North Dakota Department of Transportation

608 East Boulevard Avenue • Bismarck, ND 58505-0700

George A. Sinner, Governor
Richard J. Backes, Director

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FILE CODE	2		
1-Div	2-Prel	3-Cty	4-Hwy
ORIGIN		DATE	
ITEM	#	Plan Revision	

February 6, 1991

Northern Improvement Co.
P.O. Box 1254
Bismarck, ND 58501

PLAN REVISION PROJECT NO. F-RRS-1-006(005)066

Enclosed are three copies of the plan revision for the subject project. This provision provides for the following:

1. The necessary controller equipment to provide for future communications as requested by Al Covlin.
2. Moved meter trim from wood pole to pad mounted feed point cabinet.
3. Moving the feed point at 10th Avenue Southwest and 3rd Street Southwest from the southwest corner at the intersection to the northeast corner of the intersection as requested by the project engineer.
4. Moving the Heart River Bridge mounted conduit from the east side of the bridge to the west side of the bridge as requested by Adrian Feser and the contractor. The additional conduit and conductor required for this item shall be at the contractor's expense.

* Sheet 9: Added note 772/P05 and 772/P06. Communication equipment and installation.

Sheet 85: Added 1" diameter conduit from station 736+00-36' Rt. to station 736+00-44' Rt.

Sheet 86: Added 1" diameter conduit from station 735+00-36' Rt. to station 737+45-46' Rt.

Sheet 103: Added meter trim to pad mounted cabinet.

Sheet 105: Removed meter trim from wood pole at station 740+40-68' Rt.

Sheet 109: Revised conductor and conduit runs to light standard #9.

Sheet 110: Revised quantities as follows:

Cable Trench Type 1 - decrease 81 LF.

Underground conductor No. 6 Type RHW - decrease 70 LF.

Underground conductor No. 6 Type THW - decrease 35 LF.

2 inch diameter rigid conduit - increase 56 LF.

Sheet 123: Moved feed point from station 22+91-38' Rt. to station 22+22-40' Lt. and revised conduit and conductor runs.

Sheet 124: Revised quantities as follows:

Underground Conductor No. 2 Type RHW - increase 24 LF.

Cable Trench - Type 1 - decrease 84 LF.

Underground Conductor No. 6 Type RHW - decrease 318 LF.

Underground Conductor No. 6 Type THW - decrease 147 LF.

Underground Conductor No. 8 RHW - decrease 27 LF.

2 inch Diameter Rigid Conduit - increase 85 LF.

Sheet 143: Revised feed point details.

Sheet 145: Revised Lighting Schematics from light standard 11 to 8.

The following plan sheets are being revised at the contractor's request. These revisions shall be at the contractor's own expense:

Sheet 139: Moved conduit and conductor from the east side of the bridge to the west side of the bridge.

Sheet 140: The following revisions:

Cable Trench - Type 1 - decrease 53 LF.

Underground Conductor No. 6 Type RHW - increase 218 LF.

Underground Conductor No. 6 Type THW - increase 109 LF.

2 inch Diameter Rigid Conduit - Bridge Mounted - increase 161 LF.

* To be negotiated with the contractor.

Please submit quotes to the Bismarck District.

If you have any questions please contact the Bismarck District.

Charles Dukart

CHARLES DUKART - CONSTRUCTION DIVISION

lmf
cc: Planning
Construction
Bismarck District
Engineer
City of Mandan
Project file

PLAN and/or CONTRACT REVISION

FILE CODE: 2

1-Orig 2-Proj 3-Corr 4-Hwy

ORIGIN | DATE

ITEM | " | Plan Revision

PROJECT NO.: F-RRS-1-006(005)066

COUNTY: Morton

CONTRACTOR: Northern Improvement

DATE: January 18, 1991

Description of Revision: This revision provides for the following:

1. The necessary controller equipment to provide for future communications as requested by Al Covlin.

2. Moved meter trim from wood pole to pad mounted feed point cabinet.

3. Moving the feed point at 10th Avenue Southwest and 3rd Street Southwest from the southwest corner at the intersection to the northeast corner of the intersection as requested by the project engineer.

4. Moving the Heart River Bridge mounted conduit from the east side of the bridge to the west side of the bridge as requested by Adrian Fesser and the contractor. The additional conduit and conductor required for this item shall be at the contractor's expense.

SEE ATTACHED SHEET

RECEIVED FEB 5 1991 GRANTS ADMIN.

Estimated Cost: [X] Increase [ ] Decrease $ 1,154.05

Proposed Method of Payment:

[X] Unit Bid Prices [ ] Force Account [X] Negotiated Price

[ ] Lump Sum [ ] Other

From: [signature] Asst Design Engr Date: 1-22-91

FHWA Approval:

Signature: Lee A. Potter Date: 2-4-91

Form 5-5-1

* Sheet 9: Added note 772/P05 and 772/P06. Estimated cost of communication equipment and installation = $1,200.00.

Sheet 85: Added 1" diameter conduit from station 736+00-36' Rt. to station 736+00-44' Rt.

Sheet 86: Added 1" diameter conduit from station 736+00-36' Rt. to station 737+45-46' Rt.

Sheet 103: Added meter trim to pad mounted cabinet.

Sheet 105: Removed meter trim from wood pole at station 740+40-68' Rt.

Sheet 109: Revised conductor and conduit runs to light standard #9.

Sheet 110: Revised quantities as follows:

Cable Trench Type 1 - decrease 81 LF - estimated cost 81 x $0.82 = $66.42.
Underground conductor No. 6 Type RHW - decrease 70 LF - estimated cost 70 x $0.33 = $23.10.
Underground conductor No. 6 Type THW - decrease 35 LF - estimated cost 35 x $0.31 = $10.85.
2 inch diameter rigid conduit - increase 56 LF - estimated cost 56 x $1.84 = $103.04.

Sheet 123: Moved feed point from station 22+91-38' Rt. to station 22+22-40' Lt. and revised conduit and conductor runs.

Sheet 124: Revised quantities as follows:

Underground Conductor No. 2 Type RHW - increase 24 LF - eastimated cost 24 x $0.73 = $17.52.
Cable Trench - Type 1 - decrease 84 LF - estimated cost 84 x $0.82 = $19.68.
Underground Cond uctor No. 6 Type RHW - decrease 318 LF - estimated cost 318 x $0.47 = $149.46.
Underground Conductor No. 6 Type THW - decrease 147 LF - estimated cost 147 x $0.31 = $45.57.
Underground Conductor No. 8 RHW - decrease 27 LF - estimated cost 27 x $0.29 = $7.83.
2 Inch Diameter Rigid Conduit - increase 85 LF - estimated cost 85 x $1.84 = $156.40.

Sheet 143: Revised feed point details.

Sheet 145: Revised Lighting Schematics from light standard 11 to 8.

The following plan sheets are being revised at the contractor's request. These revisions shall be at the contractor's own expense:

Sheet 139: Moved conduit and conductor from the east side of the bridge to the west side of the bridge.

Sheet 140: The following revisions:

Cable Trench - Type 1 - decrease 53 LF - estimated cost 53 x $0.82 = $43.46.
Underground Conductor No. 6 Type RHW - increase 218 LF - estimated cost 218 x $0.33 = $71.94.
Underground Conductor No. 6 Type THW - increase 109 LF - 109 LF - estimated cost 109 x $0.31 = $33.79.
2 Inch Diameter Rigid Conduit - Bridge Mounted - increase 161 LF - estimated cost 161 x $6.27 = $1,009.47.

