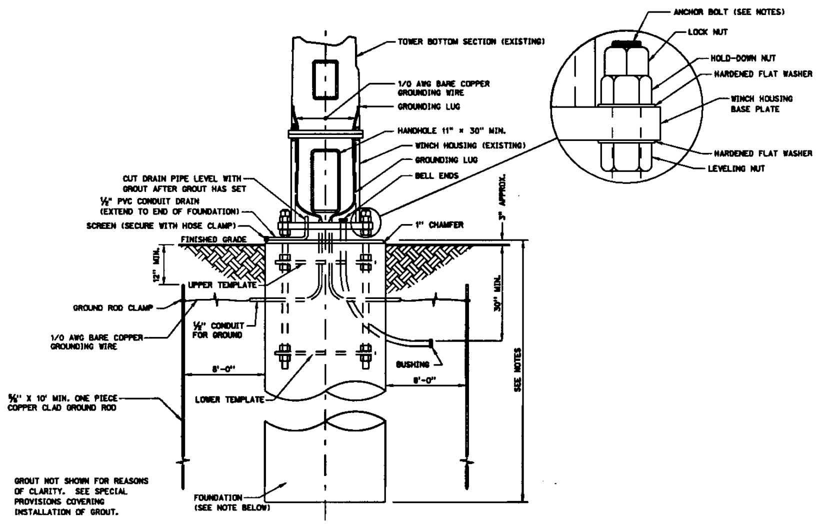
DATE OF PRINTING 10-APR-2002 01:22
528.000000:1.000000
C:\users\District 6\61275\roadway\design\c61275.dgn


LIGHTING
RELOCATE HIGH MAST TOWER
TOWER NO. | EXISTING LOCATION | NEW LOCATION | REMARKS
10 | STA. 137+80, 120' RT. | STA. 301+50, 40' RT. (RAMP 31) | TYPE T-100/6-1000 LUMINAIRES
12 | STA. 161+15, 125' LT. | STA. 102+30, 35' RT. (RAMP 11) | TYPE T-100/6-1000 LUMINAIRES
LEGEND
LIGHTING CONTROL CENTER (EXISTING)
HIGH MAST TOWER (EXISTING)
HIGH MAST TOWER TO BE RELOCATED
RELOCATED HIGH MAST TOWER
EXISTING PULL BOX (NON-ACCESSIBLE)
PULL BOX (NEW)
EXISTING ELECTRICAL CIRCUIT
2" CONDUIT IN TRENCH
2" CONDUIT UNDER ROADWAY
2" CONDUIT JACKED
CANTILEVER SIGN
EXISTING PULL BOX (ACCESSIBLE)
PULL BOX TO BE REMOVED
ADDED SHEET
NOTES
ITEMS OF WORK
TOWER 10
TOWER 12
TOWER ET-11
TOWER ET-5
TOWER ET-6
TOWER ET-12
PULL BOX-1
PULL BOX-2
PULL BOX-3
PULL BOX-4
PULL BOX-5
PULL BOX-6
PULL BOX-7
PULL BOX-8
PULL BOX-9
EPB-1
EPB-2
EPB-3
EPB-4
LIGHTING CONTROL CENTER NO.2 480/240 VOLT, POLE MOUNTED (EXISTING)
LIGHTING CONTROL CENTER NO.1 480/240 VOLT, POLE MOUNTED (EXISTING)
BREAK
LINE

PROJECT NO.	SHEET NO.
80-4(123)	198

C.N. 61275

(R1) ADDED SHEET



TOWER FOUNDATION DETAIL
(WITH WINCH HOUSING)

NOTE:
THE RELOCATION OF HIGH MAST TOWERS 10 AND 12 UNDER THIS PROJECT WILL REQUIRE THE CONSTRUCTION OF A PILE FOUNDATION FOR EACH TOWER RATHER THAN THE DRILLED TYPE FOUNDATION SHOWN ABOVE. (SEE DETAILS OF PILE FOUNDATION ELSEWHERE IN THE PLANS). ALL OTHER ITEMS SHOWN FOR THE DRILLED TYPE FOUNDATION SUCH AS ANCHOR CAGE, GROUNDING, GROUTING AND CONDUIT SHALL BE INCORPORATED INTO THE CONTRACTOR'S PILE FOUNDATION DESIGN.

