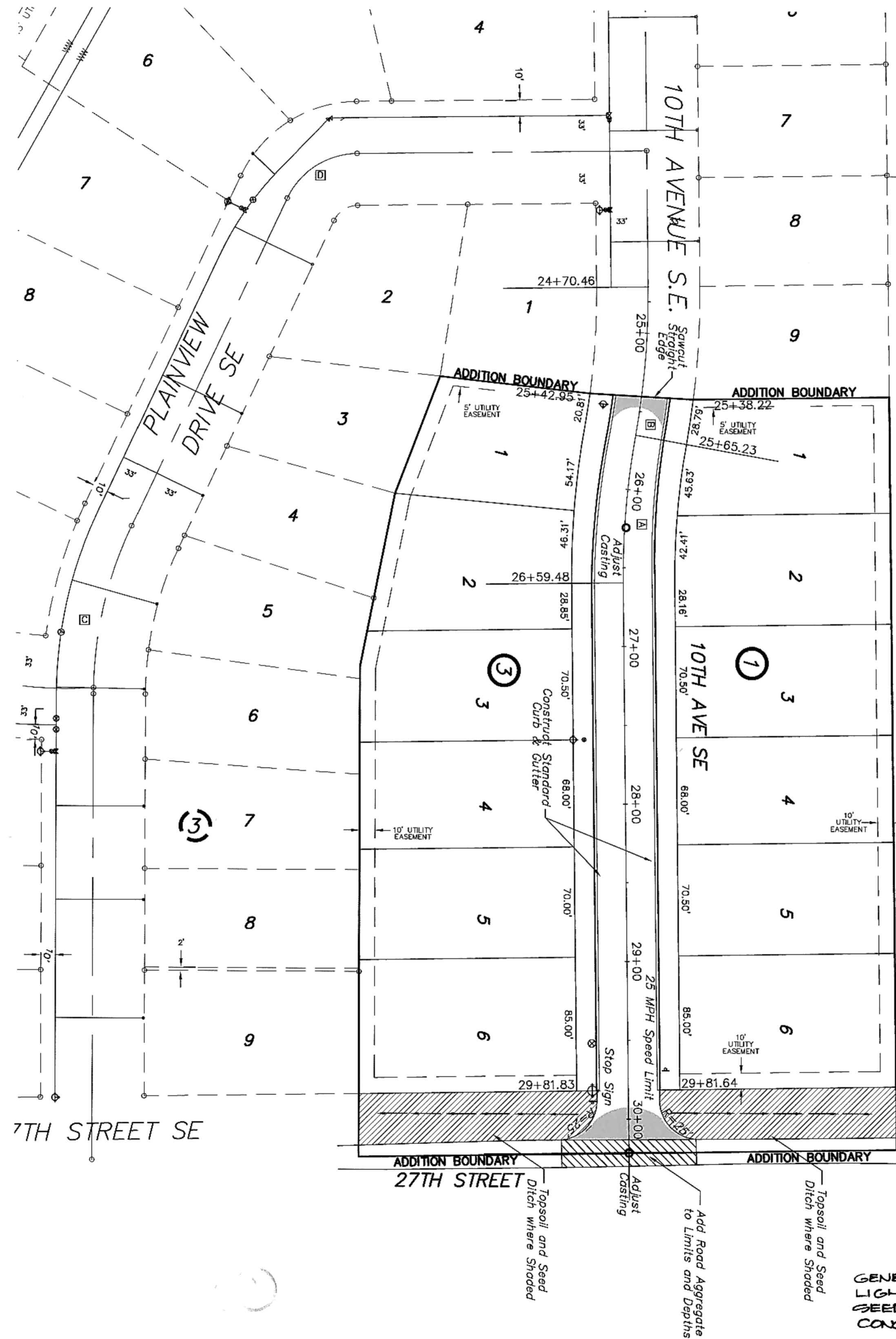


**CONSTRUCTION PLANS FOR
STREET AND LIGHTING
IMPROVEMENTS IN
PLAINVIEW HEIGHTS 8TH ADDITION
Mandan, North Dakota**



GENERAL CONTRACTOR: MARINER
LIGHTING SUBCONTRACTOR: STRATA
SEEDING " " : S+B
CONCRETE " " : ATLAS

ELECTRICAL ENGINEER'S CERTIFICATE
I, GREGORY R. DOCKTER, A REGISTERED PROFESSIONAL ENGINEER IN THE STATE OF NORTH DAKOTA, HEREBY CERTIFY THAT THE ELECTRICAL PLANS FOR STREET PAVEMENT AND LIGHTING IMPROVEMENT PROJECT 2003-12, MANDAN, NORTH DAKOTA WERE PREPARED UNDER MY SUPERVISION AND ARE COMPLETE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

GREGORY R. DOCKTER, P.E.
 REGISTERED PROFESSIONAL ENGINEER
 NORTH DAKOTA REGISTRATION NO. 2315

CIVIL ENGINEER'S CERTIFICATE
I, MARK S. SWENSON, A REGISTERED PROFESSIONAL ENGINEER IN THE STATE OF NORTH DAKOTA, HEREBY CERTIFY THAT THE CIVIL PLANS FOR STREET PAVEMENT AND LIGHTING IMPROVEMENT PROJECT 2003-12, MANDAN, NORTH DAKOTA WERE PREPARED UNDER MY SUPERVISION AND ARE COMPLETE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

MARK S. SWENSON, P.E.
 REGISTERED PROFESSIONAL ENGINEER
 NORTH DAKOTA REGISTRATION NO. 3624

APPROVAL OF CITY ENGINEER
I, THOMAS LITTLE, CITY ENGINEER FOR THE CITY OF MANDAN, NORTH DAKOTA, HEREBY APPROVE THESE PLANS FOR STREET PAVEMENT & LIGHTING IMPROVEMENT PROJECT 2003-12, MANDAN, NORTH DAKOTA AS SHOWN ON THE ACCOMPANYING PLANS.

THOMAS LITTLE, P.E.
 REGISTERED PROFESSIONAL ENGINEER
 CITY ENGINEER
 MANDAN, NORTH DAKOTA

OWNER

City of Mandan
205 2nd Avenue NW
Mandan, ND 58554

SHEET INDEX

TITLE PAGE	SHEET 1
CIVIL - TENTH AVE SE	SHEET 2
ELECTRICAL - 10TH AVE SE	SHEET 3
ELECTRICAL DETAILS	SHEET 4

WARRANTY / DISCLAIMER

The designs represented in these plans are in accordance with established practices of civil engineering. However, neither Swenson, Hagen & Co. nor its personnel can or do warranty these plans as constructed except in the specific cases where Swenson, Hagen & Co personnel inspect and control the physical construction on a full time basis.