* To be negotiated with the contractor.

FHWA REGION	STATE	FED. AID PROJ NO.	SHEET NO
8	N.D.	F-RRS-1-006(005)066	2

TABLE OF CONTENTS

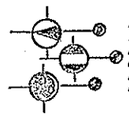
(1) Sheets Revised 1-18-91

9, 85, 86, 103, 105, 109, 110, 123, 124, 139, 140, 143, and 145

5

GENERAL NOTES

770 P08 LEGEND--LIGHTING:



100-watt sodium vapor luminaire
200-watt sodium vapor luminaire
250-watt sodium vapor luminaire

770 P09 REMOVE WOOD POLE LIGHT STANDARDS: The contractor shall remove the existing light standards as shown on the plans. The contractor shall arrange to have power disconnected at the feed point. The light standard shall have the circuits disconnected and the luminaire and mast arm removed. The underground conductors are deemed not salvageable and may be abandoned. The removed light standard luminaires and mast arms shall become the property of the city and shall be delivered to the city maintenance yard. The cost of equipment, labor, and delivering the removed equipment shall be incidental to price bid for "Remove Wood Pole Light Standards."

770 P10 MAIN STREET WOOD POLE LIGHTING SYSTEM: The contractor shall not remove the wood pole light system along Main Street until the new lighting system is installed and operational.

770 P11 TEMPORARY LIGHTING SYSTEM: The contractor shall install the temporary lighting system from Third Street to Seventh Street prior to diversion of traffic to the east half of the roadway. The wood pole system shall be de-energized at the feed point and the conductors installed, the wood pole and luminaire relocated and the wire spliced to provide continuity. The lighting system shall be re-energized at the end of each days work and shall be entirely operational. The cost of materials, equipment, and labor shall be included in the price bid for "Temporary Lighting System."

770 P12 The contractor shall install the permanent lighting on the west side of the roadway prior to moving traffic to the west half of the roadway. This circuit of the lighting shall be energized.

772 006 SIGNAL TESTING AND INITIAL OPERATION: The signal head shall be hooded with a material that will allow the signal heads, when lighted, to be seen dimly by personnel testing the signals. The hood shall remain in place until the signal is authorized to be operated.

772 100 PAINT: The traffic signal system components shall be painted in accordance with the following:

Transformer base - green
Mast arm - green
Signal head mounting hardware - yellow
Shaft - green
Signal housing - yellow
Pedestrian pushbutton post - yellow
(1) Pedestrian pushbutton housing - yellow

(1) 772 P05 CONTROLLER MONITORING UNIT AND/OR COMMUNICATION MODULE: The volume density controller shall be provided with a communication hookup which provides a duplex data link with a central control computer. The communications hookup shall be IBM PC compatible.

A controller monitoring unit and/or communication module shall be installed in the controller. The monitor unit shall be installed and connected to the controller and conflict monitor so as to monitor conflict monitor flash, pre-emption status, cabinet door open, phase on and status bits required for central control intersection display, and detector diagnostics. The unit shall be capable of providing a traffic map and of uploading and down loading information into the controller from a PC, central control computer or a laptop in the field, or a telephone line.

The controller monitoring unit and/or communications module shall be capable of initiating contact by dial-up telephone line, either directly from a PC, central control computer or a laptop, or through a system master controller with a PC central control computer to report failure conditions when they occur with computer in the monitor mode. Other events shall be logged and reported at preset intervals or on command from a central control computer or laptop computer.

The controller monitoring unit and/or communications module shall be capable of operating at an isolated intersection with an interconnect cable or a telephone link to a central control computer or a laptop computer. In the future, the unit shall be able to be operated through a systems master controller by interconnect cable or telephone link from a central control computer.

The cost of furnishing and installing the communications module and/or the controller monitoring unit shall not be bid separately, but shall be included in the price bid for the volume density controller.

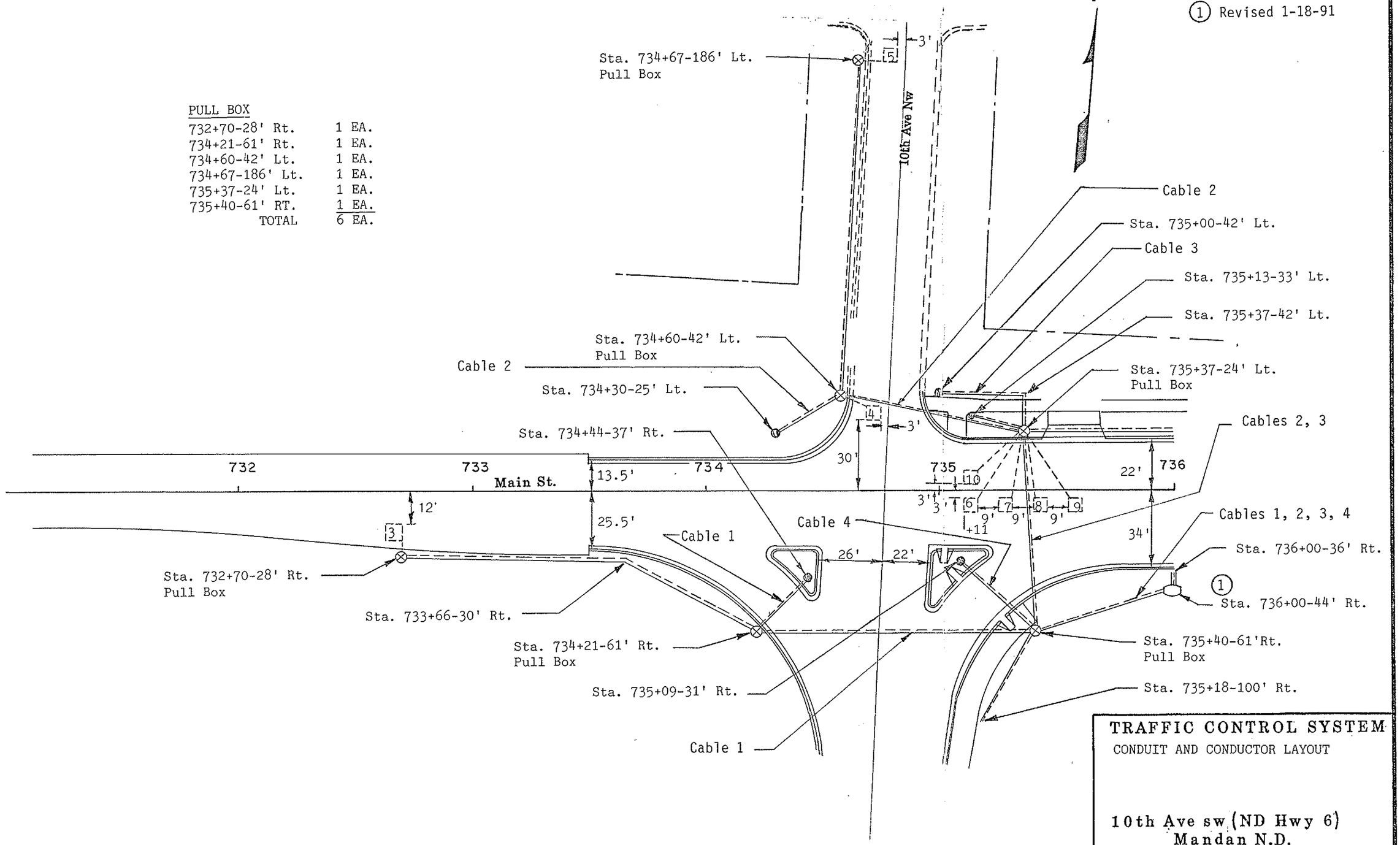
(1) 772 P06 COMMUNICATIONS INTERFACE: The volume density controllers shall be capable of communications with a central control computer by telephone line. All necessary modems, interface units, and etc. required, shall not be bid separately but shall be included in the price bid for the Volume Density Controller.

