STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	3C.065998	1	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION

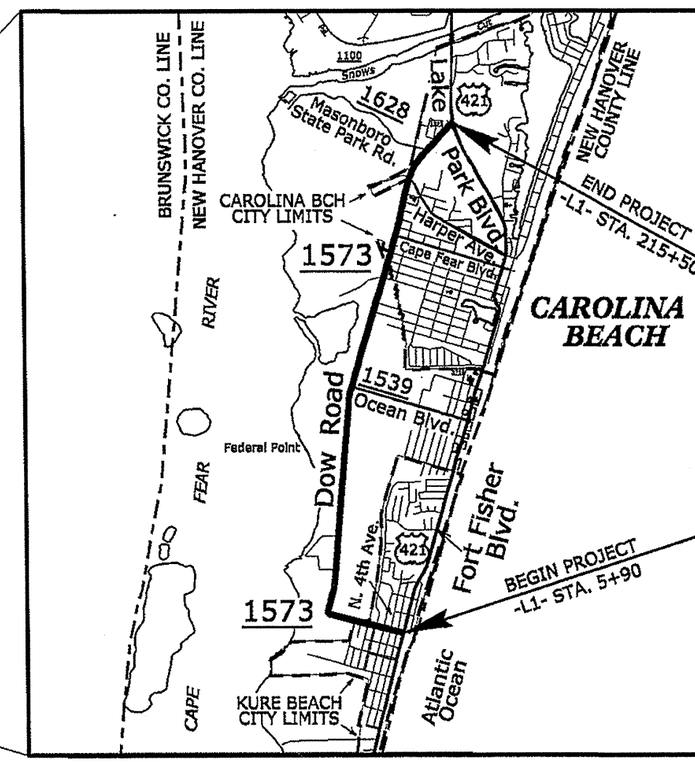
See Sheet 1-A For Index of Sheets

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

NEW HANOVER COUNTY

LOCATION: *SR 1573 (Dow Road) from US 421 (Fort Fisher Blvd.) in the town of Kure Beach to US 421 (N. Lake Park Blvd.) in the town of Carolina Beach in New Hanover County.*

TYPE OF WORK: *Grading, Widening, Drainage, Resurfacing, and Thermoplastic Pavement Markings and Markers, Etc.*



1

NOT TO SCALE

WBS NO.: 3C.065998

CONTRACT: C203170

GRAPHIC SCALES

30 15 0 30 60
PLANS

30 15 0 30 60
PROFILE (HORIZONTAL)

3 1.5 0 3 6
PROFILE (VERTICAL)

PROJECT LENGTH

MAP NO. 1 = 3.97 MI.

TOTAL = 3.97 MI.

Prepared in the Office of:
DIVISION OF HIGHWAYS
5501 Barbados Blvd., Castle Hayne, NC 28429

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: N/A

LETTING DATE: AUGUST 21, 2012

SCOTT E. COOKE, PE — PROJECT ENGINEER
DNL — PROJECT DESIGN TECHNICIAN
CMS — PROJECT DESIGN TECHNICIAN
MPK — PROJECT DESIGN TECHNICIAN

09/08/99

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mkimmel ATT D3CAD257156

GENERAL NOTES:

2012 SPECIFICATIONS
EFFECTIVE: 01-17-12
REVISED: 11/01/11

SIDE ROADS:

THE CONTRACTOR WILL BE REQUIRED TO DO ALL NECESSARY WORK TO PROVIDE SUITABLE CONNECTIONS WITH ALL ROADS, STREETS, AND DRIVES ENTERING THIS PROJECT. THIS WORK WILL BE PAID FOR AT THE CONTRACT UNIT PRICE FOR THE PARTICULAR ITEMS INVOLVED.

DRIVEWAYS:

DRIVEWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. 848.03 AT LOCATIONS SHOWN ON PLANS OR AS DIRECTED BY THE ENGINEER.

SUBSURFACE PLANS:

NO SUBSURFACE PLANS ARE AVAILABLE ON THIS PROJECT. THE CONTRACTOR SHOULD MAKE HIS OWN INVESTIGATION AS TO THE SUBSURFACE CONDITIONS.

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS PRIOR TO THE DATE OF AVAILABILITY, EXCEPT AS SHOWN ON THE PLANS.

CURB RAMPS

CURB RAMPS ARE SHOWN ON THE PLANS AT APPROXIMATE LOCATIONS.

2012 ROADWAY ENGLISH STANDARD DRAWINGS

The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch - N. C. Department of Transportation - Raleigh, N. C., Dated January, 2012 are applicable to this project and by reference hereby are considered a part of these plans:

STD.NO.	TITLE
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
310.10	Driveway Pipe Construction
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 8 - INCIDENTALS	
840.00	Concrete Base Pad for Drainage Structures
840.17	Concrete Grated Drop Inlet Type 'A' - 12" thru 72" Pipe
840.25	Anchorage for Frames - Brick or Concrete or Precast
840.26	Brick Grated Drop Inlet Type 'A' - 12" thru 72" Pipe
840.45	Precast Drainage Structure
840.46	Traffic Bearing Precast Drainage Structure
840.54	Manhole Frame and Cover
840.66	Drainage Structure Steps
848.03	Driveway Turnout - Drop Curb Type
848.04	Street Turnout
848.05	Curb Ramp - Proposed Curb & Gutter
848.06	Curb Ramp - Existing Curb & Gutter
852.01	Concrete Islands

INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1-A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
1-B	CONVENTIONAL SYMBOLS
1-C & 1-CA	ALIGNMENT CONTROL SHEETS
1-D & 1-E	ALIGNMENT AND SHEET LAYOUT
2 THRU 2-L	PAVEMENT SCHEDULE, TYPICAL SECTIONS, PAVEMENT DETAILS, CONCRETE ISLAND, DRAINAGE, PRECAST CONC. PARKING CURB, AND CURB RAMP DETAILS
3 THRU 3-D	SUMMARY OF QUANTITIES
3-E & 3-F	SUMMARY OF DRAINAGE QUANTITIES
4 THRU 12	PLAN / PROFILE SHEETS
TCP-1 THRU TCP-2	TRAFFIC CONTROL PLANS
PM-1 THRU PM-3	PAVEMENT MARKING PLANS
SIG-1	TYPICAL LOOP LOCATIONS
EC-1 THRU EC-2B	EROSION CONTROL TITLE SHEET & DETAILS
EC-4 THRU EC-12	EROSION CONTROL PLANS
L1_XSC_1 THRU L1_XSC_22	CROSS-SECTIONS

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PROJECT REFERENCE NO.	SHEET NO.
3C.065998	1-B

Note: Not to Scale

**S.U.E. = Subsurface Utility Engineering*

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin — IP
- Property Corner
- Property Monument — PM
- Parcel/Sequence Number — 123
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary — WLB
- Proposed Wetland Boundary — WLB
- Existing Endangered Animal Boundary — EAB
- Existing Endangered Plant Boundary — EPB
- Known Soil Contamination: Area or Site
- Potential Soil Contamination: Area or Site

BUILDINGS AND OTHER CULTURE:

- Gas Pump Vent or U/G Tank Cap
- Sign — S
- Well — W
- Small Mine
- Foundation
- Area Outline
- Cemetery
- Building
- School
- Church
- Dam

HYDROLOGY:

- Stream or Body of Water
- Hydro, Pool or Reservoir
- Jurisdictional Stream — JS
- Buffer Zone 1 — BZ 1
- Buffer Zone 2 — BZ 2
- Flow Arrow
- Disappearing Stream
- Spring
- Wetland
- Proposed Lateral, Tail, Head Ditch — FDM
- False Sump

RAILROADS:

- Standard Gauge — CSX TRANSPORTATION
- RR Signal Milepost — MILEPOST 35
- Switch — SWITCH
- RR Abandoned
- RR Dismantled

RIGHT OF WAY:

- Baseline Control Point
- Existing Right of Way Marker
- Existing Right of Way Line
- Proposed Right of Way Line
- Proposed Right of Way Line with Iron Pin and Cap Marker
- Proposed Right of Way Line with Concrete or Granite R/W Marker
- Proposed Control of Access Line with Concrete C/A Marker
- Existing Control of Access — CA
- Proposed Control of Access — CA
- Existing Easement Line — E
- Proposed Temporary Construction Easement — E
- Proposed Temporary Drainage Easement — TDE
- Proposed Permanent Drainage Easement — PDE
- Proposed Permanent Drainage / Utility Easement — DUE
- Proposed Permanent Utility Easement — PUE
- Proposed Temporary Utility Easement — TUE
- Proposed Aerial Utility Easement — AUE
- Proposed Permanent Easement with Iron Pin and Cap Marker

ROADS AND RELATED FEATURES:

- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut — C
- Proposed Slope Stakes Fill — F
- Proposed Curb Ramp — CR
- Existing Metal Guardrail
- Proposed Guardrail
- Existing Cable Guiderail
- Proposed Cable Guiderail
- Equality Symbol
- Pavement Removal

VEGETATION:

- Single Tree
- Single Shrub
- Hedge
- Woods Line
- Orchard
- Vineyard — Vineyard

EXISTING STRUCTURES:

MAJOR:

- Bridge, Tunnel or Box Culvert — CONC
- Bridge Wing Wall, Head Wall and End Wall — CONC WW

MINOR:

- Head and End Wall — CONC HW
- Pipe Culvert
- Footbridge
- Drainage Box: Catch Basin, DI or JB — CB
- Paved Ditch Gutter
- Storm Sewer Manhole — S
- Storm Sewer — S

UTILITIES:

POWER:

- Existing Power Pole
- Proposed Power Pole
- Existing Joint Use Pole
- Proposed Joint Use Pole
- Power Manhole — P
- Power Line Tower
- Power Transformer
- U/G Power Cable Hand Hole
- H-Frame Pole
- Recorded U/G Power Line — P
- Designated U/G Power Line (S.U.E.*) — P

TELEPHONE:

- Existing Telephone Pole
- Proposed Telephone Pole
- Telephone Manhole — T
- Telephone Booth
- Telephone Pedestal — T
- Telephone Cell Tower
- U/G Telephone Cable Hand Hole — HH
- Recorded U/G Telephone Cable — T
- Designated U/G Telephone Cable (S.U.E.*) — T
- Recorded U/G Telephone Conduit — TC
- Designated U/G Telephone Conduit (S.U.E.*) — TC
- Recorded U/G Fiber Optics Cable — T FO
- Designated U/G Fiber Optics Cable (S.U.E.*) — T FO

WATER:

- Water Manhole — W
- Water Meter
- Water Valve
- Water Hydrant
- Recorded U/G Water Line — W
- Designated U/G Water Line (S.U.E.*) — W
- Above Ground Water Line — A/G Water

TV:

- TV Satellite Dish
- TV Pedestal — C
- TV Tower
- U/G TV Cable Hand Hole — HH
- Recorded U/G TV Cable — TV
- Designated U/G TV Cable (S.U.E.*) — TV
- Recorded U/G Fiber Optic Cable — TV FO
- Designated U/G Fiber Optic Cable (S.U.E.*) — TV FO

GAS:

- Gas Valve
- Gas Meter
- Recorded U/G Gas Line — G
- Designated U/G Gas Line (S.U.E.*) — G
- Above Ground Gas Line — A/G Gas

SANITARY SEWER:

- Sanitary Sewer Manhole
- Sanitary Sewer Cleanout
- U/G Sanitary Sewer Line — SS
- Above Ground Sanitary Sewer — A/G Sanitary Sewer
- Recorded SS Forced Main Line — FSS
- Designated SS Forced Main Line (S.U.E.*) — FSS

MISCELLANEOUS:

- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box — S
- Utility Unknown U/G Line — TUTL
- U/G Tank; Water, Gas, Oil
- Underground Storage Tank, Approx. Loc. — UST
- A/G Tank; Water, Gas, Oil
- Geoenvironmental Boring
- U/G Test Hole (S.U.E.*)
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.

PROJECT REFERENCE NO.	SHEET NO.
3C.065998	1-C

ALIGNMENT & CONTROL SHEET

Beginning chain Li description (DOW ROAD)

==========

Point 6000 N 92,287.8799 E 2,331,001.3726 Sta 10+00.00

Course from 6000 to 6001 N 77° 34' 55.36" W Dist 307.1777

Point 6001 N 92,353.9358 E 2,330,701.3814 Sta 13+07.18

Course from 6001 to 6002 N 75° 21' 21.96" W Dist 541.9808

Point 6002 N 92,490.9544 E 2,330,177.0064 Sta 18+49.16

Course from 6002 to 6003 N 75° 45' 03.74" W Dist 769.0174

Point 6003 N 92,680.2370 E 2,329,431.6476 Sta 26+18.18

Course from 6003 to PC LIC1 N 75° 08' 28.58" W Dist 645.3840

Curve Data

Curve LIC1
P.I. Station 33+54.00 N 92,868.9291 E 2,328,720.4292
Delta = 90° 16' 44.78" (RT)
Degree = 63° 39' 43.12"
Tangent = 90.4395
Length = 141.8101
Radius = 90.0000
External = 37.5904
Long Chord = 127.5889
Mid. Ord. = 26.5156
P.C. Station 32+63.56 N 92,845.7371 E 2,328,807.8445
P.T. Station 34+05.37 N 92,956.2304 E 2,328,744.0468
C.C. N 92,932.7276 E 2,328,830.9238
Back = N 75° 08' 28.58" W
Ahead = N 15° 08' 16.20" E
Chord Bear = N 30° 00' 06.19" W

Course from PT LIC1 to 6005 N 15° 08' 16.20" E Dist 874.1594

Point 6005 N 93,800.0568 E 2,328,972.3265 Sta 42+79.53

Course from 6005 to PC LIC2 N 4° 58' 39.72" E Dist 6,638.5958

Curve Data

Curve LIC2
P.I. Station 110+71.24 N 100,566.1552 E 2,329,561.6300
Delta = 11° 39' 24.91" (RT)
Degree = 3° 49' 10.99"
Tangent = 153.1173
Length = 305.1775
Radius = 1,500.0000
External = 7.7947
Long Chord = 304.6514
Mid. Ord. = 7.7544
P.C. Station 109+18.13 N 100,413.6154 E 2,329,548.3443
P.T. Station 112+23.30 N 100,712.8645 E 2,329,605.4625
C.C. N 100,283.4634 E 2,331,042.6871
Back = N 4° 58' 39.72" E
Ahead = N 16° 38' 04.64" E
Chord Bear = N 10° 48' 22.18" E

Course from PT LIC2 to 6007 N 16° 38' 04.64" E Dist 4,510.1424

-Li- Description Continued:

Point 6007 N 105,034.2564 E 2,330,896.5692 Sta 157+33.45

Course from 6007 to 6008 N 16° 49' 01.02" E Dist 1,218.7582

Point 6008 N 106,200.8931 E 2,331,249.1742 Sta 169+52.20

Course from 6008 to 6009 N 14° 00' 21.59" E Dist 620.2107

Point 6009 N 106,802.6652 E 2,331,399.2797 Sta 175+72.41

Course from 6009 to 6010 N 13° 32' 59.33" E Dist 899.6896

Point 6010 N 107,677.3134 E 2,331,610.0686 Sta 184+72.10

Course from 6010 to PC LIC3 N 13° 49' 57.88" E Dist 372.9532

Curve Data

Curve LIC3
P.I. Station 194+50.97 N 108,627.7924 E 2,331,844.1047
Delta = 29° 31' 03.03" (RT)
Degree = 2° 29' 28.04"
Tangent = 605.9152
Length = 1,184.9087
Radius = 2,300.0000
External = 78.4729
Long Chord = 1,171.8486
Mid. Ord. = 75.8838
P.C. Station 188+45.06 N 108,039.4501 E 2,331,699.2374
P.T. Station 200+29.97 N 109,068.3964 E 2,332,260.0391
C.C. N 107,489.5467 E 2,333,932.5323
Back = N 13° 49' 57.88" E
Ahead = N 43° 21' 00.91" E
Chord Bear = N 28° 35' 29.40" E

Course from PT LIC3 to 6012 N 43° 21' 00.91" E Dist 1,738.8766

Point 6012 N 110,332.8569 E 2,333,453.7020 Sta 217+68.84

==========

Ending chain Li description

Point#	North(Y)	East(X)	Elev(Z)
Pt 5,	N 92198.2531,	E 2331195.5336,	Z 21.8240,
Pt 10,	N 92330.5071,	E 2330977.7396,	Z 23.0047,
Pt 15,	N 92398.2844,	E 2330432.3547,	Z 24.2838,
Pt 20,	N 92571.3553,	E 2329791.6545,	Z 23.0696,
Pt 25,	N 92767.1576,	E 2329035.1963,	Z 21.0741,
Pt 30,	N 92895.8069,	E 2328713.6934,	Z 21.9754,
Pt 35,	N 93742.8756,	E 2328974.5140,	Z 23.7769,
Pt 40,	N 94738.0508,	E 2329082.8359,	Z 15.9664,
Pt 45,	N 95474.6595,	E 2329096.7635,	Z 19.4742,
Pt 50,	N 96444.6395,	E 2329179.5982,	Z 22.2430,
Pt 55,	N 97410.6611,	E 2329261.3537,	Z 25.1356,
Pt 60,	N 98416.8130,	E 2329349.0133,	Z 23.6951,
Pt 65,	N 99637.8813,	E 2329455.8114,	Z 12.7632,
Pt 70,	N 100676.7562,	E 2329564.8781,	Z 14.5751,
Pt 75,	N 101599.8934,	E 2329892.9101,	Z 15.5236,
Pt 80,	N 102603.3889,	E 2330141.5381,	Z 15.9147,
Pt 85,	N 103568.2721,	E 2330428.3609,	Z 20.6536,
Pt 90,	N 104291.8150,	E 2330643.7519,	Z 20.9940,
Pt 95,	N 104710.4952,	E 2330770.1420,	Z 19.8546,
Pt 100,	N 105325.5701,	E 2331006.3498,	Z 20.3362,
Pt 101,	N 105326.0310,	E 2330960.6438,	Z 20.2701,
Pt 105,	N 105799.0506,	E 2331102.5519,	Z 21.9842,
Pt 110,	N 106169.1948,	E 2331214.3595,	Z 24.2937,
Pt 115,	N 106659.9737,	E 2331336.4089,	Z 25.7357,
Pt 120,	N 107439.8792,	E 2331525.9593,	Z 24.9765,
Pt 125,	N 108234.3605,	E 2331719.8628,	Z 25.1709,
Pt 130,	N 108866.0639,	E 2332050.2107,	Z 27.4194,
Pt 135,	N 109492.4297,	E 2332617.6075,	Z 26.8480,
Pt 140,	N 109951.5434,	E 2333050.4928,	Z 28.7394,
Pt 145,	N 110191.3086,	E 2333253.0170,	Z 25.6369

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY DIVISION 3 DDC FOR CONTROL POINT "110" WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF NORTHING: 106,169.1948 (ft) EASTING: 2,331,214.3595 (ft) ELEVATION: 24.29 (ft)

THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 1.0

THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM CONTROL POINT "110" TO -L- 1 STATION 169+11.79 IS S 73° 11' 14.94" E AT 24.1550 (ft)

ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES

VERTICAL DATUM USED IS NAVD 88

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PROJECT REFERENCE NO.	SHEET NO.
3C.065998	1-Ca

ALIGNMENT & CONTROL SHEET

Beginning chain Y10 description (SR 1539 - OCEAN BLVD.)

Point 6039 N 100,880.8477 E 2,329,655.6510 Sta 10+00.00

Course from 6039 to 6040 S 73° 48' 33.69" E Dist 144.0388

Point 6040 N 100,840.6847 E 2,329,793.9771 Sta 11+44.04

Ending chain Y10 description

Beginning chain Y17 description (HAMLET AVE.)

Point 6054 N 105,607.2644 E 2,331,069.7555 Sta 10+00.00

Course from 6054 to 6055 S 73° 13' 44.52" E Dist 85.0152

Point 6055 N 105,582.7336 E 2,331,151.1546 Sta 10+85.02

Ending chain Y17 description

Beginning chain Y18 description (CHARLOTTE AVE.)

Point 6056 N 105,895.1645 E 2,331,156.7706 Sta 10+00.00

Course from 6056 to 6057 S 72° 26' 24.59" E Dist 64.4696

Point 6057 N 105,875.7139 E 2,331,218.2361 Sta 10+64.47

Ending chain Y18 description

Beginning chain Y19 description (CAPE FEAR BLVD.)

Point 6058 N 106,200.8931 E 2,331,249.1742 Sta 10+00.00

Course from 6058 to 6059 S 73° 21' 49.60" E Dist 145.7787

Point 6059 N 106,159.1575 E 2,331,388.8509 Sta 11+45.78

Ending chain Y19 description

Beginning chain Y20 description (RALEIGH AVE.)

Point 6060 N 106,511.3837 E 2,331,326.6227 Sta 10+00.00

Course from 6060 to 6061 S 73° 55' 41.26" E Dist 65.8032

Point 6061 N 106,493.1665 E 2,331,389.8540 Sta 10+65.80

Ending chain Y20 description

Beginning chain Y21 description (MONROE AVE.)

Point 6062 N 106,802.6652 E 2,331,399.2797 Sta 10+00.00

Course from 6062 to 6063 S 73° 45' 17.94" E Dist 59.3612

Point 6063 N 106,786.0592 E 2,331,456.2709 Sta 10+59.36

Ending chain Y21 description

Beginning chain Y25 description (HARPER AVE.)

Point 6071 N 108,077.6420 E 2,331,959.7046 Sta 10+00.00

Course from 6071 to 6070 N 28° 38' 33.72" W Dist 323.9664

Point 6070 N 108,361.9634 E 2,331,804.4126 Sta 13+23.97

Ending chain Y25 description

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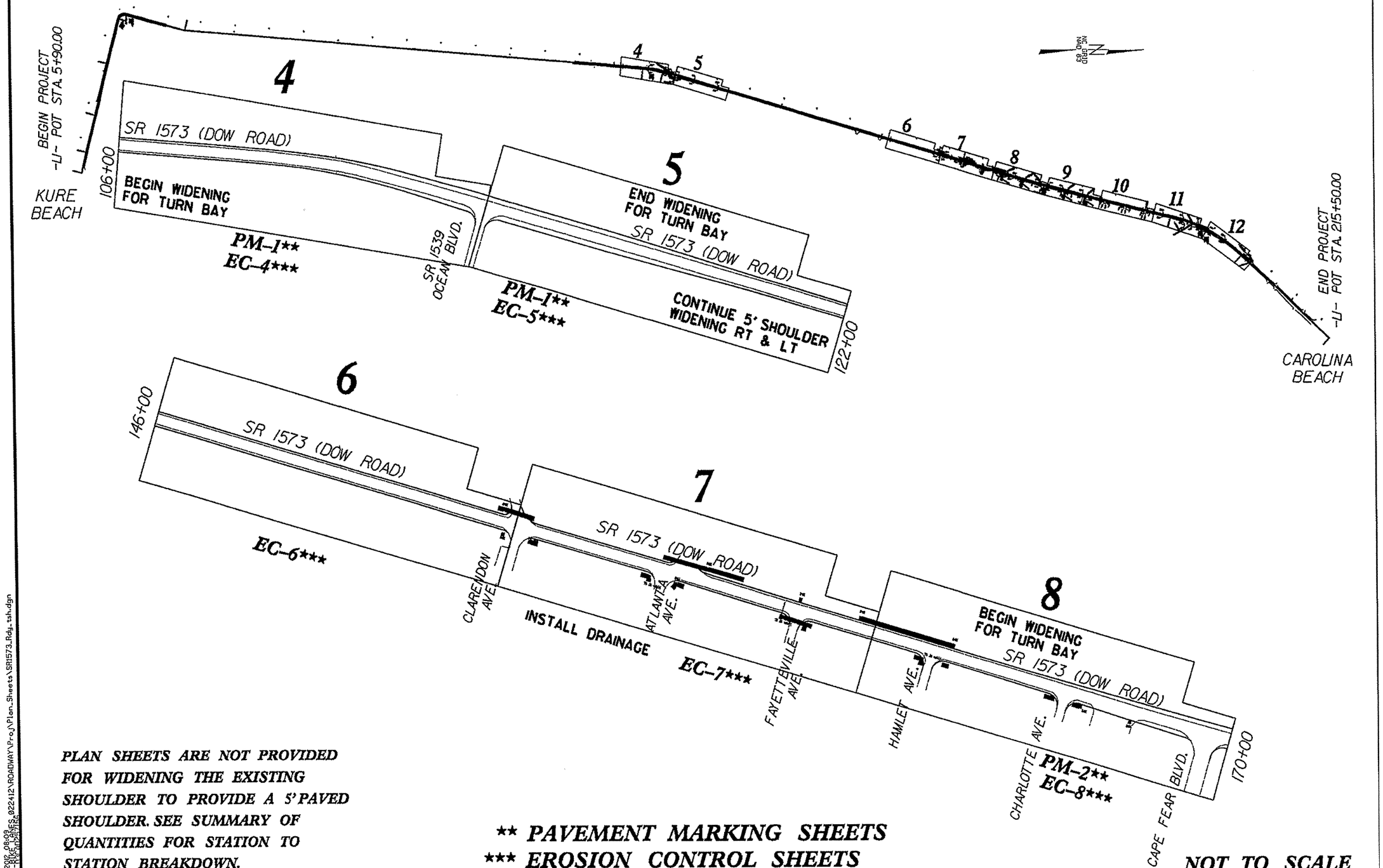
PROJECT REFERENCE NO.	SHEET NO.
3C.065998	1-D

-L1- STA. 5+90.00 TO STA. 215+50.00 (SR 1573 - DOW RD.)



PLAN SHEETS ARE NOT PROVIDED FOR WIDENING THE EXISTING SHOULDER TO PROVIDE A 5' PAVED SHOULDER. SEE SUMMARY OF QUANTITIES FOR STATION TO STATION BREAKDOWN.

** PAVEMENT MARKING SHEETS
*** EROSION CONTROL SHEETS

NOT TO SCALE

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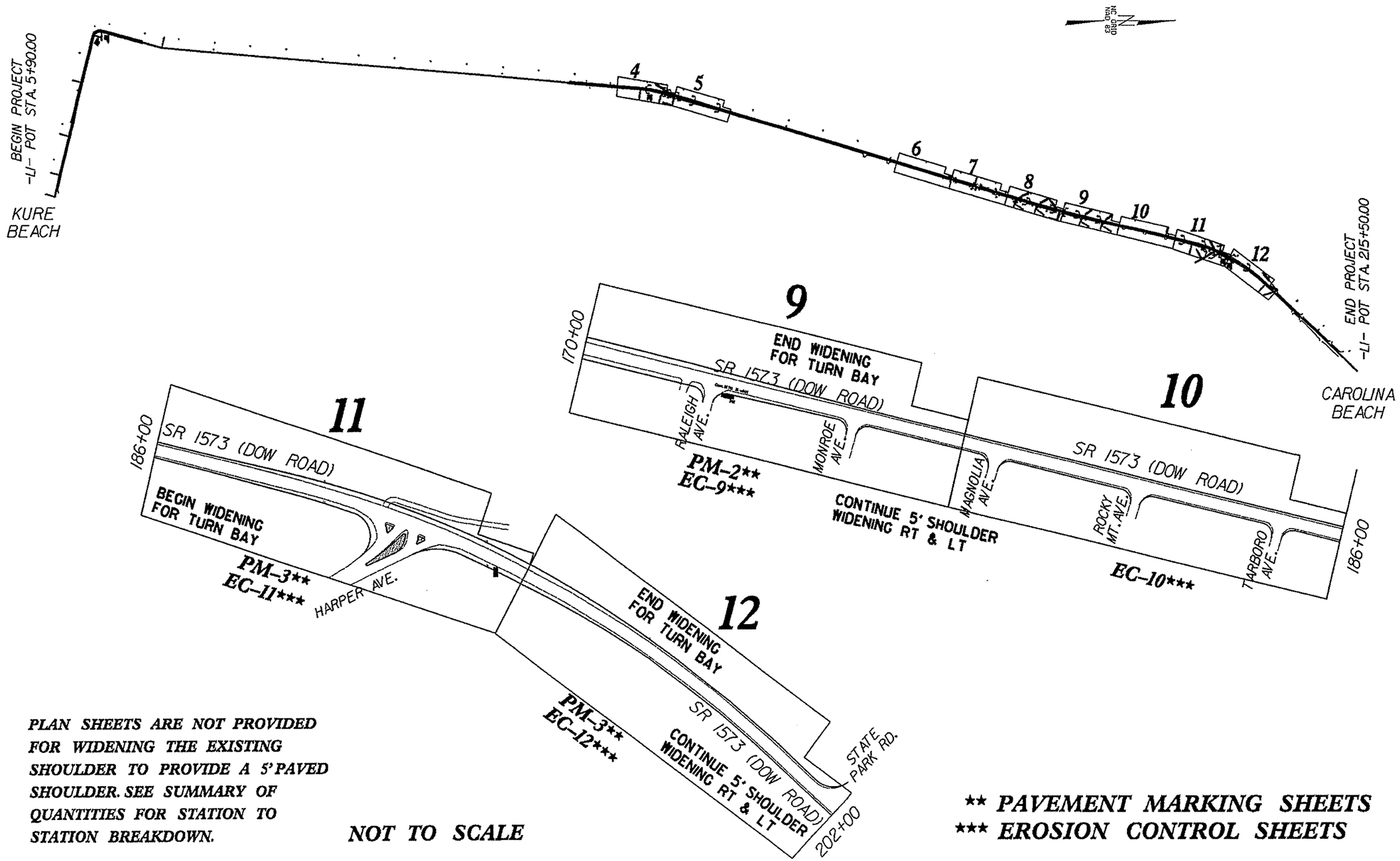
PROJECT REFERENCE NO.	SHEET NO.
3C.065998	1-E

-L1- STA. 5+90.00 TO STA. 215+50.00 (SR 1573 - DOW RD.)



PLAN SHEETS ARE NOT PROVIDED FOR WIDENING THE EXISTING SHOULDER TO PROVIDE A 5' PAVED SHOULDER. SEE SUMMARY OF QUANTITIES FOR STATION TO STATION BREAKDOWN.

NOT TO SCALE

*** PAVEMENT MARKING SHEETS*
**** EROSION CONTROL SHEETS*

5/14/99

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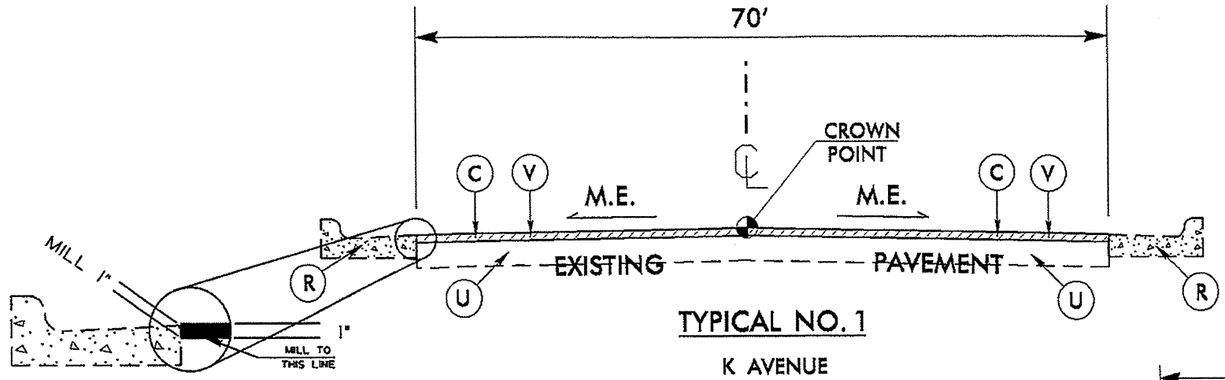
PROJECT REFERENCE NO.	SHEET NO.
3C.065998	2

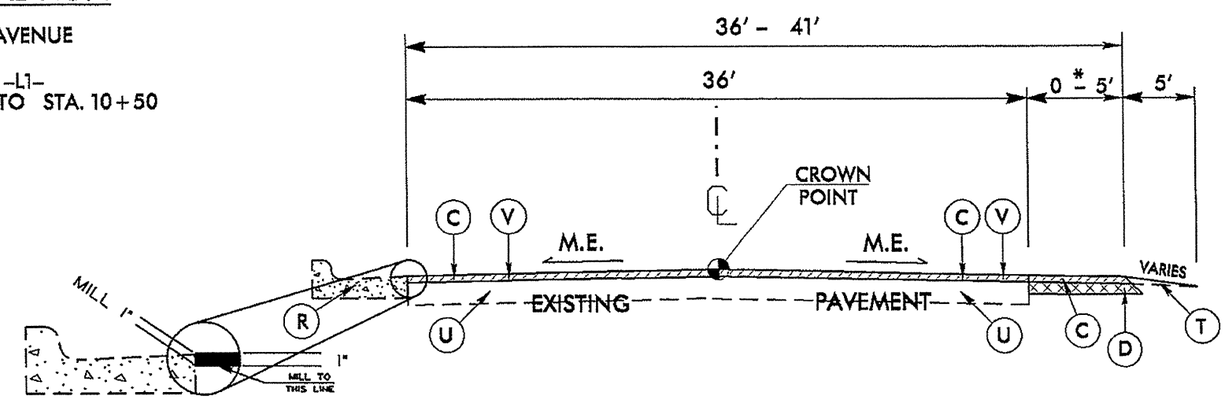


TYPICAL NO. 1

K AVENUE

-L1-

STA. 5+90 TO STA. 10+50



TYPICAL NO. 2

K AVENUE

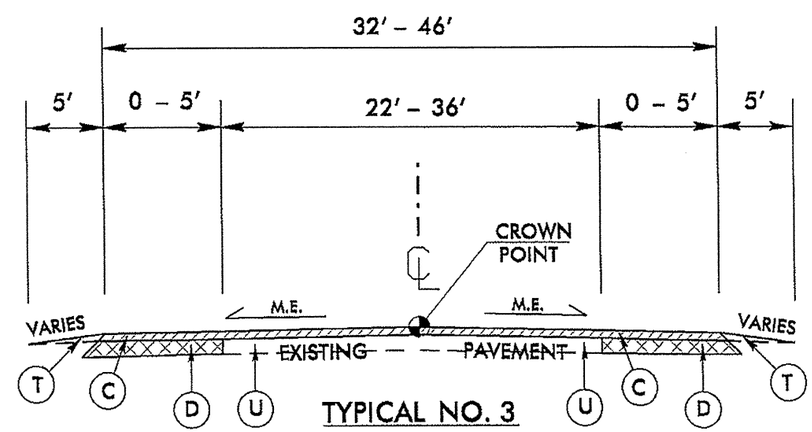
-L1-

STA. 10+50 TO STA. 20+42

*NOTE: WIDENING ON RIGHT SIDE BEGINS AT -L1- STA. 10+65.60

PAVEMENT SCHEDULE	
C	PROP. APPROX. 1" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD.
D	PROP. APPROX. 3" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.
E	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
R	EXISTING 2'-6" CONCRETE CURB & GUTTER
R1	EXISTING MONOLITHIC CONCRETE ISLAND
T	EARTH MATERIAL (SHOULDER RECONSTRUCTION)
U	EXISTING PAVEMENT
V	MILLING BITUMINOUS PAVEMENT 1" DEPTH

NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.
M.E. = MATCH EXISTING



TYPICAL NO. 3

SR 1573 (DOW RD.)