SAFETY NOTICE TO CONTRACTOR

In accordance with generally accepted construction practices the Contractor will be solely and completely responsible for conditions of the job site, including safety of all persons and property during performance of the work. This requirement will apply continuously and not be limited to normal business hours.

UTILITY NOTICE TO CONTRACTOR

The location of existing underground utilities are shown in an approximate way only and have not been independently verified by the Owner or its representatives. The Contractor shall determine the exact location of all existing utilities before commencing work, and agrees to be fully responsible for any and all damages which might be occasioned by the Contractor's failure to exactly locate and preserve any and all underground utilities. Underground locates can be made by using the "One Call" number 1-800-795-0555.

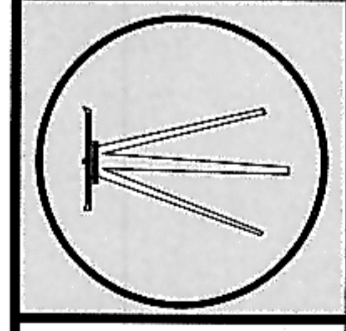
ASPHALT PVMT INSTALLED
SUMMER 2003. CHIP SEAL
INSTALLED JULY 2004.

SEEDING SUMMER AND
FALL OF 2004.

SCALE 1" = 50'
 Overall Schematic
 NOT FOR CONSTRUCTION

**STREET PAVEMENTS AND LIGHTING
PROJECT NO. 2003-12
DISTRICT 117 AREA F**

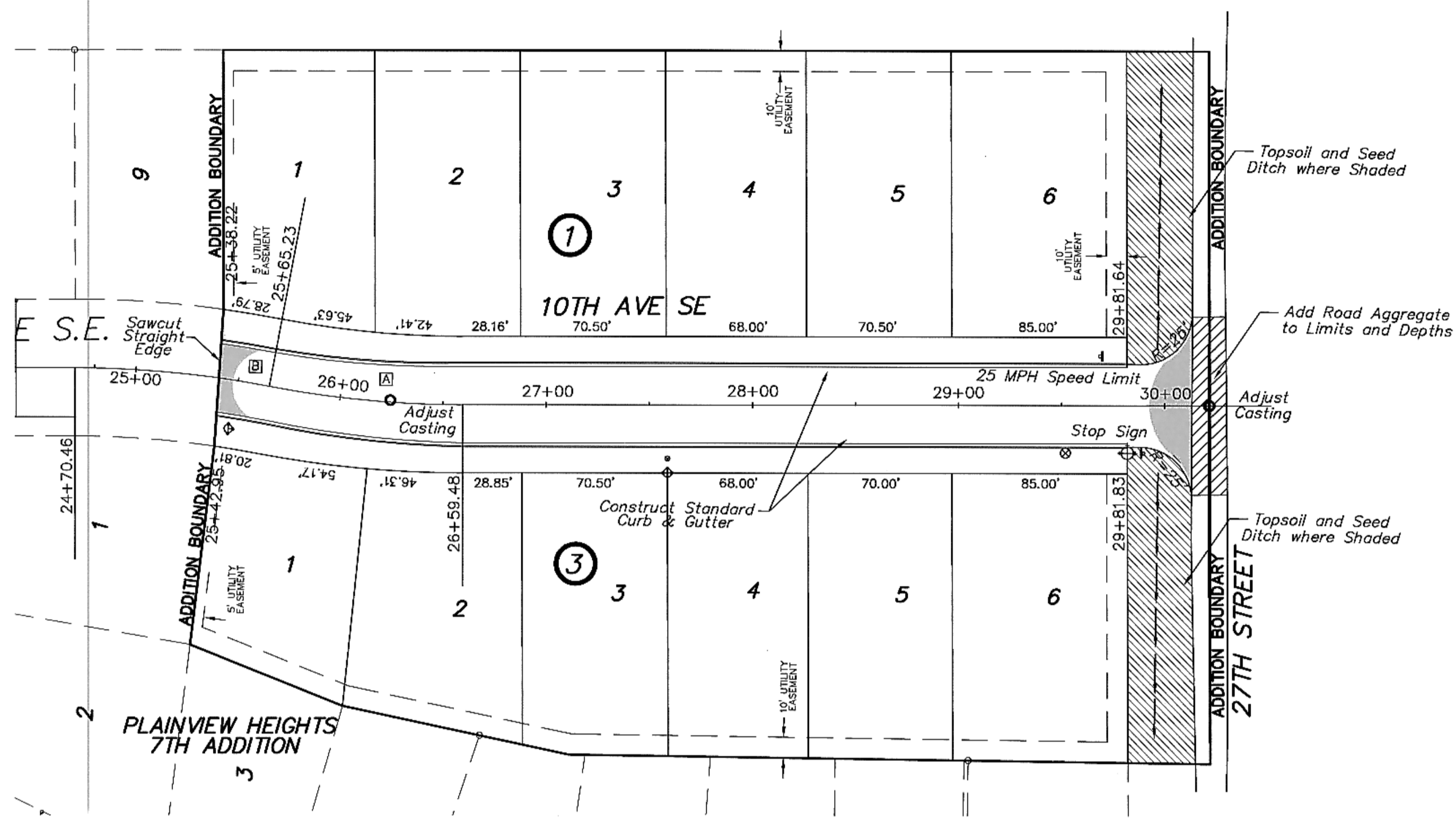
SWENSON, HAGEN & CO. P.C.
 PLANNING CIVIL ENGINEERING SURVEYING
 SITE DESIGN CONSTRUCTION MANAGEMENT
 909 BASIN AVE P.O. BOX 1196 (701) 283-2800
 BISMARCK, N.D. 58504 FAX (701) 283-2808