FHWA REGION	STATE	FED. AID PROJ. NO.	SHEET NO.
8	N.D.	RRS-1-006(005)066	85

(1) Revised 1-18-91

PULL BOX

732+70-28' Rt.	1 EA.
734+21-61' Rt.	1 EA.
734+60-42' Lt.	1 EA.
734+67-186' Lt.	1 EA.
735+37-24' Lt.	1 EA.
735+40-61' RT.	1 EA.
TOTAL	6 EA.



TRAFFIC CONTROL SYSTEM

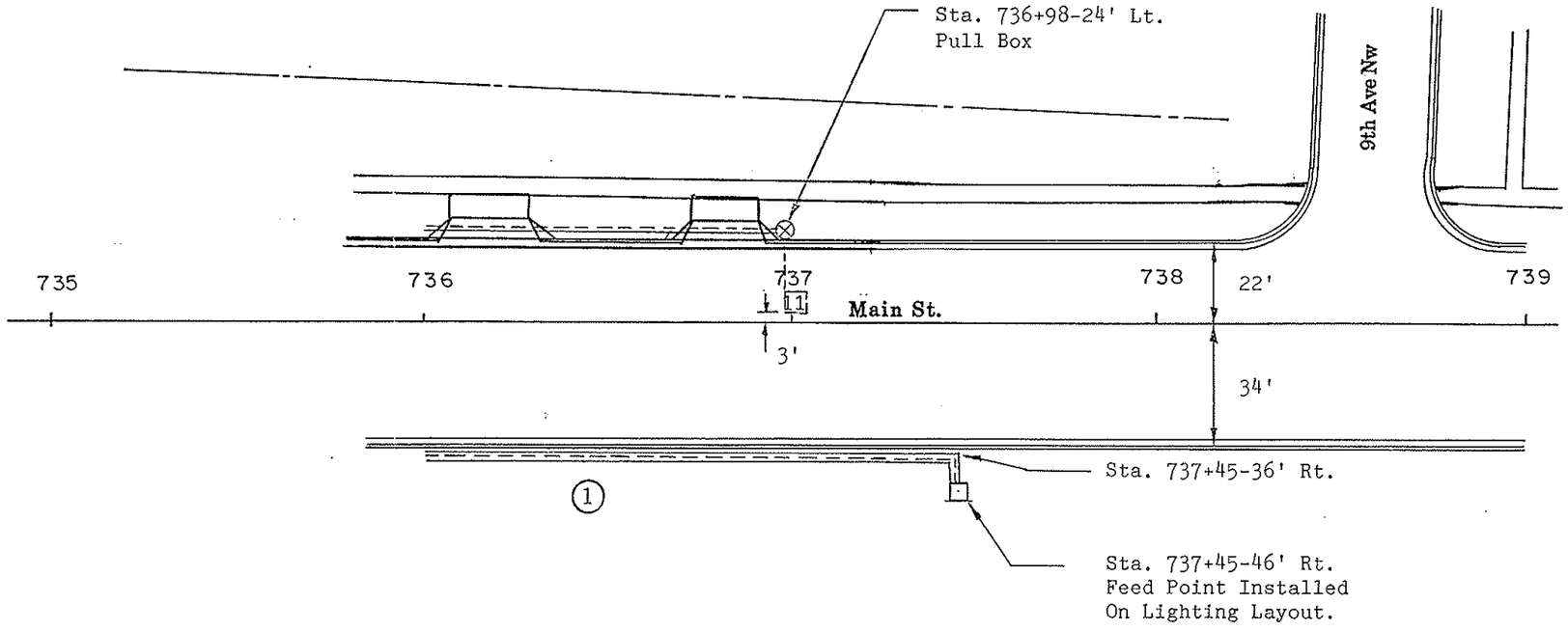
CONDUIT AND CONDUCTOR LAYOUT

10th Ave sw (ND Hwy 6)
Mandan N.D.

FHWA REGION	STATE	FED. AID PROJ. NO.	SHEET NO.
8	N.D.	RRS-1-006(005)066	86

(1) Revised 1-18-91

PULL BOX
736+98-24' Lt. 1 EA.



TRAFFIC CONTROL SYSTEM

CONDUIT AND CONDUCTOR LAYOUT

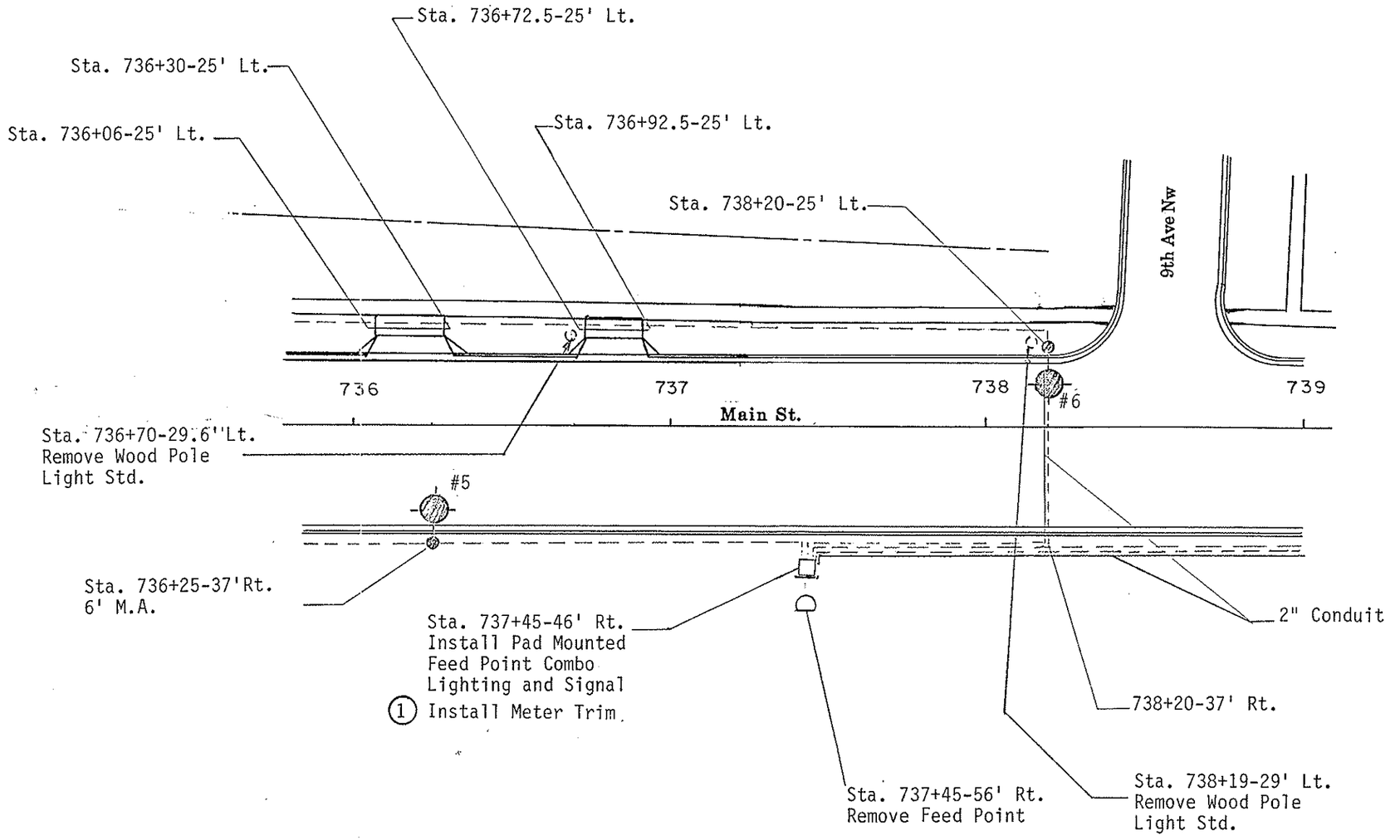
10th Ave. sw (ND Hwy. 6)
Mandan N.D.