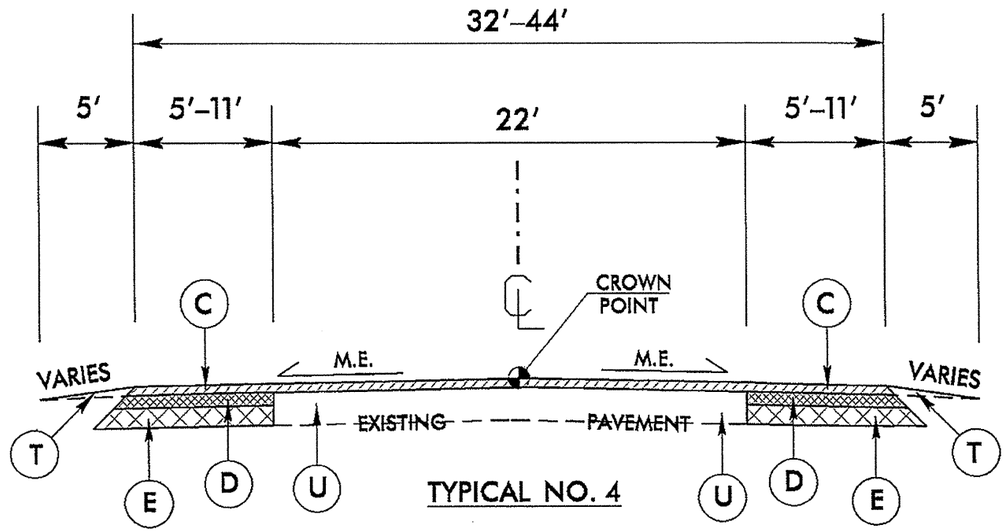
-L1-

STA. 20+42 TO STA. 109+92
STA. 120+44 TO STA. 165+22
STA. 175+42 TO STA. 187+39
STA. 197+08 TO STA. 211+47

NOT TO SCALE

5/14/99
15-JUL-2002 09:44
3C065998\DWG\PLANS_022412\ROADWAY\Proj\Plan_Sheets\SR1573_Rdy_typ.dgn

PROJECT REFERENCE NO.	SHEET NO.
3C.065998	2-A



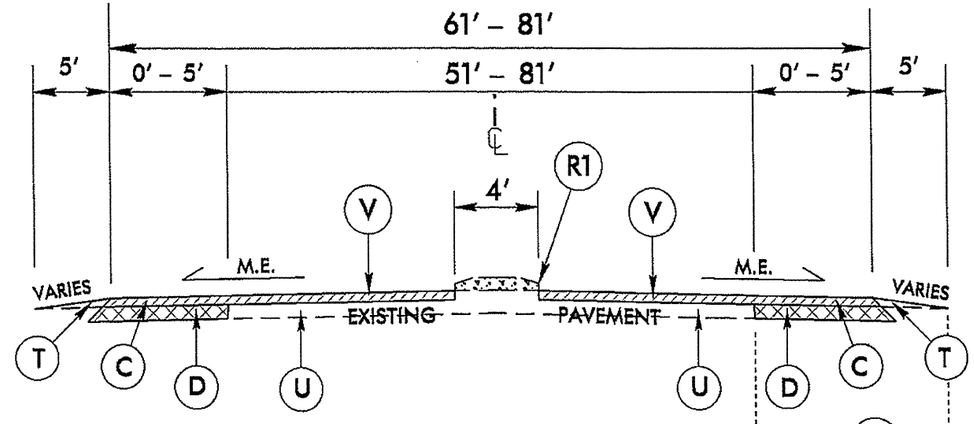
TYPICAL NO. 4

SR 1573 (DOW RD.)

-L1-

STA. 109+92 TO STA. 120+44
STA. 165+22 TO STA. 175+42
STA. 187+39 TO STA. 197+08

PAVEMENT SCHEDULE	
C	1" SF9.5A
D	3" I19.0B
E	4" B25.0B
R	EXISTING 2'-6" CURB & GUTTER
R1	EXISTING MONOLITHIC CONCRETE ISLAND
T	EARTH MATERIAL
U	EXIST. PAVEMENT
V	MILL 1"

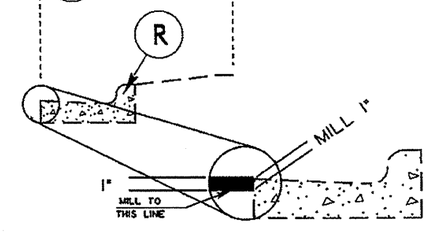


TYPICAL NO. 5

SR 1573 (DOW RD.)

-L1-

STA. 211+47 TO STA. 215+50



STA. 214+44 TO STA. 215+50

NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.
M.E. = MATCH EXISTING

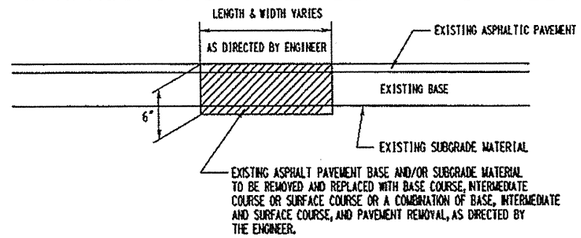
NOT TO SCALE

5/14/99
13-JUL-2012 09:44
3C065998 DOW BLVE LANES 022412\ROADWAY\Project\Plan_Sheets\SR1573_Rdy_typ.dgn

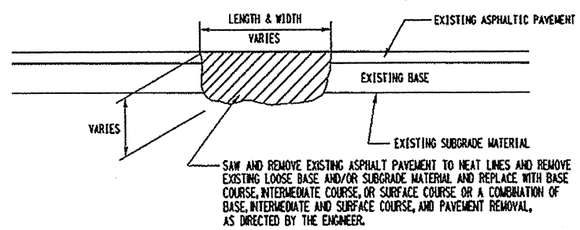
PAVEMENT DETAILS

PROJECT REFERENCE NO.	SHEET NO.
3C.065998	2-B

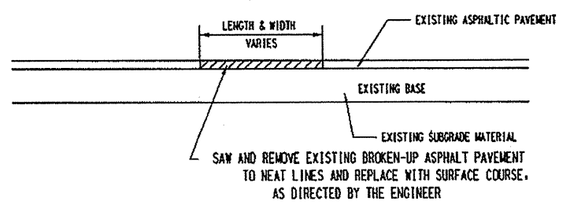
DETAILS OF REPAIRING EXISTING PAVEMENT PRIOR TO RESURFACING FOR FULL DEPTH AND MILLING



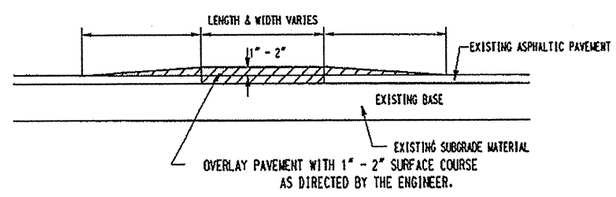
DETAIL NO. 1



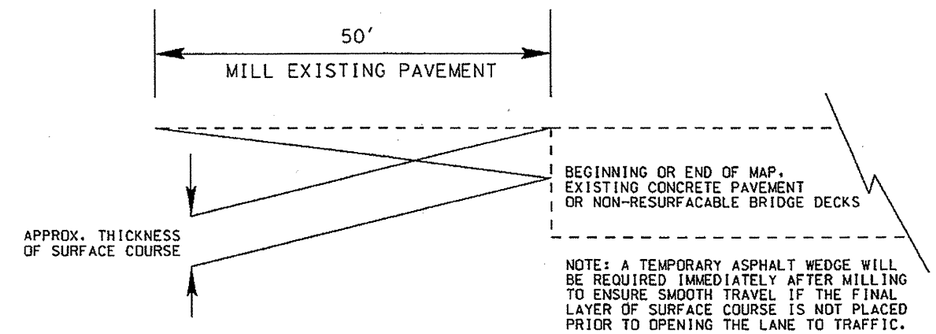
DETAIL NO. 2

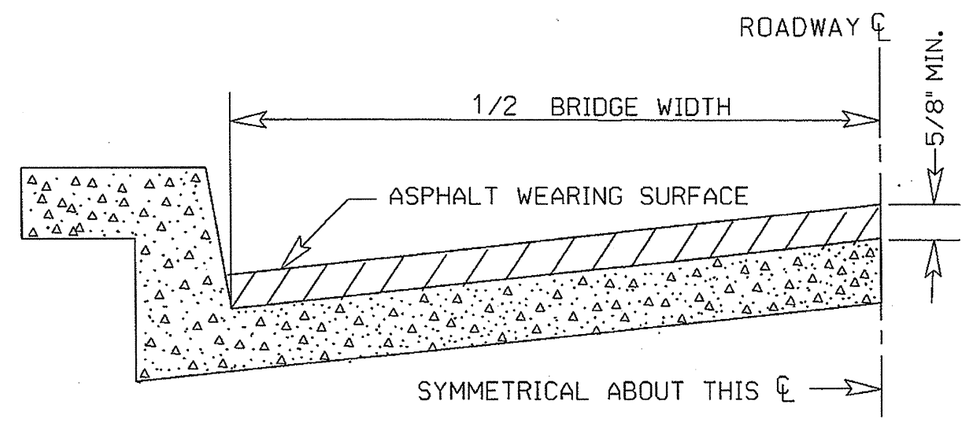


DETAIL NO. 3



DETAIL NO. 4





BRIDGE HALF TYPICAL SECTION

FOR BRIDGES WITH FLOOR DRAINS, CARE SHALL BE EXERCISED IN PLACING THE WEARING SURFACE AROUND FLOOR DRAINS SO AS NOT TO HINDER EFFECTIVE DRAINAGE. ALL DRAINS SHALL BE LEFT OPEN.

THE PROPOSED WEARING SURFACE SHALL VARY IN THICKNESS AS NECESSARY TO PROVIDE A SMOOTH RIDING SURFACE. A THICKNESS OF NOT LESS THAN 5/8" SHALL BE PROVIDED. THE MAXIMUM THICKNESS SHALL PREFERABLY BE 1-1/2" UNLESS IT IS IMPRACTICAL TO PROVIDE A SMOOTH RIDING SURFACE OTHERWISE.

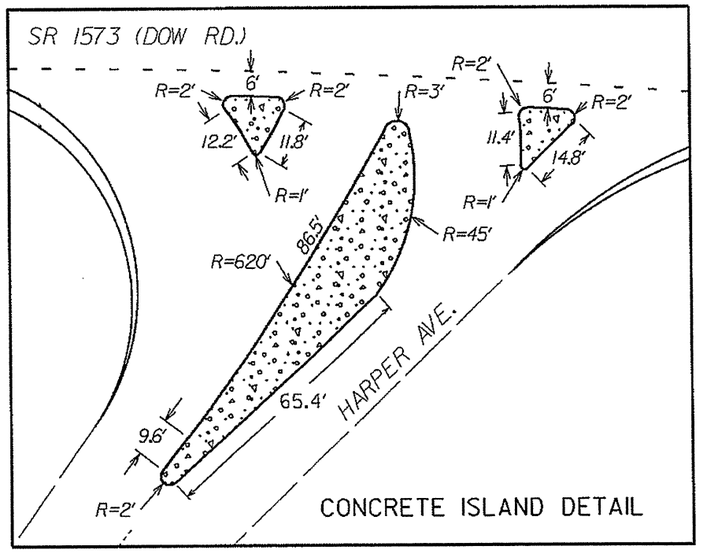
REVISIONS

8/17/99

28-JUN-2012 13:34
R:\RDY\DTHREE_NEW_HANDVER\3C.065998_DDW_BIKE LANES_022412\ROADWAY\Proj\Plan_Sheets\SR1573_Rdy_tsh.dgn
microsta A1 (Landscape)

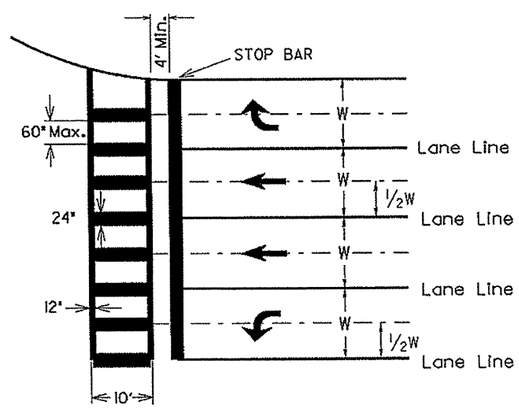
PROJECT REFERENCE NO.	SHEET NO.
3C.065998	2-C

CONCRETE ISLANDS & PAVEMENT MARKING DETAILS



CONCRETE ISLAND DETAIL

SPECIAL EMPHASIS HI-VISIBILITY CROSSWALK MARKING DETAIL

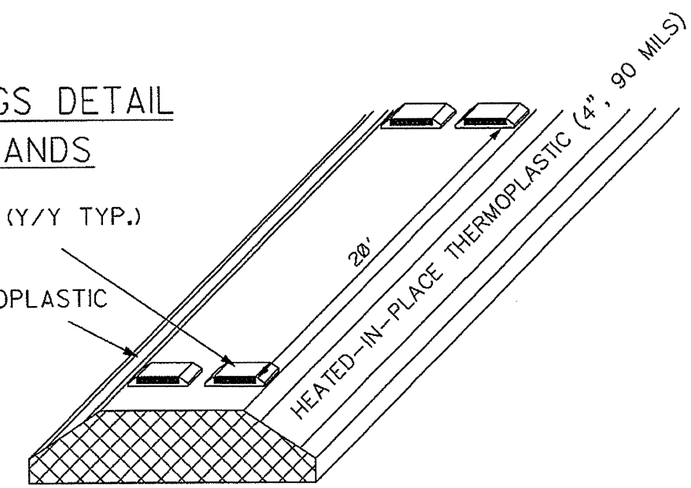


NOTES: SPACING OF CROSSWALK LINES POSITIONED TO AVOID WHEELPATHS

PAVEMENT MARKINGS DETAIL FOR CONCRETE ISLANDS

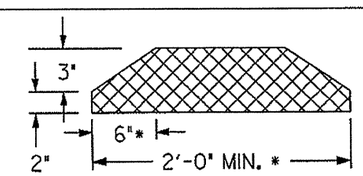
RAISED PAVEMENT MARKER (Y/Y TYP.)
(STD. DWG 1251.01)

HEATED-IN-PLACE THERMOPLASTIC
(4", 90 MILS)



MONOLITHIC CONCRETE ISLAND

(SEE STANDARD DRAWINGS 852.01, 852.02, & 852.06 FOR DETAILS.)



*DIMENSIONS FOR ISLANDS LESS THAN 4'-0"

APPLY PORTLAND CEMENT CONCRETE SEALER (FTILOW-VOC SEALER)TO SIDES OF MEDIAN PRIOR TO PLACEMENT OF 4" YELLOW THERMOPLASTIC (90 MILS)

NOT TO SCALE

REVISIONS

8/17/99

13-JUL-2012 08:15
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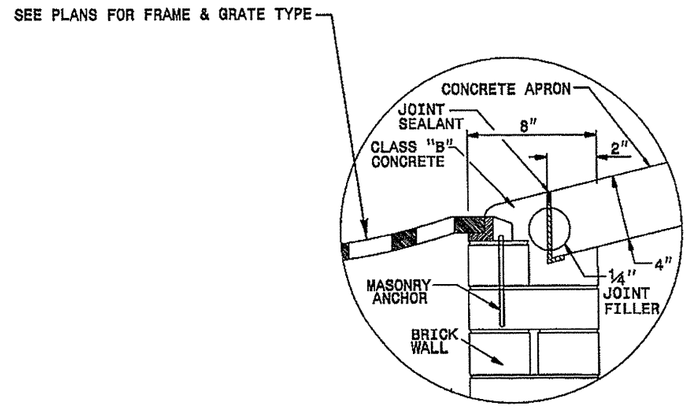
PROJECT REFERENCE NO.	SHEET NO.
3C.065998	2-D

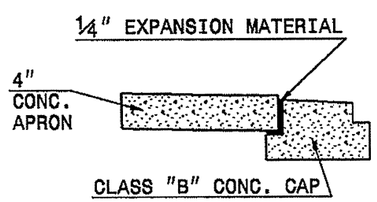


GRATE PLACEMENT DETAIL

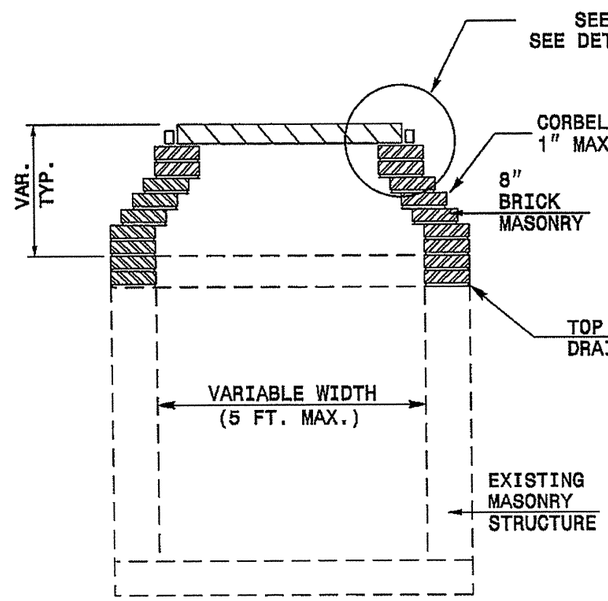
FOR GRATED DROP INLETS

GENERAL NOTES:

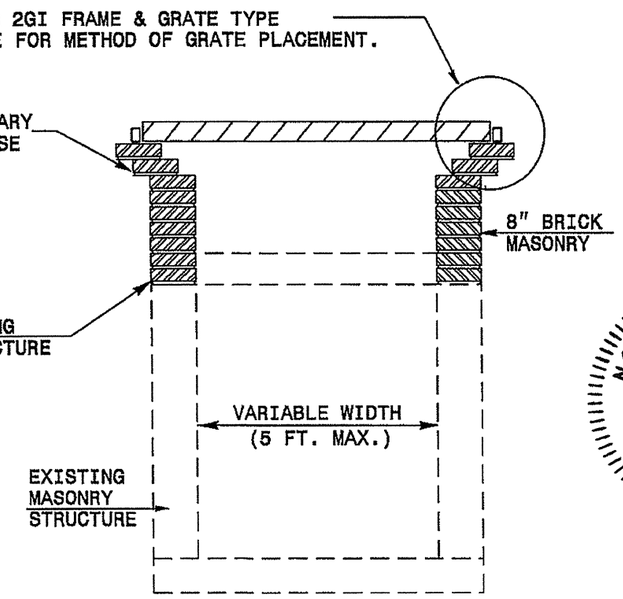
- -CONSTRUCT IN ACCORDANCE WITH SECTION 859 OF THE STANDARD SPECIFICATIONS.
- -USE CLASS B CONCRETE.
- -THE DIMENSIONS FOR THE EXISTING BOXES ARE APPROXIMATE AND MAY VARY SLIGHTLY.
- -JUMBO CONCRETE BRICK WILL BE PERMITTED. 4" CONCRETE BRICK OR 8" SOLID CONCRETE BLOCK ARE REQUIRED FOR DRAINAGE STRUCTURE.
- -INCLUDE CONCRETE APRON IN UNIT PRICE BID PER EACH, CONVERT EXISTING DROP INLET TO 2GI AS NEEDED.
- -SPECIAL DESIGN IS REQUIRED FOR USE UNDER PAVEMENT.
- -CONFIRM DIMENSIONS ON EACH INDIVIDUAL FRAME & GRATE PROPOSAL.
- -SEE STD. DRAWING 840.25 FOR MASONRY ANCHORAGE.



EXPANSION JOINT DETAIL



TYPICAL SECTION



TYPICAL SECTION

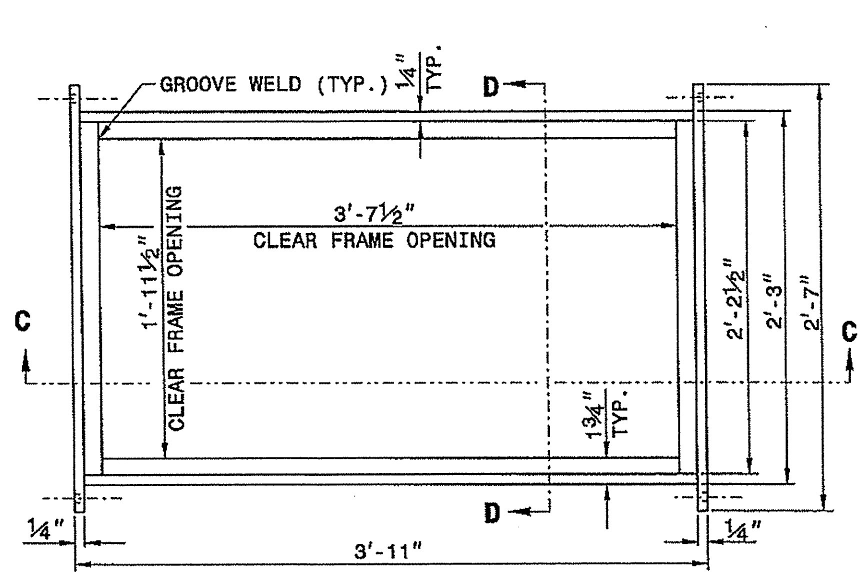
CONTRACT STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

DETAIL TO CONVERT EXISTING DROP INLET TO 2GI

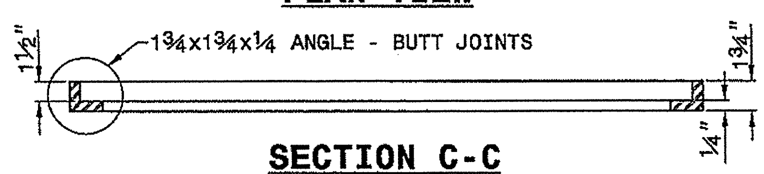
ORIGINAL BY:	T.S.S.	DATE:	NOV.1997
MODIFIED BY:	T.S.S.	DATE:	FEB.2000
CHECKED BY:		DATE:	
FILE SPEC.:	s:jhowerton/Convert DI to 2GI		

28-JUN-2012 13:51
R:\ROYDOTHREE\NEW_HANOVER\3C.065998_DOW_BIKE LANES_022412\ROADWAY\Proj\Plan_Sheets\Convert DI to 2GI.dgn
mkimmel AT DSCAD257156

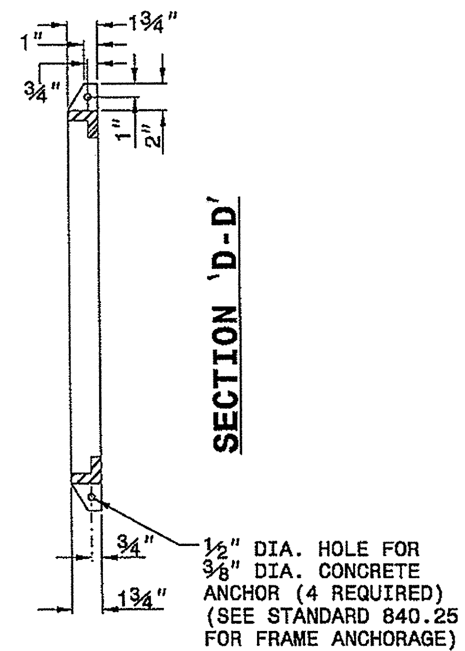
PROJECT REFERENCE NO.	SHEET NO.
3C.065998	2-E



PLAN VIEW

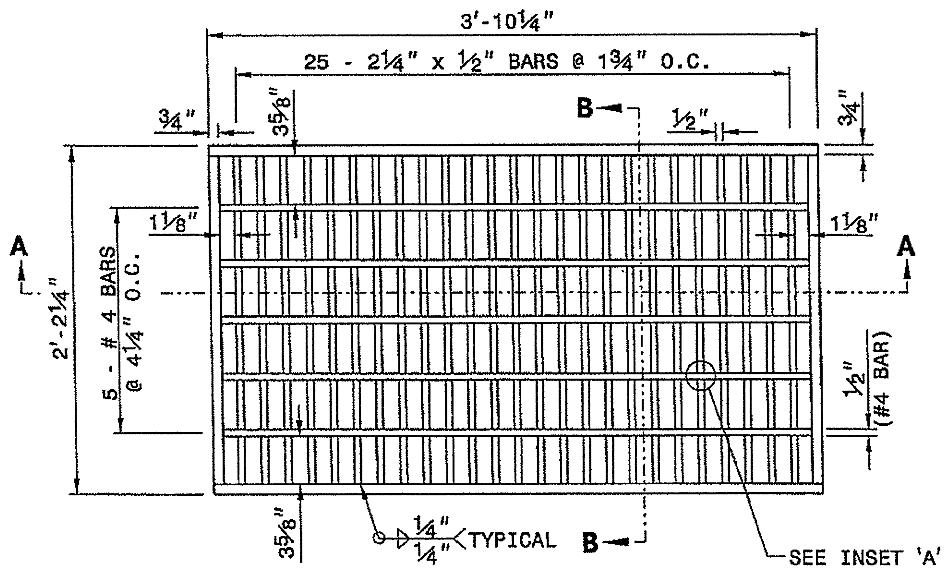


SECTION C-C
FRAME

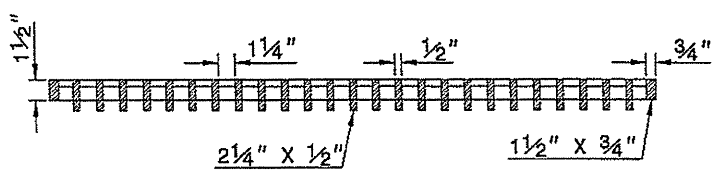


NOTES:

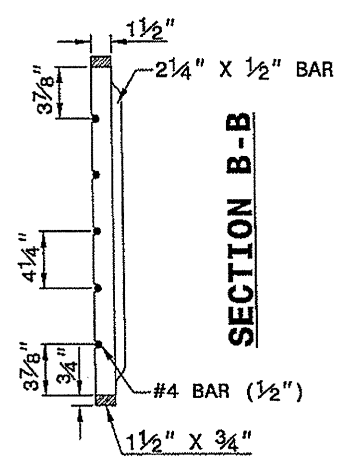
1. HOT DIP GALVANIZE FRAME AND GRATE IN ACCORDANCE WITH ASTM DESIGNATION A-123 AND AASHTO M-111.
2. GRATE SHOULD MEET HS-20 LOADING.
3. PROVIDE STEEL CONFORMING TO THE REQUIREMENTS OF A.S.T.M. DESIGNATION A-36.
4. WELD IN ACCORDANCE WITH THE ANSI/AASHTO/AWS D1.5 WELDING CODE. SEAL WELD ALL CONNECTIONS ALONG TOP AND BOTTOM HORIZONTAL SEAMS OF CONNECTIONS IN ADDITION TO ANY REQUIRED STRUCTURAL WELDS.

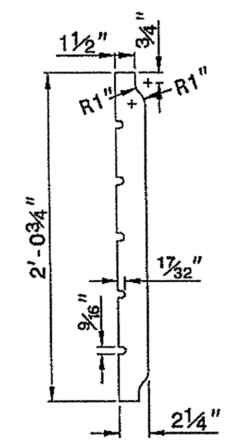


PLAN VIEW

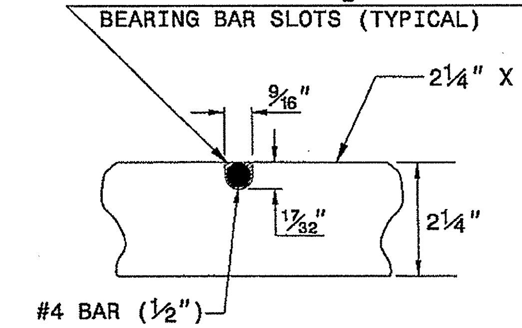


SECTION A-A
GRATE





DETAIL OF BEARING BAR



INSET 'A'

(17/32" X 9/16" NOTCH IN 2¼" X ½" BAR)

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 022966 JOEL S. HOWERTON
7/16/12

REVISED 10-10-02
FOR HS-20 LOADING

CONTRACT STANDARDS
AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

BICYCLE SAFE
STEEL GRATE AND FRAME

ORIGINAL BY: E.E. WARD DATE: 11-12-98
MODIFIED BY: E.E. WARD DATE: 10-10-02
CHECKED BY: DATE:
FILE SPEC.: /usr/stand/details/bicyclesafe.dgn

$$$$$SYSTIME$$$$$ $$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$ $$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
3C.065998	2-F

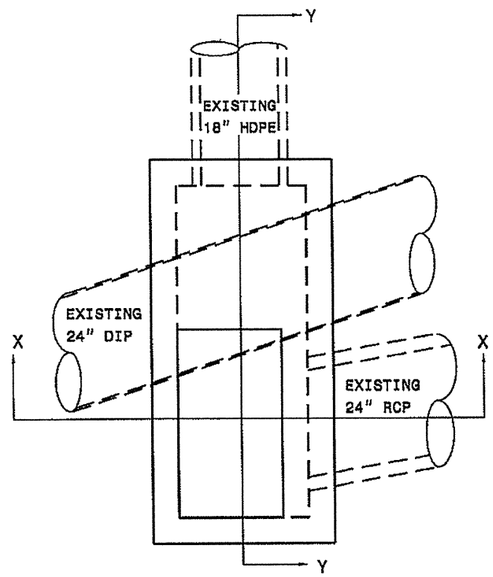
STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR

CONCRETE DROP INLET

SHEET 1 OF 1

840D14



PLAN

WITH GRATE & FRAME REMOVED

GENERAL NOTES:

USE CLASS "B" CONCRETE THROUGHOUT.

PROVIDE ALL DROP INLETS OVER 3'-6" IN DEPTH WITH STEPS 12" ON CENTER. USE STEPS WHICH COMPLY WITH STD. DRAWING 840.66.

OPTIONAL CONSTRUCTION - MONOLITHIC POUR 2" KEYWAY OR #4 BAR DOWELS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.

USE FORMS FOR THE CONSTRUCTION OF THE BOTTOM SLAB.

IF REINFORCED CONCRETE PIPE IS SET IN BOTTOM SLAB OF BOX, ADD TO SLAB AS SHOWN ON STD. NO. 840.00.

CONSTRUCT WITH PIPE CROWNS MATCHING.

SEE STANDARD DRAWING 840.25 FOR ATTACHMENT OF FRAMES AND GRATES NOT SHOWN.

CHAMFER ALL EXPOSED CORNERS 1".

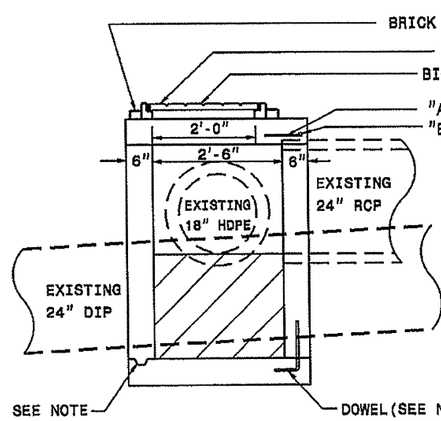
DRAWING NOT TO SCALE.

DIMENSIONS MAY BE ADJUSTED AS DIRECTED BY ENGINEER.

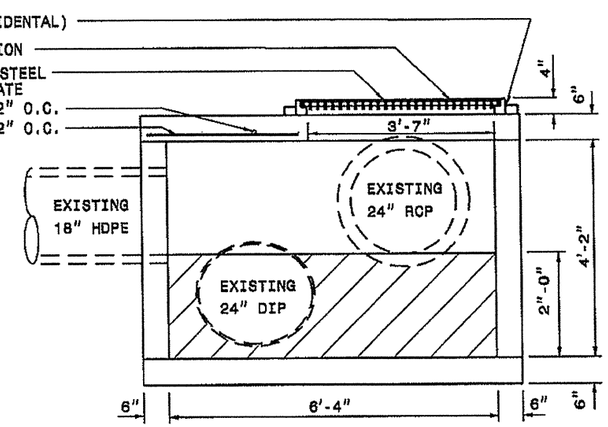
BILL OF MATERIALS

BAR	QTY	SIZE	LENGTH	WEIGHT
A	8	#4	3'-2"	17
B	4	#4	7'-0"	19
TOTAL REINF. STEEL (LBS.)				36
TOTAL CONC. (CU.YDS.)				2.4

NOTE: NO DEDUCTIONS HAVE BEEN MADE TO ACCOMMODATE PIPES.

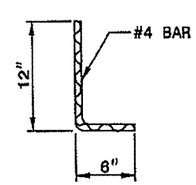


SECTION X-X



SECTION Y-Y

APPROVED GROUT



DOWEL

STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR

CONCRETE DROP INLET

SHEET 1 OF 1

840D14

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER JOEL THOMPSON

7/16/12

CONTRACT STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

SEE PLATE FOR TITLE

ORIGINAL BY: 2012 STD.840.14 DATE:
MODIFIED BY: K.A. KEMPF DATE: 06-26-12
CHECKED BY: DATE:
FILE SPEC.: details/KKEMPF/english/840d17.dgn

05-JUL-2012 14:36
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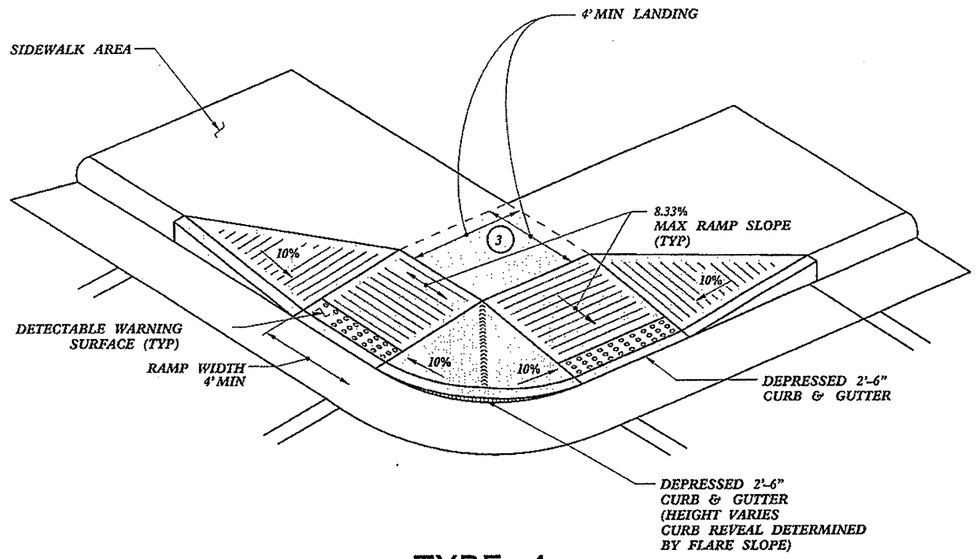
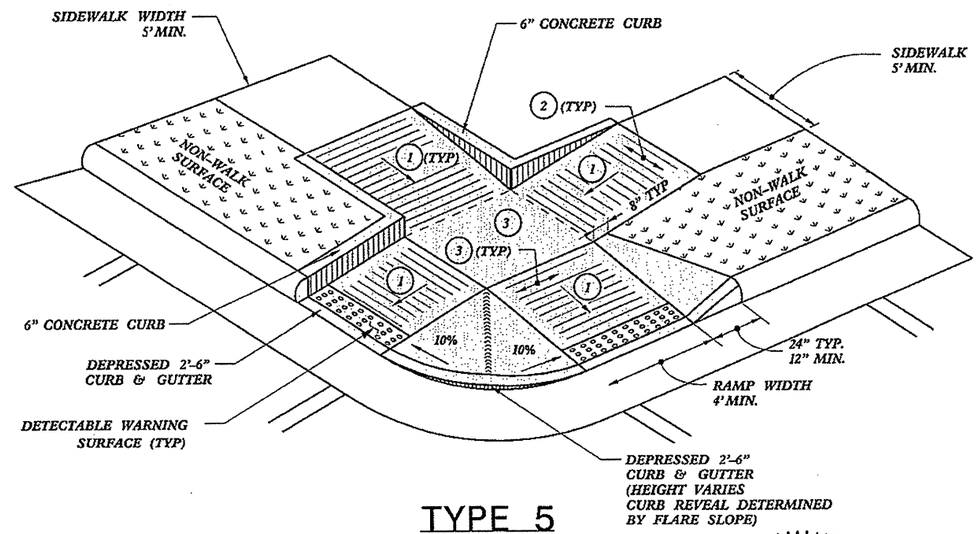
dlefave AT DSCOD247798

PROJECT REFERENCE NO.	SHEET NO.
3C-0659B	2-G

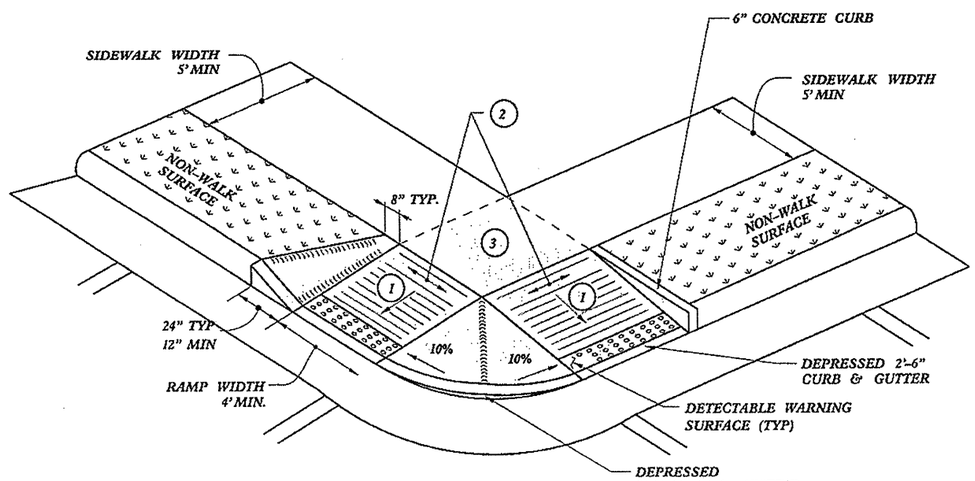
PAY LIMITS FOR CURB RAMP



TYPE 4



TYPE 5



TYPE 4A

1. 8.33% (12:1) MAX RAMP SLOPE
2. CROSS SLOPE: 2.00%
3. CURB RAMPS REQUIRE A (4'-0") MINIMUM LANDING WITH A MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 2.00% WHERE PEDESTRIANS PERFORM TURNING MANEUVERS. SLOPE TO DRAIN TO CURB.