DRAWN BY: _____
 CHECK BY: MSS _____
 DATE: 5-9-03 _____
 FILE DESC: _____
 COMPUTER FILE: _____
 SURVEY FILE: _____

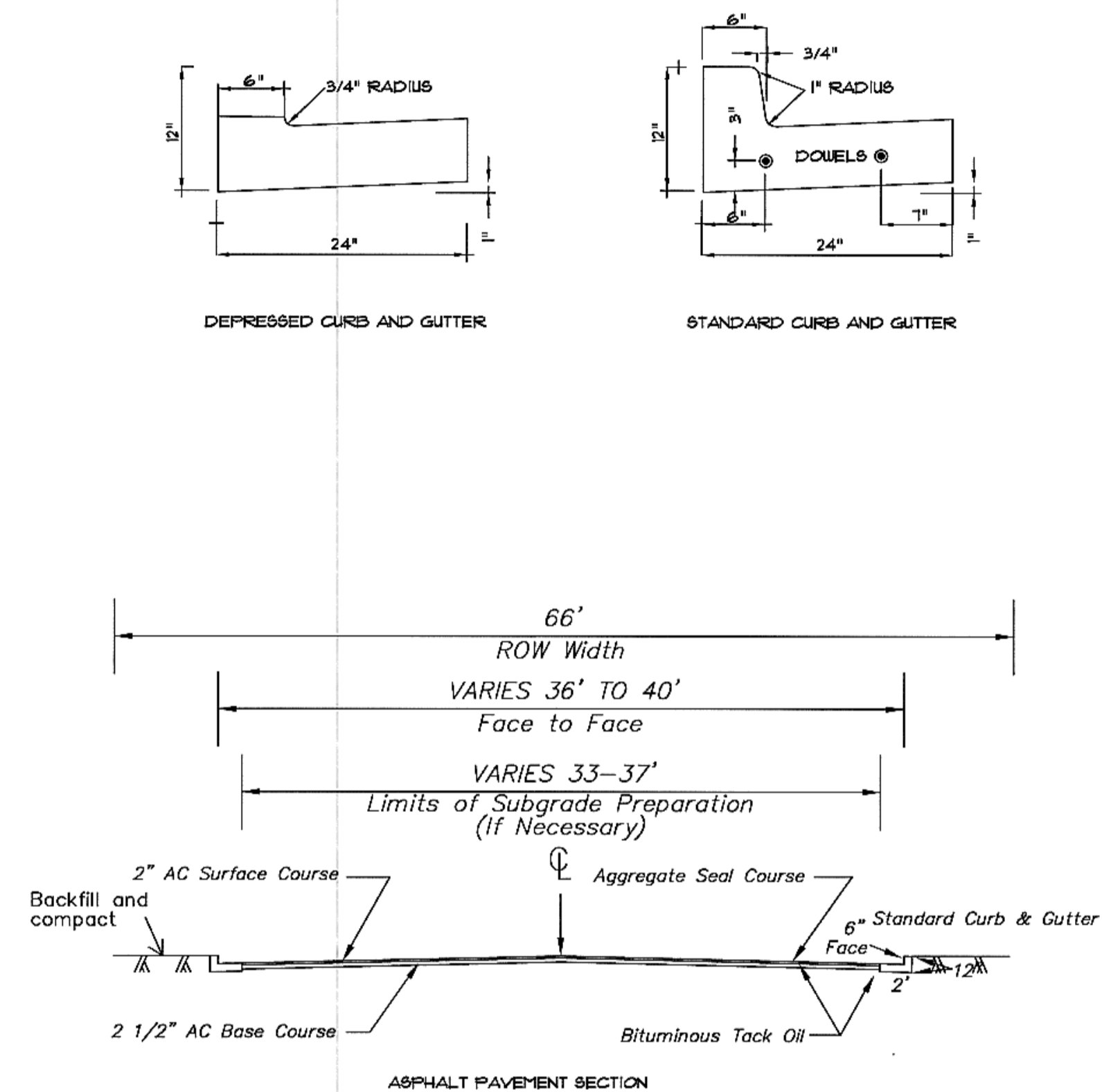
**SHEET
1 OF 4**

SCALE - 1"=50'



Sta. 25+41.64 Rt.
Begin Curb & Gutter
Sta. 25+39.29 Lt.
Begin Curb & Gutter

Sta. 29+81.83 Rt.
End Curb & Gutter
Sta. 29+81.64 Lt.
End Curb & Gutter



WARRANTY/ DISCLAIMER
The designs represented in these plans are in accordance with established practices of civil engineering. However, neither Swenson, Hagen & Co. nor its personnel can or do warranty these plans as constructed except in the specific cases where Swenson, Hagen & Co. personnel inspect and control the physical construction on a full time basis.

SAFETY NOTICE TO CONTRACTOR
In accordance with generally accepted construction practices the contractor will be solely and completely responsible for conditions of the job site, including safety of all persons and property during performance of the work. This requirement will apply continuously and not be limited to normal business hours.

NOTICE TO CONTRACTOR
The location of existing underground utilities are shown in an approximate way only and have not been independently verified by the owner or its representatives. The Contractor shall determine the exact location of all existing utilities before commencing work, and agrees to be fully responsible for any and all damages which might be occasioned by the Contractor's failure to exactly locate and preserve any and all underground utilities. Underground locations shall be requested by using the "One Call" number 1-800-795-0555.

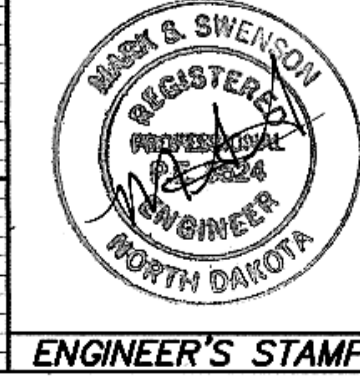
- CONSTRUCTION NOTES**
- FOR BIDDING, THE CONTRACTOR SHALL DETERMINE THE QUANTITY OF WORK ASSOCIATED WITH GRADING THE CURRENT ROUGH GRADE INTO THE PROPER FINISH SUBGRADE SHAPE. STAKES ON CENTERLINE WITH CUTS AND FILLS TO TOP OF CURB HAVE BEEN PLACED ON THE CENTERLINE TO ASSIST THE CONTRACTOR IN DETERMINING THE QUANTITY OF THE GRADING WORK.
 - GRADE SUBGRADE FOR CURB/GUTTER AND STREET CONSTRUCTION. ALL COSTS FOR GRADING SHALL BE CONSIDERED INCIDENTAL TO THE GRADING BID ITEM.
 - SUBGRADE PREPARATION SHALL ONLY BE PERFORMED IF DEEMED NECESSARY BY THE ENGINEER.
 - EXCESS SOILS EXCAVATED DURING THE GRADING STAGE SHALL BE EVENLY SPREAD IN THE RIGHT OF WAY BEHIND THE FUTURE CURB AND GUTTER. IF EXCESS SOILS REMAIN AFTER FILLING BEHIND THE CURB SOILS MAY BE EVENLY SPREAD ON THE LOTS WHERE DIRECTED BY THE ENGINEER.
 - CONSTRUCT CONCRETE ITEMS PER DETAILS ON THIS SHEET. AFTER THE CURB AND GUTTER HAS GAINED SUFFICIENT STRENGTH, SOILS SHALL BE BACKFILLED AGAINST THE CURB, ALL WORK INCLUDING BACKFILLING SHALL BE CONSIDERED INCIDENTAL TO THE STANDARD CURB AND GUTTER BID ITEM.
 - THE CONTRACTOR SHALL PROTECT AND PRESERVE ALL SURVEY MONUMENTS. MONUMENTS DAMAGED BY THE CONTRACTOR SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE BY A REGISTERED SURVEYOR.
 - CURB DROPS FOR DRIVEWAYS WILL BE CONSTRUCTED DURING THE CONSTRUCTION OF THE CONCRETE CURB/GUTTER. THE LOCATIONS OF THE DRIVEWAYS ARE SHOWN WITH STATIONING ON THE PLAN. FLARES SHALL BE 4' WIDE. DROP CURB SHALL BE CONSIDERED STANDARD GUTTER FOR MEASUREMENT AND PAYMENT.
 - CONSTRUCT AC PAVEMENT AND AGGREGATE SEAL COURSE PER THE DETAIL ON THIS SHEET.
 - CONSTRUCT STREET LIGHT IMPROVEMENTS (SEE SHEET 3) AS SHOWN FOLLOWING SPECIFICATION REQUIREMENTS AND DETAILS (SEE SHEET 4).
 - ALL HEAVY TRUCKS SHALL USE TRUCK ROUTES. TRAVEL ON RESIDENTIAL STREETS NOT LABELED AS A TRUCK ROUTE SHALL BE PROHIBITED.
 - TOPSOIL (6") AND SEED SHADED AREAS OR WHERE DIRECTED BY THE ENGINEER. SHAPE AND SMOOTH TO DRAIN.
 - INSTALL SIGNAGE WHERE SHOWN PROTECTING ALL EXISTING UTILITIES. ALL SIGNAGE SHALL CONFORM WITH THE REQUIREMENTS SHOWN ON SHEET 10 OF THE LAKEWOOD 2ND PLANS.