FHWA REGION	STATE	FED. AID PROJ. NO.	SHEET NO.
8	N.D.	RRS-1-006(005)066	103

(1) Revised 1-18-91

Remove Wood Pole Light Std.

Sta. 736+70-29.6' Lt. 1 Ea.
Sta. 738+19-29' Lt. 1 Ea.



TRAFFIC CONTROL SYSTEM

Lighting Layout

Sta. 736+00 to 739+00

Main St.

10th Ave. sw (ND Hwy 6)
Mandan N.D.

FHWA REGION	STATE	FED. AID PROJ. NO.	SHEET NO.
8	N.D.	RRS-1-006(005)066	105

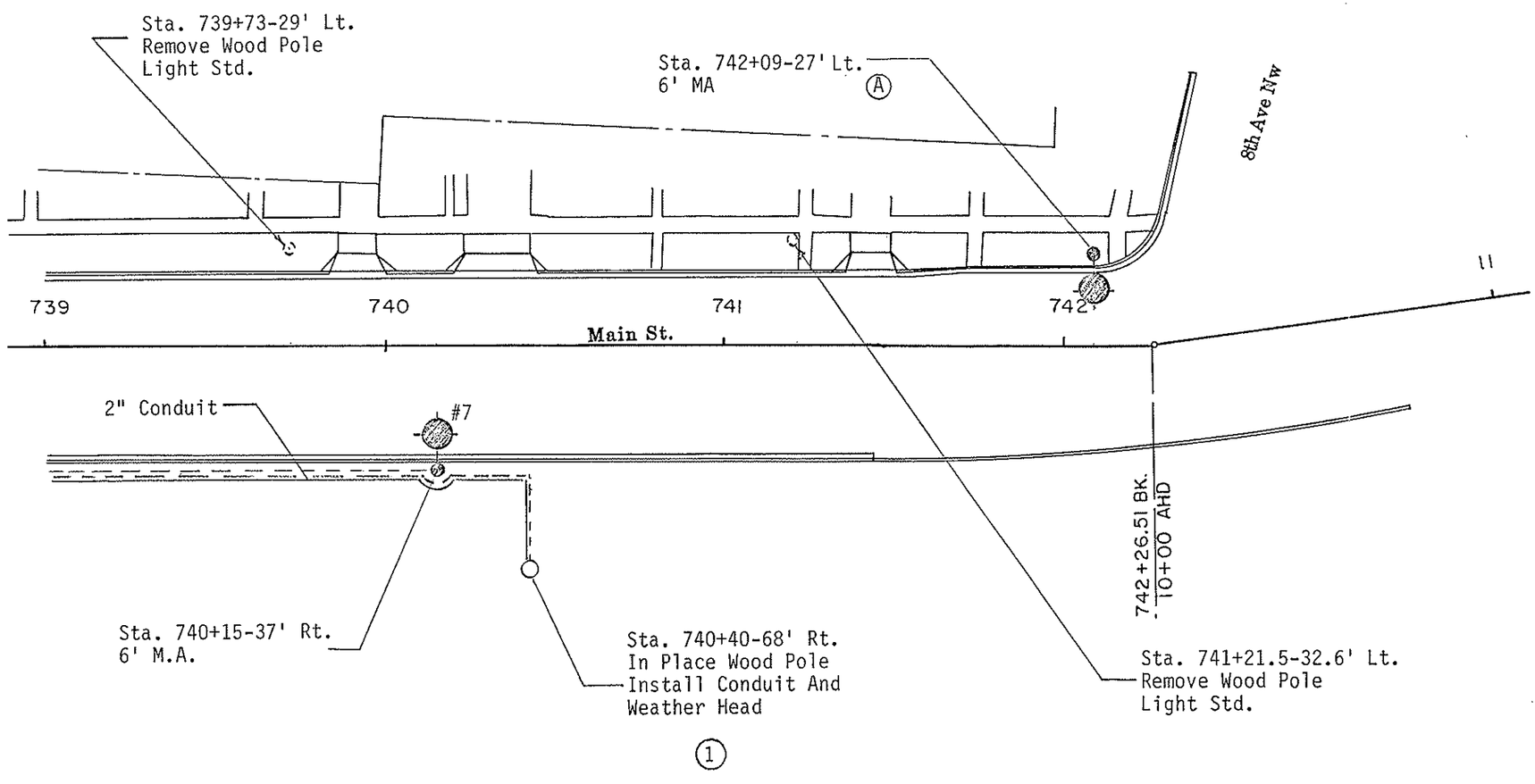
(1) Revised 1-18-91

Remove Wood Pole Light Std.

Sta. 739+73-29' Lt. 1 Ea.
Sta. 741+21.5-32.6' Lt. 1 Ea.

N

(A) The contractor shall locate the existing conductor and salvage sufficient wire to make the connection to provide continuity



(1)