NOTES:

1. THE CONTRACTOR SHALL DESIGN A PILE FOUNDATION FOR EACH OF THE TWO TOWERS BEING RELOCATED. THE FOUNDATION DESIGN SHALL SHOW THE SIZE AND OUTLINE OF THE CONCRETE FOOTING; SIZE AND LENGTH OF THE BEARING PILE; CONCRETE FOOTING REINFORCEMENT AND ANCHOR BOLT ASSEMBLY.

2. FOUNDATION ANCHORAGE SHALL BE AS SHOWN IN THE TOWER FOUNDATION DETAIL AND AS DESCRIBED IN THE SPECIAL PROVISIONS. THE TOP 18 INCHES AND THE BOTTOM 6 INCHES OF EACH ANCHOR BOLT SHALL BE THREADED. THREADS ON THE ANCHOR BOLTS MUST BE ROLLED. CUT THREADS WILL NOT BE ALLOWED. THE TOP 20 INCHES OF THE ANCHOR BOLT SHALL BE PAINTED WITH ZINC RICH PAINT TO A DRY FILM THICKNESS OF 4 MILS. GALVANIZING OF ANCHOR BOLTS, NUTS AND HARDENED FLAT WASHERS WILL NOT BE PERMITTED.

3. ANCHOR BOLTS MUST BE CAGED AS SHOWN AND THE CAGE INSPECTED BY THE ENGINEER BEFORE CONCRETE MAY BE POURED.

4. ANCHOR BOLT CAGE MUST BE CENTERED IN THE CONCRETE FOOTING. A PROPER TEMPLATE MUST BE INSTALLED AT BOTH THE TOP AND BOTTOM OF THE CAGE TO INSURE THAT THE ANCHOR BOLTS REMAIN PLUMB (LESS THAN ⅛" OUT OF PLUMB IN 12"). ANCHOR BOLTS MUST BE OF SUFFICIENT LENGTH ABOVE THE WINCH HOUSING BASE PLATE TO ALLOW FOR THE THICKNESS OF A HARDENED STEEL WASHER AND THE CAPTURE OF TWO FULL HOLD-DOWN NUTS PLUS ½". IF THE WINCH HOUSING BASE PLATE DOES NOT FIT OVER THE SET OF ANCHOR BOLTS, CONTACT MR. MARK BURHAM OF THE MATERIALS & RESEARCH DIVISION AT (402) 479-4746. FIELD STRAIGHTENING OF IMPROPERLY PLACED ANCHOR BOLTS WILL NOT BE ALLOWED.

5. A DISTANCE NO GREATER THAN TWO ANCHOR BOLT DIAMETERS WILL BE ALLOWED BETWEEN THE TOP OF THE CONCRETE FOOTING AND THE BOTTOM OF THE WINCH HOUSING BASE PLATE.

6. A HARDENED STEEL FLAT WASHER WILL BE REQUIRED BETWEEN THE WINCH HOUSING BASE PLATE AND THE LEVELING NUT AND BETWEEN THE WINCH HOUSING BASE PLATE AND THE HOLD-DOWN NUT FOR EACH ANCHOR BOLT EMPLOYED.