CURVE	RADIUS	LENGTH	TANGENT	DELTA
A	500.00'	94.26'	47.27'	10°48'04"
B	500.00'	24.80'	12.40'	02°50'30"

APPROXIMATE TOTAL QUANTITIES

Item	Quantity
Subgrade Items	
Grading	1 LS
Subgrade Preparation (6" Deep)	886 SY
Subgrade Preparation (12" Deep)	886 SY
Asphalt Items	
2 1/2" AC Base Course (Class B)	252 TON
2" AC Surface Course (Class B)	202 TON
Bituminous Tack Oil	110 GAL
Aggregate Seal Course	1772 SY
Adjust Manhole Casting	2 EA
Concrete Items	
Standard Curb and Gutter	884 LF
Miscellaneous Items	
Topsoil & Seeding (Class 1)	1055 SF
Road Aggregate	25 TON
Signage	1 LS
Lighting Items	
Type B Street Light Unit	3 EA
Three #4 Conductors	375 LF
Two #4 Conductors	225 LF
Trenching (27" Deep)	500 LF
2" Conduit (Laid)	75 EA
Sodding	20 SY
Existing Ckt. Disc/Reconnections	1 Lot

SWENSON, HAGEN & CO. P.C.
PLANNING CIVIL ENGINEERING SURVEYING
SITE DESIGN CONSTRUCTION MANAGEMENT
309 MAIN AVE P.O. BOX 1135 (701) 233-8600
BISMARCK, N.D. 58504 FAX (701) 233-8600
E-mail: ms@swensonhagen.com

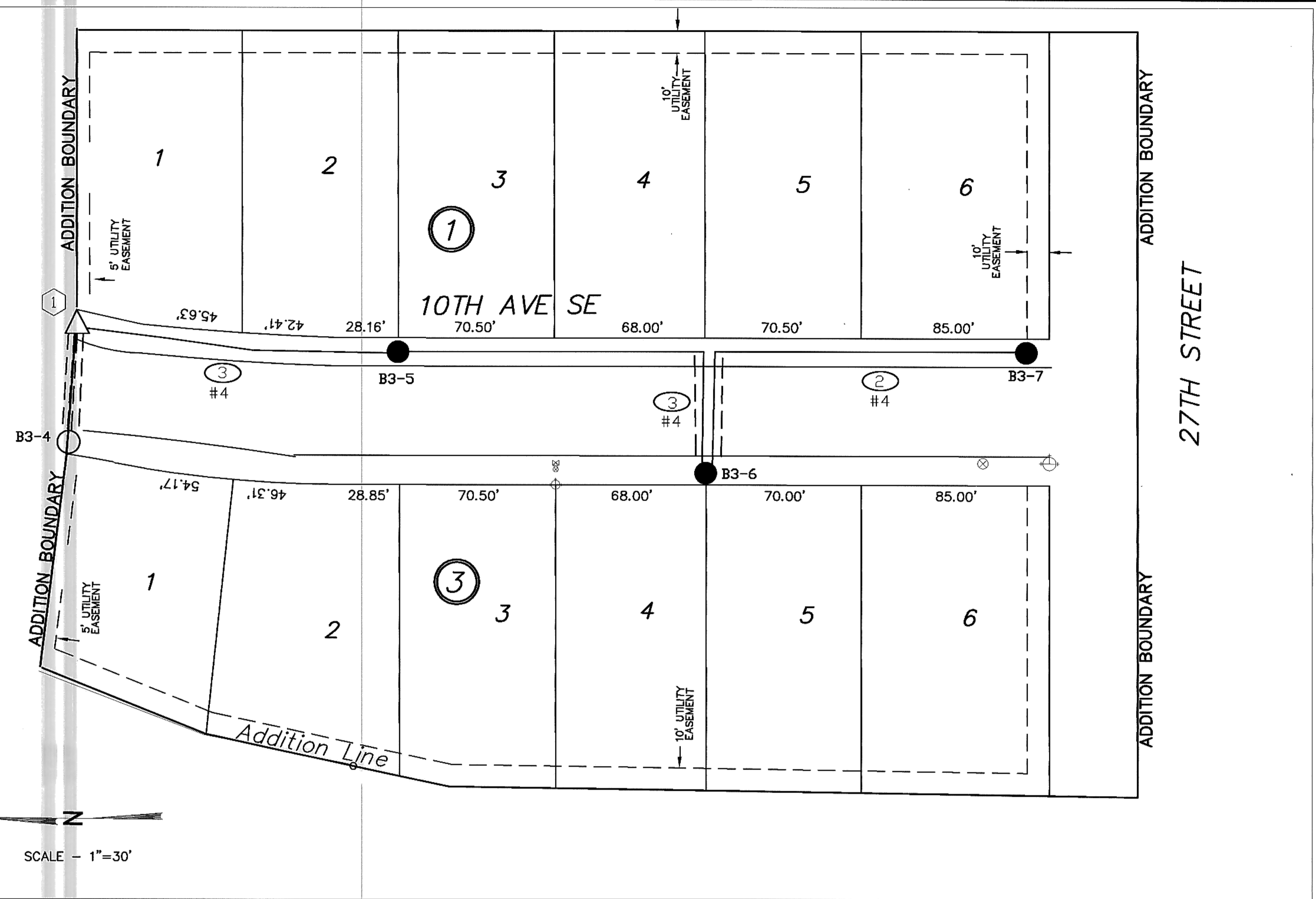


10TH AVE SE
FROM THE NORTH ADDITION LINE TO THE SOUTH ADDITION LINE-PLAINVIEW HEIGHTS 8TH
STREET IMPROVEMENT PROJECT 2003-12
DISTRICT #117 AREA F SHEET NO. 2 OF 4
MANDAN, ND MAY 9, 2003

WARRANTY/ DISCLAIMER
 The designs represented in these plans are in accordance with established practices of civil engineering. However, neither Swenson, Hagen & Co. nor its personnel can or do warranty these plans as constructed except in the specific cases where Swenson, Hagen & Co. personally inspect and control the physical construction on a full time basis.