TRAFFIC CONTROL SYSTEM

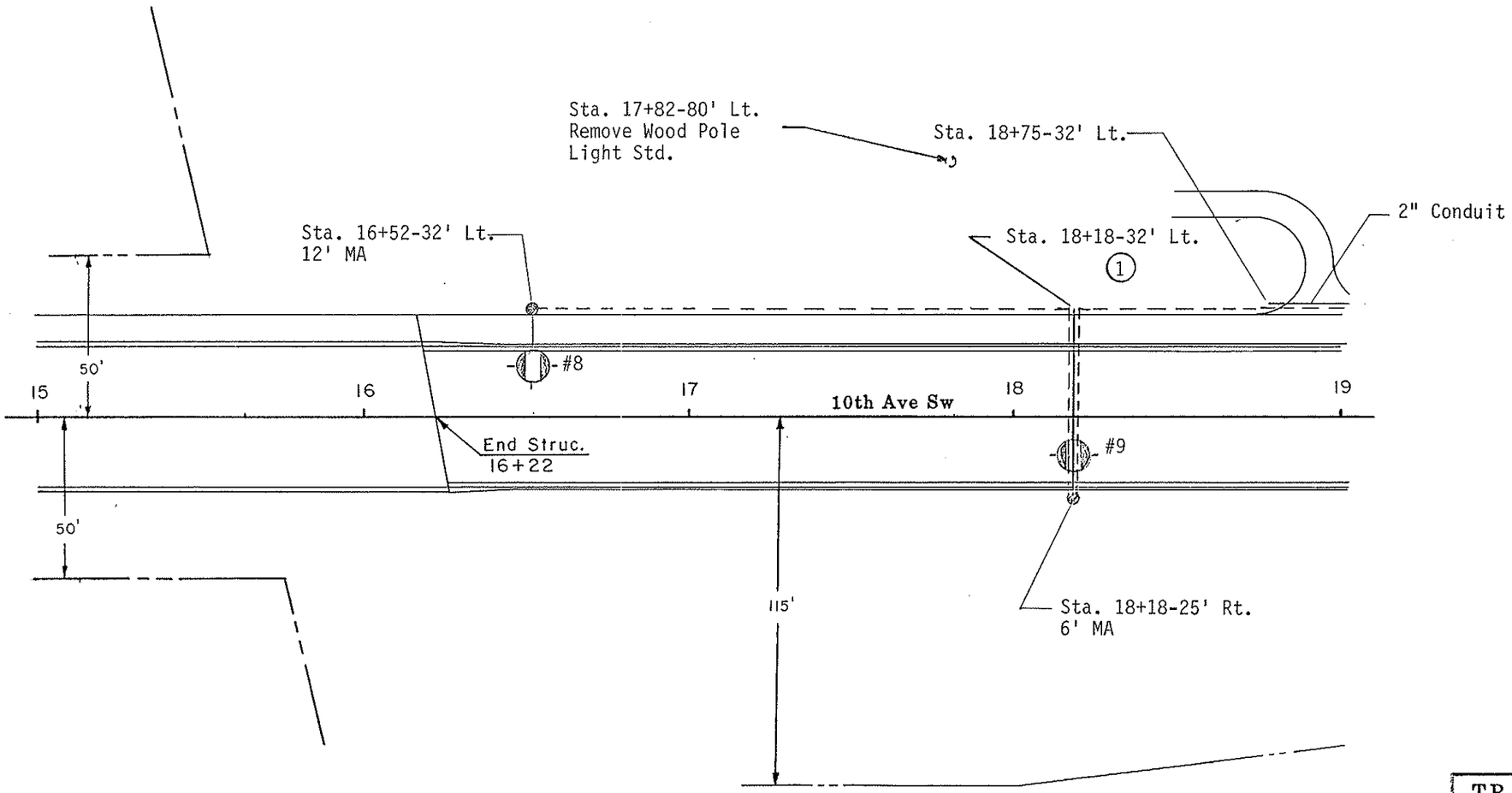
Lighting Layout
739+00 to 11+00
Main Av.
10th Ave sw (ND Hwy 6)
Mandan N.D.

FHWA REGION	STATE	FED. AID PROJ. NO.	SHEET NO.
8	N.D.	RRS-1-006(005)066	109

(1) Revised 1-18-91

Remove Wood Pole Light Std.

Sta. 17+82-80' Lt. 1 Ea.



TRAFFIC CONTROL SYSTEM

Lighting Layout

Sta. 15+00 to 19+00

10th Ave sw (ND Hwy 6)
Mandan N.D.

FHWA REGION	STATE	FED AID PROJ NO	SHEET NO
8	N.D.	RRS-1-006(005)066	110

(1) Revised 1-18-91

STATION	CONDUIT RUNS		CABLE TRENCH	CABLE RUNS	
	Length	Size	Length	Length	Type
Sta. 16+52-32.0' Lt. to 18+18-32.0' Lt.			165	340 170	2-No.6 RHW 1-No.6 THW
Sta. 18+18-32.0' lt. to 18+18-25.0' Rt.	56	2		114 57	4-No.6 RHW 2-No.6 THW
Sta. 18+18-25.0' Lt. to 18+75-25.0' Lt.			57	114 57	2-No.6 RHW 1 No.6 THW
Sta. 18+75-25.0' Lt. to 19+00-25.0' Lt.	25	2		50 25	2-No. 6 RHW 1 No. 6 THW

QUANTITIES									
Concrete Foundation Highway Lighting	Cable Trench Type I	Underground Conductor No.6 Type RHW	Underground Conductor No.6 Type THW	2 Inch Dia. Rigid Conduit	Light Standard 6 Ft. MA 40 Ft. Mt. Ht.	Light Standard 12 Ft. MA 40 Ft. Mt. Ht.	H.P. Sodium Vapor Luminaire 200 Watt	Remove Wood Pole Light Standard	
EA	LF	LF	LF	LF	EA	EA	EA	EA	
2	222	618	309	.81	1	1	2	1	
	(1)	(1)	(1)	(1)					

NO.	STATION	OFFSET	WATTAGE	CIRCUIT	IES-TYPE	POLE HT.
8	16+52	32' Lt.	200	B	MSC-III	40
9	18+18	25' Rt.	200	B	MSC-III	40

TRAFFIC CONTROL SYSTEM
Lighting Quantities
Sta. 15+00 - 19+00

10th Ave. S.W. (ND Hwy. 6)
Mandan, ND

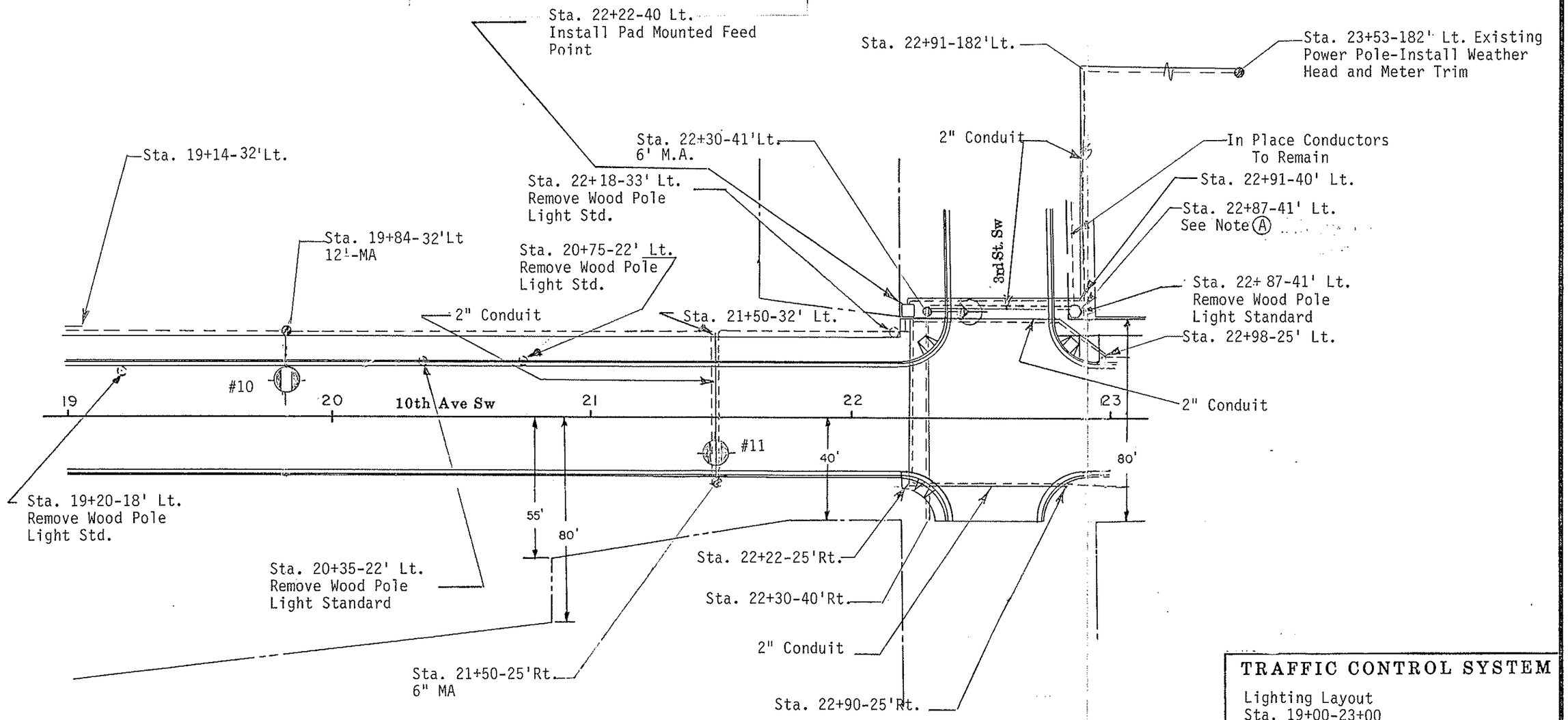
FHWA REGION	STATE	FED. AID PROJ. NO.	SHEET NO.
8	N.D.	RRS-1-0J6(005)066	123