7. ANCHOR BOLT NUTS SHALL BE EVENLY AND SYSTEMATICALLY TIGHTENED TO PROPER TENSION BY EITHER THE TORQUE OR TURN-OF-THE-NUT METHOD. THE WINCH HOUSING MANUFACTURER SHALL SPECIFY ON THE SHOP DRAWING WHICH METHOD IS TO BE USED. ALL DESIGN AND INSTALLATION DETAILS SHOWN ON THE WINCH HOUSING SHOP DRAWING MUST BE FOLLOWED. IF THE TURN-OF-THE-NUT METHOD IS SPECIFIED, THE NUTS SHALL BE TIGHTENED IN ACCORDANCE WITH THE APPLICABLE PARTS OF SUBSECTION 708.03 OF THE 1997 NEBRASKA STANDARD SPECIFICATIONS. THE CONTRACTOR SHALL, WITHIN A SPACE OF 14 TO 30 DAYS AFTER INSTALLATION AND IN THE PRESENCE OF THE ENGINEER, RECHECK ALL PREVIOUSLY INSTALLED NUTS FOR CORRECT TIGHTNESS. AFTER BEING CHECKED AND FOUND SATISFACTORY, EACH ANCHOR BOLT WILL THEN BE DOUBLE NUTTED TO KEEP THE NUTS FROM WORKING LOOSE.

8. FILL THE CAVITY BETWEEN THE TOP OF THE CONCRETE FOOTING AND THE TOP OF THE WINCH HOUSING BASE PLATE WITH GROUT IN ACCORDANCE WITH THE SPECIAL PROVISION TITLED "DIRECTIONS FOR GROUTING HIGH MAST TOWERS" WHICH IS INCLUDED AS A PART OF THIS CONTRACT.

9. PROVIDE A CAPPED 1-1/2" DIAMETER SPARE CONDUIT BEND IN ALL TOWER FOUNDATIONS.

10. THE ENGINEER OR HIS REPRESENTATIVE MUST BE PRESENT AT ALL TIMES DURING TOWER INSTALLATION AND MUST BE NOTIFIED BY THE CONTRACTOR NO LESS THAN 3 DAYS PRIOR TO TOWER INSTALLATION. TOWERS INSTALLED WITHOUT PROPER INSPECTION WILL NOT BE ACCEPTED FOR FINAL PAYMENT.

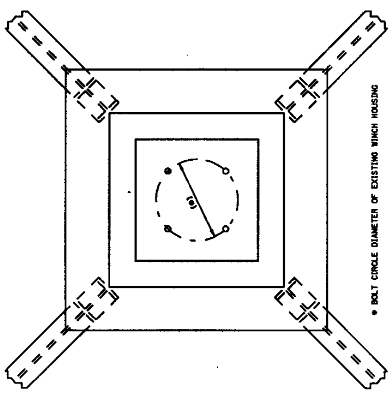
MATERIAL REQUIREMENTS	
ITEM	REQUIREMENT
ANCHOR BOLTS	AASHTO M-314, GRADE 55
HEAVY HEX NUTS	ASTM A 563, GRADE C3 OR DH3
HARDENED FLAT WASHERS	ASTM F 436, TYPE 3
ANCHOR BOLT TEMPLATE	ASTM A 36 STEEL, MIN. ½" THICK
PVC CONDUIT	ASTM D 1785, SCH. 40
NON-SHRINK GROUT	MASTERFLOW 928 SIKA GROUT 212 OR APPROVED EQUAL

LIGHTING

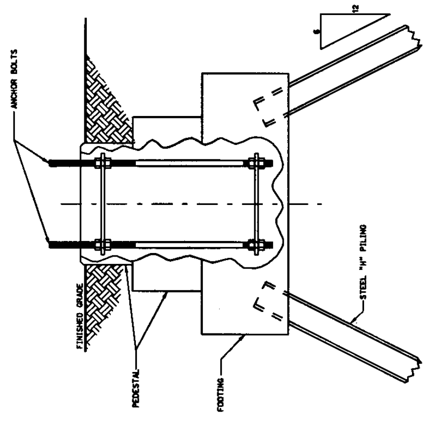
325.7706515:1.000000
C:\documents\61275\roadway\plans\61275odf1.dgn
SHEET 1 OF 1