SAFETY NOTICE TO CONTRACTOR
 In accordance with generally accepted construction practices the contractor will be solely and completely responsible for conditions of the job site, including safety of all persons and property during performance of the work. This requirement will apply continuously and not be limited to normal business hours.

NOTICE TO CONTRACTOR
 The location of existing underground utilities are shown in an approximate way only and have not been independently verified by the owner or its representatives. The Contractor shall determine the exact location of all existing utilities before commencing work, and agree to be fully responsible for any and all damages which might be occasioned by the Contractor's failure to exactly locate and preserve any and all underground utilities. Underground locates shall be requested by using the "One Call" number 1-800-795-0555.



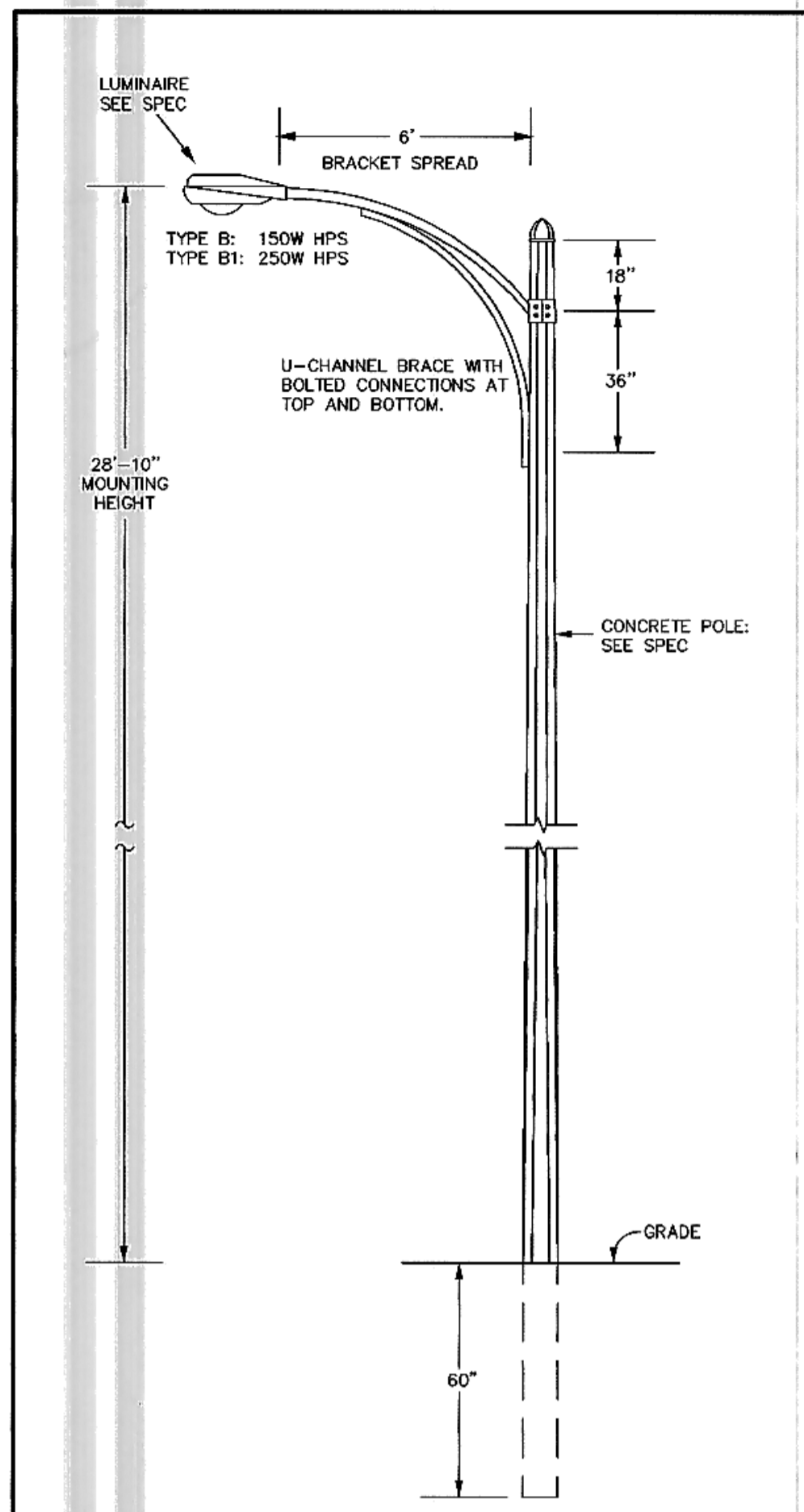
ELECTRICAL PLAN
 1" = 30'-0"

NOTES: DETAIL 1/3
 ① CONTINUE CIRCUIT 3 FROM EXISTING JUNCTION BOX TO NEW FIXTURES.