(1) Revised 1-18-91

Remove Wood Pole Light Std.

Sta. 19+20-18'Lt.	1 EA
Sta. 20+35-22'Lt.	1 EA
Sta. 20+75-22'Lt.	1 EA
Sta. 22+18-33'Lt.	1 EA
Sta. 22+87-41'Lt.	1 EA

NOTE (A) The contractor shall locate and splice the inplace conductors to provide continuity. The splice shall be waterproof and approved by the Engineer. The contractor shall be responsible for any damage to the existing underground conductor and shall replace any damaged conductor at his own expense.



TRAFFIC CONTROL SYSTEM

Lighting Layout
Sta. 19+00-23+00

10th Ave sw (ND Hwy 6)
Mandan N.D.

FHWA REGION	STATE	FED AID PROJ NO	SHEET NO
8	N.D.	RSS-1-006(005)066	124

(1) Revised 1-18-91

STATION	CONDUIT RUNS Length	CONDUIT RUNS Size	CABLE TRENCH Length	CABLE RUNS Length	CABLE RUNS Type
Sta. 19+00-32.0' Lt. to 19+14-32.0' Lt.	14	2"		28 14	2-No. 6 RHW 1-No. 6 THW
Sta. 19+14-32.0' Lt. to 19+84-32.0' Lt.			69	154 77	2-No. 6 RHW 1-No. 6 THW
Sta. 19+84-32.0' Lt. to 21+50-32.0' Lt.			166	340 170	2-NO. 6 RHW 1-No. 6 THW
Sta. 21+50-32.0' Lt. to 21+50-25.0' Rt.	56'	2"		244 122	4-No. 6 RHW 2-No. 6 THW
Sta. 21+50-32.0' Lt. to 22+22-40.0' Lt.			79	180 90	2-No. 6 RHW 1-No. 6 THW
Sta. 22+22-40.0' Lt. to 22+22-25.0' Rt.	64'	2"		150 75	2-No. 6 RHW 1-No. 6 THW
Sta. 22+22-25.0' Rt. to 22+90-25.0' Rt	68'	2"		136 68	2-No. 6 RHW 1-No. 6 THW
Sta. 22+90-25.0' Rt. to 23+00-25.0' Rt.			10	20 10	2-No. 6 RHW 1-No. 6 THW
Sta. 23+53-182' Lt. to 22+91-182' Lt.	84	2"		261	3-No. 8 RHW (1)
Sta. 22+91-182' Lt. to 22+91-40.0' Lt. to 22+22-40.0' Lt.	210	2"		663	3-No. 8 RHW (1)
Sta. 22+22-40.0' Lt. to 23+00-25.0' Lt.	83	2"	2	188 94	2-No. 2 RHW 1-No. 6 THW
Sta. 22+30-40' Rt. to 22+30-41' Lt. to 22+87-41' Lt.	137	2"		306 153	2-No. 6 RHW 1-No. 6 THW

QUANTITIES

H.P. Sodium Vapor Luminaire 100 Watt	Light Standard 6 Ft. M.A. 30 Ft. Mt. Ht.	Underground Conductor No 2 Type RHW	Concrete Foundation Feed Point-Type B	Concrete Foundation Highway Lighting	Cable Trench Type I	Underground Conductor No. 6 Type RHW	Underground Conductor No. 6 Type THW	Underground Conductor No. 8 Type RHW	2 inch Dia. Rigid Conduit	Light Standard 6FT. M.A. 40 FT MT HT	Light Standard 12 FT. M.A. 40 FT MT HT	H.P. Soduim Vapor Luminaire 200 Watt	Remove Wood Pole Light Standards	Feed Point Type II Pad Mounted
EA	EA	LF	EA	EA	LF	LF	LF	LF	LF	EA	EA	EA	EA	EA
1	1	188 (1)	1	3	326 (1)	1558 (1)	873 (1)	924 (1)	716 (1)	1	1	2	5	1

NO.	STATION	OFFSET	WATTAGE	CIRCUIT	IES-TYPE	POLE HT.
10	19+84	32' Lt.	200	B	MSC-III	40
11	21+50	25' Rt.	200	B	MSC-III	40
	22+30	41' Lt.	100		MSC-II	30