PROJECT NO.	SHEET NO.
80-4(123) C.N. 61275	19C

R1 ADDED SHEET



PLAN VIEW

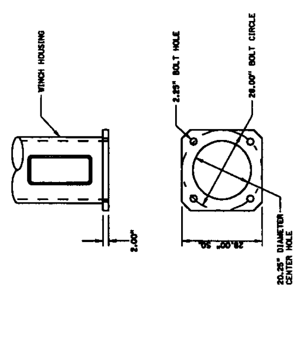


ELEVATION

TOWER FOUNDATION DETAIL

FOUNDATION QUANTITIES					
TOWER NO.	LOCATION	CONCRETE	EXCAVATION	REINF. STEEL	STEEL "H" PILING (10" x 42 LB.)
10	STA. 301+50, 40' RT.	7.5 C.Y.	22.5 C.Y.	596 LBS.	46'
12	STA. 102+30, 35' RT.	7.5 C.Y.	22.5 C.Y.	586 LBS.	50'

NOTE: QUANTITIES TAKEN FROM ORIGINAL TOWER FOUNDATION DESIGN.



EXISTING WINCH HOUSING BASE PLATE DETAIL

LIGHTING

PROJECT NO.	SHEET NO.
80-4(123)	19D

C.N. 61275

(R1) ADDED SHEET

GENERAL NOTES:

1. FOR PULL BOX DETAILS, SEE STANDARD PLAN 914-R3. ALL PULL BOXES WITH METAL FRAME AND LID SHALL BE GROUNDED, UNLESS INDICATED OTHERWISE.
2. ALL CONNECTIONS IN PULL BOXES WILL BE MADE USING SUBMERSIBLE SECONDARY CONNECTORS MEETING ANSI C119.1.
3. AN EQUIPMENT GROUNDING CONDUCTOR SHALL BE BONDED:
   (A) TO ALL POLES OR TRANSFORMER BREAKAWAY BASES.
   (B) AT ALL CONTROL CENTER SERVICE LOCATIONS.
   (C) TO ALL METALLIC NONCURRENT CARRYING COMPONENTS.
   (D) TO ALL GROUND RODS.
4. CONDUIT SHALL BE INSTALLED IN ACCORDANCE WITH SECTION 405 OF THE "1997 ENGLISH EDITION OF THE STANDARD SPECIFICATIONS"
5. ALL METALLIC AND NONMETALLIC CONDUIT SHALL BEAR THE U.L. LABEL.
6. UNLESS INDICATED OTHERWISE IN THE PLANS:
   (A) ALL CONDUIT SHALL BE 2".
   (B) CONDUIT PLACED IN TRENCH OR UNDER THE ROADWAY SHALL BE NONMETALLIC AND OF THE FOLLOWING TYPES AS DEFINED IN THE SPECIFICATIONS: PVC, FRE, OR CID.
   (C) NONMETALLIC CONDUIT SURFACED MOUNTED ON STRUCTURES OR USED AS RISERS SHALL BE SCHEDULE 80 PVC.
   (D) METALLIC CONDUIT WHEN USED SHALL BE TYPE GRS OR IMC.
   (E) GALVANIZED INTERMEDIATE METAL CONDUIT (IMC) MAY BE USED IN LIEU OF GALVANIZED RIGID STEEL CONDUIT (GRS).
   (F) CONDUIT PLACED IN GROUND SHALL HAVE A MINIMUM EARTH COVER OF 30" UNLESS INDICATED OTHERWISE.
7. CONDUIT UNDER ROADWAY SHALL BE MEASURED FOR PAYMENT AS EXTENDING 1 FT. BEYOND THE EDGE OF THE ROADWAY SURFACE (INCLUDING SURFACED SHOULDERS).
8. JACKED CONDUIT MAY BE EITHER METALLIC OR NONMETALLIC.
9. ROUTING OF CONDUIT AND CABLE MAY BE ALTERED BY THE PROJECT ENGINEER, IF NECESSARY, TO SUIT FIELD CONDITIONS.
10. INSTALL SPARE BENDS AS SHOWN ON PLANS. SPARE BENDS MUST BE SECURELY CAPPED OR PLUGGED AT BOTH ENDS WITH FITTINGS OF THE CORRECT SIZE AND TYPE FOR THE CONDUIT BEING USED.
11. STREET LIGHTING SYSTEM MUST MEET PROJECT ENGINEERS FINAL INSPECTION. ROADWAY LIGHTING SYSTEMS ARE NOT SUBJECT TO STATE OR LOCAL ELECTRICAL INSPECTION. ELECTRICAL WORK PERFORMED ON REST AREAS OR WEIGH STATIONS WILL REQUIRE AN ELECTRICAL PERMIT AND WILL BE SUBJECT TO A FINAL INSPECTION.
12. CONTACT UTILITY 48 HOURS PRIOR TO REQUIRING SERVICE CONNECTION OR DISCONNECT.
13. GROUNDING CONNECTIONS IN PULL BOXES AND JUNCTION BOXES SHALL BE MADE USING MECHANICAL CONNECTORS SPECIFICALLY DESIGNED FOR THE PURPOSE.