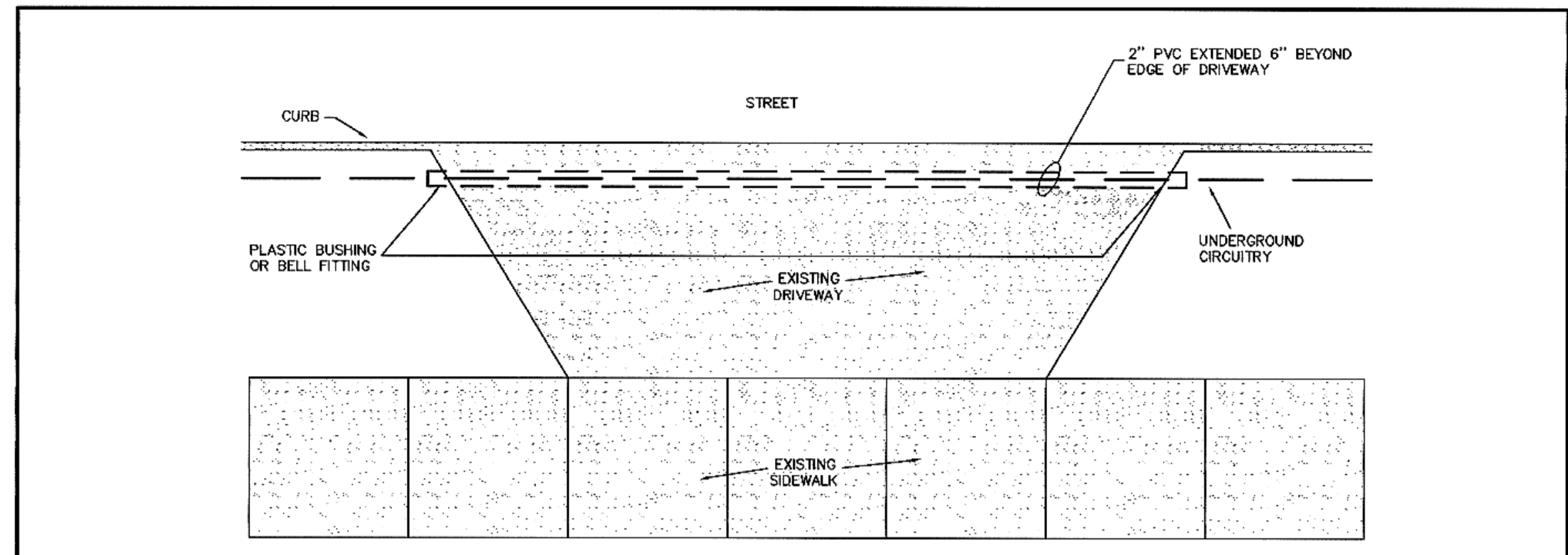
SYMBOLS & LEGEND

○	EXISTING STREET LIGHT
●	NEW STREET LIGHT UNIT. NOMENCLATURE: TYPE A, RELAY #1, FIXTURE #2. ODD NUMBERS PHASE A, EVEN NUMBERS PHASE B.
⊠	FEEDPOINT - NEW
△	EXISTING JUNCTION BOX
▲	JUNCTION BOX - NEW
—	UNDERGROUND CONDUCTOR (DIRECT BURIAL)
≡	UNDERGROUND CONDUCTOR (CONDUIT ENCASED)
⊕	NUMBER OF CONDUCTORS (PLUS GROUND CONDUCTOR) EXAMPLE 3 #4 AWG
≡≡	EXISTING UNDERGROUND CIRCUITRY (CONDUIT ENCASED)

03545		SWENSON, HAGEN & CO. P.C. PLANNING CIVIL ENGINEERING SURVEYING SITE DESIGN CONSTRUCTION MANAGEMENT 909 BASIN AVE. P.O. BOX 1135 (701) 223-2800 BISMARCK, N.D. 58504 FAX (701) 223-2006 E-mail: shag@shagco.com
		Plainview Heights 8th Addition STREET LIGHTING PLAN STREET IMPROVEMENT PROJECT 2003-12 DISTRICT # 117 AREA "F" SHEET 3 OF 4 MANDAN, ND APRIL 30, 2003 DESIGN: JJB DRAFT: JJB
PRAIRIE ENGINEERING, P.C.		RECORD DRAWING

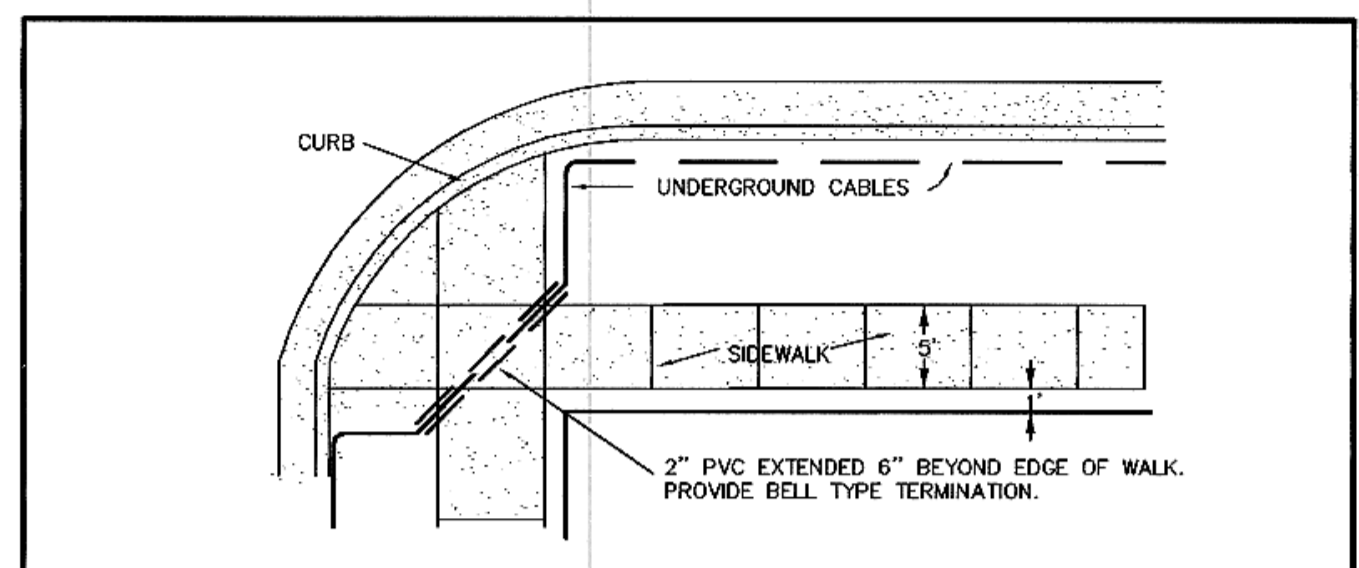


1
4 TYPE B POLE DETAIL
NO SCALE



1. CONDUIT SHALL BE 24" BELOW GRADE AND SLOPED 3" FOR DRAINAGE.
2. CONDUIT SHALL EXTEND 6" BEYOND DRIVEWAY AT BOTH ENDS.
3. PROVIDE 9" LOOP IN CABLES AT EACH CONDUIT END.