REFER TO ROADWAY STANDARD DRAWING NUMBER 848.05 SHEET 3 OF 3 FOR ALL RAMP NOTES

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER JOEL S. HOWERTON

7/16/12

CONTRACT STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

CURB RAMPS

Shared Landing

ORIGINAL BY: J.S. HOWERTON DATE: 7/7/11
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC. stds/2012CurbRamp/CurbRampDetails.dgn

5/14/99

16-SEP-2011 15:06
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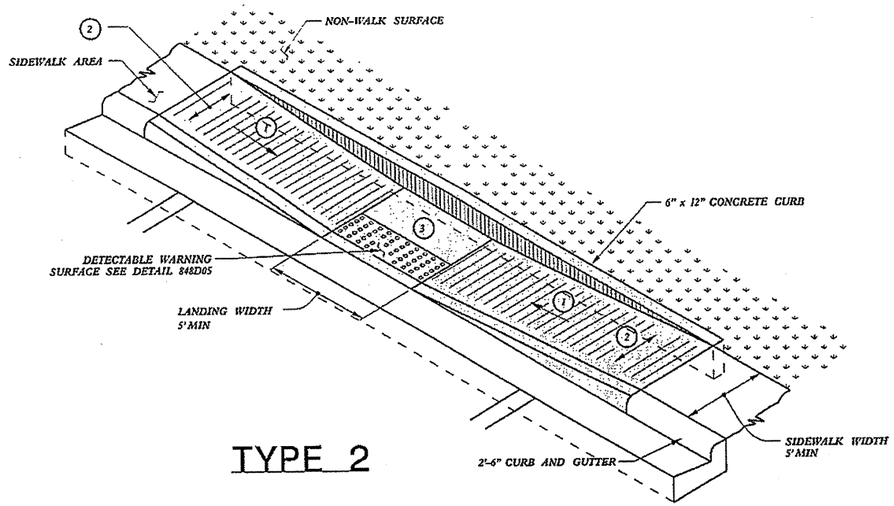
jhowerton AT CSD237/60

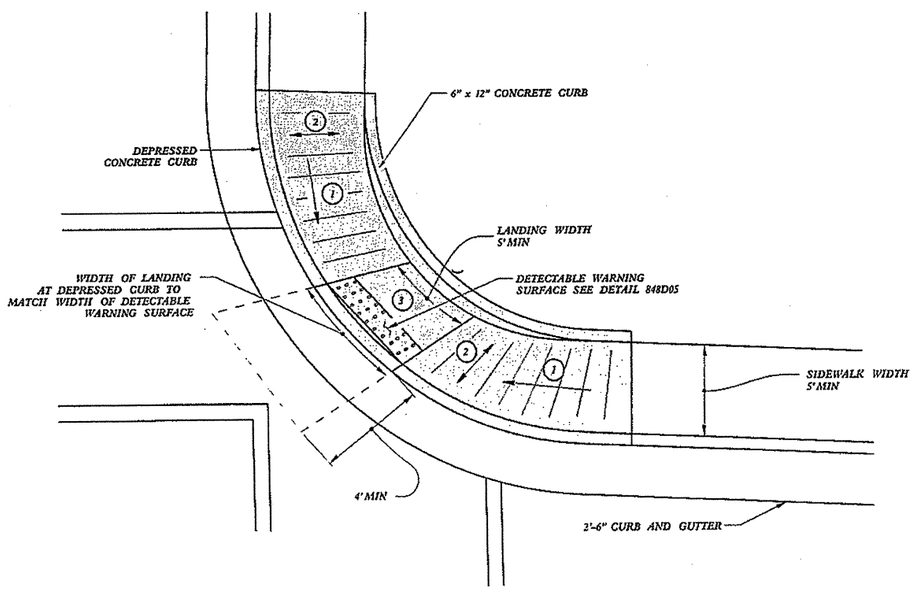
PROJECT REFERENCE NO.	SHEET NO.
BC.0165995	2-H



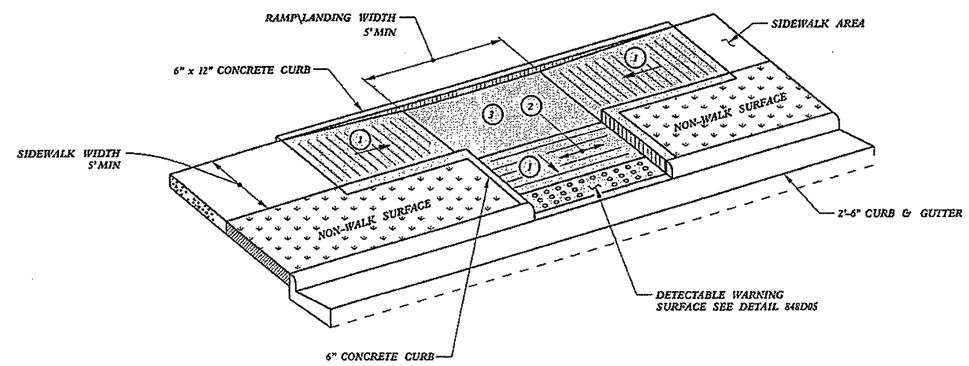
TYPE 2

PAY LIMITS FOR CURB RAMP

1. 8.33% (12:1) MAX RAMP SLOPE
2. CROSS SLOPE: 2.00%
3. CURB RAMPS REQUIRE A (4'-0") MINIMUM LANDING WITH A MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 2.00% WHERE PEDESTRIANS PERFORM TURNING MANEUVERS. SLOPE TO DRAIN TO CURB.



TYPE 2A



TYPE 3

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER JOEL S. HOWERTON

7/16/12

REFER TO ROADWAY STANDARD DRAWING NUMBER 848.05 SHEET 3 OF 3 FOR ALL RAMP NOTES

CONTRACT STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

CURB RAMPS

Parallel Ramps

ORIGINAL BY: J.S. HOWERTON DATE: 7/7/11
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC. :stds/2012CurbRamp/CurbRampDetails.dgn

5/16/99

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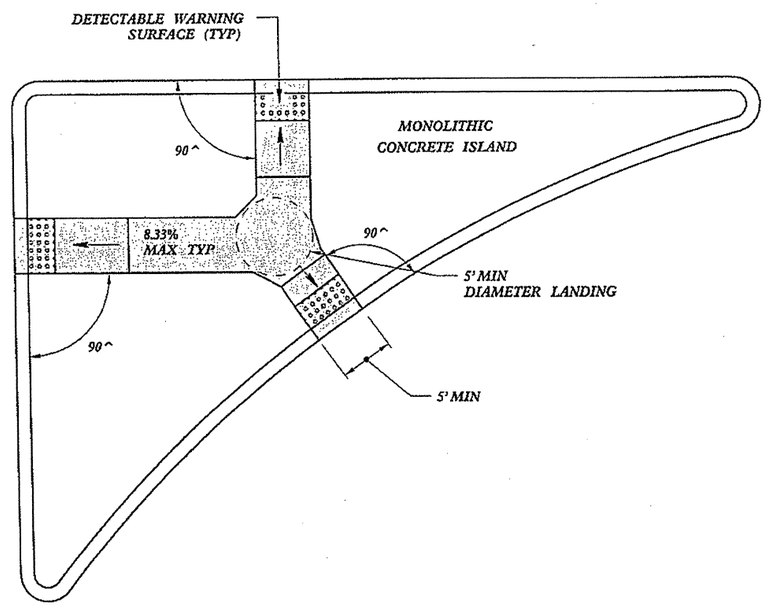
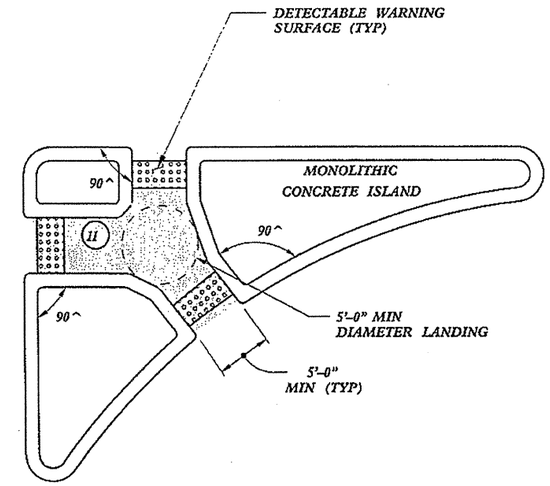
jhowerton AT C50237501

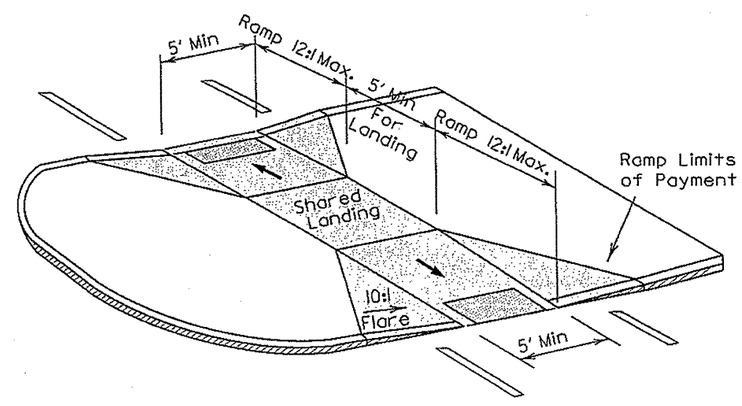
PROJECT REFERENCE NO.	SHEET NO.
3C.065993	2-I



LARGE ISLAND
CURB RAMPS



SMALL ISLAND
WITH CUT THROUGH



MEDIAN ISLAND
CURB RAMPS

-SEE ROADWAY DETAIL DRAWING 848D05 FOR DETECTABLE WARNING SURFACE AND FOR RAMP NOTES.

-SEE ROADWAY STANDARD DRAWING 852.01 FOR CONCRETE ISLAND DIMENSIONS.

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER JOYCE S. HOWERTON
7/16/12

CONTRACT STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

CURB RAMPS

Median or Turn Lane Islands

ORIGINAL BY: J.S. HOWERTON DATE: 7/7/11
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC. stds/2012CurbRamp/CurbRampDetails.dgn

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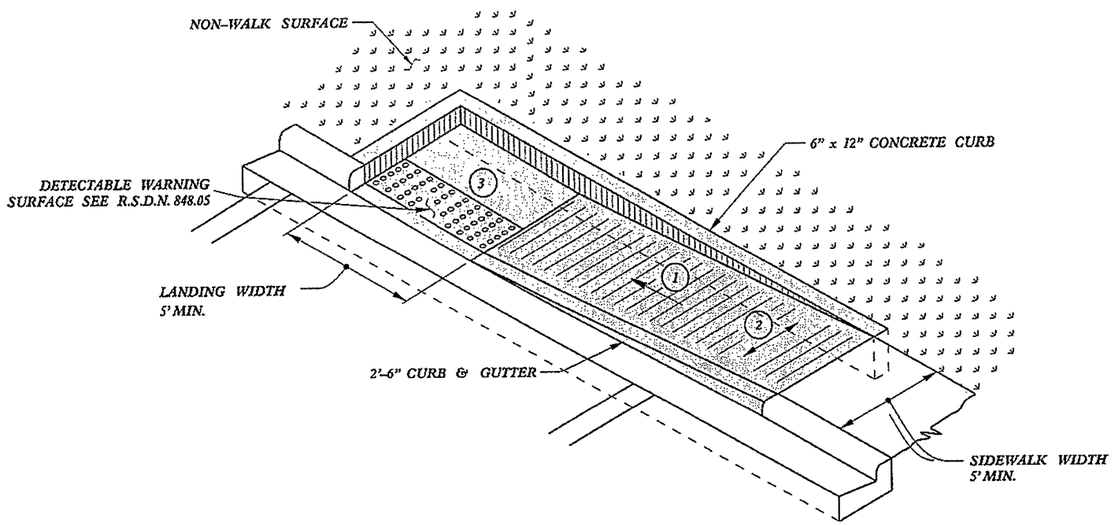
jhowerton
AT CSD237501

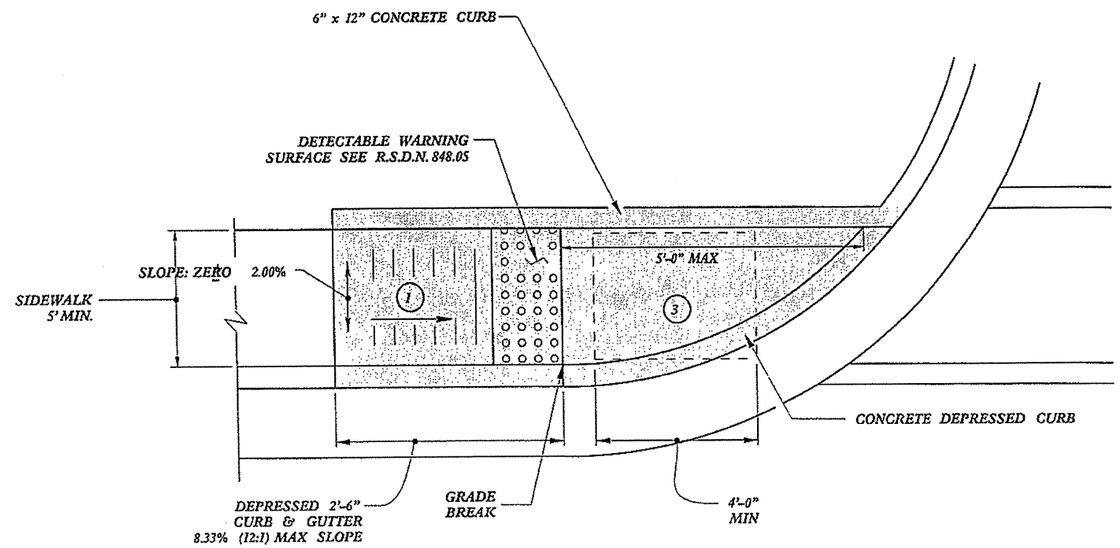
5/14/99

PROJECT REFERENCE NO.	SHEET NO.
3C.065998	2-J

PAY LIMITS FOR CURB RAMP



TYPE 1A



TYPE 1

(1) 8.33% (12:1) MAX RAMP SLOPE

(2) CROSS SLOPE: 2.00%

(3) CURB RAMPS REQUIRE A (4'-0") MINIMUM LANDING WITH A MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 2.00% WHERE PEDESTRIANS PERFORM TURNING MANEUVERS. SLOPE TO DRAIN TO CURB.

REFER TO ROADWAY STANDARD DRAWING NUMBER 848.05 SHEET 3 OF 3 FOR ALL RAMP NOTES

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER JOHN S. HOWERTON
7/16/12

CONTRACT STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

CURB RAMPS

Directional Ramps

ORIGINAL BY: J.S. HOWERTON DATE: 7/7/11
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC. :stds/2012CurbRamp/CurbRampDetails.dgn

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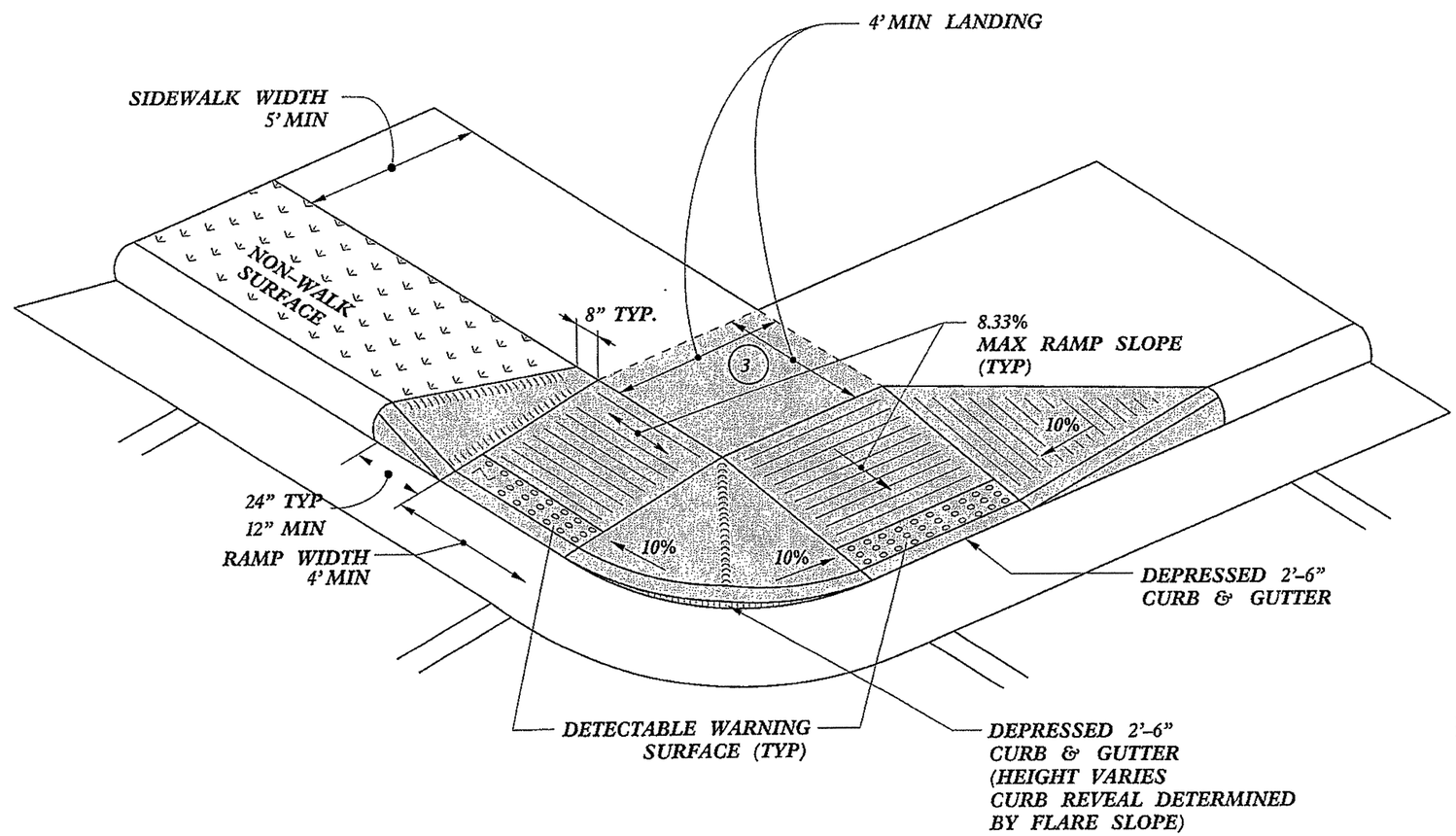
jhowerton
AT CSD237501

PROJECT REFERENCE NO.	SHEET NO.
3C.065998	2-K

PAY LIMITS FOR CURB RAMP



NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER JOEL THOMAS HOWERTON

7/16/12

1. 8.33% (12:1) MAX RAMP SLOPE
2. CROSS SLOPE: 2.00%
3. CURB RAMPS REQUIRE A (4'-0") MINIMUM LANDING WITH A MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 2.00% WHERE PEDESTRIANS PERFORM TURNING MANEUVERS. SLOPE TO DRAIN TO CURB.

REFER TO ROADWAY STANDARD DRAWING NUMBER 848.05 SHEET 3 OF 3 FOR ALL RAMP NOTES

CONTRACT STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

CURB RAMPS

Shared Landing

ORIGINAL BY: J.S. HOWERTON DATE: 7/7/11
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC. :stds/2012CurbRamp/CurbRampDetails.dgn

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jhowerton at CSD23750

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
3C.065998	2-L

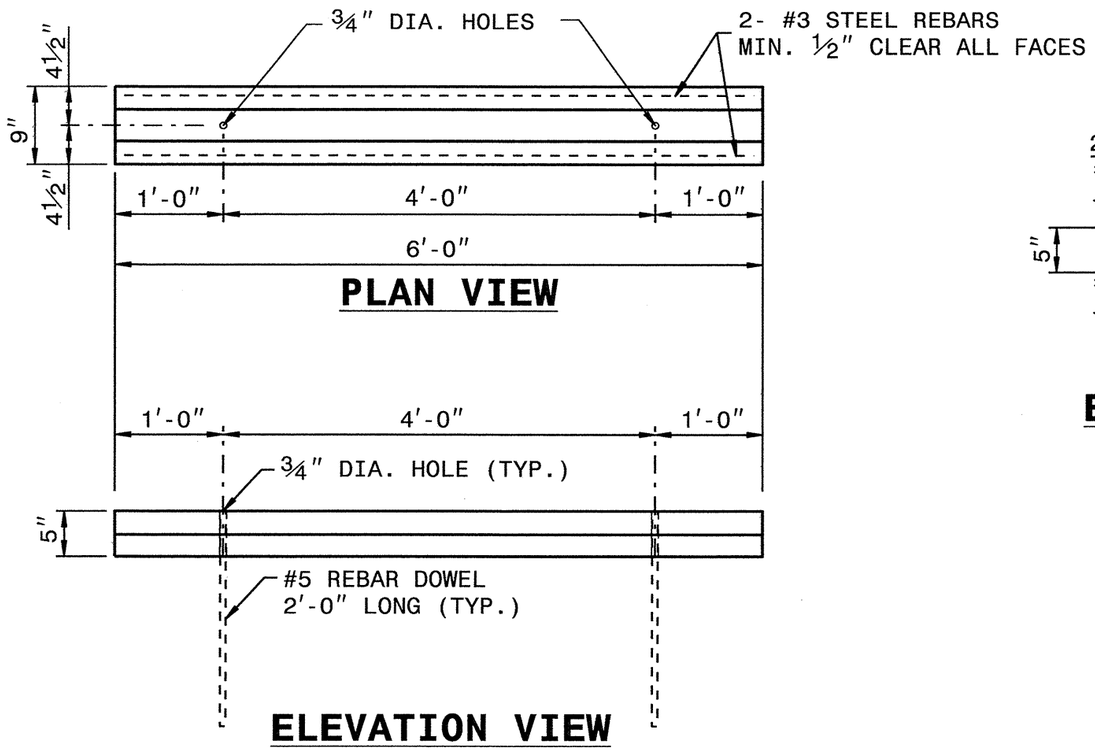
STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

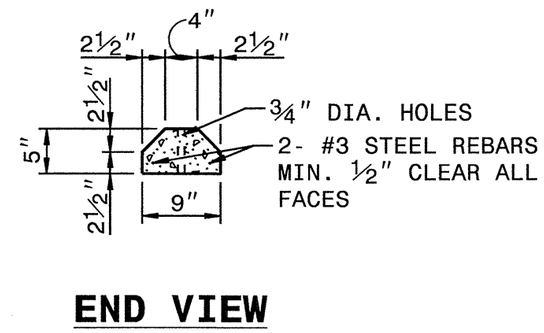
ENGLISH DETAIL DRAWING FOR

PRECAST CONCRETE PARKING CURB

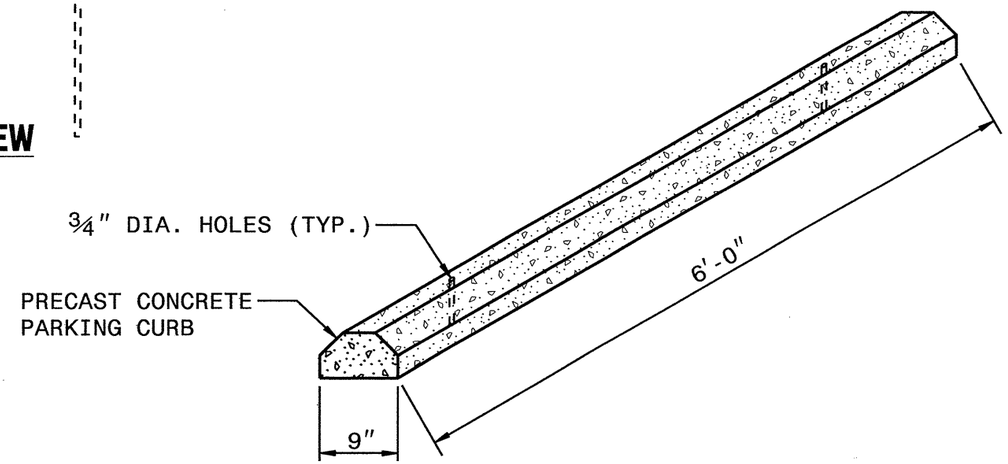
SHEET 1 OF 1

PRCSTCRB





CENERAL NOTES:
- CONCRETE COMPRESSIVE STRENGTH 4000psi MIN.
- ASTM A615M - GRADE 400 REINFORCING STEEL.



ISOMETRIC VIEW

STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR

PRECAST CONCRETE PARKING CURB

SHEET 1 OF 1

PRCSTCRB

$$$$SYSTIME$$$$
$$$$USERNAME$$$$

CONTRACT STANDARDS
AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

SEE PLATE FOR TITLE

ORIGINAL BY: E.E. WARD DATE: 5-97
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.: s:eric\usr\details\metric\stand\prstcrb eng.dgn

PROJECT NO.	SHEET NO.	TOTAL NO.
3C.065998, ETC.	3	

SUMMARY OF QUANTITIES

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP NO	FINAL SURFACE TESTING REQUIRED	LENGTH FT	WIDTH FT	CONST. SURVEYING LS	SELECT TREE REMOVAL EA	BORROW EXC. CY	FOUND. COND. MAT., MINOR STRS TON	FOUND. COND. GEOTEXTILE SY	24" DRAINAGE PIPE LF	12"RCP CULVERTS, CL. III LF	15" RCP CULVERTS, CL. III LF	18" RCP CULVERTS, CL. III LF	24" RCP CULVERTS, CL. III LF	INC. STONE BASE TONS	SHOULDER RECONST. SMI	1" MILLING SY	INC. MILLING SY	BASE COURSE, B25.0B TONS	INT. COURSE, I19.0B TONS	SURFACE COURSE, SF9.5A TONS	ASPHALT BINDER FOR PLANT MIX TON
3C.065998	NewHanover	1	SR 1573 (DOW ROAD) 5+90 TO 215+50	US 421 (KB) TO US 421 (CB), STA. 5+90 TO 215+50		NO	5	1	1			75	125													
		"	"	MILL & FILL, INCLUDING PARKING AREAS (5+90 TO 10+50)	1	NO	459	70											10		3,573				226	15
		"	"	MILL & FILL, WIDEN RIGHT SHOULDER 5' (10+50 TO 20+42)	2	NO	993	41			100								10	0.19	3,971			109	252	22
		"	"	WIDEN SHOULDERS 5' IN TAPER (20+42 TO 24+00)	3	NO	359	34			311								20	0.14				77	86	9
		"	"	WIDEN SHOULDERS 5' (24+00 TO 99+00)	3	NO	7498	32			311								20	2.84				1,606	1,691	190
		"	"	WIDEN SHOULDERS 5' (99+00 TO 109+92)	3	NO	1093	32		1	82								5	0.41				234	246	28
		"	"	WIDEN FOR TURN BAY AND SHOULDERS (109+92 TO 120+44 OCEAN)	4	NO	1051	44			137								20	0.40			499	392	326	63
		"	"	WIDEN SHOULDERS 5' (120+44 TO 165+22)	3	NO	4477	32			283				12	230	92	304	5	1.70				959	1,010	114
		"	"	WIDEN FOR TURN BAY AND SHOULDERS (165+22 TO 175+42 CAPE FEAR)	4	NO	1019	44			57					16		40	25	0.39			406	319	316	54
		"	"	WIDEN SHOULDERS 5' (175+42 TO 187+29)	3	NO	1188	32			55								5	0.45				254	268	30
		"	"	WIDEN FOR TURN BAY AND SHOULDERS (187+29 TO 197+08 HARPER)	4	NO	977	44			138			12					75	0.37			405	318	303	53
		"	"	WIDEN SHOULDERS 5' (197+08 TO 205+00)	3	NO	792	32			110									0.30				170	179	20
		"	"	WIDEN SHOULDERS 5' IN TAPER (205+00 TO 211+47)	3	NO	649	42			110									0.25				139	192	20
		"	"	MILL & FILL, WIDEN SHOULDERS 5' IN TAPER (211+47 TO 215+50)	5	NO	401	66			110									0.15	2,943	722		86	186	17
TOTAL FOR MAP NO. 1							**20961**		**1**	**1**	**1,804**	**75**	**125**	**12**	**12**	**246**	**92**	**344**	**195**	**7.58**	**10,487**	**722**	**1,310**	**4,663**	**5,281**	**635**
TOTAL FOR PROJ NO. 3C.065998							**20961**		**1**	**1**	**1,804**	**75**	**125**	**12**	**12**	**246**	**92**	**344**	**195**	**7.58**	**10,487**	**722**	**1,310**	**4,663**	**5,281**	**635**
GRAND TOTAL							**20961**		**1**	**1**	**1,804**	**75**	**125**	**12**	**12**	**246**	**92**	**344**	**195**	**7.58**	**10,487**	**722**	**1,310**	**4,663**	**5,281**	**635**

PROJECT NO.	SHEET NO.	TOTAL NO.
3c.065998	3A	

SUMMARY OF QUANTITIES

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP NO	FINAL SURFACE TESTING REQUIRED	LENGTH FT	WIDTH FT	PATCHING EXISTING PAVEMENT (MILL) TON	PATCHING EXISTING PAVEMENT (FULL DEPTH) TONS	PIPE COLLARS CY	MASONRY DRAINAGE STRUCT EA	FRAME WITH COVER, STD 840.54 EA	BICYCLE SAFE STEEL GRATE AND FRAME EA	CONVERT EXISTING DI TO 2GI EA	RETROFIT EXISTING CURB RAMP EA	6" DRIVEWAYS SY	5" MONOLITHIC CONC. ISLANDS (KEYED IN) SY	REMOVE & REPLACE CURB RAMPS EA	REMOVE AND RESET PRECAST CONCRETE PARKING CURB EA	ADJ. OF MANHOLES EA	ADJ. OF METER OR VALVE BOX EA	RELOCATE FIRE HYDRANT EA	TEMP. SILT FENCE LF	STONE FOR EC CLASS B TON	SEDIMENT CONTROL STONE TON
3C.065998	NewHanover	1	SR 1573 (DOW ROAD) 5+90 TO 215+50	US 421 (KB) TO US 421 (CB), STA. 5+90 TO 215+50		NO	5	1	100	10												1		390	100	100
		"	"	MILL & FILL, INCLUDING PARKING AREAS (5+90 TO 10+50)	1	NO	459	70											10	30	6	7				
		"	"	MILL & FILL, WIDEN RIGHT SHOULDER 5' (10+50 TO 20+42)	2	NO	993	41									40		11							
		"	"	WIDEN SHOULDERS 5' IN TAPER (20+42 TO 24+00)	3	NO	359	34																		
		"	"	WIDEN SHOULDERS 5' (24+00 TO 99+00)	3	NO	7498	32																		
		"	"	WIDEN SHOULDERS 5' (99+00 TO 109+92)	3	NO	1093	32																		
		"	"	WIDEN FOR TURN BAY AND SHOULDERS (109+92 TO 120+44 OCEAN)	4	NO	1051	44																		
		"	"	WIDEN SHOULDERS 5' (120+44 TO 165+22)	3	NO	4477	32			0.56	10	5	8	3		30				1	2	1		72	68
		"	"	WIDEN FOR TURN BAY AND SHOULDERS (165+22 TO 175+42 CAPE FEAR)	4	NO	1019	44			1.12	3	1	3	1		20				5	3	1		12	28
		"	"	WIDEN SHOULDERS 5' (175+42 TO 187+29)	3	NO	1188	32														1	2			
		"	"	WIDEN FOR TURN BAY AND SHOULDERS (187+29 TO 197+08 HARPER)	4	NO	977	44			0.56					2		220				2				
		"	"	WIDEN SHOULDERS 5' (197+08 TO 205+00)	3	NO	792	32																		4
		"	"	WIDEN SHOULDERS 5' IN TAPER (205+00 TO 211+47)	3	NO	649	42																		4
		"	"	MILL & FILL, WIDEN SHOULDERS 5' IN TAPER (211+47 TO 215+50)	5	NO	401	66								4										4
TOTAL FOR MAP NO. 1							**20961**		**100**	**10**	**2.24**	**13**	**6**	**11**	**4**	**6**	**90**	**220**	**21**	**30**	**12**	**16**	**4**	**390**	**184**	**208**
TOTAL FOR PROJ NO. 3C.065998							**20961**		**100**	**10**	**2.24**	**13**	**6**	**11**	**4**	**6**	**90**	**220**	**21**	**30**	**12**	**16**	**4**	**390**	**184**	**208**
GRAND TOTAL							**20961**		**100**	**10**	**2.24**	**13**	**6**	**11**	**4**	**6**	**90**	**220**	**21**	**30**	**12**	**16**	**4**	**390**	**184**	**208**

PROJECT NO.	SHEET NO.	TOTAL NO.
3C.065998	3B	

SUMMARY OF QUANTITIES

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP NO	FINAL SURFACE TESTING REQUIRED	LENGTH FT	WIDTH FT	TEMP. MULCHING ACR	SAFETY FENCE LF	SILT EXC. CY	MATTING FOR EROSION CONTROL SY	1/4" HARDWARE CLOTH LF	WATTLE LF	SEED & MULCHING AC	SEED FOR REPAIR SEEDING LB	FERTILIZER FOR REPAIR SEEDING TON	INDUCTIVE LOOP LF	LEAD-IN CABLE (14-2) LF
3C.065998	NewHanover	1	SR 1573 (DOW ROAD) 5+90 TO 215+50	US 421 (KB) TO US 421 (CB), STA. 5+90 TO 215+50		NO	5	1	3.89			30	200	60		200	1.00		
		"	"	MILL & FILL, INCLUDING PARKING AREAS (5+90 TO 10+50)	1	NO	459	70										175	25
		"	"	MILL & FILL, WIDEN RIGHT SHOULDER 5' (10+50 TO 20+42)	2	NO	993	41							0.14				
		"	"	WIDEN SHOULDERS 5' IN TAPER (20+42 TO 24+00)	3	NO	359	34							0.10				
		"	"	WIDEN SHOULDERS 5' (24+00 TO 99+00)	3	NO	7498	32		300					2.13				
		"	"	WIDEN SHOULDERS 5' (99+00 TO 109+92)	3	NO	1093	32							0.31				
		"	"	WIDEN FOR TURN BAY AND SHOULDERS (109+92 TO 120+44 OCEAN)	4	NO	1051	44							0.30				
		"	"	WIDEN SHOULDERS 5' (120+44 TO 165+22)	3	NO	4477	32			25		100	20	1.27				
		"	"	WIDEN FOR TURN BAY AND SHOULDERS (165+22 TO 175+42 CAPE FEAR)	4	NO	1019	44			11		100	80	0.29				
		"	"	WIDEN SHOULDERS 5' (175+42 TO 187+29)	3	NO	1188	32						60	0.34				
		"	"	WIDEN FOR TURN BAY AND SHOULDERS (187+29 TO 197+08 HARPER)	4	NO	977	44						90	0.28				
		"	"	WIDEN SHOULDERS 5' (197+08 TO 205+00)	3	NO	792	32			2		20	10					
		"	"	WIDEN SHOULDERS 5' IN TAPER (205+00 TO 211+47)	3	NO	649	42			2		20	10					
		"	"	MILL & FILL, WIDEN SHOULDERS 5' IN TAPER (211+47 TO 215+50)	5	NO	401	66			2		20	10				525	75
TOTAL FOR MAP NO. 1							**20961**		**3.89**	**300**	**42**	**30**	**460**	**340**	**5.16**	**200**	**1.00**	**700**	**100**
TOTAL FOR PROJ NO. 3C.065998							**20961**		**3.89**	**300**	**42**	**30**	**460**	**340**	**5.16**	**200**	**1.00**	**700**	**100**
GRAND TOTAL							**20961**		**3.89**	**300**	**42**	**30**	**460**	**340**	**5.16**	**200**	**1.00**	**700**	**100**