(1) Used for feeder wire for power supply to feed point cabinet

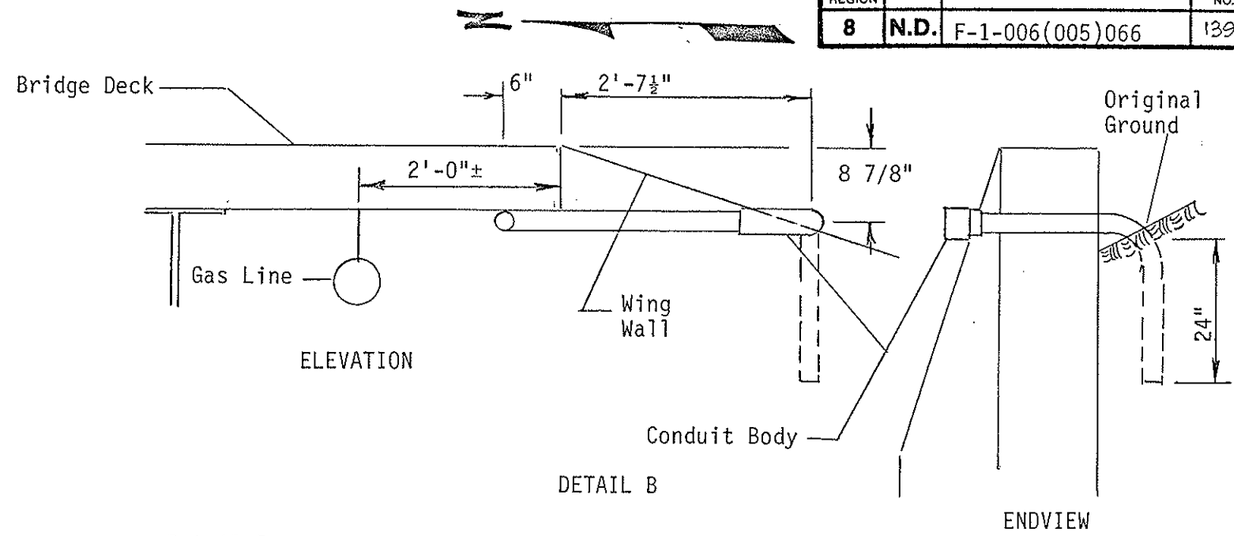
TRAFFIC CONTROL SYSTEM

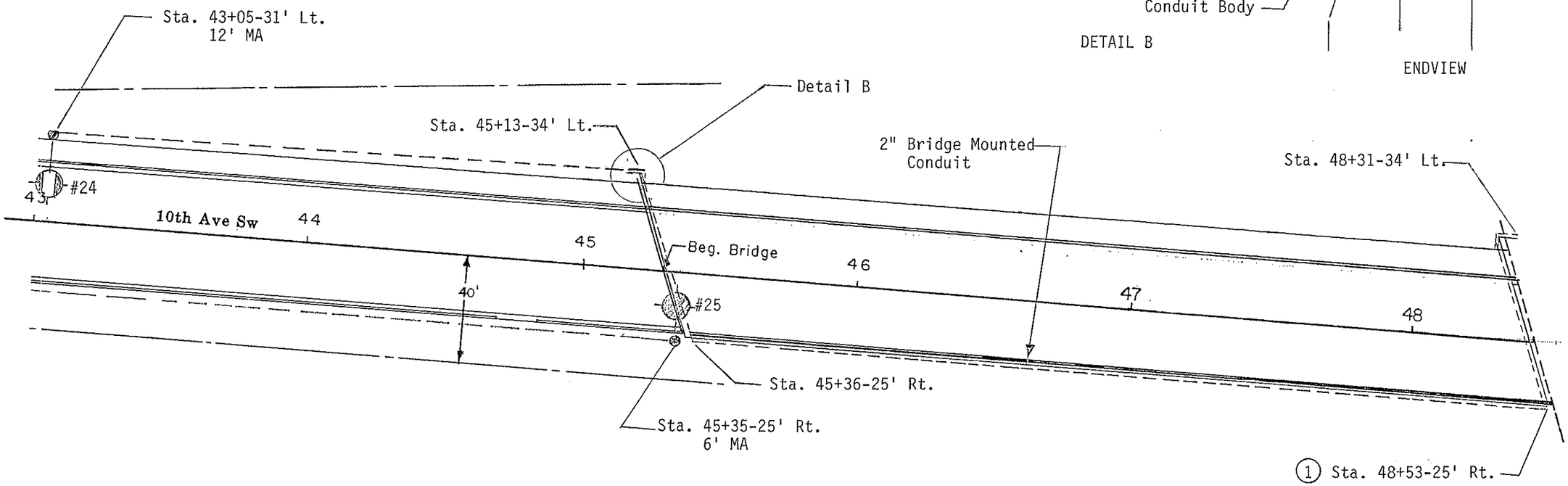
Lighting Quantites
Sta 19+00 to 23+00

10th Ave SW (ND Hwy 6)

Mandan, ND

FHWA REGION	STATE	FED. AID PROJ. NO.	SHEET NO.
8	N.D.	F-1-006(005)066	139





① Revised 1-18-91

TRAFFIC CONTROL SYSTEM

Lighting Layout

Sta. 43+00 - 48+31

10th Ave sw (N.D. Hwy.6)
Mandan N.D.

FHWA REGION	STATE	FED AID PROJ NO	SHEET NO
8	N.D.	F-1-006(005)066	140

(1) Revised 1-18-91

STATION	CONDUIT RUNS		CABLE TRENCH	CABLE RUNS	
	Length	Size	Length	Length	Type
Sta. 43+00-31.0' Lt. to 43+05-31.0' Lt.			4	24 12	2-No. 6 RHW 1-No. 6 THW
Sta. 43+05-31.0' Lt to 45+13-34.0' Lt			212	434 217	2-No. 6 RHW 1-No. 6 THW
Sta. 45+13-34.0' Lt to 45+42 - 25.0' Rt. to 48+53-25.0' Rt. to 48+31-34.0' Lt.	435 (2)	2"		870 435	2-No. 6 RHW 1-No. 6 THW
Sta. 43+00-25.0' Rt. to 45+35-25.0' Rt.			234	484 242	2-No. 6 RHW 1-No. 6 THW

QUANTITIES

Concrete Foundation Highway Lighting	Cable Trench Type I	Underground Conductor No. 6 Type RHW	Underground Conductor No. 6 Type THW	2 inch Dia. Rigid Conduit Bridge Mounted	Light Standard 12 FT M.A. 40 FT MT HT	Light Standard 6 FT M.A. 50 FT MT HT	H.P. Sodium Vapor Luminaire 200 WATT	H.P. Sodium Vapor Luminaire 250 WATT	
EA	LF	LF	LF	LF	EA	EA	EA	EA	
2	446 (1)	1812 (1)	906 (1)	435 (1)	1	1	1	1	