3
4 DRIVEWAY CROSS-UNDER DETAIL
NO SCALE



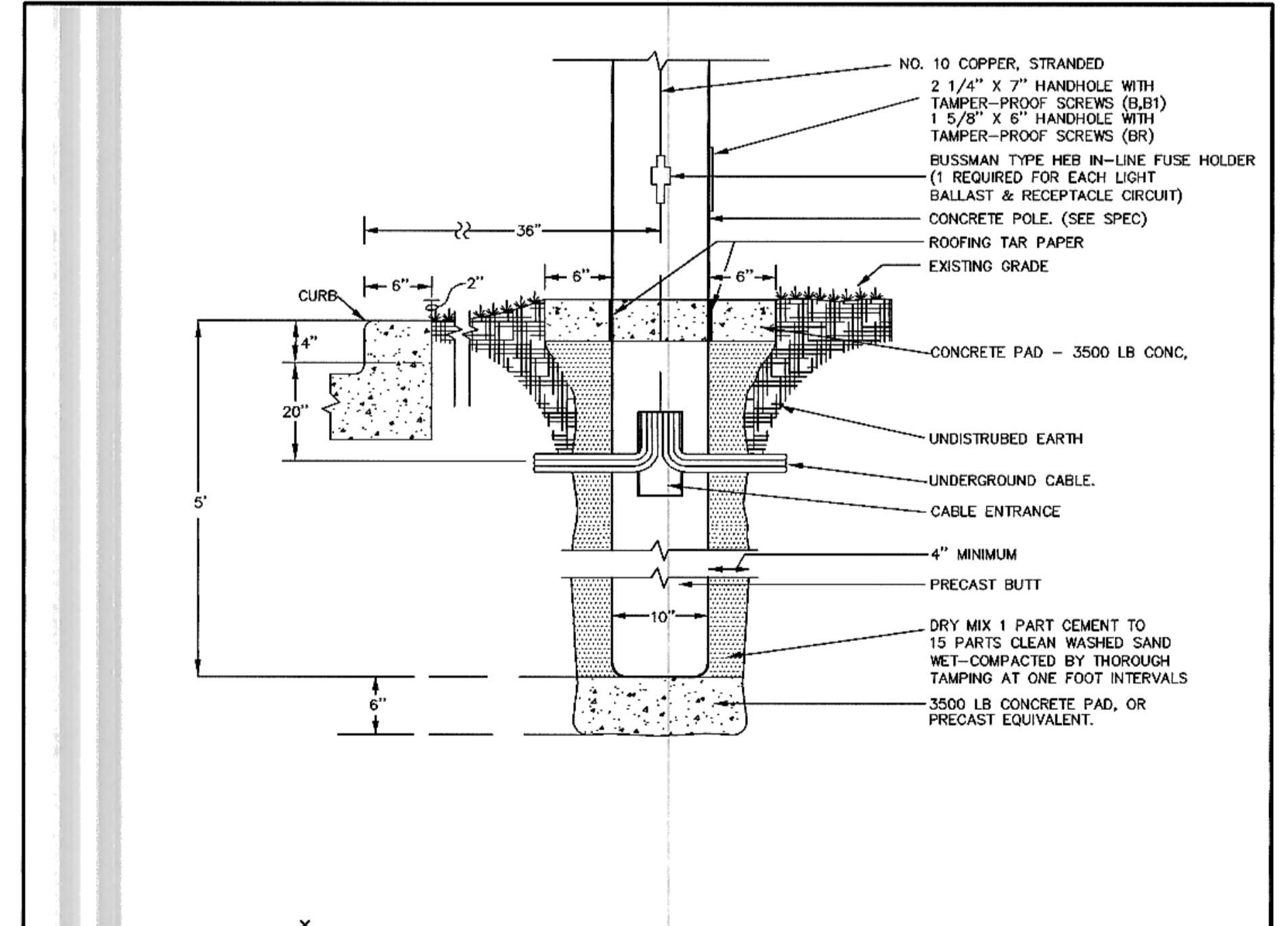
SEE NOTES 1, 2 & 3, DRIVEWAY CROSS-UNDER DETAIL.

5
4 SIDEWALK CROSS-UNDER DETAIL
NO SCALE

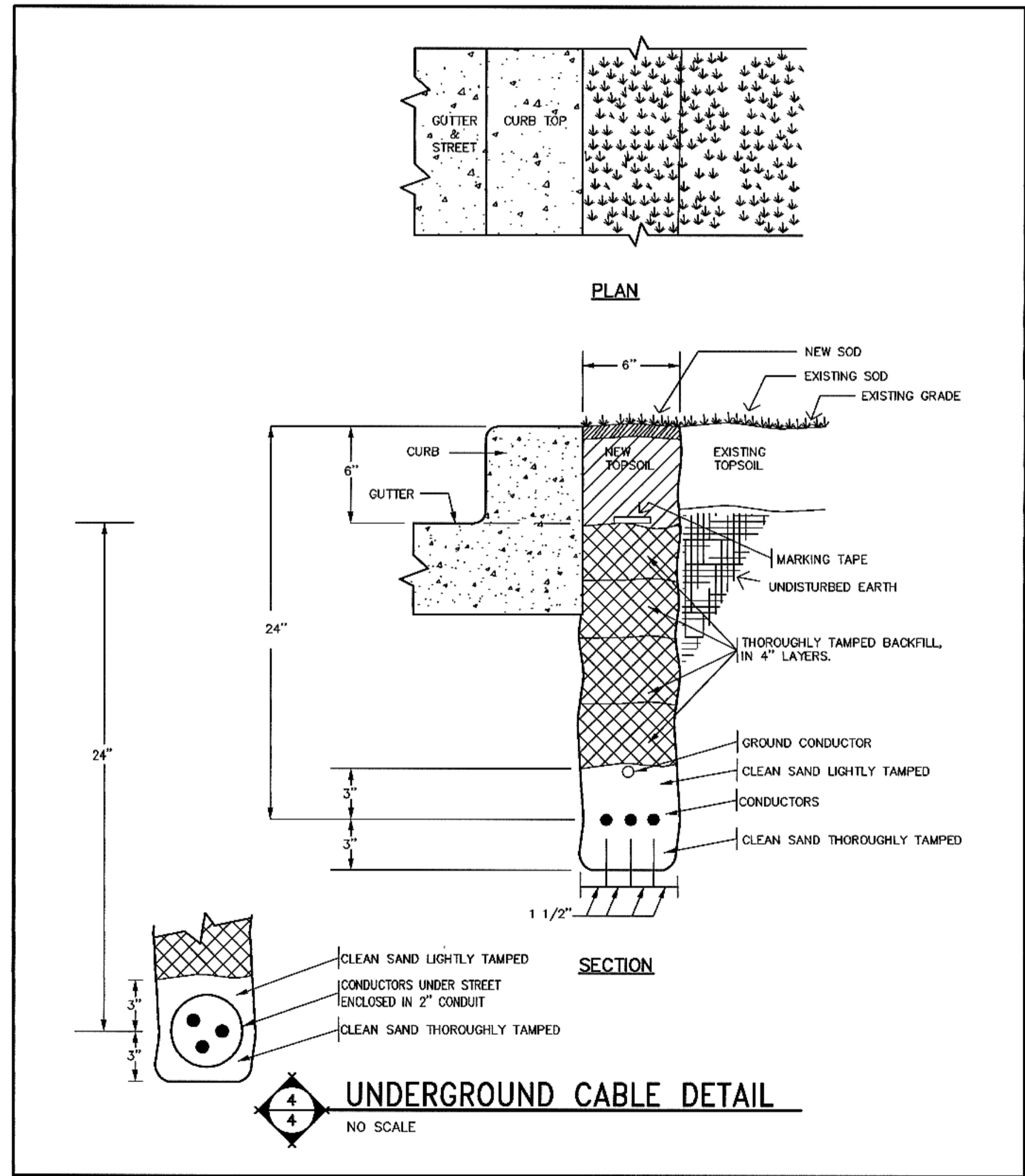
WARRANTY/ DISCLAIMER
The designs represented in these plans are in accordance with established practices of civil engineering. However, neither Swenson, Hagen & Co. nor its personnel can or do warranty these plans as constructed except in the specific cases where Swenson, Hagen & Co. personnel inspect and control the physical construction on a full time basis.