PROJECT NO.	SHEET NO.
3C.065998, ETC.	3C

THERMOPLASTIC AND PAINT QUANTITIES

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	LENGTH	WIDTH	4399000000-N TEMPORARY TRAFFIC CONTROL LS	4520000000-N TUBULAR MARKERS (FIXED) EA	4685000000-E 4" X 90 M WHITE THERMO LF	4685000000-E 4" X 90 M YELLOW THERMO LF	4686000000-E 4" X 120 M WHITE THERMO LF	4686000000-E 4" X 120 M YELLOW THERMO LF	4695000000-E 8" X 90 M YELLOW THERMO LF	4695000000-E 8" X 90 M WHITE THERMO LF	4697000000-E 8" X 120 M WHITE THERMO LF	4700000000-E 12" X 90 M YELLOW THERMO LF	4702000000-E 12" X 120 M WHITE THERMO LF	4710000000-E 24" X 120 M WHITE THERMO LF	4725000000-E THERMO LT ARROW 90 M EA	4725000000-E THERMO STR & LT ARROW 90 M EA	4725000000-E THERMO RT ARROW 90 M EA	4726000000-E HEATED-IN-PLACE THERMOPLASTIC PAVEMENT MARKING LINES (4", 90 MILS) LF	4810000000-E 4" WHITE PAINT LF	4810000000-E 4" YELLOW PAINT LF
3C.065998	NewHanover	1	SR 1573 (DOW ROAD) 5+90 TO 215+50	US 421 (KB) TO US 421 (CB), STA. 5+90 TO 215+50	5	1	1																	
		"	"	MILL & FILL, INCLUDING PARKING AREAS (5+90 TO 10+50)	459	70		30			2,500				250			36					2,500	
		"	"	MILL & FILL, WIDEN RIGHT SHOULDER 5' (10+50 TO 20+42)	993	41			993			2,482							9				993	2,482
		"	"	WIDEN SHOULDERS 5' IN TAPER (20+42 TO 24+00)	359	34			716			539	150											
		"	"	WIDEN SHOULDERS 5' (24+00 TO 99+00)	7498	32			16,725			11,246												
		"	"	WIDEN SHOULDERS 5' (99+00 TO 109+92)	1093	32			2,100			1,639												
		"	"	WIDEN FOR TURN BAY AND SHOULDERS (109+92 TO 120+44 OCEAN)	1051	44			2,300		150	3,512				200			1				2,346	3,512
		"	"	WIDEN SHOULDERS 5' (120+44 TO 165+22)	4477	32			8,900			6,716												
		"	"	WIDEN FOR TURN BAY AND SHOULDERS (165+22 TO 175+42 CAPE FEAR)	1019	44			2,220		130	3,322				200			1				2,350	3,322
		"	"	WIDEN SHOULDERS 5' (175+42 TO 187+29)	1188	32			2,200			1,782												
		"	"	WIDEN FOR TURN BAY AND SHOULDERS (187+29 TO 197+08 HARPER)	977	44			1,750	500	205	3,034				200	180	135	2			350	2,305	3,034
		"	"	WIDEN SHOULDERS 5' (197+08 TO 205+00)	792	32			1,584			1,188												
		"	"	WIDEN SHOULDERS 5' IN TAPER (205+00 TO 211+47)	649	42			1,299		87	2,598	250										1,386	2,598
		"	"	MILL & FILL, WIDEN SHOULDERS 5' IN TAPER (211+47 TO 215+50)	401	66			803	803	922			500			175	275	3	2	2	2,000	1,725	803
TOTAL FOR MAP NO. 1					**20961**		**1**	**30**	**41,590**	**1,303**	**3,994**	**38,058**	**400**	**500**	**250**	**600**	**355**	**446**	**16**	**2**	**2**	**2,350**	**13,605**	**15,751**
TOTAL FOR PROJ NO. 3C.065998					**20961**		**1**	**30**	**41,590**	**1,303**	**3,994**	**38,058**	**400**	**500**	**250**	**600**	**355**	**446**	**16**	**2**	**2**	**2,350**	**13,605**	**15,751**
									42,893		**42,052**		**900**						**20**				**29,356**	
GRAND TOTAL					**20961**		**1**	**30**	**41,590**	**1,303**	**3,994**	**38,058**	**400**	**500**	**250**	**600**	**355**	**446**	**16**	**2**	**2**	**2,350**	**13,605**	**15,751**
									42,893		**42,052**		**900**						**20**				**29,356**	

PROJECT NO.	SHEET NO.	TOTAL NO.
3C.065998	3D	

THERMOPLASTIC AND PAINT QUANTITIES

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	LENGTH	WIDTH	4820000000-E 8" WHITE PAINT LF	4820000000-E 8" YELLOW PAINT LF	4825000000-E 12" YELLOW PAINT LF	4825000000-E 12" WHITE PAINT LF	4835000000-E 24" WHITE PAINT LF	4845000000-N PAINT LT ARROW EA	4845000000-N PAINT STR & LT ARROW EA	4845000000-N PAINT RT ARROW EA	4891000000-E WHITE THERMO PROFILED PAVEMENT MARKING LINE, 4" LF	4900000000-N CYAN & RED MARKERS EA	4900000000-N YELLOW & YELLOW MARKERS EA	4905000000-N SNOW PLOWABLE MARKERS (Y/Y) EA	4905000000-N SNOW PLOWABLE MARKERS (C/R) EA
3C.065998	NewHanover	1	SR 1573 (DOW ROAD) 5+90 TO 215+50	US 421 (KB) TO US 421 (CB), STA. 5+90 TO 215+50	5	1													
		"	"	MILL & FILL, INCLUDING PARKING AREAS (5+90 TO 10+50)	459	70	250				36								
		"	"	MILL & FILL, WIDEN RIGHT SHOULDER 5' (10+50 TO 20+42)	993	41						9						50	
		"	"	WIDEN SHOULDERS 5' IN TAPER (20+42 TO 24+00)	359	34									1,000			4	
		"	"	WIDEN SHOULDERS 5' (24+00 TO 99+00)	7498	32									1,000			94	
		"	"	WIDEN SHOULDERS 5' (99+00 TO 109+92)	1093	32												14	
		"	"	WIDEN FOR TURN BAY AND SHOULDERS (109+92 TO 120+44 OCEAN)	1051	44			200			1						34	5
		"	"	WIDEN SHOULDERS 5' (120+44 TO 165+22)	4477	32												56	
		"	"	WIDEN FOR TURN BAY AND SHOULDERS (165+22 TO 175+42 CAPE FEAR)	1019	44			200			1						32	5
		"	"	WIDEN SHOULDERS 5' (175+42 TO 187+29)	1188	32									400			15	
		"	"	WIDEN FOR TURN BAY AND SHOULDERS (187+29 TO 197+08 HARPER)	977	44			200	180	135	2			100	25	35	31	8
		"	"	WIDEN SHOULDERS 5' (197+08 TO 205+00)	792	32									400			10	
		"	"	WIDEN SHOULDERS 5' IN TAPER (205+00 TO 211+47)	649	42		250										18	25
		"	"	MILL & FILL, WIDEN SHOULDERS 5' IN TAPER (211+47 TO 215+50)	401	66	500			175	275	3	2	2			50		48
TOTAL FOR MAP NO. 1					**20961**		**750**	**250**	**600**	**355**	**446**	**16**	**2**	**2**	**2,900**	**25**	**85**	**358**	**91**
TOTAL FOR PROJ NO. 3C.065998					**20961**		**750**	**250**	**600**	**355**	**446**	**16**	**2**	**2**	**2,900**	**25**	**85**	**358**	**91**
							1,000		**955**			**20**				**110**		**449**	
GRAND TOTAL					**20961**		**750**	**250**	**600**	**355**	**446**	**16**	**2**	**2**	**2,900**	**25**	**85**	**358**	**91**
							1,000		**955**			**20**				**110**		**449**	

COMPUTED BY: DNL DATE: 4/4/2012

CHECKED BY: DATE:

RD244542

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
3C.065998	3-E

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

ABBREVIATIONS

C.B. CATCH BASIN
N.D.I. NARROW DROP INLET
D.I. DROP INLET
G.D.I. GRATED DROP INLET
G.D.I.(N.S.) (NARROW SLOT)
J.B. JUNCTION BOX
M.H. MANHOLE
T.B.D.I. TRAFFIC BEARING DROP INLET
T.B.J.B. TRAFFIC BEARING JUNCTION BOX

STATION / SIZE / THICKNESS OR GAUGE	LOCATION (LT, RT, OR CL)'	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	DRAINAGE PIPE (RCP, CSP, CAAP, HDPE, or PVC) 12"	15"	18"	24"	30"	36"	42"	48"	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE
153+54.57	26.13 LT	1	2		16.8	16.78													
153+68.16	27.03 LT		2	19.3	14.8														
154+34.60	24.59 LT	2	3		16.78	16.75													
153+79.36	25.36 RT		4	19.5	M.E.	M.E.													
154+38.77	25.33 RT		5	19.75	16.59														
154+56.57	25.30 RT	5	6		16.59	16.59													
156+85.98	24.90 RT	7	8		16.59	16.59													
157+05.93	25.65 RT		8	20.5	16.59														
157+05.52	35.37 RT	8	9		16.59	16.59													
157+60.05	31.99 RT	10	11		16.69	16.69													
157+62.38	24.80 RT		11	20.5	16.69														
157+82.24	23.73 RT	11	12		16.69	16.75													
157+22.62	24.34 LT	13	14		16.75	16.93													
158+18.53	25.61 LT		14	20.3	16.93														
159+02.54	26.40 LT	14	15		16.93	17.05													
159+96.88	24.52 RT	16	17		16.78	16.78													
160+06.77	24.61 RT		17	20	16.78														
160+06.77	24.61 RT	17	18	20.37	16.78	16.82													
160+35.76	25.82 RT		18	20.37	16.82														
160+55.29	25.33 RT	18	19		16.82	16.82													
160+55.29	25.33 RT		19	19.75	16.82														
160+69.29	26.09 RT	19	21		16.82	16.84													
160+54.51	39.32 RT	20	19		16.82	16.82													
160+31.08	21.46 LT		22	20.21	17.99														
161+62.96	19.19 LT		23	M.E.	M.E.														
161+62.96	19.19 LT	23	24	M.E.	19.01														
163+72.72	20.88 LT		24	21.31	19.01														
162+97.41	25.38 RT	25	26		17.63	17.63													
163+15.38	25.30 RT		26	20.8	17.63														
163+14.86	39.38 RT	27	26		17.75	17.63													
163+59.84	25.03 RT	28	29		17.95	17.95													
165+88.73	24.93 RT	30	31		18.9	18.9													
166+52.18	24.54 RT	32	33		M.E.	M.E.													
166+70.18	23.63 RT		33	22.2	M.E.														
167+82.36	23.99 RT		34	M.E.	M.E.														

STATION	C.S. PIPE 12" .064	15" .064	18" .064	24" .064	30" .079	36" .079	42" .109	48" .109	R.C. PIPE CLASS III 12"	15"	18"	24"	30"	36"	42"	48"	R.C. PIPE CLASS IV 12"	15"	18"	24"	30"	36"	42"	48"
153+54.57											12													
153+68.16																								
154+34.60												64												
153+79.36																								
154+38.77																								
154+56.57												16												
156+85.98												20												
157+05.93																								
157+05.52										8														
157+60.05										8														
157+62.38																								
157+82.24												16												
157+22.62												96												
158+18.53																								
159+02.54											80													
159+96.88												8												
160+06.77																								
160+06.77												24												
160+35.76																								
160+55.29												16												
160+55.29																								
160+69.29												12												
160+54.51										8														
160+31.08																								
161+62.96																								
161+62.96										206														
163+72.72																								
162+97.41												16												
163+15.38																								
163+14.86									12															
163+59.84												16												
165+88.73												24												
166+52.18												16												
166+70.18																								
167+82.36																								
									12	230	92	344												

STATION	** " R.C. PIPE (CLASS V)	***" RC PIPE CULVERTS, CONTRACTOR DESIGN	***" RC PIPE CULVERTS, CONTRACTOR DESIGN	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CU. YARDS R.C.P.	C.S.P.	QUANTITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0')	*TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') LIN. FT. A 5.0' THRU 10.0'	B 10.0' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G	CONCRETE TRANSITIONAL SECTION DROP INLET	CATCH BASIN	CONCRETE DROP INLET, DWG. 840D14	CONVERT EXISTING D.I. TO 2GI	CONCRETE GRATED DROP INLET TYPE 'A', STD. 840.17 OR STD. 840.26	T.B.J.B. STD. 840.34	BICYCLE SAFE STEEL GRATE AND FRAME	MANHOLE FRAME AND COVER, STD. 840.54	CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71	CONC. COLLARS CL. "B" C.Y. STD. 840.72	PIPE REMOVAL LIN. FT.	REMARKS
153+54.57																								
153+68.16						1									1				1					SEE DETAIL
154+34.60																								
153+79.36																1			1					
154+38.77						1											1		1					
154+56.57																								
156+85.98																								
157+05.93						1												1		1				
157+05.52																								
157+60.05																								
157+62.38						1											1		1					
157+82.24																								
157+22.62																								
158+18.53						1											1		1					
159+02.54																								
159+96.88																								
160+06.77						1												1		1				
160+06.77																								
160+35.76						1												1		1				
160+55.29																								
160+55.29						1												1		1				
160+69.29																								
160+54.51																								
160+31.08																1			1					
161+62.96																1			1					
161+62.96																								
163+72.72						1											1		1					
162+97.41																								
163+15.38						1												1		1				
163+14.86																								
163+59.84																						0.5526		
165+88.73																						0.5526		
166+52.18																						0.5526		
166+70.18						1											1		1					
167+82.36																1			1					
						11									1	4	5	5	10	5		1.6578		

COMPUTED BY: DNL DATE: 4/4/2012

CHECKED BY: DATE:

RD244542

PROJECT NO.	SHEET NO.
3C.065998	3-F

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

STATION / SIZE / THICKNESS OR GAUGE	LOCATION (LT, RT, OR CL)	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	DRAINAGE PIPE (RCP, CSP, CAAP, HDPE, or PVC) 12"	15"	18"	24"	30"	36"	42"	48"	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE
172+96.95	25.06 RT		35	25	21.39														
172+96.95	25.06 RT	35	36		21.39	M.E.													
173+16.93	25.90 RT		36	25	M.E.														
193+38.03	14.99 RT	37	38		M.E.	M.E.					12						X		
193+47.21	32.80 RT		38																
SHEET TOTAL											12								
SHEET 3-E TOTALS																			
GRAND TOTALS											12								

STATION	C.S. PIPE 12" .064	15" .064	18" .064	24" .064	30" .079	36" .079	42" .109	48" .109	R.C. PIPE CLASS III 12"	15"	18"	24"	30"	36"	42"	48"	R.C. PIPE CLASS IV 12"	15"	18"	24"	30"	36"	42"	48"
172+96.95																								
172+96.95										16														
173+16.93																								
193+38.03																								
193+47.21																								
SHEET TOTAL										16														
SHEET 3-E TOTALS									12	230	92	344												
GRAND TOTALS									12	246	92	344												

STATION	** " R.C. PIPE (CLASS V)	***" RC PIPE CULVERTS, CONTRACTOR DESIGN	***" RC PIPE CULVERTS, CONTRACTOR DESIGN	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CU. YARDS R.C.P.	C.S.P.	QUANTITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0')	'TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') LIN. FT. A 5.0' THRU 10.0'	B 10.0' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G	CONCRETE TRANSITIONAL SECTION DROP INLET	CATCH BASIN
172+96.95						1								
172+96.95														
173+16.93						1								
193+38.03														
193+47.21														
SHEET TOTAL						2								
SHEET 3-E TOTALS						11								
GRAND TOTALS						13								

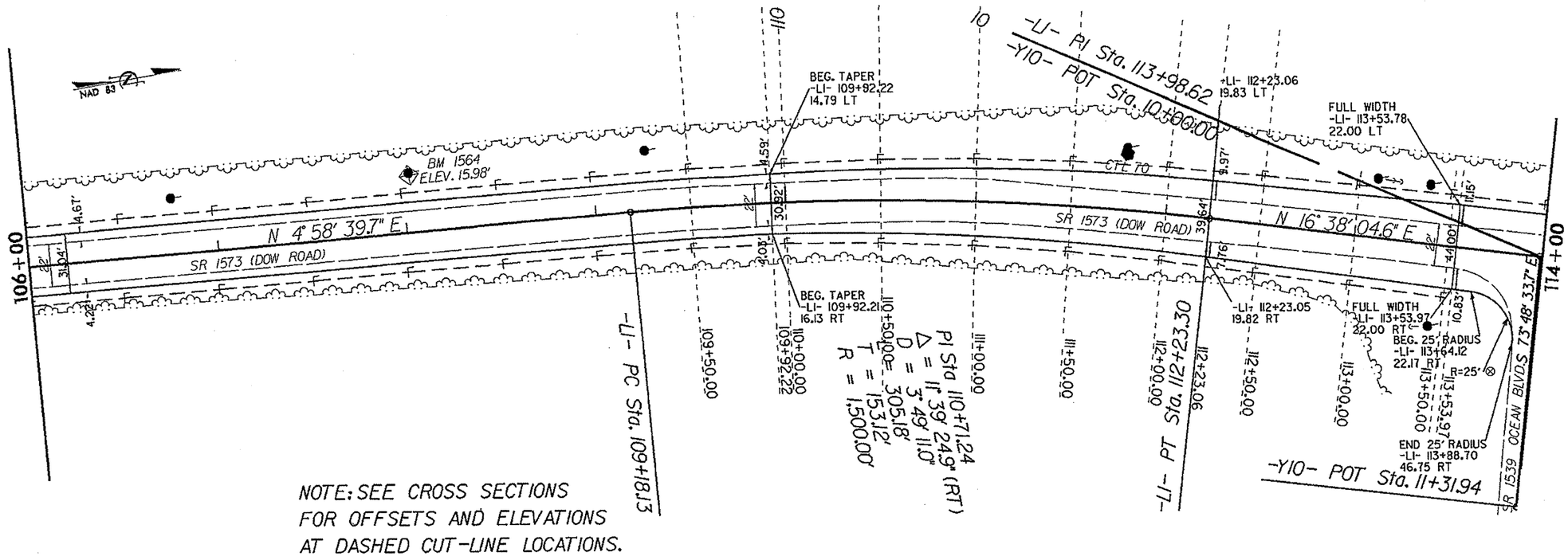
STATION		CONCRETE DROP INLET, DWG. 840D14		CONVERT EXISTING D.I. TO 2GI		CONCRETE GRATED DROP INLET TYPE 'A', STD. 840.17 OR STD. 840.26		T.B.J.B. STD. 840.34		BICYCLE SAFE STEEL GRATE AND FRAME		MANHOLE FRAME AND COVER, STD. 840.54			CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71	CONC. COLLARS CL. "B" C.Y. STD. 840.72	PIPE REMOVAL LIN. FT.	REMARKS
172+96.95								1				1						
172+96.95																		
173+16.93						1				1								
193+38.03																0.5526		
193+47.21																		CULVERT DAYLIGHT STATION
SHEET TOTAL						1		1		1		1				0.5526		
SHEET 3-E TOTALS		1		4		5		5		10		5				1.6578		
GRAND TOTALS		1		4		6		6		11		6				2.2104		

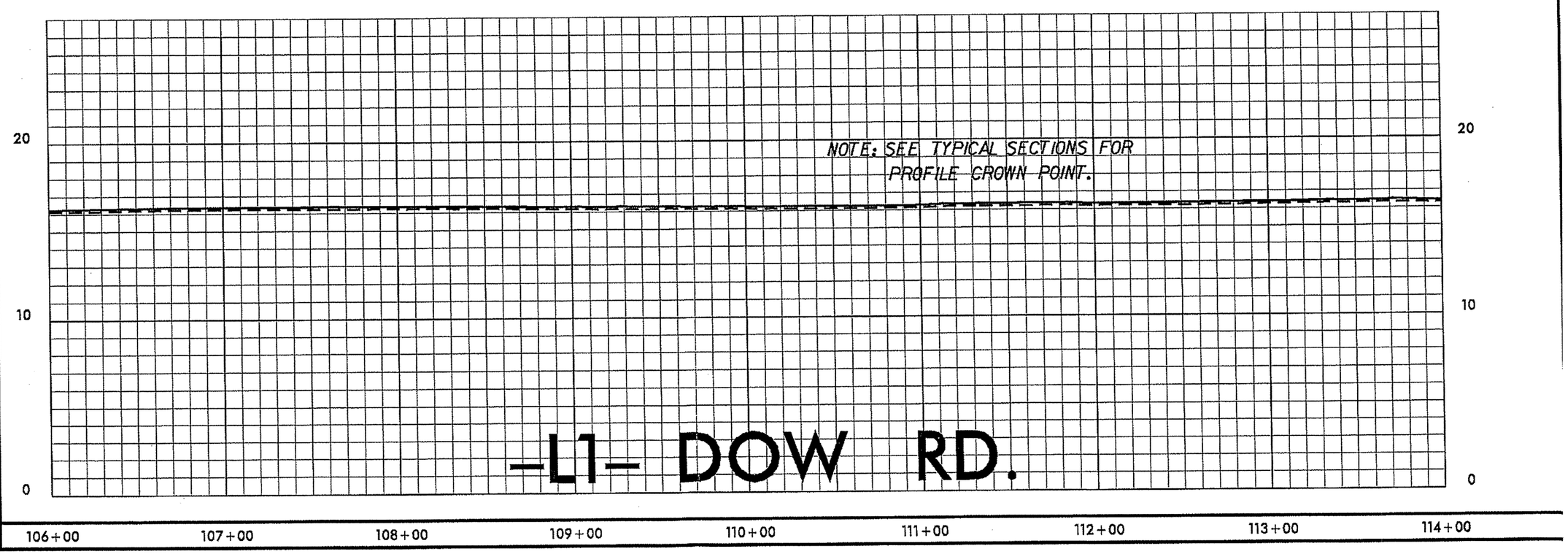
ABBREVIATIONS

C.B.	CATCH BASIN
N.D.I.	NARROW DROP INLET
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
G.D.I.(N.S.)	(NARROW SLOT)
J.B.	JUNCTION BOX
M.H.	MANHOLE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX

Say 2.24

PROJECT REFERENCE NO.	SHEET NO.
3C.065998	4





REVISIONS

8/17/99

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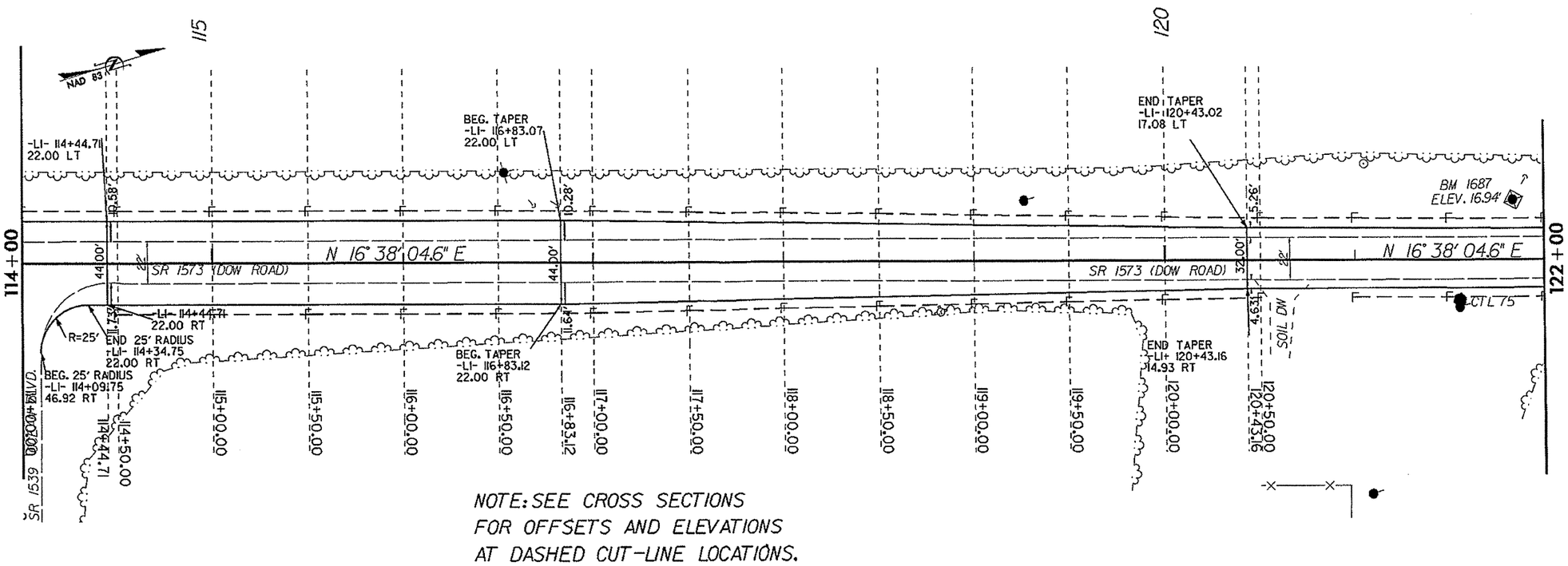
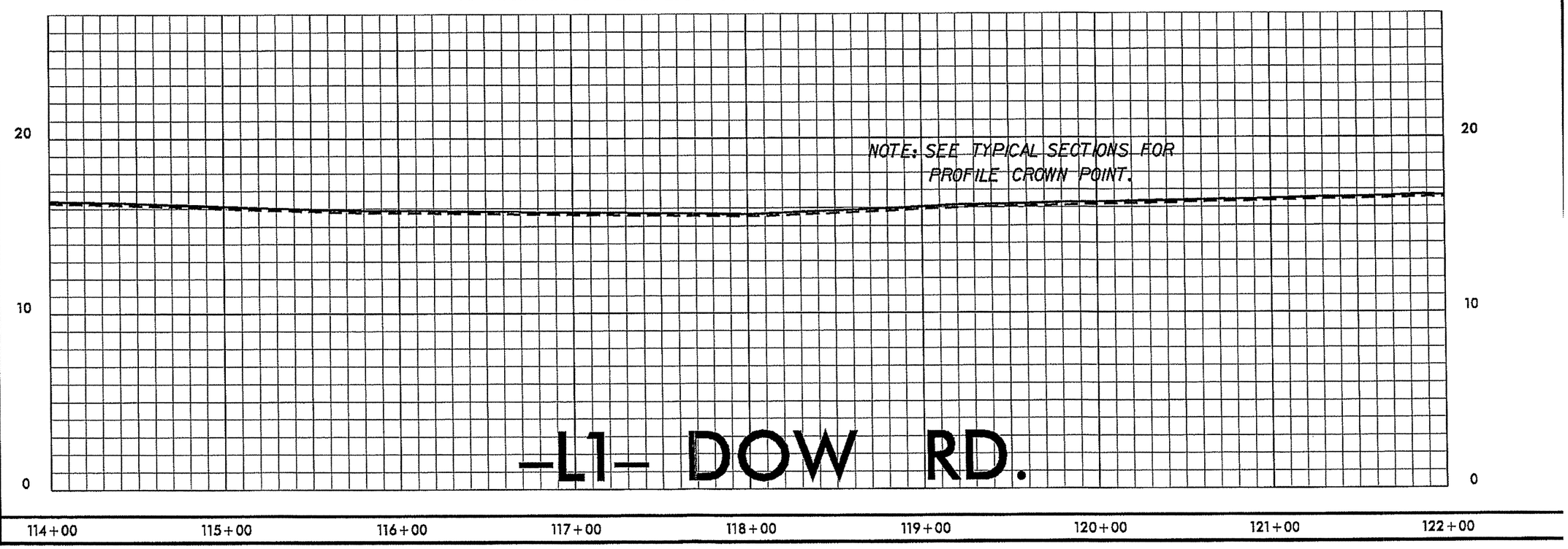


NOTE: SEE CROSS SECTIONS FOR OFFSETS AND ELEVATIONS AT DASHED CUT-LINE LOCATIONS.



REVISIONS

8/17/99

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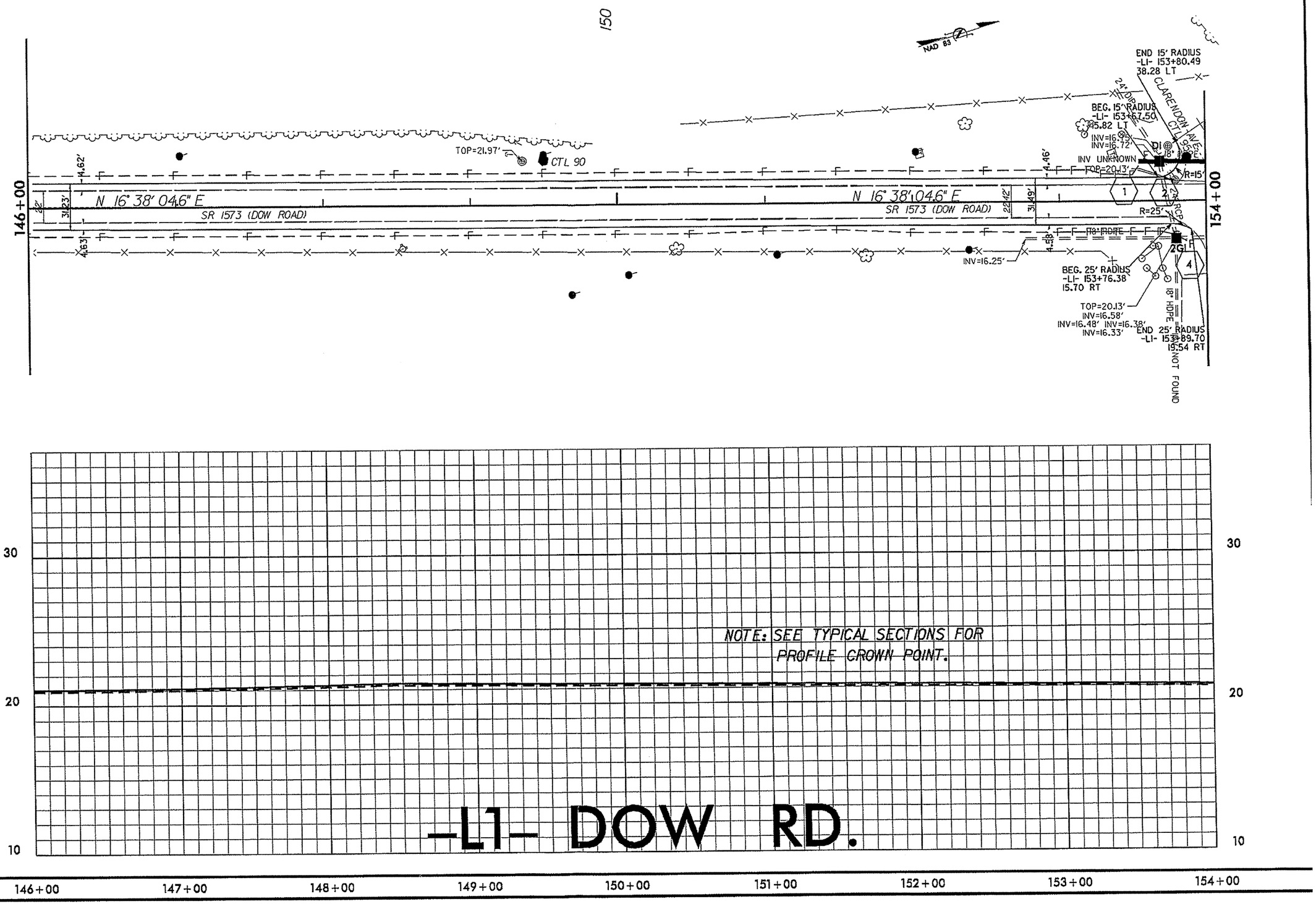

REVISIONS

8/17/99

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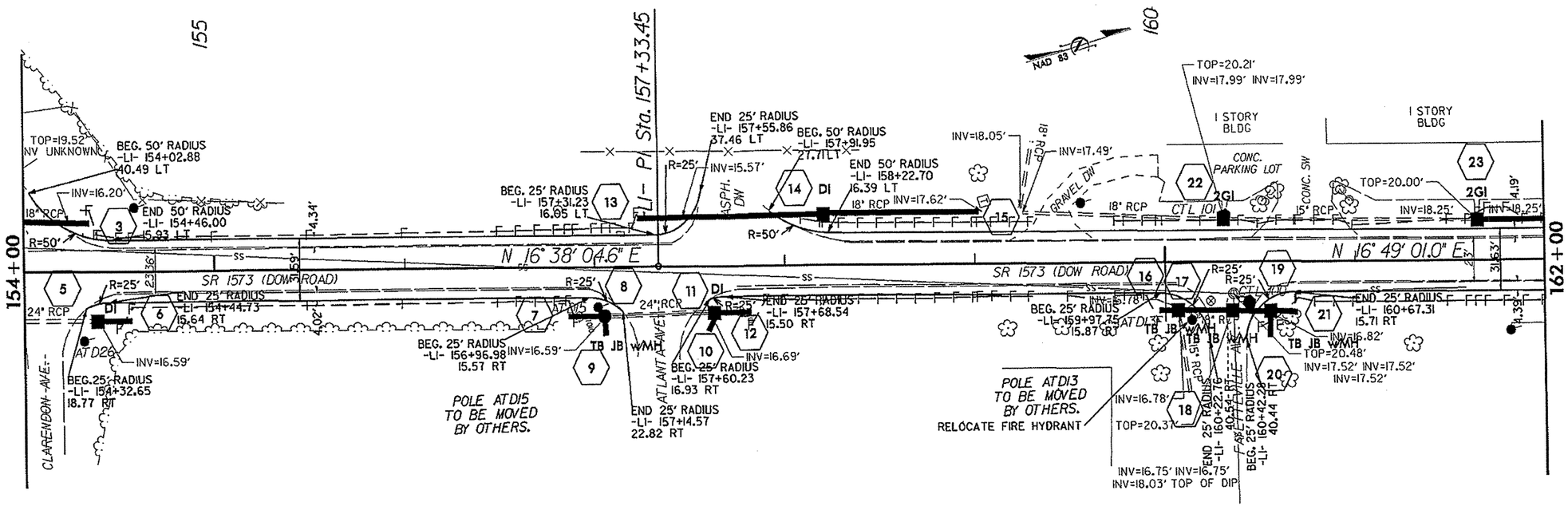