PULL BOX SCHEDULE

UNIT NO.	STATION	REMARKS	TYPE
1	612+50, 27' RT.	LOOP 2	PB-5
2	301+50, 37' RT.	RAMP 3	PB-6
3	409+90, 30' RT.	RAMP 4	PB-6
4	406+90, 30' LT.	RAMP 4	PB-6
5	525+20, 30' RT.	LOOP 1	PB-6
6	522+00, 75' RT.	LOOP 1	PB-6
7	519+30, 70' RT.	LOOP 1	PB-6
8	102+30, 32' RT.	RAMP 1	PB-6
9	506+50, 27' RT.	LOOP 1	PB-5

NOTE: NEW PULL BOXES 1, 7 AND 9 ALONG WITH EXISTING OPEN BOTTOM PULL BOX EPB-4 WILL PROVIDE ELECTRICAL POWER TO SIGN LIGHTS.

SCHEDULE OF WIRING MATERIALS

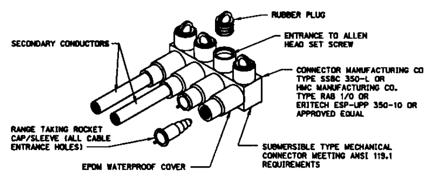
WIRE & CABLE

THE ELECTRICAL, MECHANICAL AND PHYSICAL PROPERTIES OF THE CONDUCTORS LISTED IN THE FOLLOWING SCHEDULE ESTABLISH THE MINIMUM ACCEPTABLE REQUIREMENTS FOR EACH OF THE LISTED APPLICATIONS. CONDUCTORS WHICH HAVE PROPERTIES THAT EXCEED THESE MINIMUM REQUIREMENTS MAY BE FURNISHED, AT THE CONTRACTORS OPTION, WITH THE ENGINEERS' APPROVAL. NO ADJUSTMENT IN THE CONTRACT PRICE WILL BE ALLOWED.

UNLESS INDICATED OTHERWISE ALL CONDUCTORS SHALL BE SINGLE CONDUCTOR, STRANDED COPPER U.L. LISTED, 600V. WITH SIZE OF CONDUCTOR AND TYPE AND COLOR OF INSULATION AS LISTED BELOW.

ONE PHASE CONDUCTOR MUST, AT THE TIME OF INSTALLATION, BE PERMANENTLY IDENTIFIED AS THE LINE 2 (RED) CONDUCTOR AT EACH END AND AT EVERY POINT WHERE THE CONDUCTOR IS ACCESSIBLE. IDENTIFICATION WILL BE ACCOMPLISHED BY (A) COLORING THE EXPOSED INSULATION RED (B) MARKING THE EXPOSED INSULATION WITH RED TAPE.

EQUIPMENT GROUND:	BARE OR INSULATED, NO. 6 AWG
BRANCH CIRCUIT FEEDERS, INCLUDING NEUTRALS:	USE OR XHHW (IN CONDUIT) NO. 2 AWG
COLOR CODES:	"NEUTRAL" - WHITE OR GREY; "INSULATED EQUIPMENT GROUND" - GREEN. "LINE 1" - BLACK "LINE 2" - RED



URD CONNECTOR IN PULL BOX

LIGHTING