SAFETY NOTICE TO CONTRACTOR
In accordance with generally accepted construction practices the contractor will be solely and completely responsible for conditions of the job site, including safety of all persons and property during performance of the work. This requirement will apply continuously and not be limited to normal business hours.

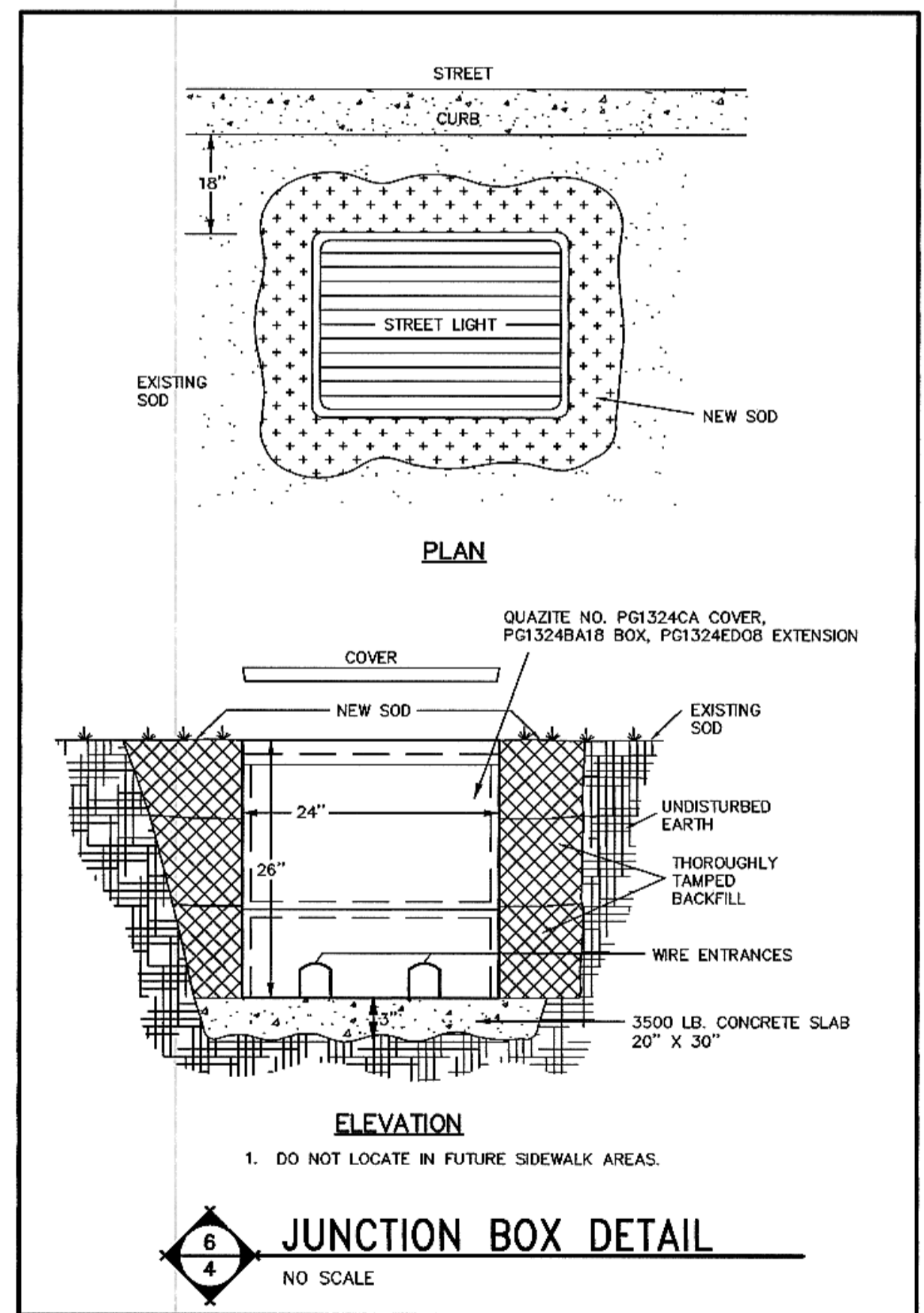
NOTICE TO CONTRACTOR
The location of existing underground utilities are shown in an approximate way only and have not been independently verified by the owner or its representatives. The Contractor shall determine the exact location of all existing utilities before commencing work, and agree to be fully responsible for any and all damages which might be occasioned by the Contractor's failure to exactly locate and preserve any and all underground utilities. Underground locates shall be requested by using the "One Call" number 1-800-795-0555.



2
4 TYPE B BASE DETAIL
NO SCALE

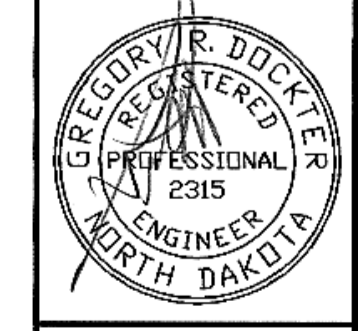


4
4 UNDERGROUND CABLE DETAIL
NO SCALE



6
4 JUNCTION BOX DETAIL
NO SCALE

03545



SWENSON, HAGEN & CO. P.C.
PLANNING CIVIL ENGINEERING SURVEYING
SITE DESIGN CONSTRUCTION MANAGEMENT
909 BASIN AVE. P.O. BOX 1196 (701) 223-8900
BISMARCK, N.D. 58504 FAX (701) 223-2600
E-mail: sheng@swgstate.com

Plainview Heights 8th Addition
STREET LIGHTING PLAN
STREET IMPROVEMENT PROJECT 2003-12
DISTRICT # 117 AREA "F" SHEET 4 OF 4
MANDAN, ND APRIL 30, 2003

PRATIN ENGINEERING, P.C.

DESIGN: JJB DRAFT: JJB

RECORD DRAWING