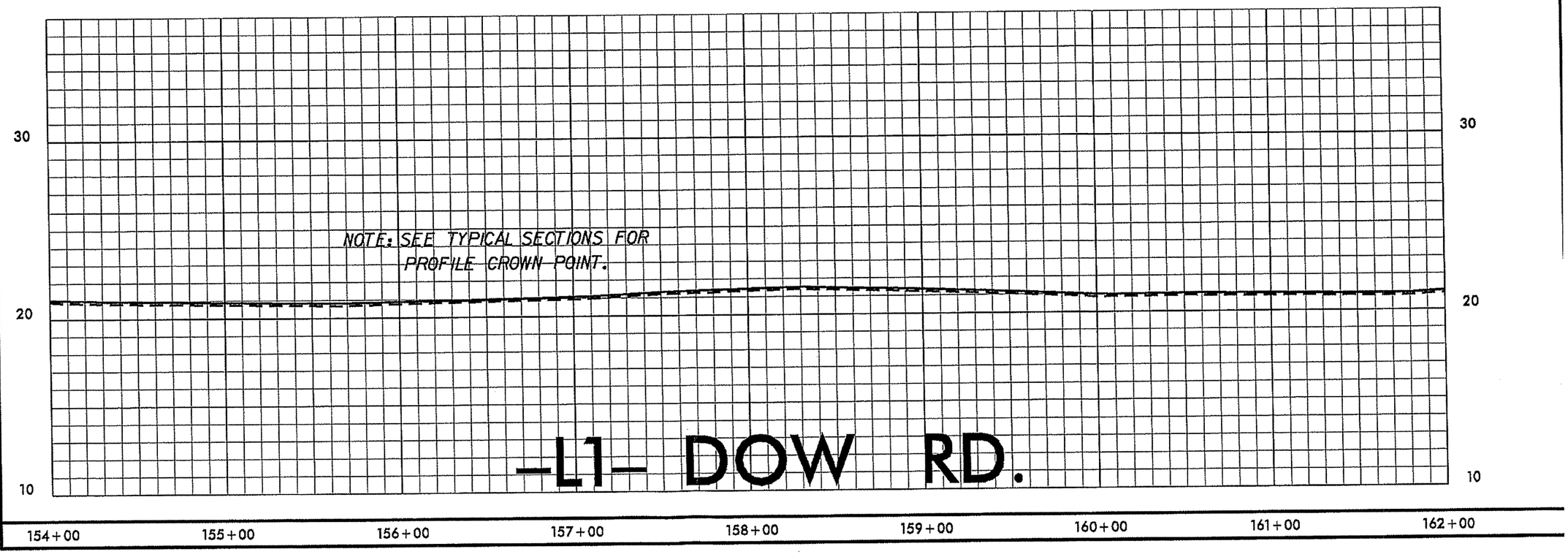

REVISIONS

8/17/99

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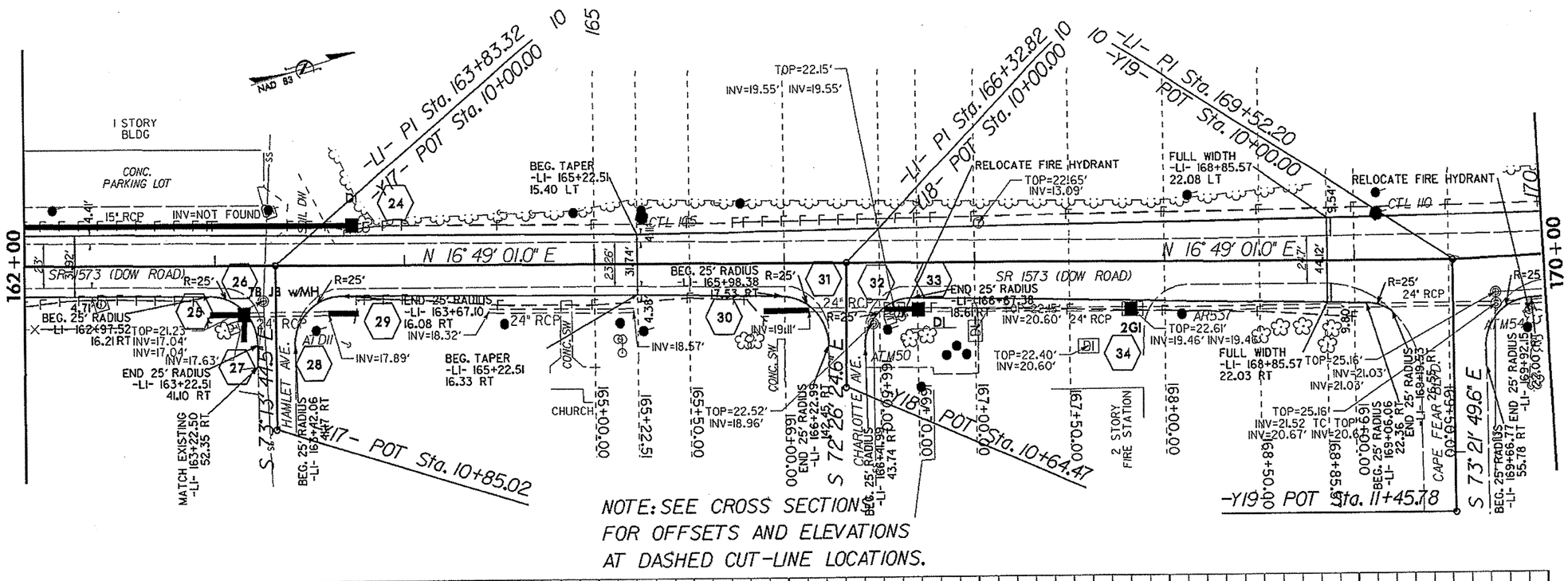
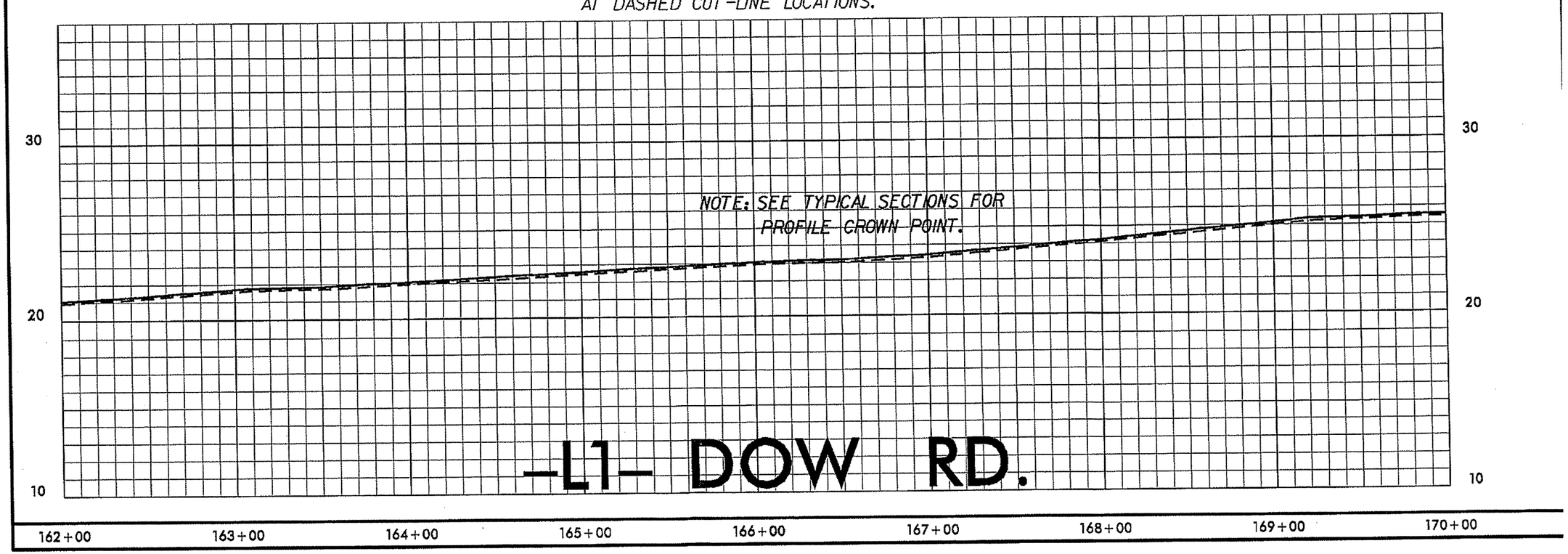
PROJECT REFERENCE NO.	SHEET NO.
3C.065998	8

8/17/99



NOTE: SEE CROSS SECTION FOR OFFSETS AND ELEVATIONS AT DASHED CUT-LINE LOCATIONS.



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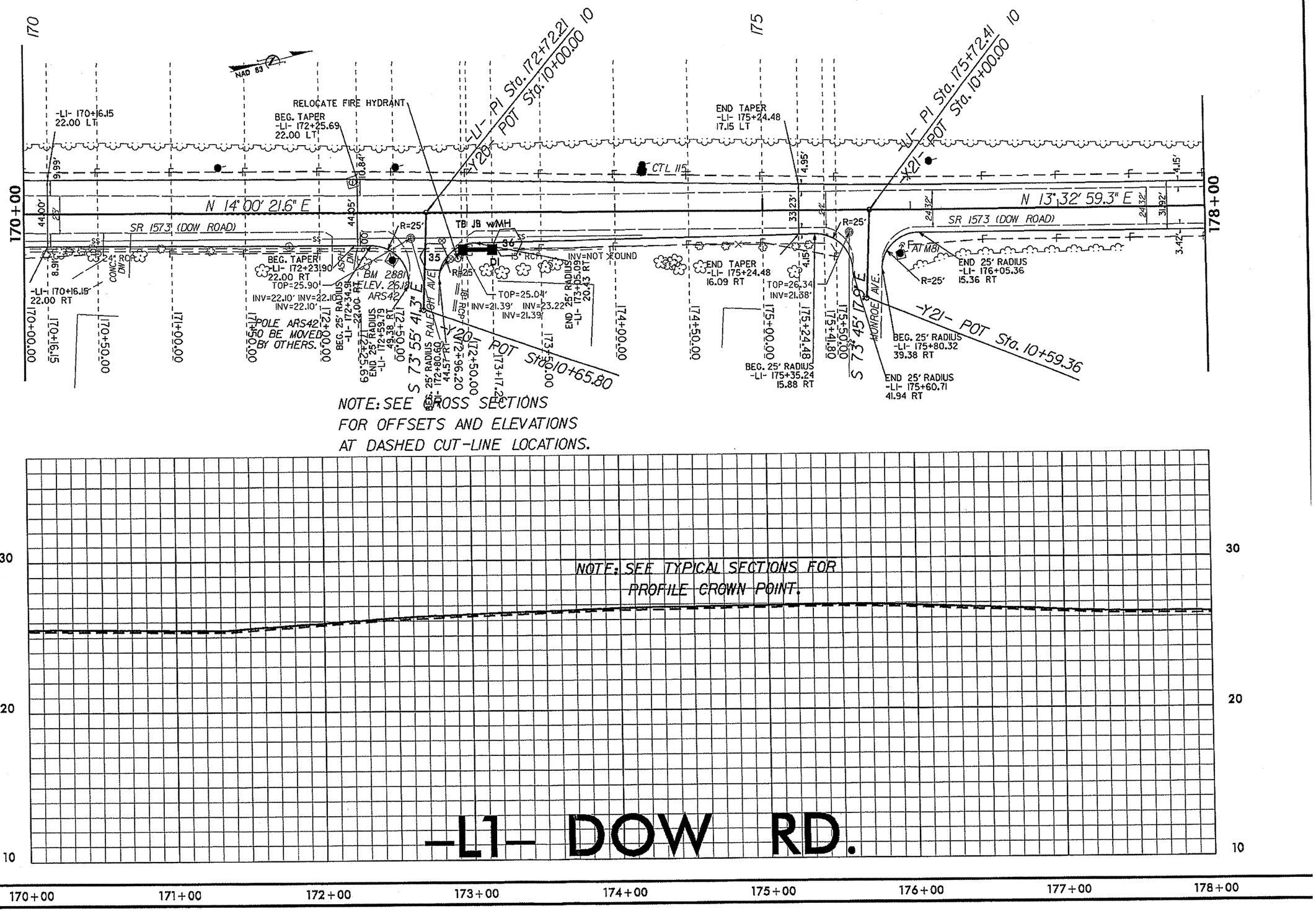
3C.065998	9



REVISIONS

8/17/99

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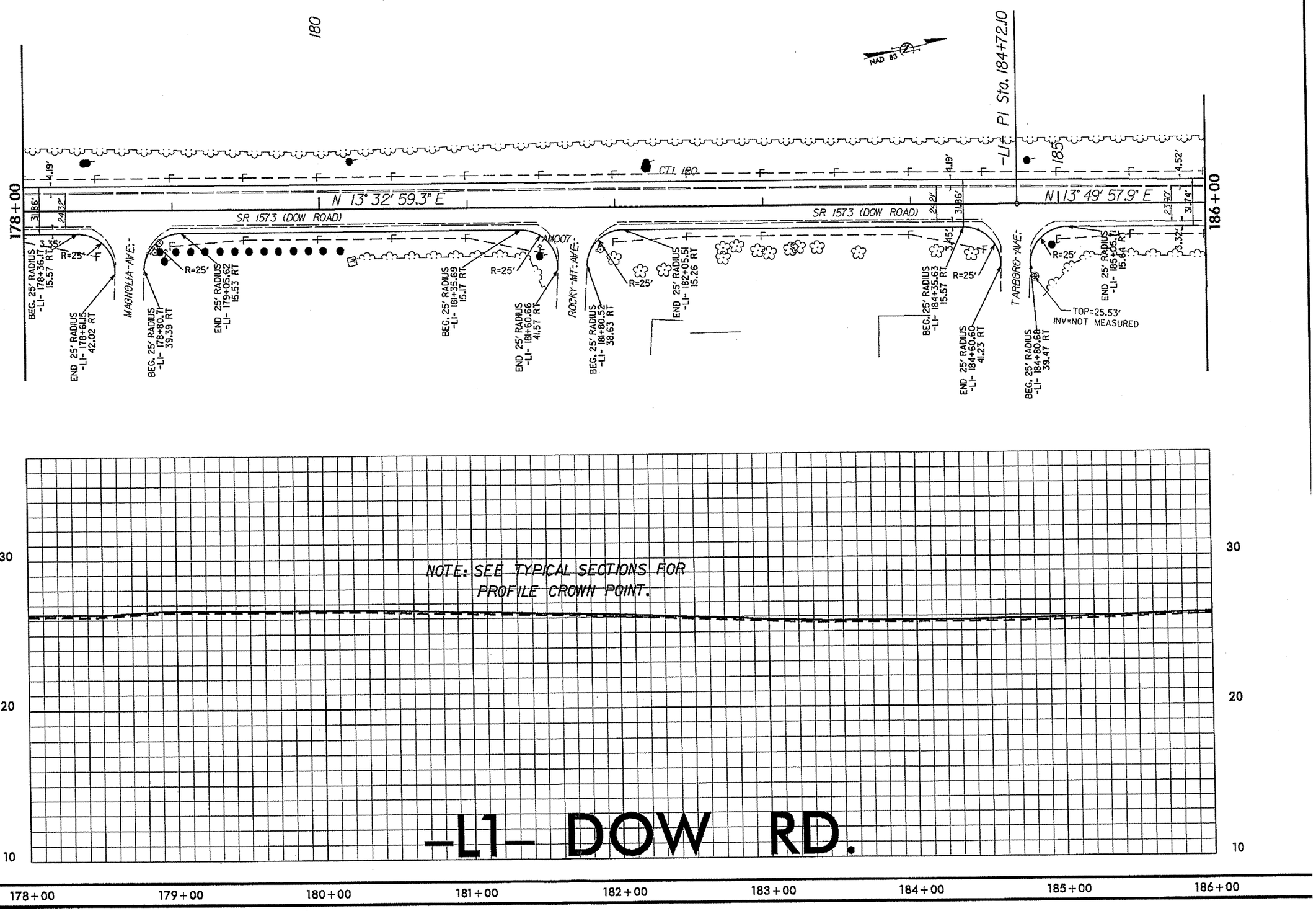
PROJECT REFERENCE NO.	SHEET NO.
3C.065998	10



REVISIONS

8/17/99

09-JUL-2012 13:42
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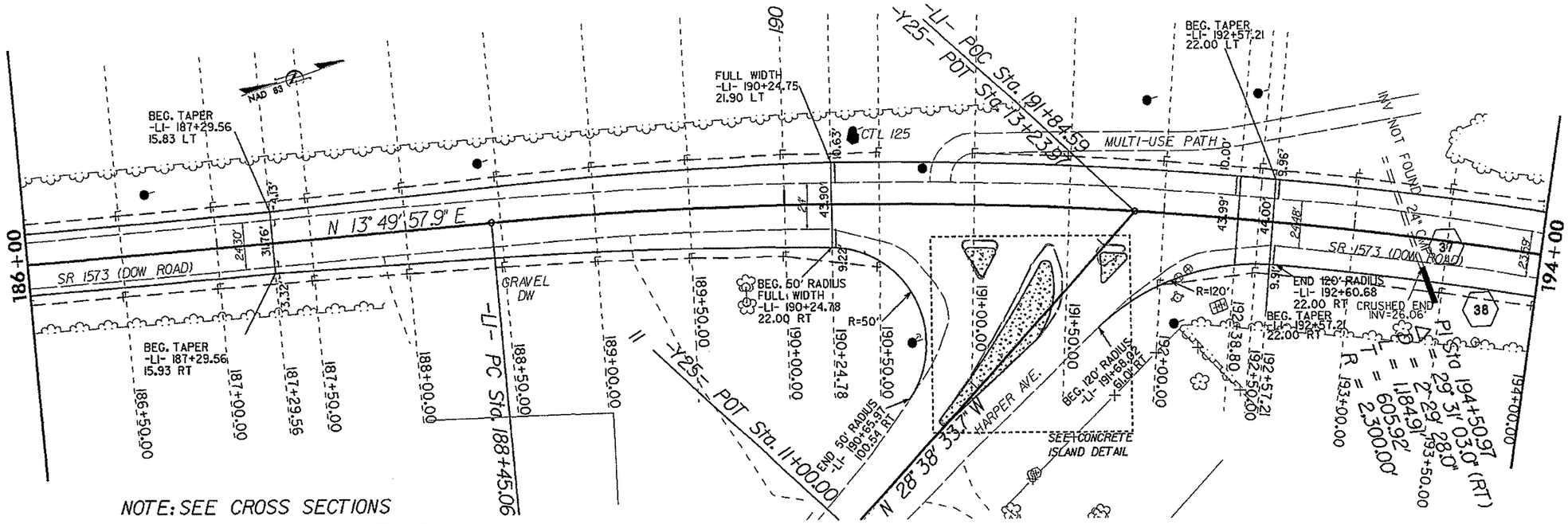
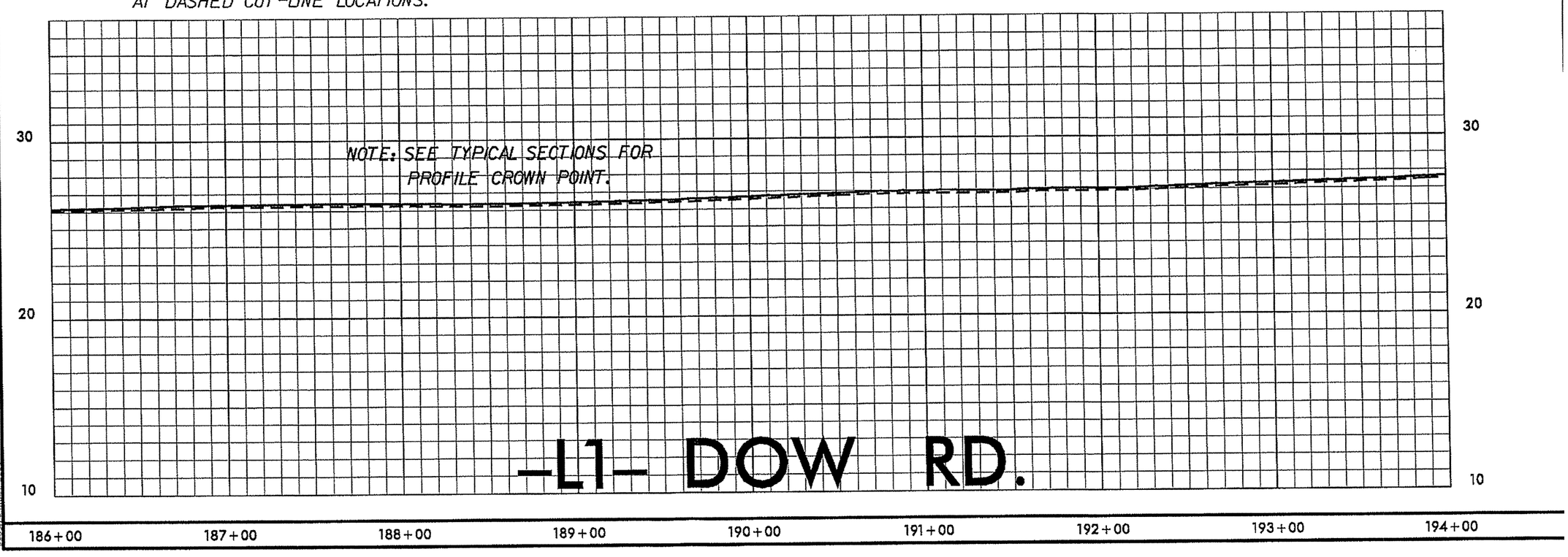
3C.065998	11



NOTE: SEE CROSS SECTIONS
FOR OFFSETS AND ELEVATIONS
AT DASHED CUT-LINE LOCATIONS.



REVISIONS

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8/17/98

PROJECT REFERENCE NO.	SHEET NO.
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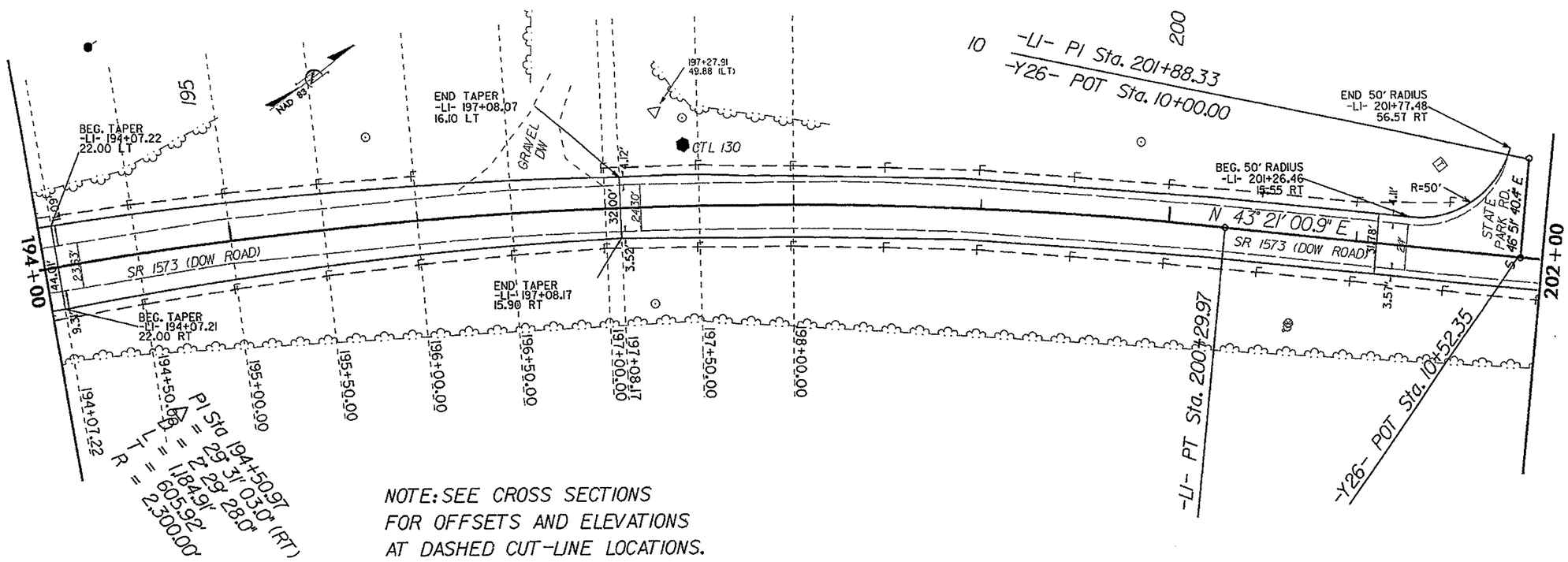

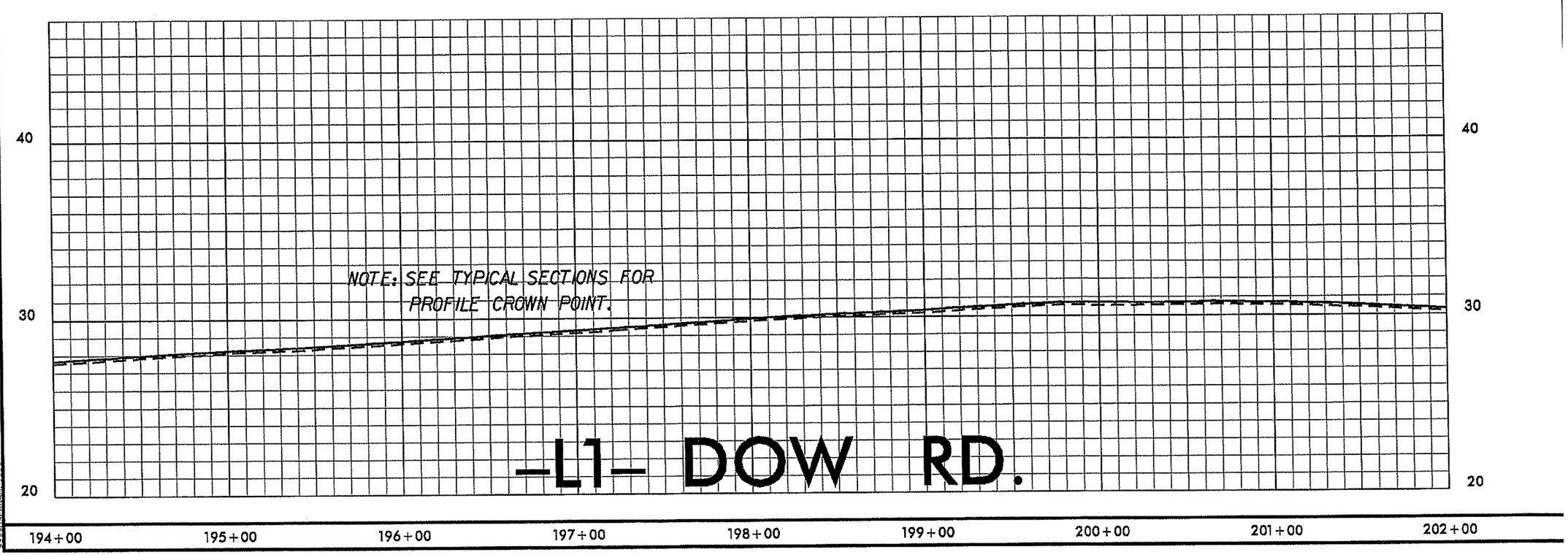

REVISIONS

08-JUL-2012 13:42
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$$$$CELLHEADER$$$$

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
3C.065998	TCP-1

GENERAL NOTES

(1) THE FOLLOWING OPTIONS MAY BE USED AS ADVANCE WARNING SIGNS:

A. TRUCK MOUNTED ADVANCE WARNING SIGNS
B. MOVING CHANGEABLE MESSAGE SIGN (CMS)
C. GROUND MOUNTED ADVANCE WARNING SIGNS (MUST USE 'NEXT 10 MILES' AND MAKE CIRCLE TO PICK UP SIGNS)
D. STATIONARY CHANGEABLE MESSAGE SIGN (CMS) (MUST USE 'NEXT 10 MILES' AND MAKE CIRCLE TO PICK UP CMS)

(2) ADDITIONAL VEHICLES SHOULD BE USED IN WORK CARAVAN TO FACILITATE DRYING OF PAVEMENT MARKING MATERIAL - TMIA'S ARE OPTIONAL ON THESE ADDITIONAL VEHICLES. HOWEVER, THE FIRST VEHICLE MOTORISTS SEE SHOULD HAVE A TMIA.

(3) ROUND UP MILEAGE TO NEXT WHOLE MILE. WORK ZONE SHOULD NOT EXCEED TEN (10) MILES IN LENGTH.

(4) DISTANCE BETWEEN APPLICATION VEHICLE AND PROTECTION VEHICLE WILL VARY AS DRYING TIMES VARY, HOWEVER, THE CRITICAL FACTOR IS PASSING MOTORISTS. IF THE GAP BETWEEN VEHICLES IS TOO GREAT, MOTORISTS WILL ATTEMPT TO PASS AND ULTIMATELY APPEAR IN THE MIDDLE OF THE OPERATION.

(5) MOUNTING HEIGHT DIMENSIONS FROM ROADWAY TO SIGN SHOULD BE A MINIMUM OF FIVE (5) FEET FOR INTERSTATES, OTHER HIGH VOLUME ROADWAYS, OR ROADWAYS THAT MAY REQUIRE A MOUNTING HEIGHT OF FIVE (5) FEET FOR INCREASED VISIBILITY AND A MINIMUM OF ONE (1) FOOT FOR ALL OTHER ROADWAYS.

(6) SIGN SPACING SHOULD BE ADJUSTED FOR HORIZONTAL AND VERTICAL CURVES, ETC. TO IMPROVE SIGHT DISTANCES.

(7) SIGN W26-1BSP OR R4-7A SHOULD BE PLACED ON FRONT OF APPLICATION VEHICLE AND SIGN W26-1BSP OR INFORMATIONAL SIGN ON BACK OF PROTECTION VEHICLE IN TWO-LANE, TWO-WAY TRAFFIC SO VEHICLES APPROACHING FROM FRONT AND REAR ARE NOTIFIED OF OPERATION.

(8) RADIO COMMUNICATION BETWEEN VEHICLES IS RECOMMENDED.

(9) USE OF A LIGHT BAR ON THE ADVANCE WARNING VEHICLE IS PREFERRED, BUT A ROTATING BEACON MAY BE USED INSTEAD.

(10) USE OF A CMS WITH ADVANCED WARNING VEHICLES IS OPTIONAL.

(11) IF WORK IS PERFORMED AT NIGHT, THE FOLLOWING PROVISIONS MUST BE MADE:

A. GROUND MOUNTED SIGNS MUST HAVE TYPE B FLASHING LIGHTS ATTACHED (TRUCK MOUNTED SIGNS DO NOT REQUIRE TYPE B FLASHING LIGHTS)
B. OPERATION MUST INCLUDE A CHANGEABLE MESSAGE SIGN (CMS)
C. WORK AREA MUST BE ILLUMINATED WITH MACHINE AND/OR TOWER LIGHTS AS APPROVED BY THE ENGINEER.

(12) USE A TYPE "B" FLASHING ARROW PANEL.

PANEL TYPE	MIN. SIZE
B	60"X30"

(13) IF A LEAD VEHICLE IS ADDED TO OPERATION, IT SHOULD HAVE THE SAME ADVANCE WARNING SIGNS AS THE APPLICATION VEHICLE SHOWN BELOW.

LEGEND

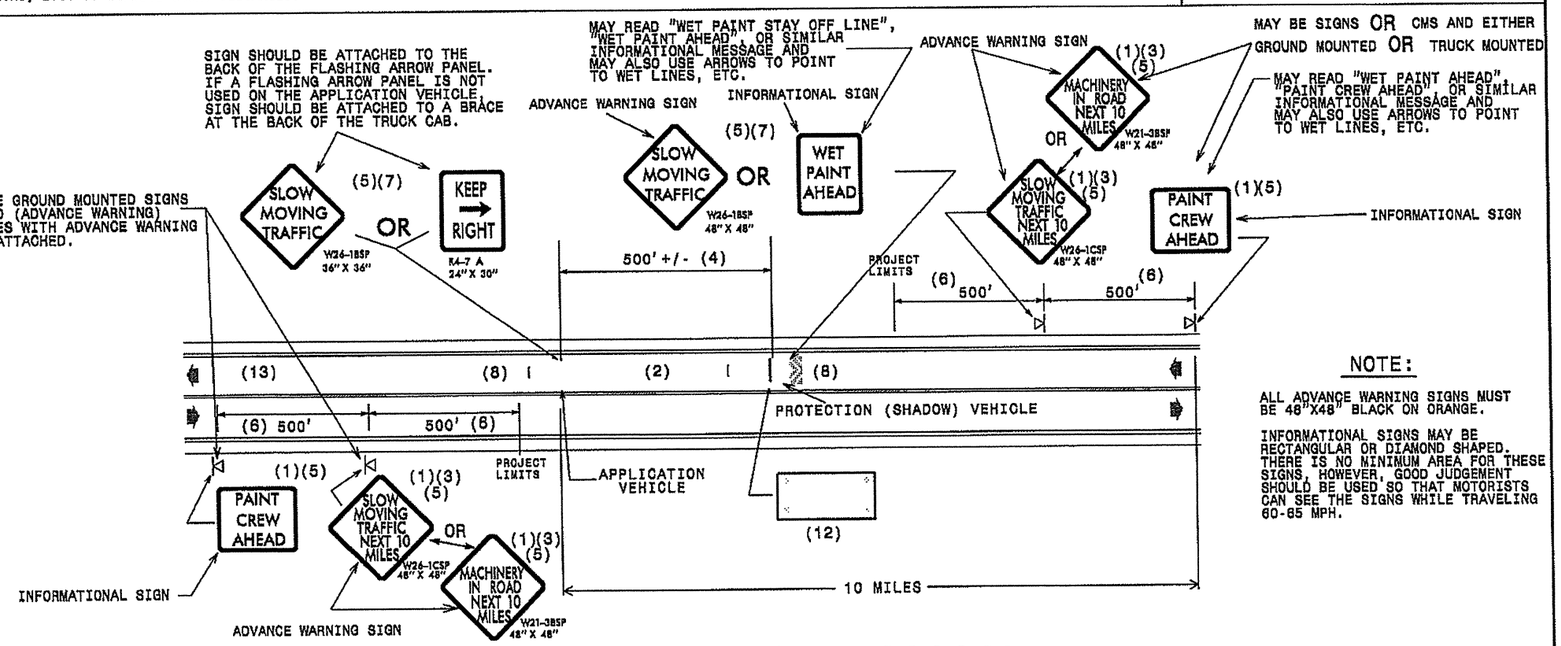
PORTABLE SIGN

DIRECTION OF TRAFFIC FLOW

APPLICATION VEHICLE WITH ROTATING BEACON

PROTECTION VEHICLE WITH TRUCK MOUNTED IMPACT ATTENUATOR (TMIA) AND ROTATING BEACON (SEE ROADWAY STANDARD NO. 1165.01

FLASHING ARROW PANEL, TYPE "B" "CAUTION MODE"



NOTE:

ALL ADVANCE WARNING SIGNS MUST BE 48"X48" BLACK ON ORANGE.

INFORMATIONAL SIGNS MAY BE RECTANGULAR OR DIAMOND SHAPED. THERE IS NO MINIMUM AREA FOR THESE SIGNS, HOWEVER, GOOD JUDGEMENT SHOULD BE USED SO THAT MOTORISTS CAN SEE THE SIGNS WHILE TRAVELING 60-65 MPH.

MOVING OPERATION CARAVAN

(OPERATIONS TRAVELING 3 MPH OR FASTER)

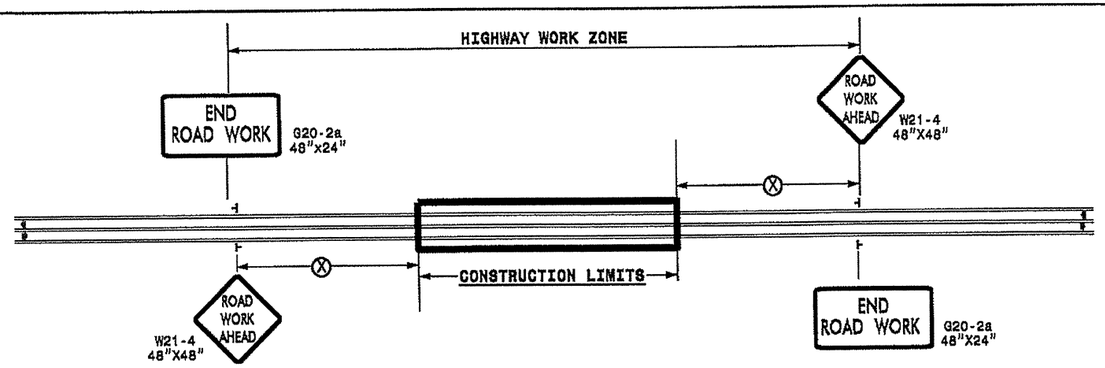
PLACING MARKING OR MARKERS ON TWO-LANE TWO-WAY ROADWAYS

DRAWING NUMBER 6
IMPLEMENTATION DATE: 07/01/97

REVISIONS

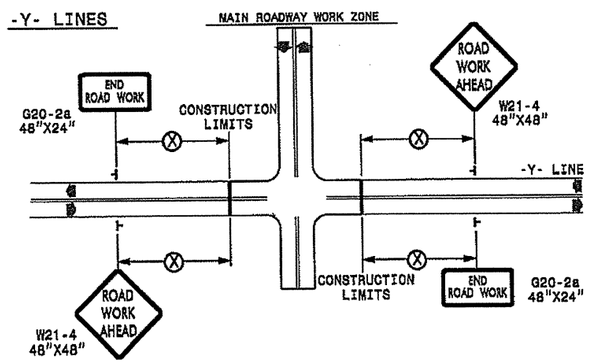
PROJ. REFERENCE NO.	SHEET NO.
3C.065998	TCP-2

TWO-WAY UNDIVIDED ** (L-LINES)



POSTED SPEED LIMIT (M.P.H.)	RECOMMENDED MINIMUM SIGN SPACING (X)
≤ 50	500'
≥ 55	1000'

ROADWAYS INTERSECTING ALONG 2 WAY UNDIVIDED WORK ZONE (Y-LINES)



GENERAL NOTES

- USE FLUORESCENT ORANGE SHEETING (TYPE VII OR HIGHER) ON ALL ADVANCED WORK ZONE SIGNS.
- DO NOT INSTALL ADVANCE WARNING SIGNS MORE THAN 3 DAYS PRIOR TO BEGINNING OF WORK.
- SIGNS SHOWN ARE REQUIRED FOR WORK ZONES THAT WILL REMAIN IN EFFECT OVERNIGHT. FOR SHORT-TERM DAILY MAINTENANCE TYPE OPERATIONS, THIS SIGNING APPLICATION IS OPTIONAL; MAY USE ONLY APPLICABLE ROADWAY STANDARD DRAWINGS INSTEAD. HOWEVER, IF THIS SIGNING APPLICATION IS USED, SIGNS MAY BE PORTABLE MOUNTED.
- ALL SIGN SPACING DIMENSIONS ARE APPROXIMATE, FIELD ADJUST AS NECESSARY OR AS DIRECTED.
- USE 3LB STEEL U-CHANNEL POST OR 4" X 4" WOOD POST FOR ALL WORK ZONE SIGNS. 3LB STEEL U-CHANNEL POSTS MUST MEET THE REQUIREMENTS OF STANDARD SPECIFICATION SECTION 1094-1(B), MAY BE GALVANIZED STEEL, OR MAY BE PAINTED GREEN BY THE POST MANUFACTURER. SQUARE STEEL TUBING POSTS HAVING EQUIVALENT STRENGTH OF THE 3 LB STEEL U-CHANNEL POST ARE ALSO ACCEPTABLE FOR USE. ERECT SIGNS PER ROADWAY STANDARD DRAWING 1110.01. PAYMENT FOR WOOD POSTS, 3LB STEEL U-CHANNEL AND SQUARE STEEL TUBING POSTS WITH SIGNS WILL BE MADE ACCORDING TO STANDARD SPECIFICATION "WORK ZONE SIGNS" SECTION 1110.
- WHEN NECESSARY, USE SPLICING IN ACCORDANCE WITH ROADWAY STANDARD DRAWING NO. 1110.01. REMOVE ENTIRE POST WHEN REMOVING SIGNS WITH SPLICED POSTS.
- DO NOT BACK BRACE SIGN SUPPORTS.
- ** TWO-WAY UNDIVIDED ADVANCE WARNING SIGN CONFIGURATION MAY BE USED ON URBAN MULTI-LANE FACILITIES WHERE CONDITIONS LIMIT THE USE OF DUAL MOUNTED SIGNS AS DETERMINED BY THE ENGINEER.