NO.	STATION	OFFSET	WATTAGE	CIRCUIT	IES-TYPE	POLE HT.
24	43+05	31' Lt.	200	C	MSC-III	40
25	45+35	25' Rt.	250	B	MSC-III	50

(2) This conduit is Bridge Mounted

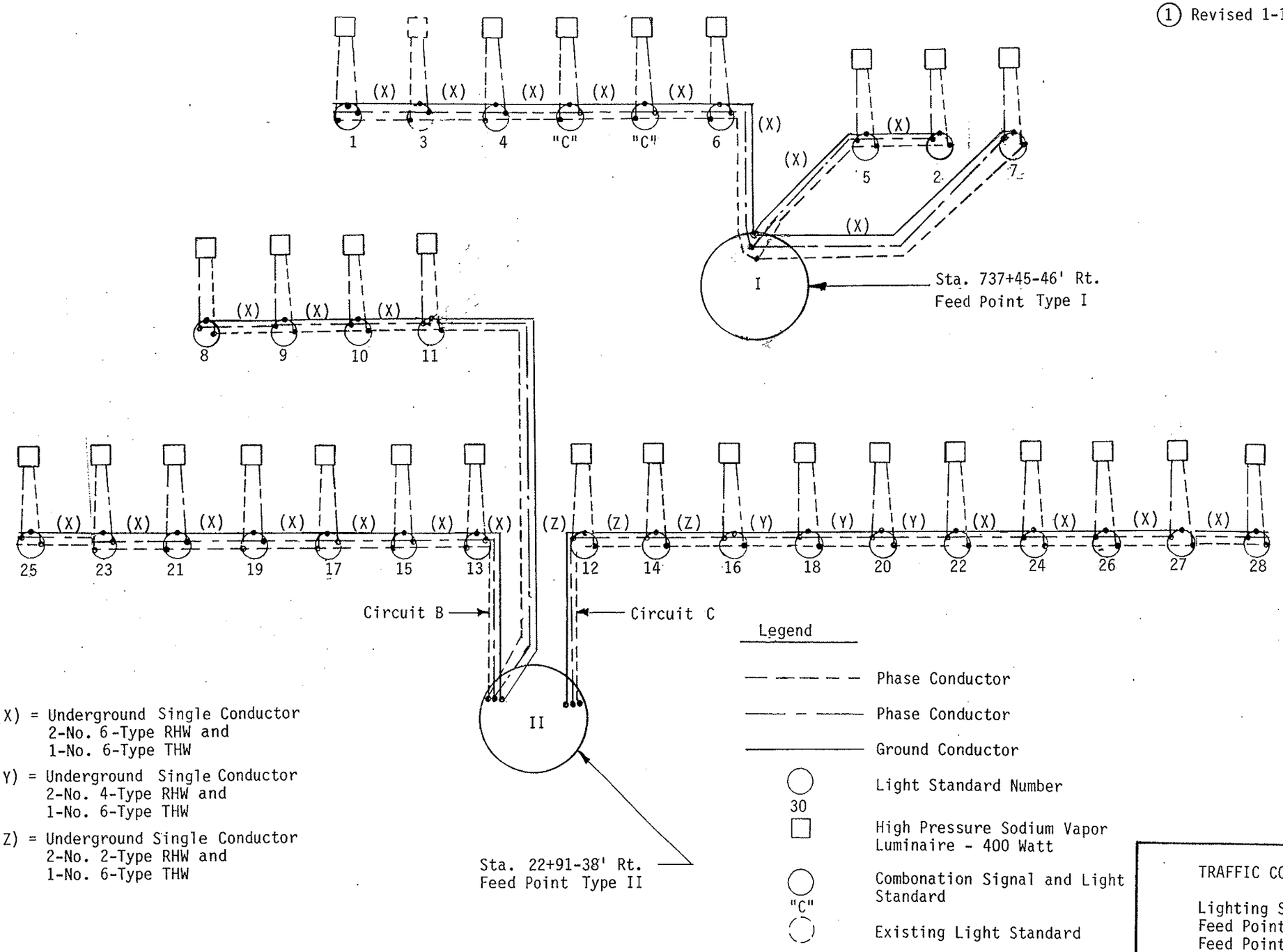
TRAFFIC CONTROL SYSTEM

Lighting Quantities
Sta. 43+00 - 48+31

10th Ave. S.W. (ND Hwy. 6)
Mandan, ND

FHWA REGION	STATE	FED AID PROJ NO	SHEET NO
8	N.D.	F-RRS-1-006(005)066	145

(1) Revised 1-18-91



(X) = Underground Single Conductor
2-No. 6-Type RHW and
1-No. 6-Type THW

(Y) = Underground Single Conductor
2-No. 4-Type RHW and
1-No. 6-Type THW

(Z) = Underground Single Conductor
2-No. 2-Type RHW and
1-No. 6-Type THW

Legend

- Phase Conductor
- Phase Conductor
- Ground Conductor
- 30 — Light Standard Number
- High Pressure Sodium Vapor Luminaire - 400 Watt
- "C" — Combonation Signal and Light Standard
- Existing Light Standard

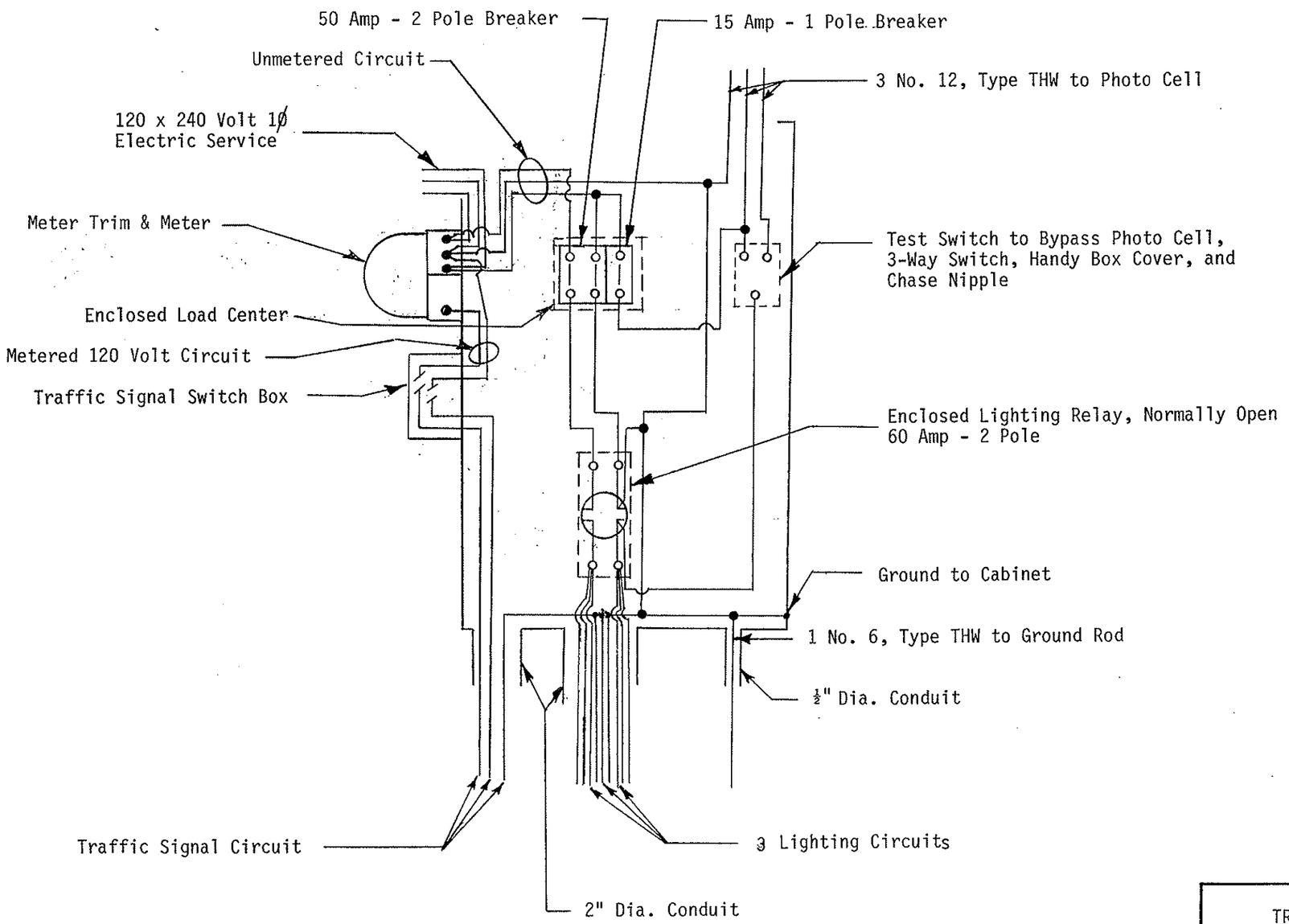
TRAFFIC CONTROL SYSTEM

Lighting System Schematic
Feed Point I and
Feed Point II

Main Street & 10th Ave. S.W.
(ND Hwy. #6)
Mandan, ND

FHWA REGION	STATE	FED. AID PROJ. NO.	SHEET NO.
8	N.D.	RRS-1-006(005)066	143

(1) Revised 1-18-91



TRAFFIC CONTROL SYSTEM

Combination Lighting & Signal
Pad Mtd. Feed Point Detail
Sta. 737+45-46' Rt.