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

DETAIL DRAWING FOR TWO-WAY UNDIVIDED WORK ZONE WARNING SIGNS

LEGEND

- ⊢ STATIONARY SIGN
- ⬅ DIRECTION OF TRAFFIC FLOW

SHEET 1 OF 1

APPROVED: _____ DATE: _____

SEAL

DETAIL DRAWING FOR TWO-WAY UNDIVIDED AND URBAN FREEWAYS ADVANCED WORK ZONE WARNING SIGNS

SCALE:	NONE
DATE:	
DWG. BY:	
DESIGN BY:	
REVIEWED BY:	

REVISIONS	
7-98	10/01
10-98	03/04
01/01	11/04
CADD FILE	

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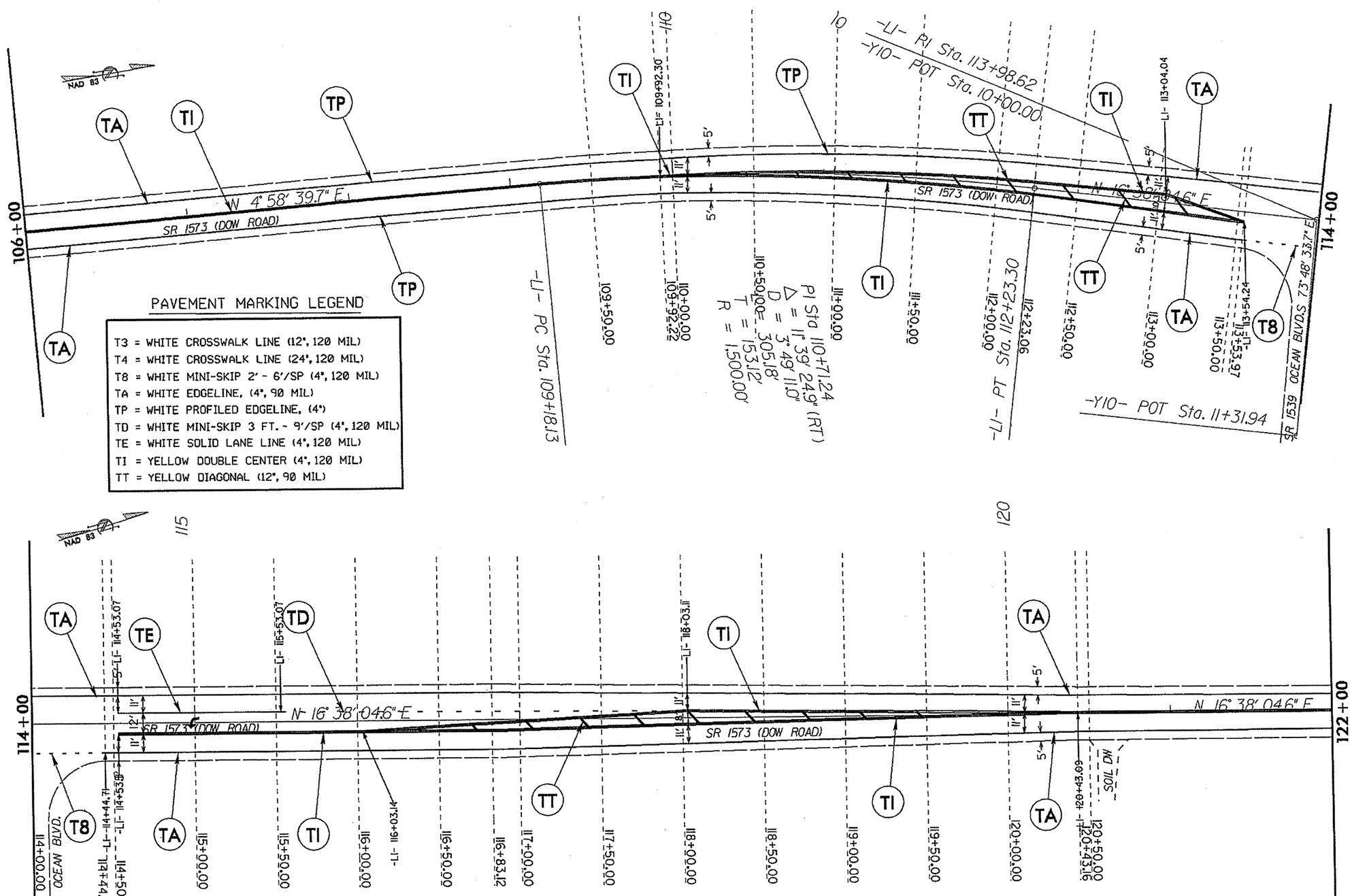
PROJECT REFERENCE NO.	SHEET NO.
3C.065998	PM-1



PROFILED PAVEMENT MARKING LINE, 4" SHALL BE PLACE THROUGH EACH -L1- CURVE, EXTENDING 100' +/- BEFORE AND AFTER EACH CURVE, OR AS DIRECTED BY THE ENGINEER.

Scale: 1" = 30'

REVISIONS

8/17/99

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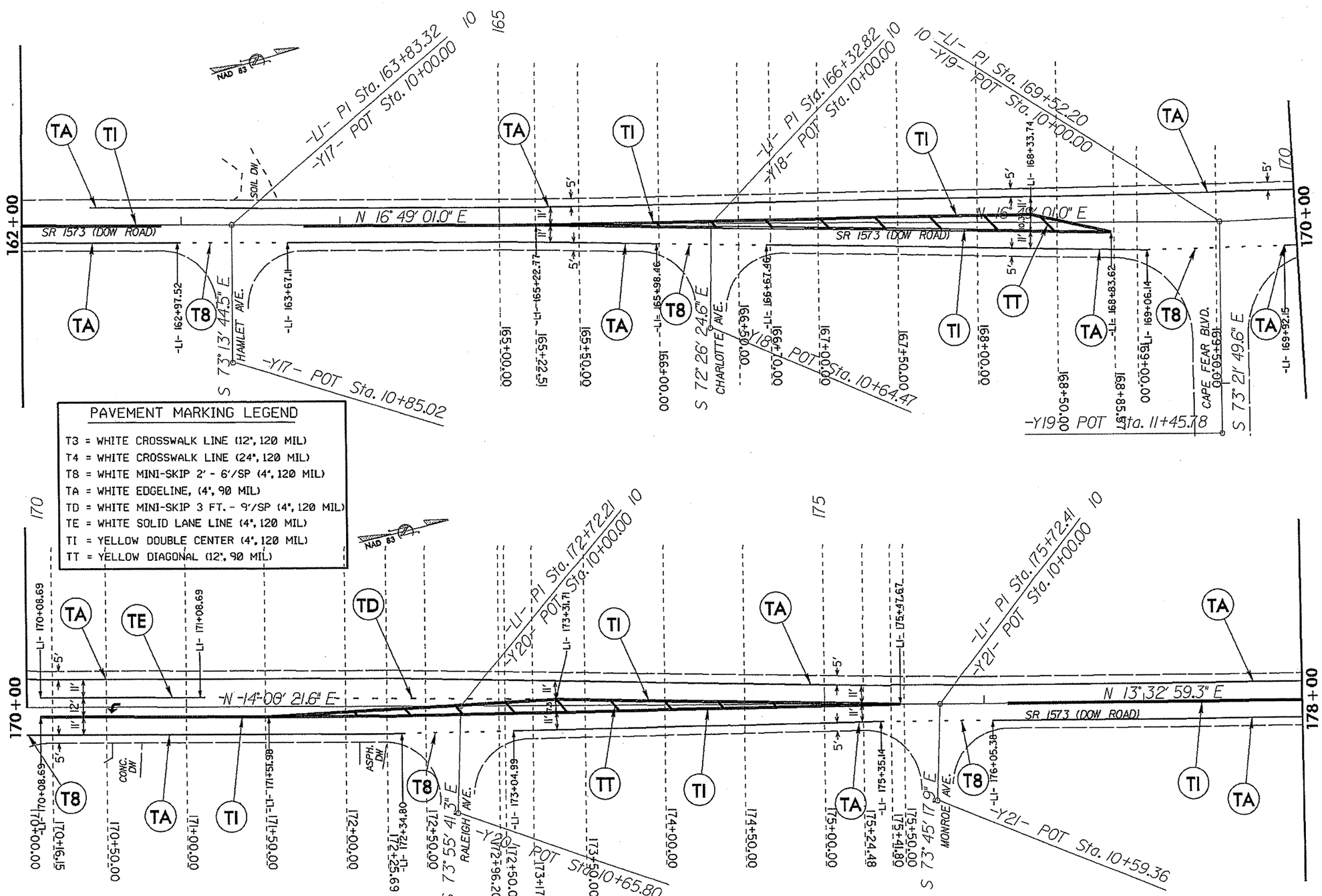
PROJECT REFERENCE NO.	SHEET NO.
3C.065998	PM-2

8/17/99



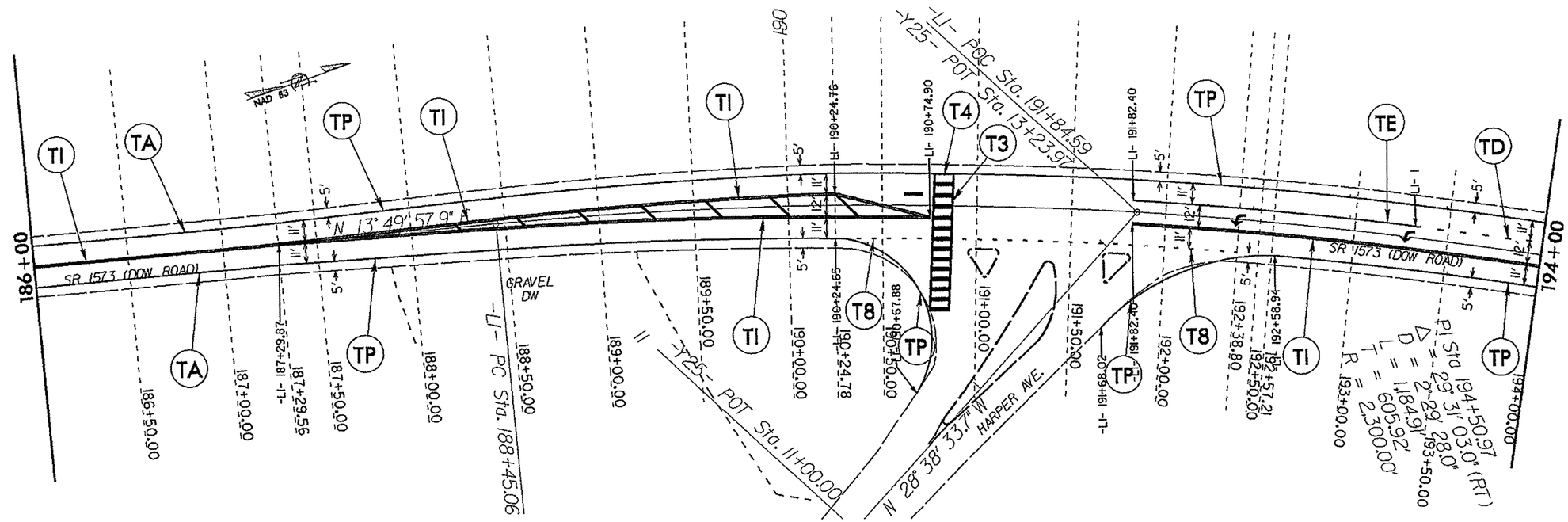
PAVEMENT MARKING LEGEND

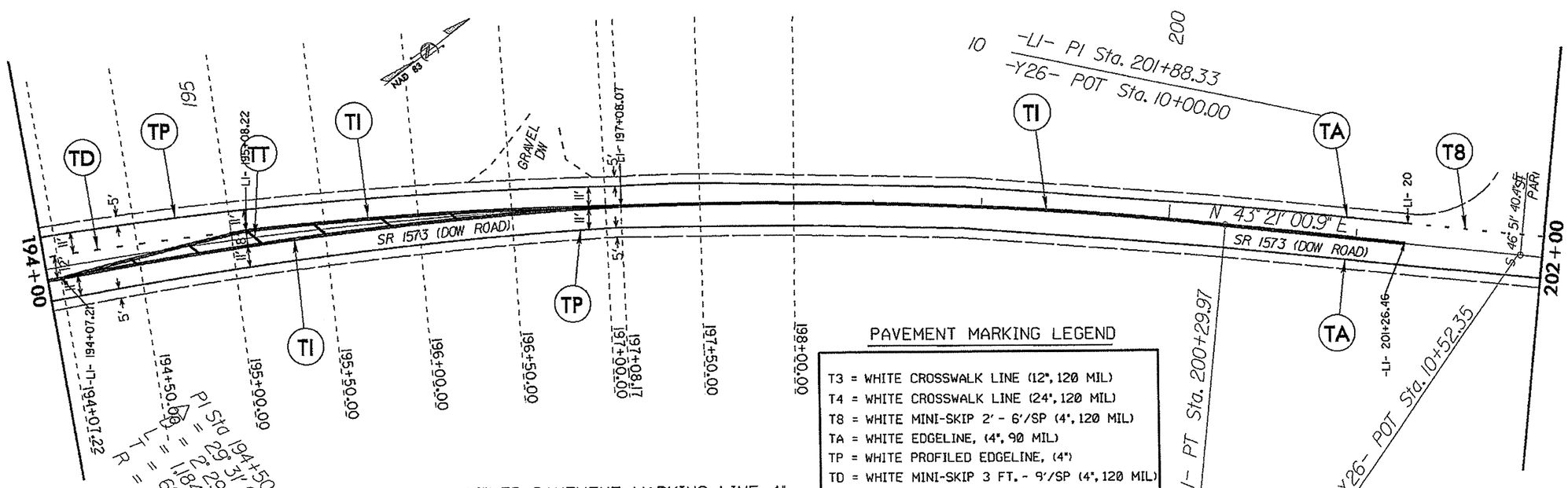
T3 = WHITE CROSSWALK LINE (12", 120 MIL)
T4 = WHITE CROSSWALK LINE (24", 120 MIL)
T8 = WHITE MINI-SKIP 2' - 6'/SP (4", 120 MIL)
TA = WHITE EDGELINE, (4", 90 MIL)
TD = WHITE MINI-SKIP 3 FT. - 9'/SP (4", 120 MIL)
TE = WHITE SOLID LANE LINE (4", 120 MIL)
TI = YELLOW DOUBLE CENTER (4", 120 MIL)
TT = YELLOW DIAGONAL (12", 90 MIL)

PROFILED PAVEMENT MARKING LINE, 4" SHALL BE PLACE THROUGH EACH -L1- CURVE, EXTENDING 100' +/- BEFORE AND AFTER EACH CURVE, OR AS DIRECTED BY THE ENGINEER.

Scale 1" = 30'

PROJECT REFERENCE NO.	SHEET NO.
3C.065998	PM-3





PAVEMENT MARKING LEGEND

T3 = WHITE CROSSWALK LINE (12", 120 MIL)
T4 = WHITE CROSSWALK LINE (24", 120 MIL)
T8 = WHITE MINI-SKIP 2' - 6'/SP (4", 120 MIL)
TA = WHITE EDGELINE, (4", 90 MIL)
TP = WHITE PROFILED EDGELINE, (4")
TD = WHITE MINI-SKIP 3 FT. - 9'/SP (4", 120 MIL)
TE = WHITE SOLID LANE LINE (4", 120 MIL)
TI = YELLOW DOUBLE CENTER (4", 120 MIL)
TT = YELLOW DIAGONAL (12", 90 MIL)

PROFILED PAVEMENT MARKING LINE, 4" SHALL BE PLACE THROUGH EACH -L1- CURVE, EXTENDING 100' +/- BEFORE AND AFTER EACH CURVE, OR AS DIRECTED BY THE ENGINEER.

Scale 1" = 30'

REVISIONS

8/17/99

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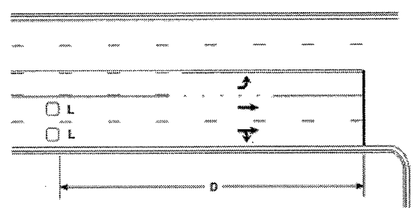
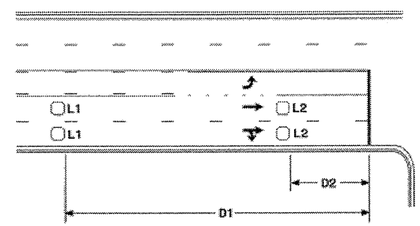
PROJECT REFERENCE NO.	SHEET NO.
3C.065998	SIG 1

High Speed Detection
[≥40 mph (64 km/hr)]



OR



Speed Limit mph (km/hr)		D ft	(m)
40	(64)	250	(75)
45	(72)	300	(90)
50	(80)	355	(110)
55	(88)	420	(130)

L = 6ft X 6ft (1.8m X 1.8m)
Wired in series for TS1 Controllers
Wired separately for TS2, 170, and 2070L Controllers

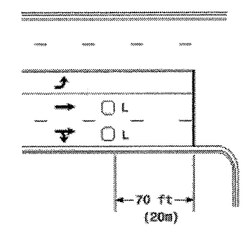
Volume Density Operation

Speed Limit mph (km/hr)		D1 ft	(m)	D2 ft	(m)
40	(64)	250	(75)	80	(25)
45	(72)	300	(90)	90	(27)
50	(80)	355	(110)	100	(30)
55	(88)	420	(130)	110	(35)

L1 = 6ft X 6ft (1.8m X 1.8m) Wired in series
L2 = 6ft X 6ft (1.8m X 1.8m) Wired in series

"Stretch" Operation

Low Speed Detection
[≤35 mph (56 km/hr)]



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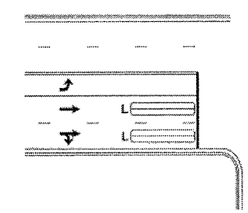
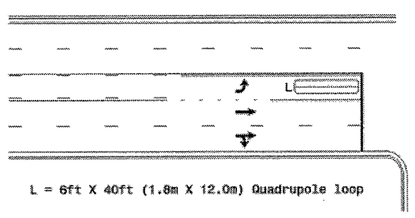


L = 6ft X 6ft (1.8m X 1.8m)
Wired in series

L = 6ft X 40ft (1.8m X 12.0m)
Quadrupole loop, wired separately

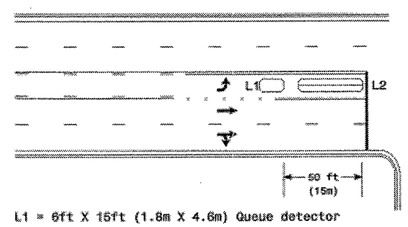
Left Turn Lane Detection



L = 6ft X 40ft (1.8m X 12.0m) Quadrupole loop

Presence Loop Detection

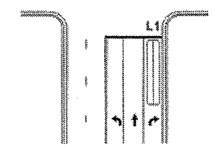
OR



L1 = 6ft X 15ft (1.8m X 4.6m) Queue detector
L2 = 6ft X 40ft (1.8m X 12.0m) Quadrupole loop

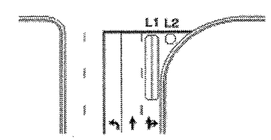
Queue Loop Detection

Right Turn Lane Detection

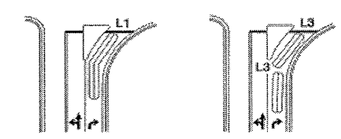


Standard Turn

L1 = 6ft X 40ft (1.8m X 12.0m) Quadrupole loop
L2 = 6ft X 6ft (1.8m X 1.8m) [Minimum] Presence loop Wired separately
L3 = 6ft X 20ft (1.8m X 6.0m) Quadrupole loop Wired in series

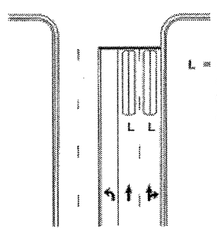


Wide Radius Turn



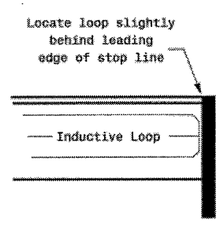
Channelized Turn

Side Street Detection



L = 6ft X 40ft (1.8m X 12.0m) Quadrupole loop Wired to separate detectors/channels

Presence Loop Placement at Stop Lines



Note:
Loop may be located in advance of stop line when stop line is greater than 15' (4.5m) from edge of intersecting roadway; or, when loop detects a permissive or protected/permissive left turn.

Recommended Number of Turns

Single 6' X 6' (1.8m X 1.8m) loop (wired separately):

Length of Lead-in ft (m)	Number of Turns
< 250 (75)	3
250-375 (75-115)	4
375-525 (115-160)	5
> 525 (160)	6

Quadrupole loops: Use 2-4-2 turns

6' X 15' (1.8m X 4.6m) Loops:
Lead-in < 150' (45 m), use 2 turns
Lead-in > 150' (45 m), use 3 turns

Prepared in the Offices of: Traffic Engineering Branch, Signal and Geometric Design Section, 122 N. McDowell St., Raleigh, NC 27603

Typical Loop Locations

PLAN DATE: June 2006 | REVISED BY:
PREPARED BY: P L Alexander | REVISED BY:

REVISIONS	INIT.	DATE
Typical loop placement revisions	PLA	11/17/06

SCALE: N/A

SEAL: NORTH CAROLINA PROFESSIONAL SEAL 35408 ENGINEER P. L. ALEXANDER

SIGNATURE | DATE
STD. DRAWING NO.

TIP PROJECT:

THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE REGULATIONS SET FORTH BY THE NCG-010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE AUGUST 3, 2011 ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES DIVISION OF WATER QUALITY.

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

Prepared in the Office of:

DIVISON 3 DDC UNIT
5501 Barbados Blvd.
Castle Hayne, NC 28429
By: D. La Fave, No. 182

2012 STANDARD SPECIFICATIONS

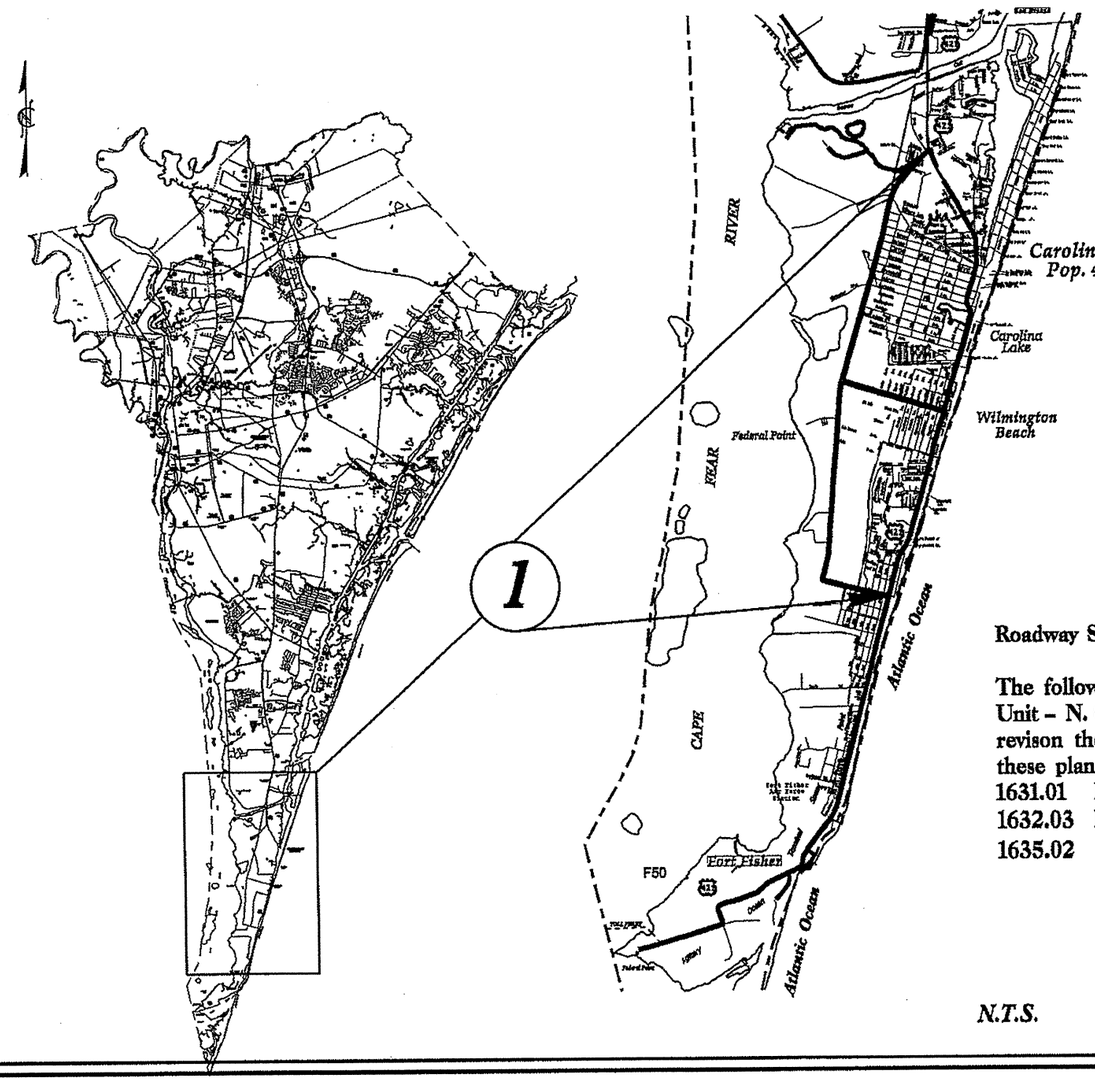
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	3C.065998	EC-1	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION

EROSION AND SEDIMENT CONTROL MEASURES

Std. #	Description	Symbol
1605.01	Temporary Silt Fence	
1606.01	Special Sediment Control Fence	
1622.01	Temporary Berms and Slope Drains	
1630.02	Silt Basin Type B	
1630.03	Temporary Silt Ditch	TD
1630.04	Stilling Basin	
1630.05	Temporary Diversion	TD
1630.06	Special Stilling Basin	
	Rock Inlet Sediment Trap:	
1632.01	Type A	A
1632.02	Type B	B
1632.03	Type C	C

Std. #	Description	Symbol
1633.01	Temporary Rock Silt Check Type-A	
DETAIL	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM)	
1633.02	Temporary Rock Silt Check Type-B	
DETAIL	Wattle / Coir Fiber Wattle	
DETAIL	Wattle / Coir Fiber Wattle with Polyacrylamide (PAM)	
1634.01	Temporary Rock Sediment Dam Type-A	
1634.02	Temporary Rock Sediment Dam Type-B	
1635.01	Rock Pipe Inlet Sediment Trap Type-A	
1635.02	Rock Pipe Inlet Sediment Trap Type-B	
DETAIL	Skimmer Basin	
DETAIL	Tiered Skimmer Basin	
DETAIL	Infiltration Basin	
DETAIL	Earthen Dam with Skimmer	



Roadway Standard Drawings

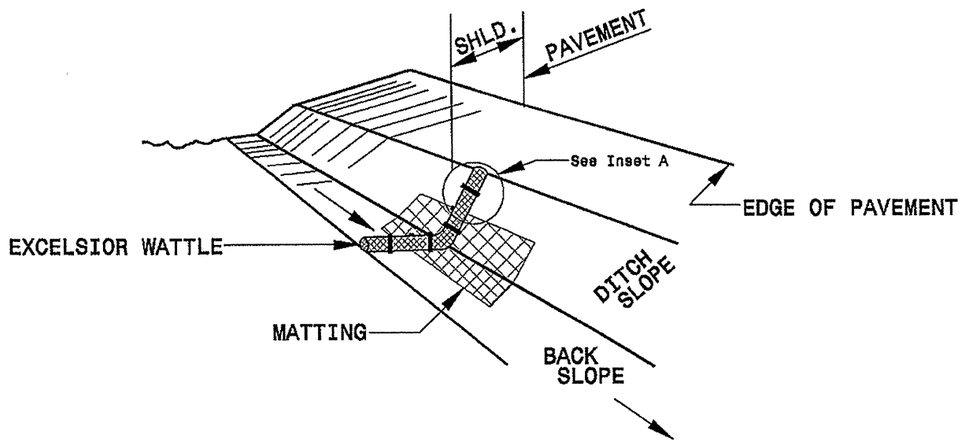
The following roadway english standards as appear in "Roadway Standard Drawings"– Roadway Design Unit – N. C. Department of Transportation – Raleigh, N. C., dated January 2012 and the latest revison thereto are applicable to this project and by reference hereby are considered a part of these plans.

1631.01 Matting Installation
1632.03 Rock Inlet Sediment Trap Type C
1635.02 Rock Pipe Inlet Sediment Trap Type B

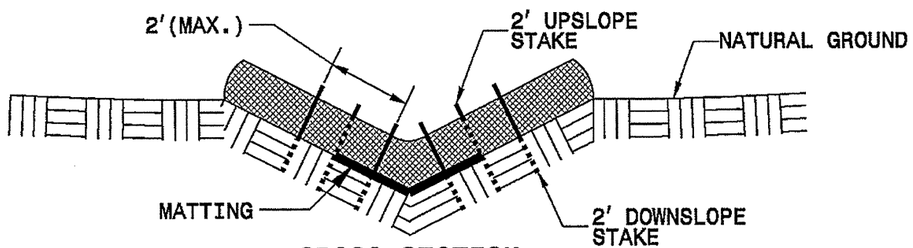
N.T.S.

PROJECT REFERENCE NO.	SHEET NO.
3C065998	EC-2

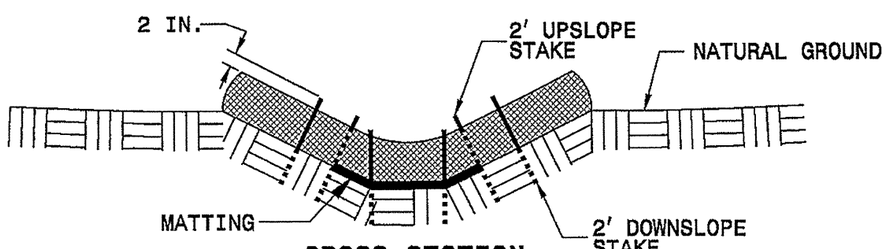
WATTLE DETAIL



ISOMETRIC VIEW



CROSS SECTION VEE DITCH



CROSS SECTION TRAPEZOIDAL DITCH

NOTES:

USE MINIMUM 12 IN. DIAMETER EXCELSIOR WATTLE.

USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.

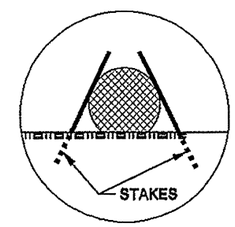
<u>ONLY</u> INSTALL WATTLE(S) TO A HEIGHT IN DITCH SO FLOW WILL NOT WASH AROUND WATTLE AND SCOUR DITCH SLOPES AND AS DIRECTED.

INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.

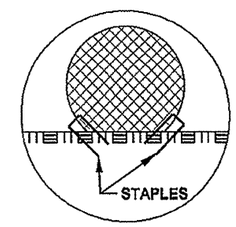
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.

INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

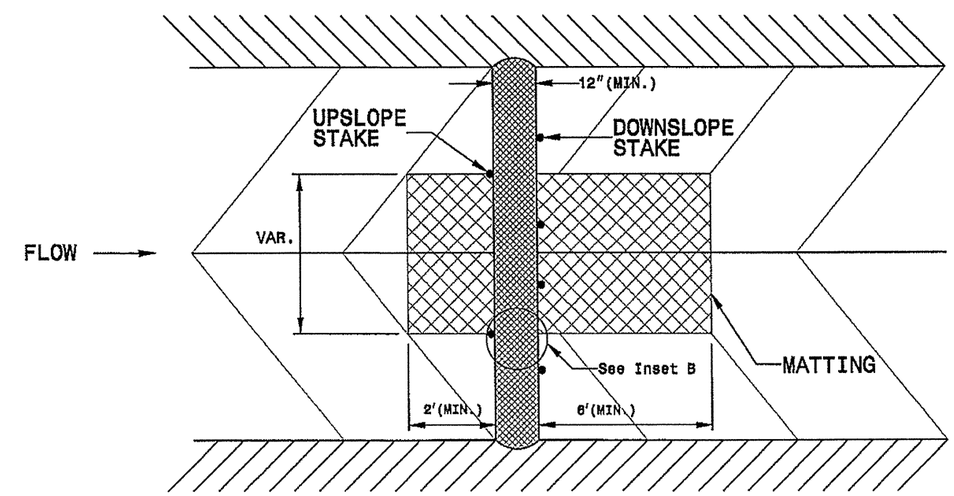
INSTALL MATTING IN ACCORDANCE WITH SECTION 1631 OF THE STANDARD SPECIFICATIONS.



INSET A



INSET B



TOP VIEW

PROJECT REFERENCE NO.	SHEET NO.
3C.065998	EC-2A

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION TIMEFRAMES

SITE DESCRIPTION	STABILIZATION TIME	TIMEFRAME EXCEPTIONS
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED.
SLOPES 3:1 OR FLATTER	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH.
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE, EXCEPT FOR PERIMETERS AND HQW ZONES.

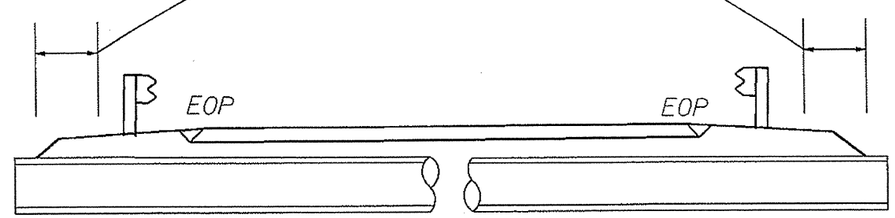
PROJECT REFERENCE NO.	SHEET NO.
3C.065998	EC-2B

EROSION CONTROL DETAIL

NOTES: Less than 5' - 10' undisturbed buffer from ROW, ditchline, water feature, or drainage inlet, add BMP.

BMP Options: Wattle or Silt Fence

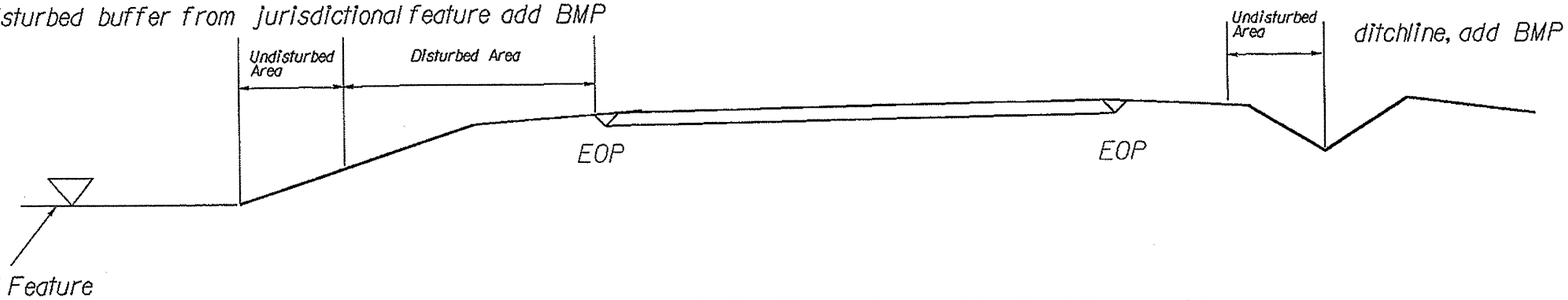
< 5' - 10' Undisturbed buffer add BMP



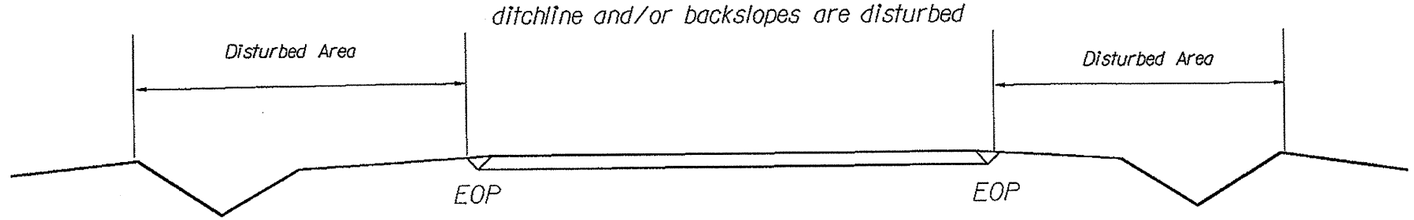
Pipe/Culvert

< 5' - 10' Undisturbed buffer from jurisdictional feature add BMP

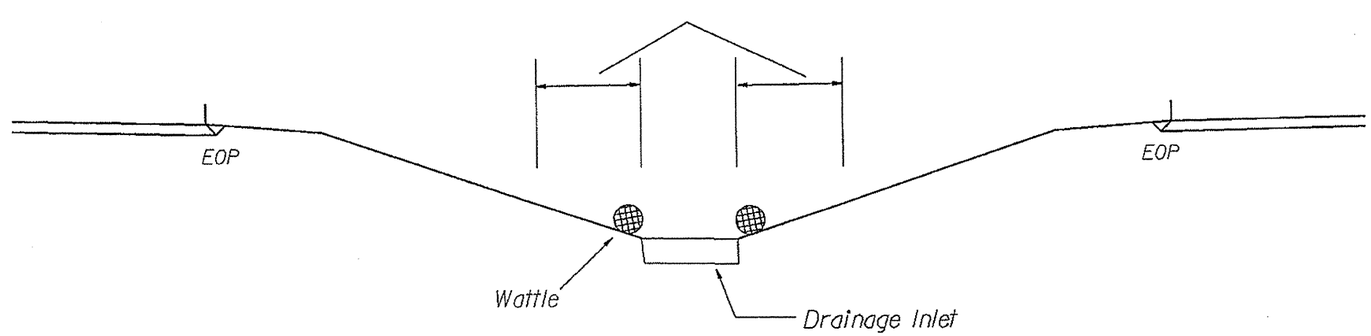
< 5' - 10' Undisturbed buffer from ditchline, add BMP



Use BMP's if shoulders and/or frontslopes and/or ditchline and/or backslopes are disturbed

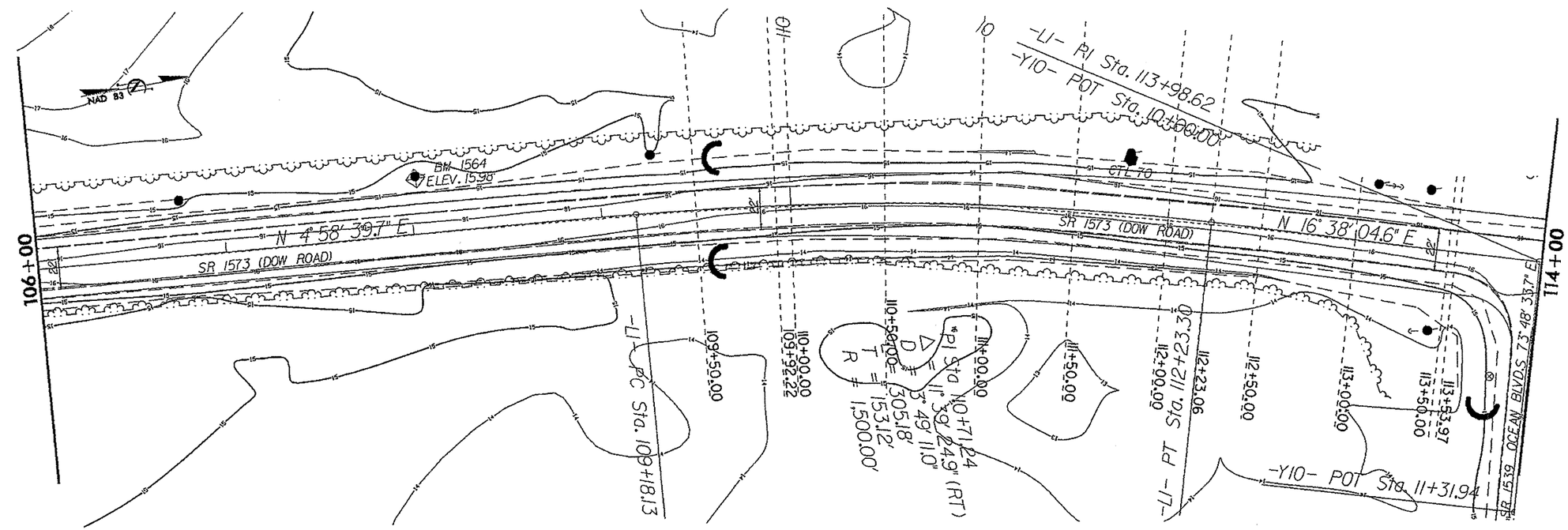


< 5' - 10' Undisturbed buffer from inlet, add wattle



NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
3C.065998	EC-4



REVISIONS

8/17/98

23-JUN-2012 10:36
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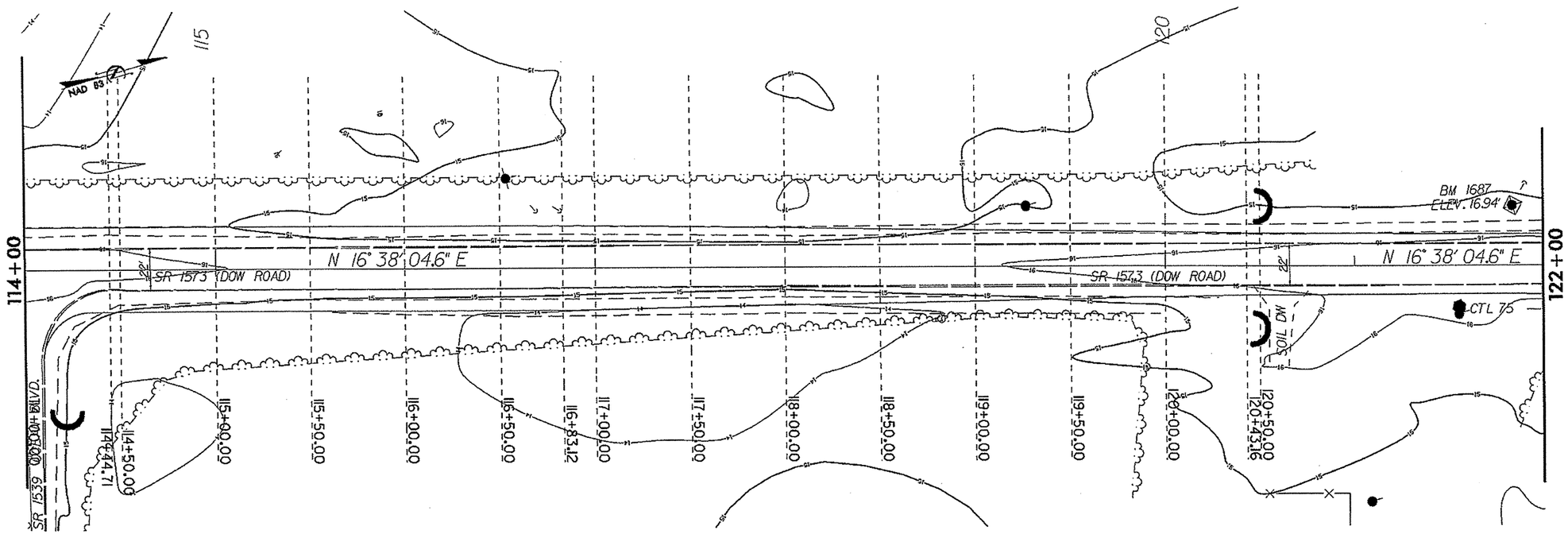
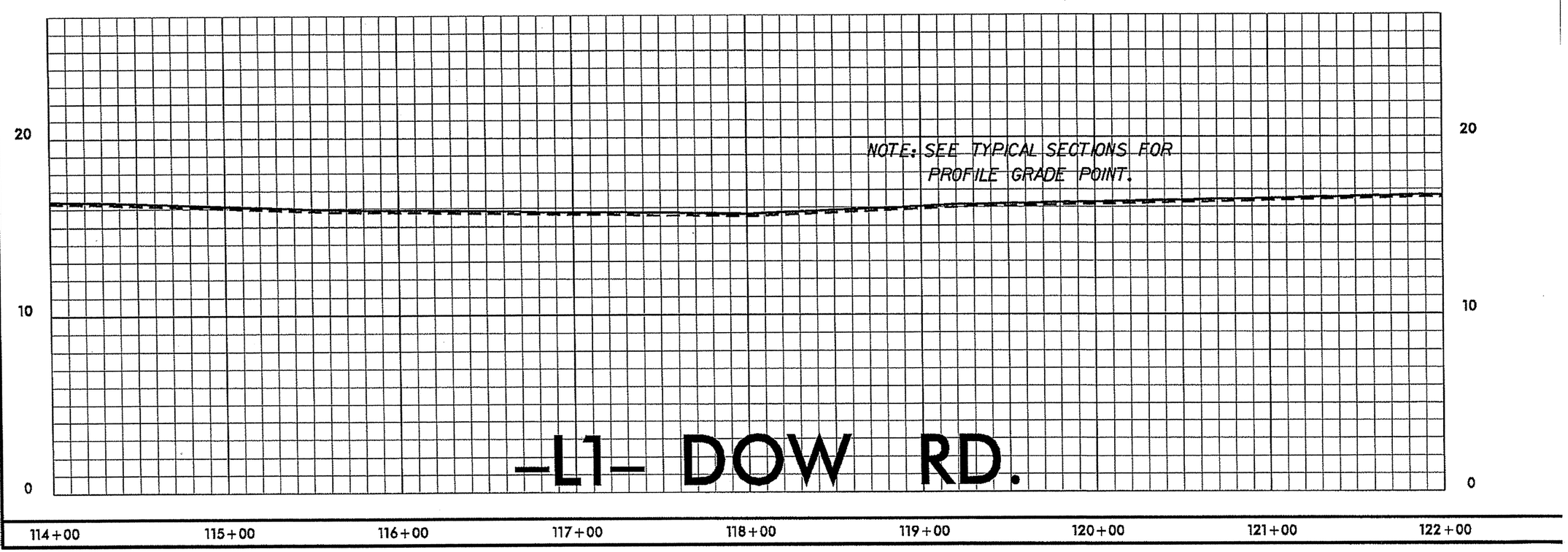
PROJECT REFERENCE NO.	SHEET NO.
3C.065998	EC-5





REVISIONS

8/17/99

23-JUN-2012 10:36
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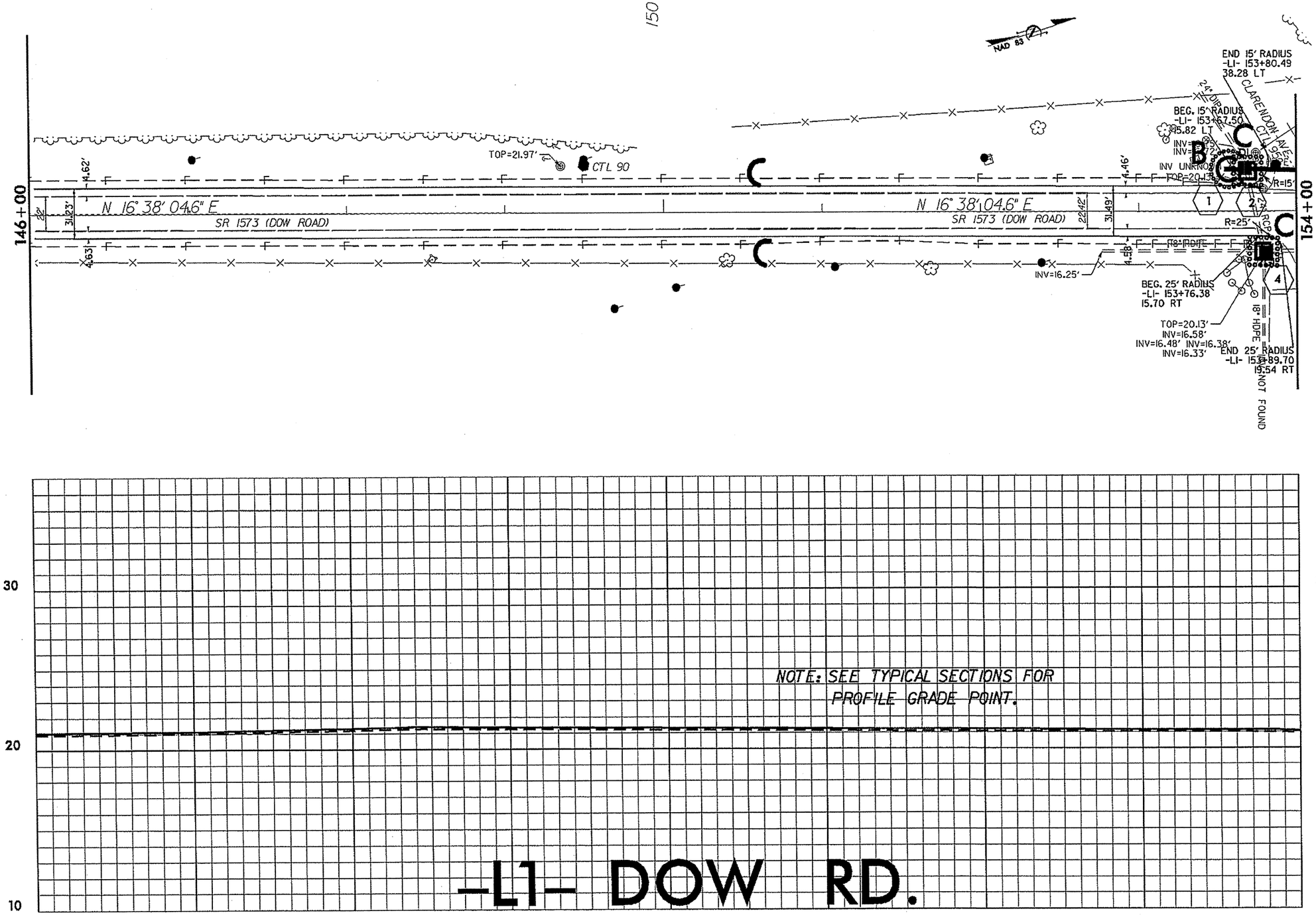
PROJECT REFERENCE NO.	SHEET NO.
3C.065998	EC-6



REVISIONS

8/17/99

28-JUN-2012 10:36
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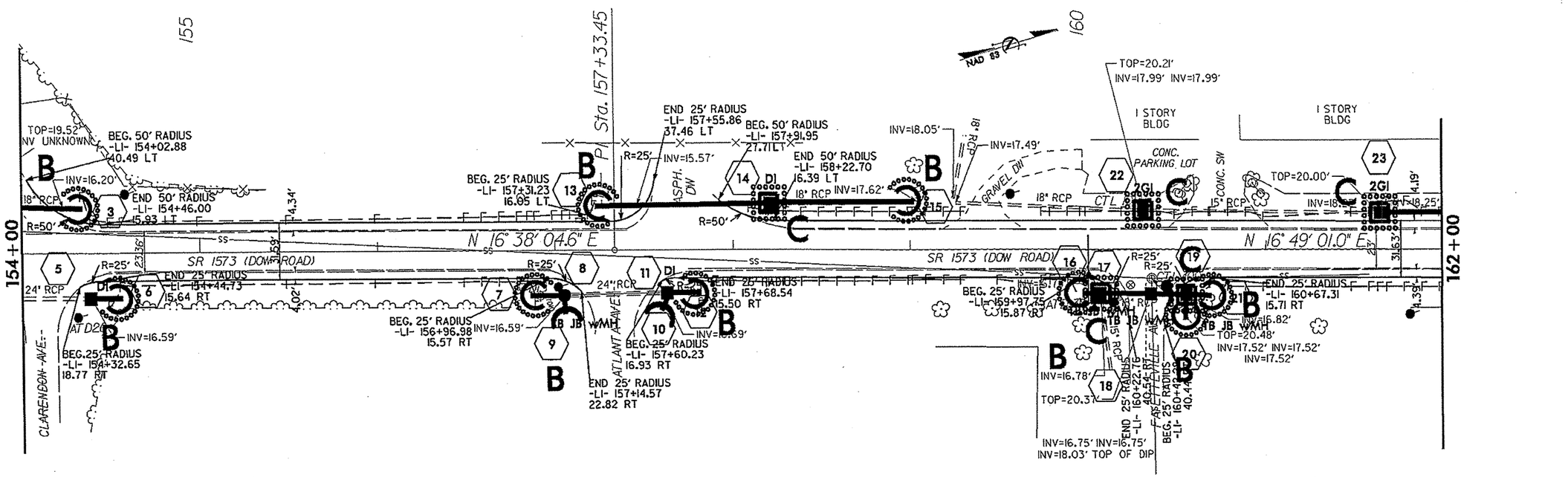
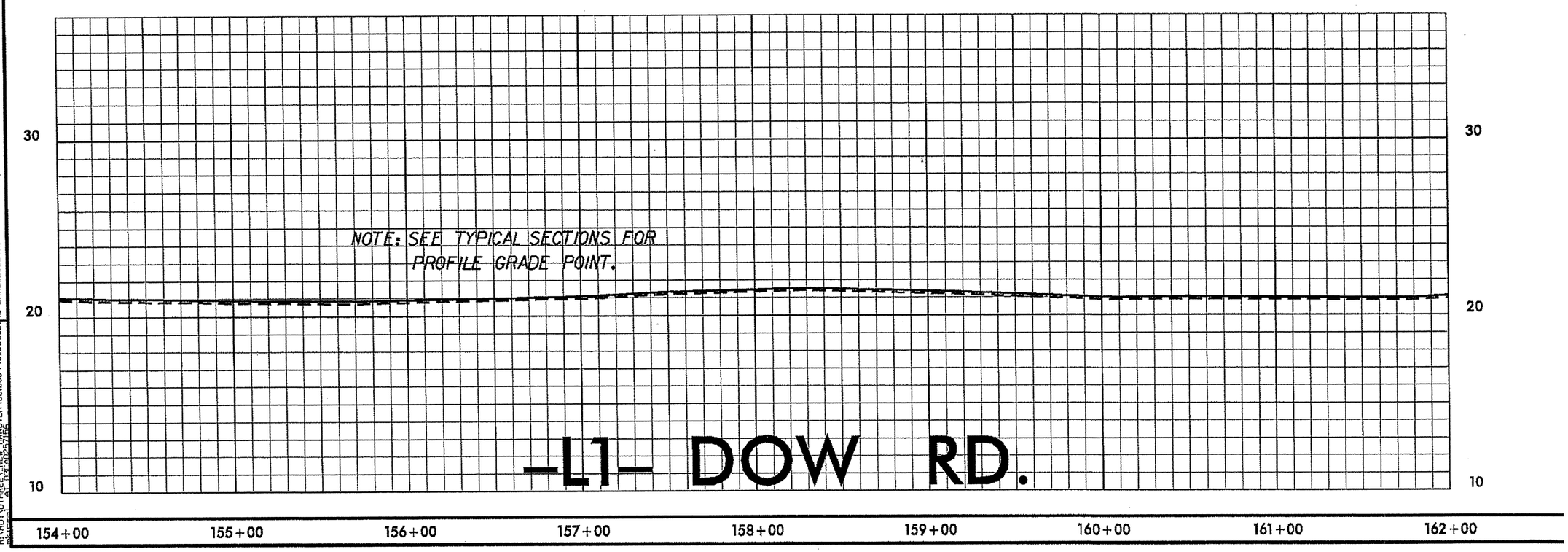
at 1"=20.0000'

PROJECT REFERENCE NO.	SHEET NO.
3C.065998	EC-7





REVISIONS

8/17/99

28-JUN-2012 10:37
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pkirkman AT R:\3C065998
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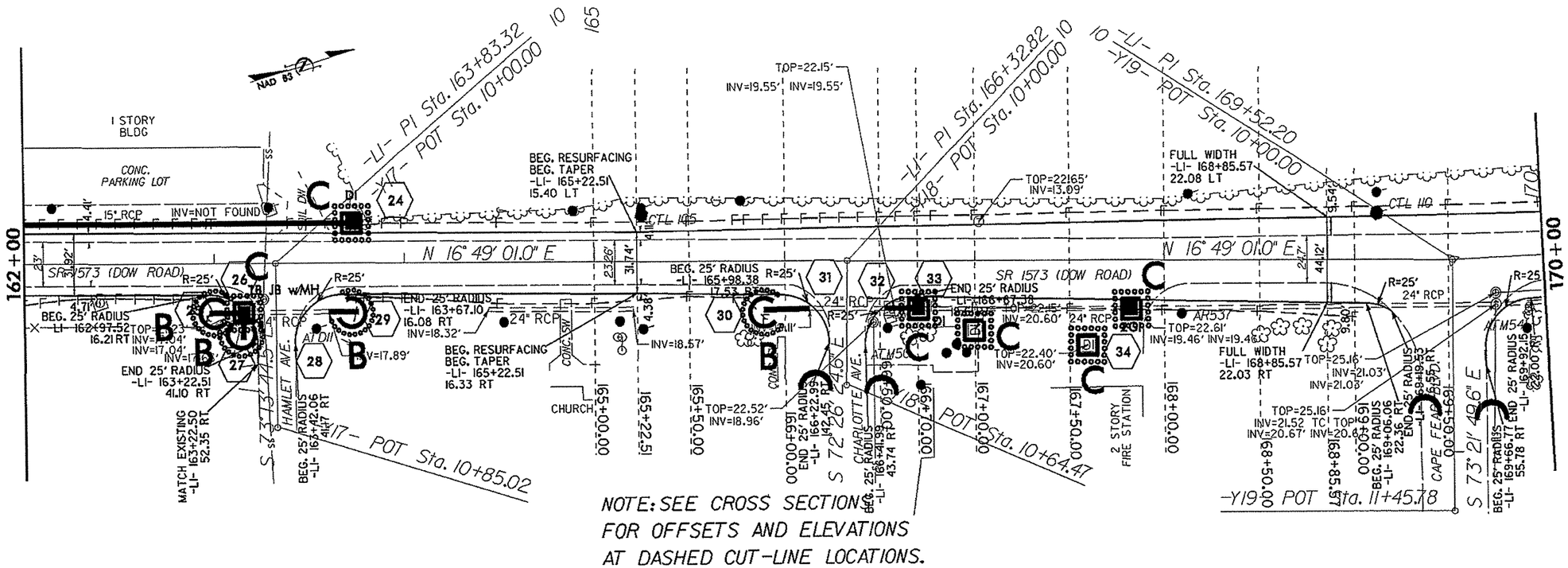
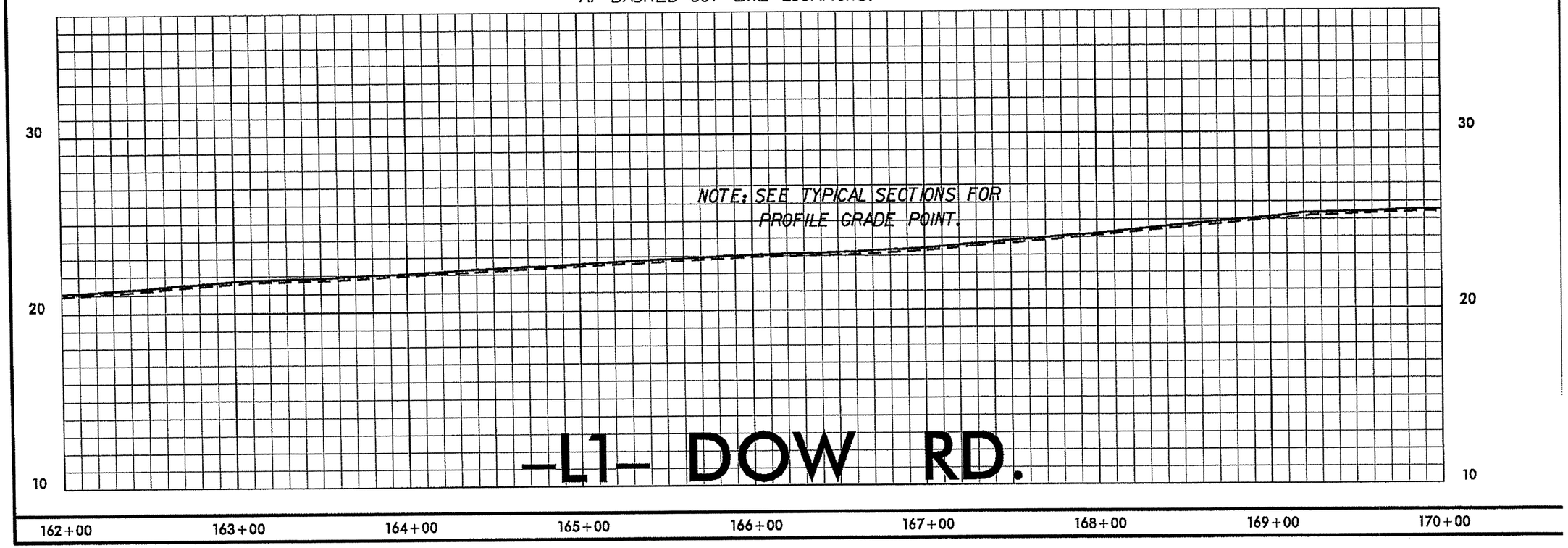
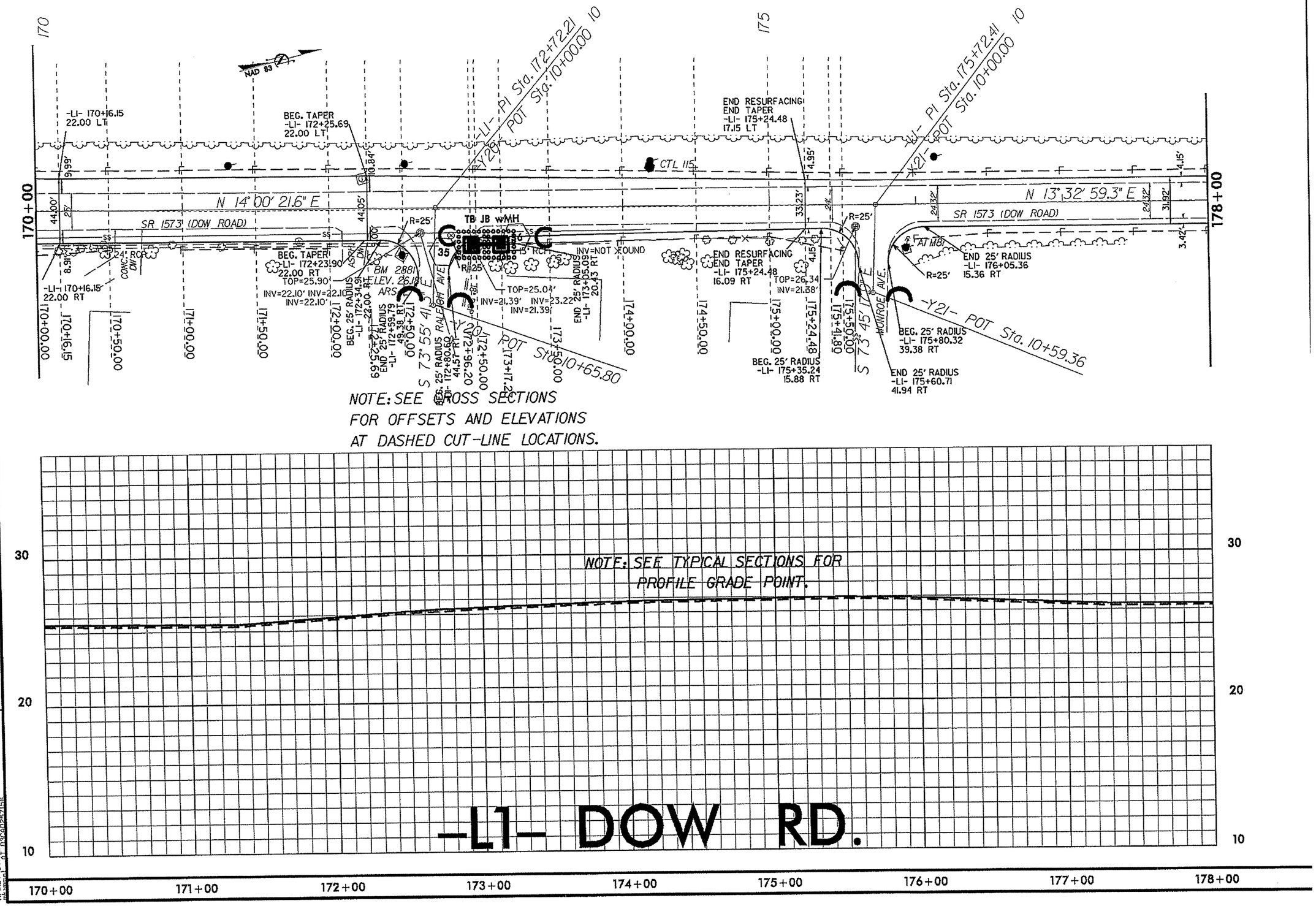
PROJECT REFERENCE NO.	SHEET NO.
3C.065998	EC-8

8/17/99







REVISIONS

8/17/99

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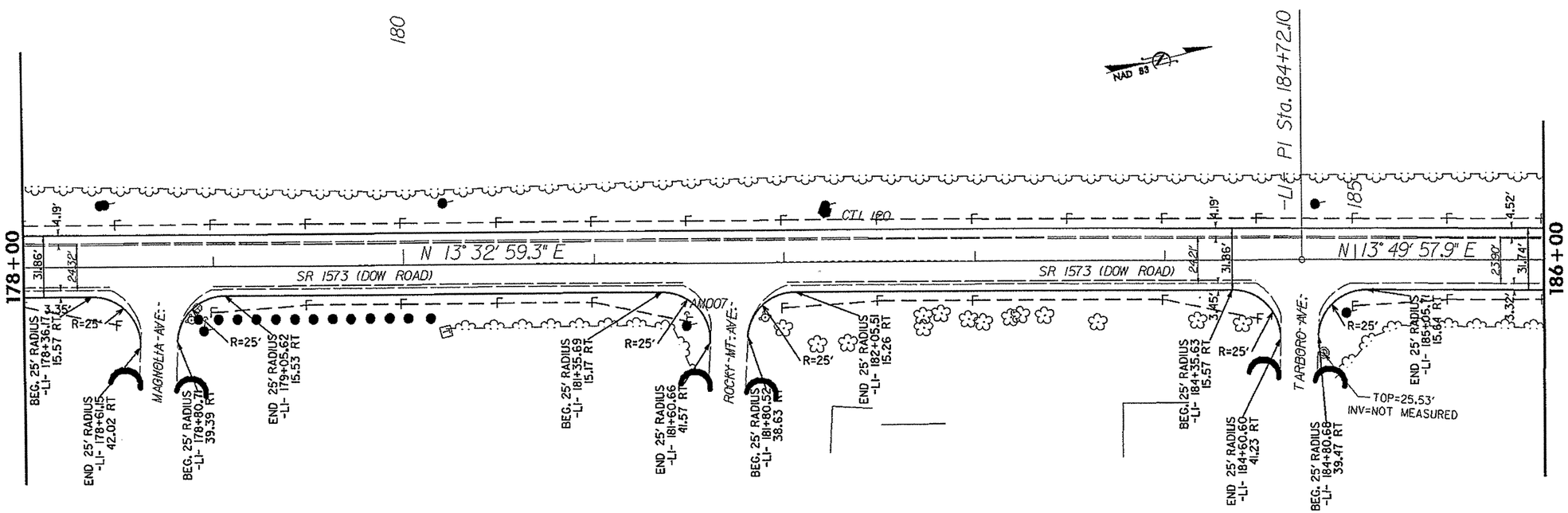
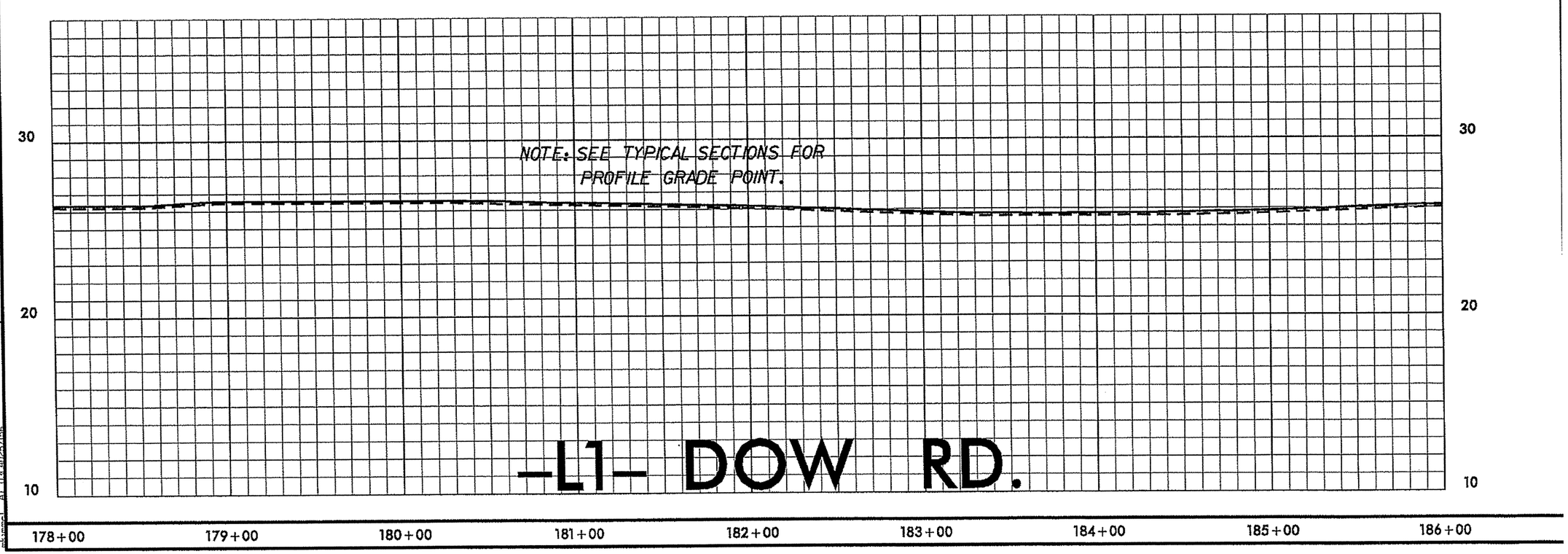
3C.065998	EC-10





REVISIONS

8/17/99

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PROJECT REFERENCE NO.	SHEET NO.
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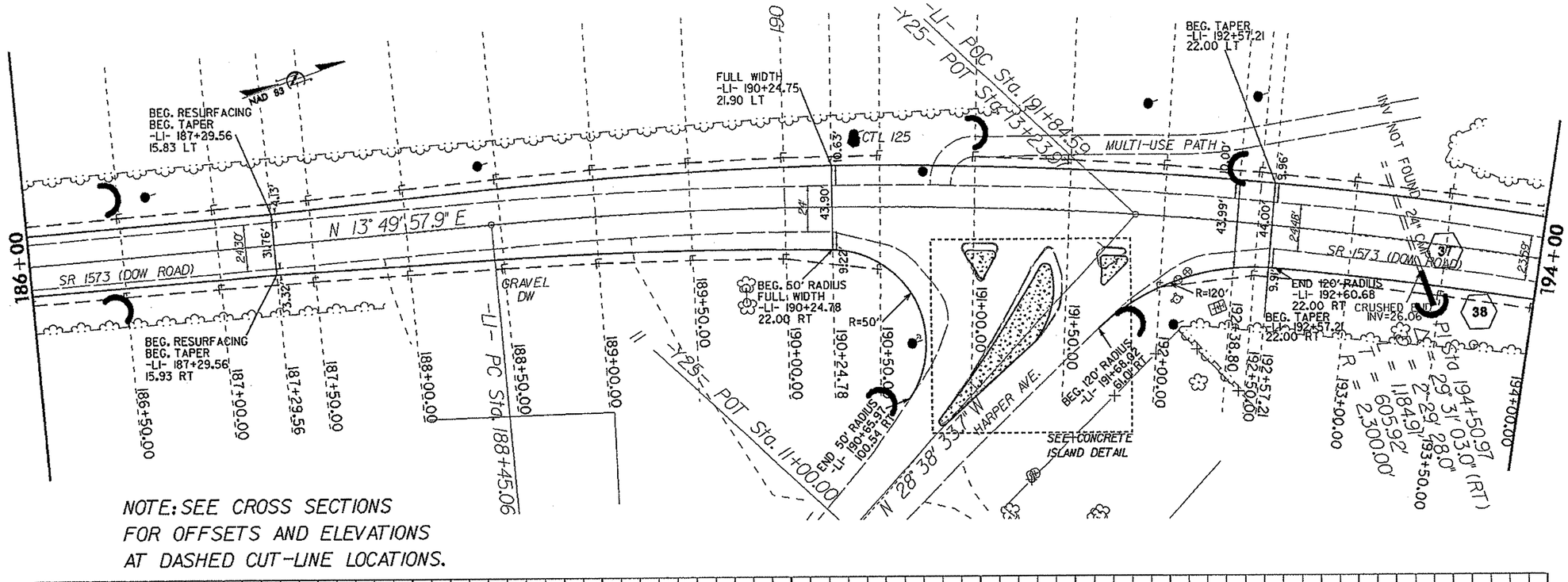
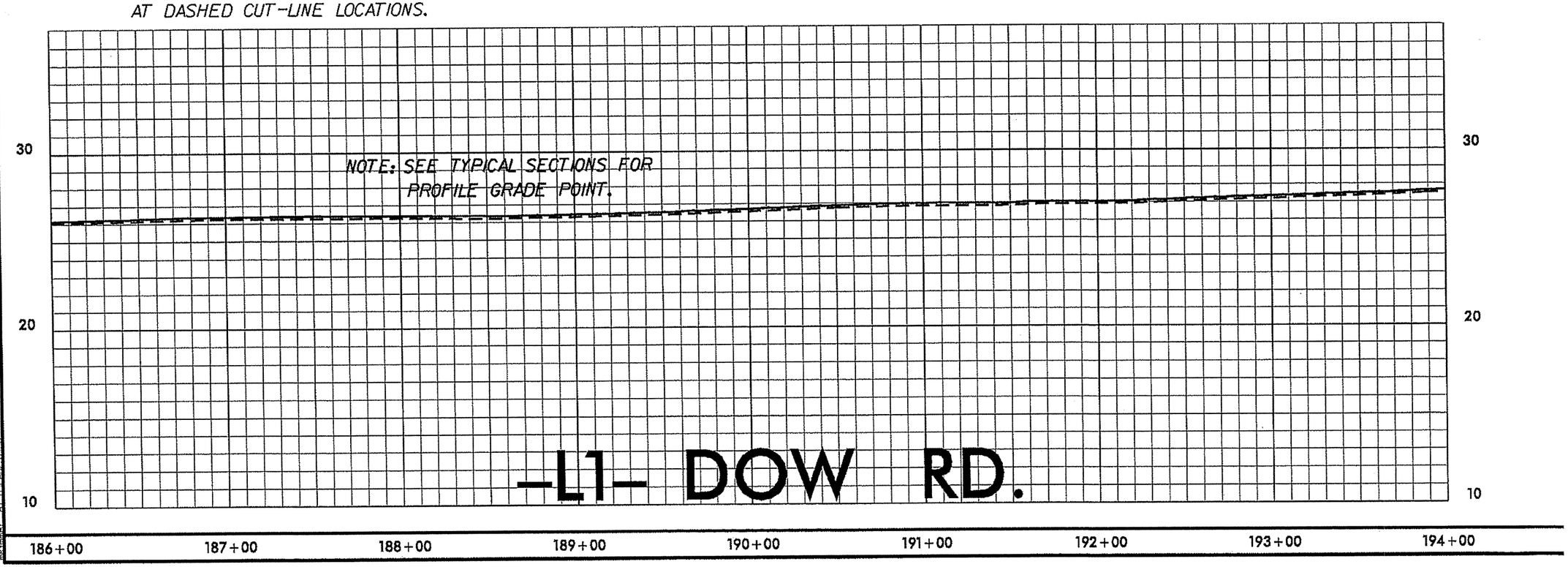


NOTE: SEE CROSS SECTIONS FOR OFFSETS AND ELEVATIONS AT DASHED CUT-LINE LOCATIONS.



REVISIONS

8/17/99

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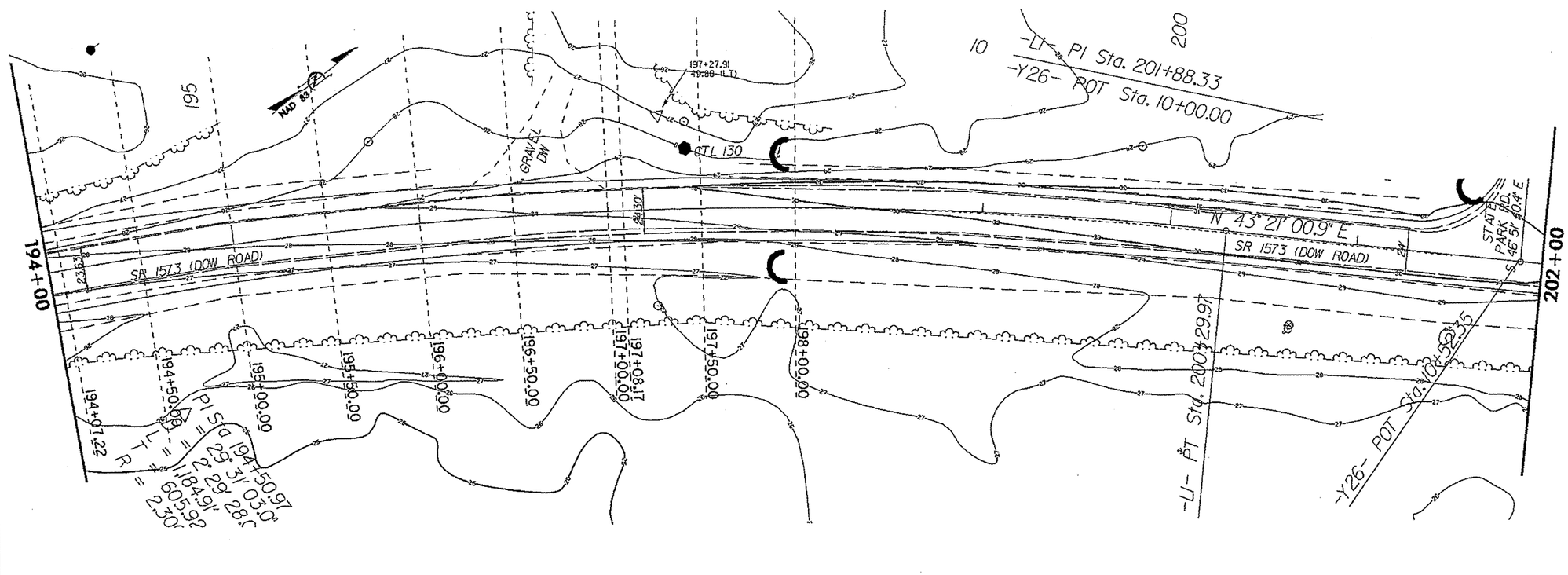

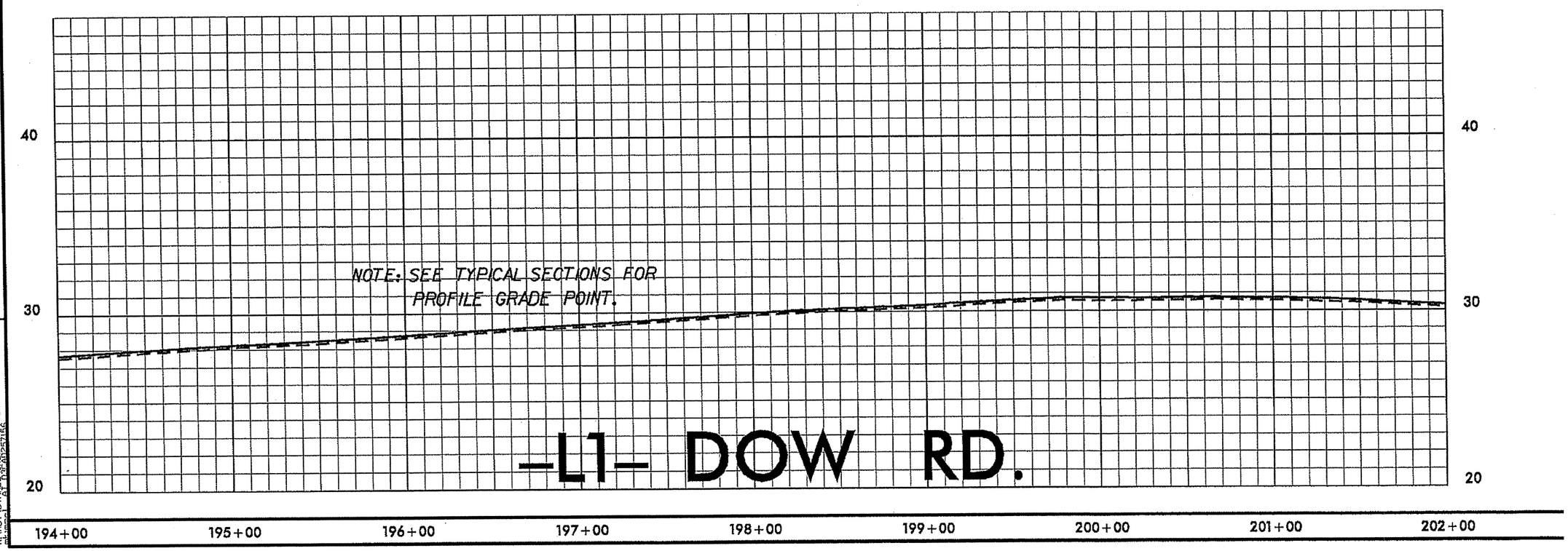

REVISIONS

8/17/99

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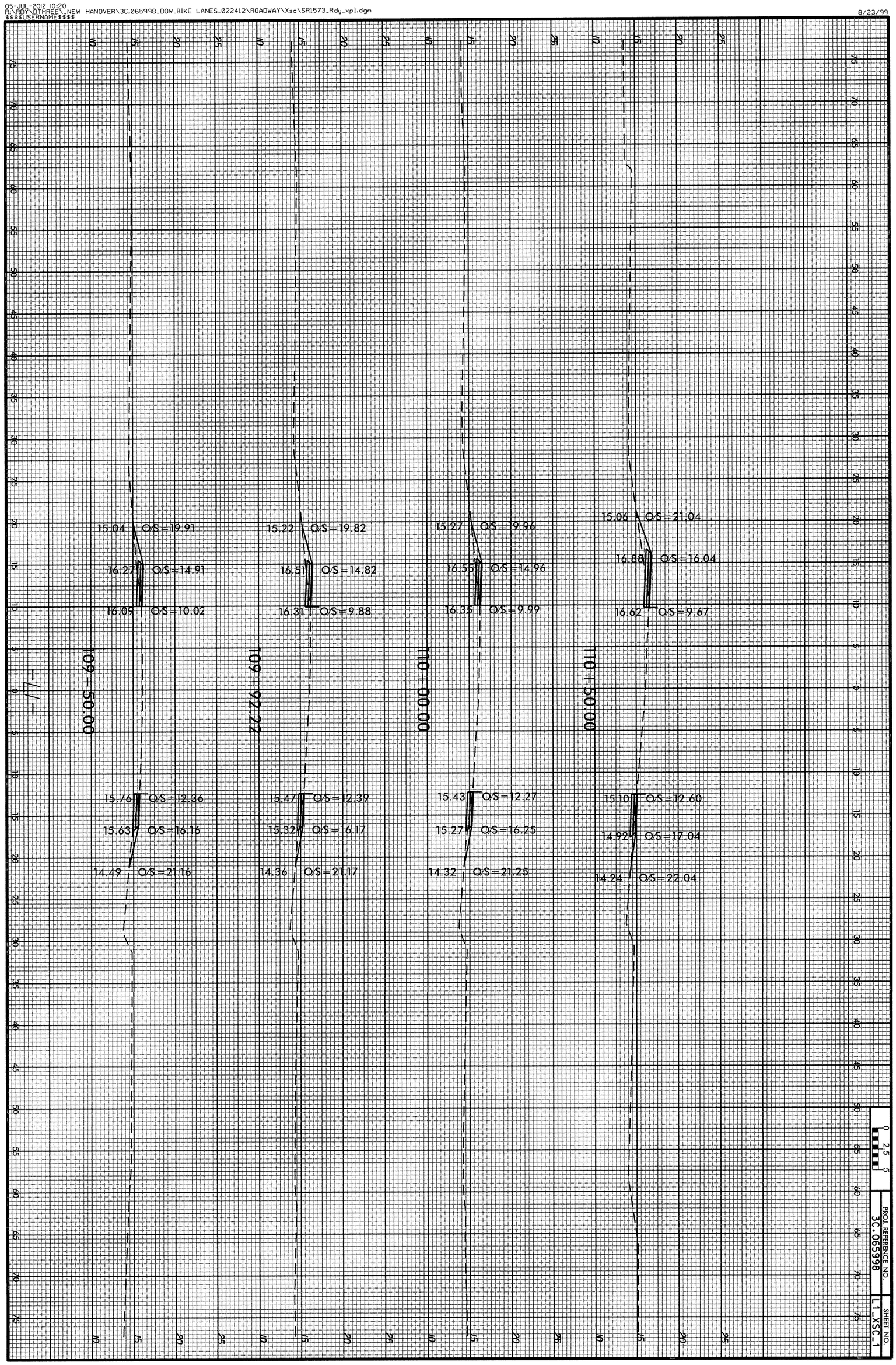

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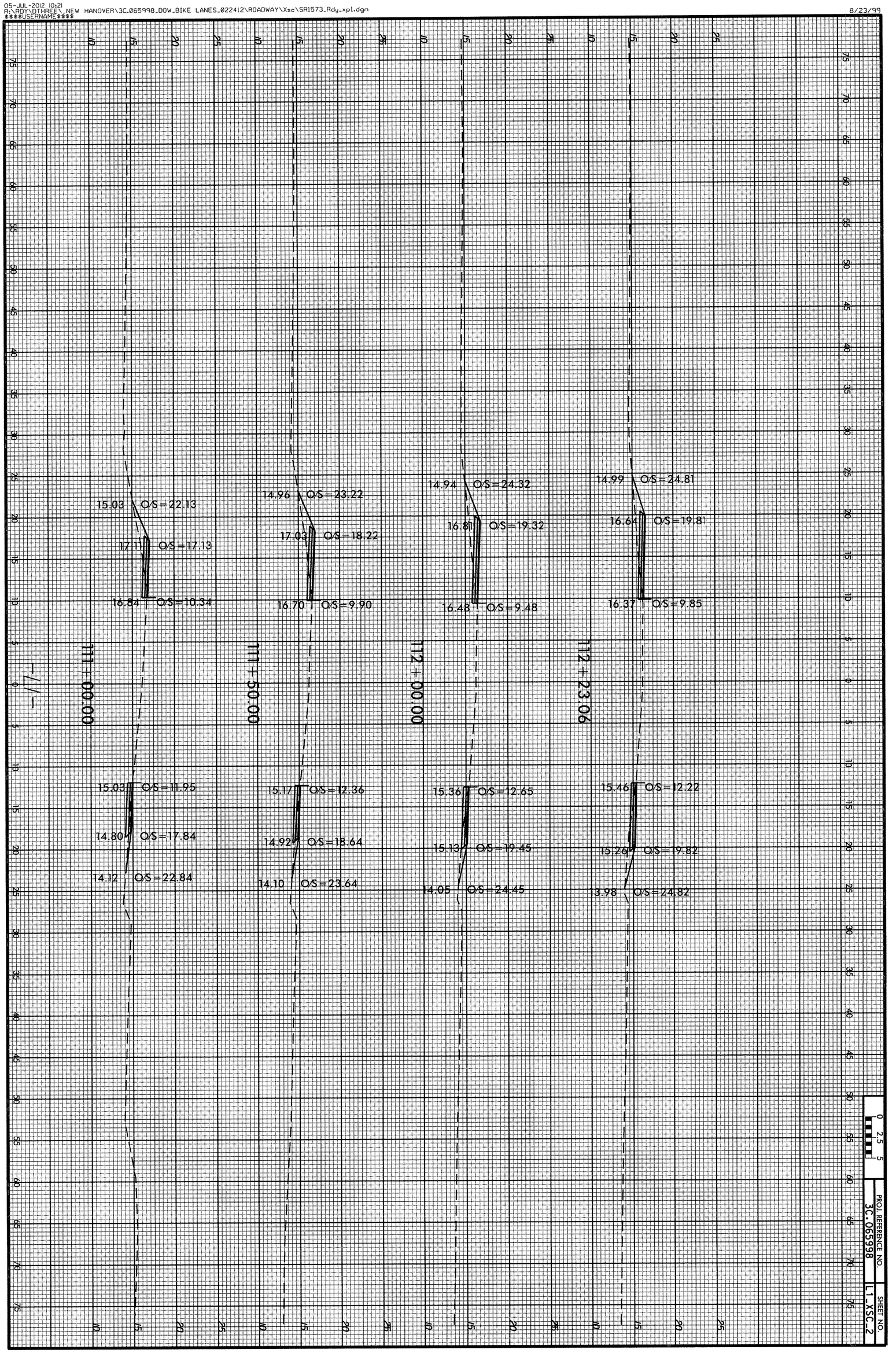
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15.03 O/S=22.13
17.11 O/S=17.13
16.84 O/S=10.34
15.03 O/S=11.95
14.80 O/S=17.84
14.12 O/S=22.84
111+50.00
14.96 O/S=23.22
17.03 O/S=18.22
16.70 O/S=9.90
15.17 O/S=12.36
14.92 O/S=18.64
14.10 O/S=23.64
112+00.00
14.94 O/S=24.32
16.81 O/S=19.32
16.48 O/S=9.48
15.36 O/S=12.65
15.13 O/S=19.45
14.05 O/S=24.45
112+23.06
14.99 O/S=24.81
16.64 O/S=19.81
16.37 O/S=9.85
15.46 O/S=12.22
15.20 O/S=19.82
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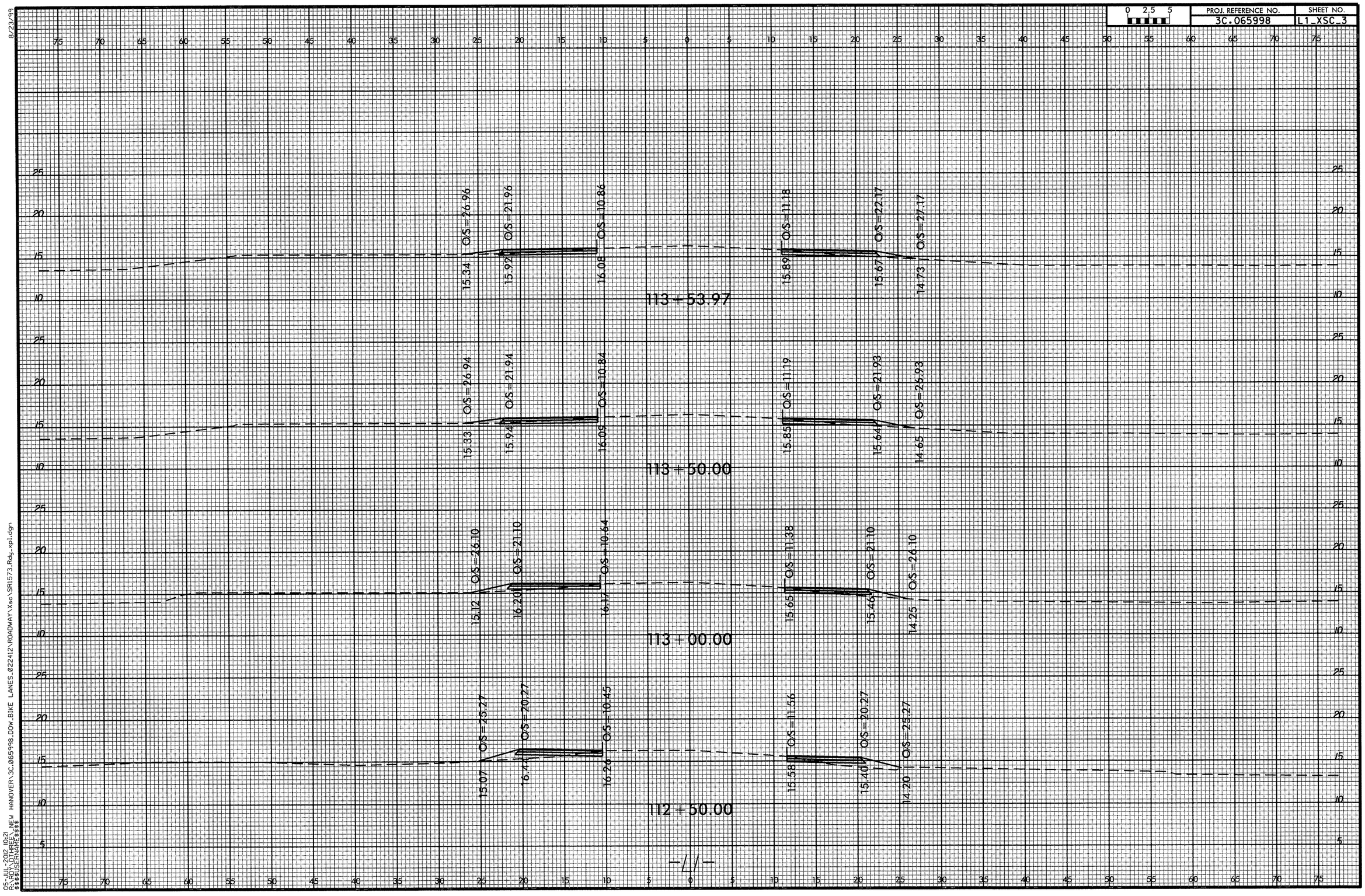
SHEET NO.
L1_XSC_2


0 2.5 5
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3C.065998
SHEET NO.
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O/S=21.96
O/S=10.86
O/S=11.18
O/S=22.17
O/S=27.17
15.34
15.92
16.08
15.89
15.67
14.73
113+50.00
O/S=26.94
O/S=21.94
O/S=10.84
O/S=11.19
O/S=21.93
O/S=26.93
15.33
15.94
16.09
15.85
15.64
14.65
113+00.00
O/S=26.10
O/S=21.10
O/S=10.64
O/S=11.38
O/S=21.10
O/S=26.10
15.12
16.20
16.17
15.65
15.46
14.25
112+50.00
O/S=25.27
O/S=20.27
O/S=10.45
O/S=11.56
O/S=20.27
O/S=25.27
15.07
16.44
16.24
15.58
15.40
14.20
8/23/99
05-JUL-2012 10:21
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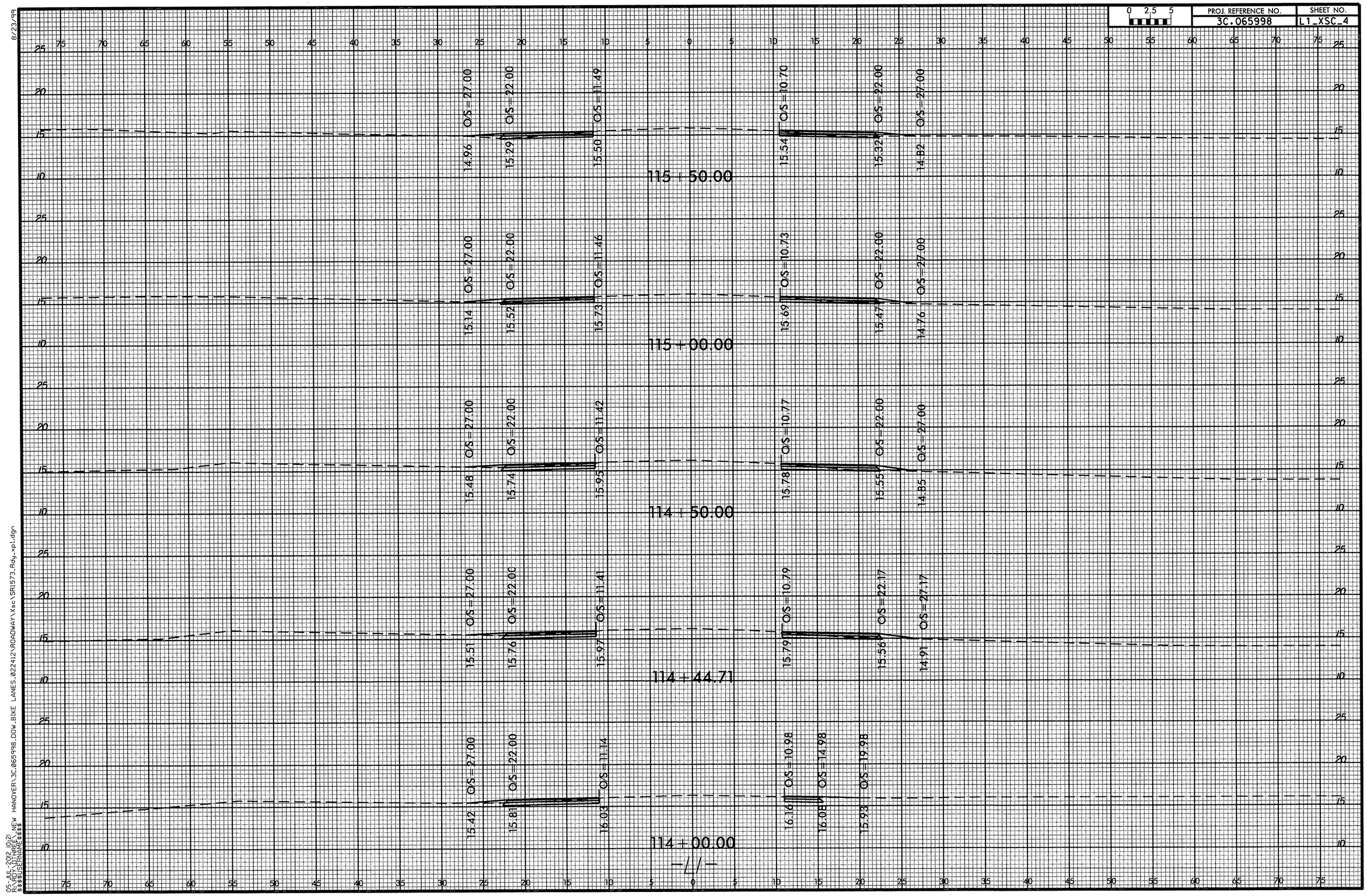
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PROJ. REFERENCE NO.
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O/S=11.49
O/S=10.70
O/S=22.00
O/S=27.00
14.96
15.29
15.50
15.54
15.32
14.82
115+00.00
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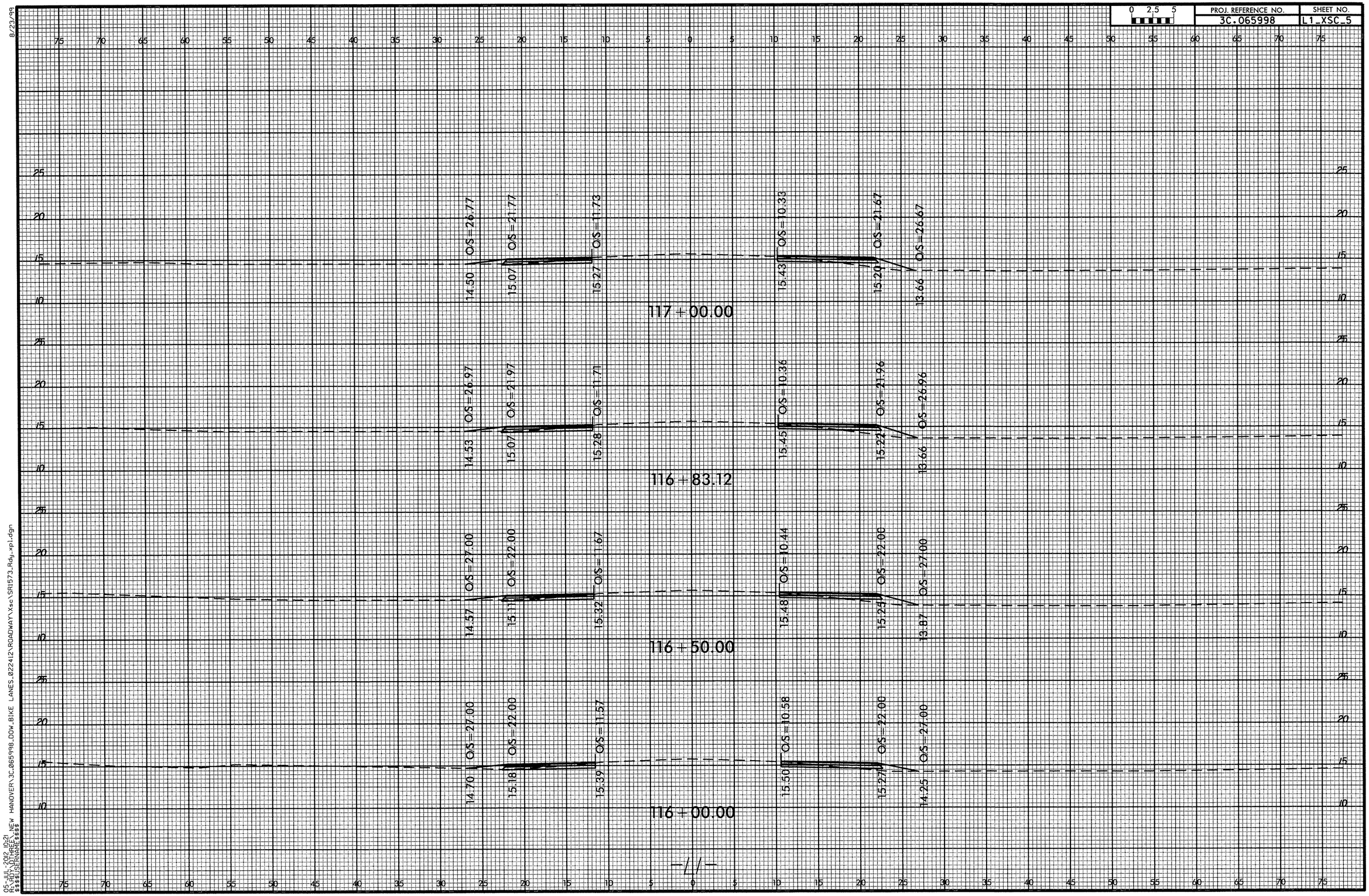
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O/S=26.67
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15.07
15.27
15.43
15.20
13.66
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15.28
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116+83.12
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O/S=22.00
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13.87
116+50.00
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14.70
15.18
15.39
15.50
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14.25
116+00.00
8/23/99
05-JUL-2012 10:21
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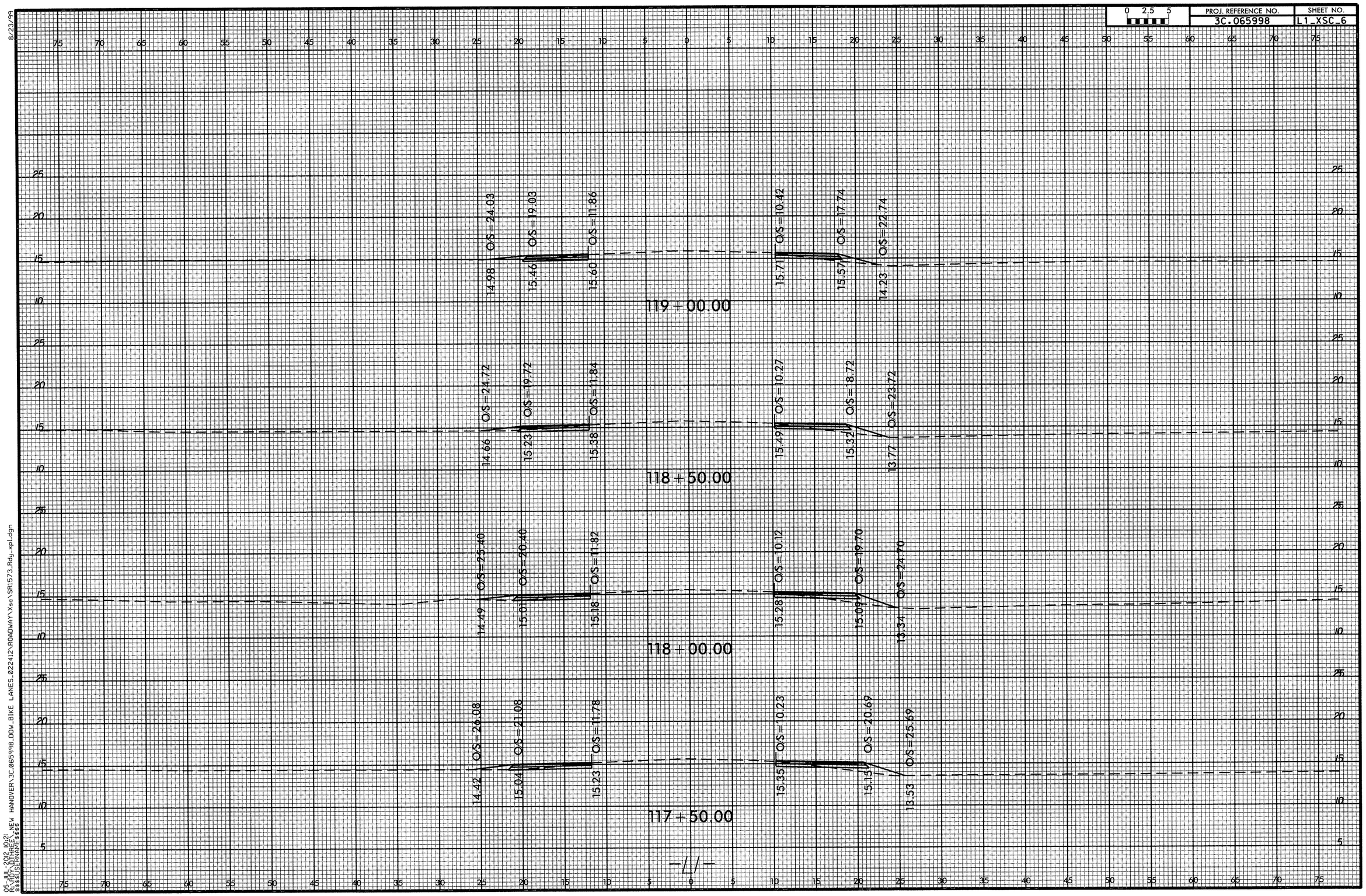
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15.71
15.57
14.23
118+50.00
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15.38
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15.01
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117+50.00
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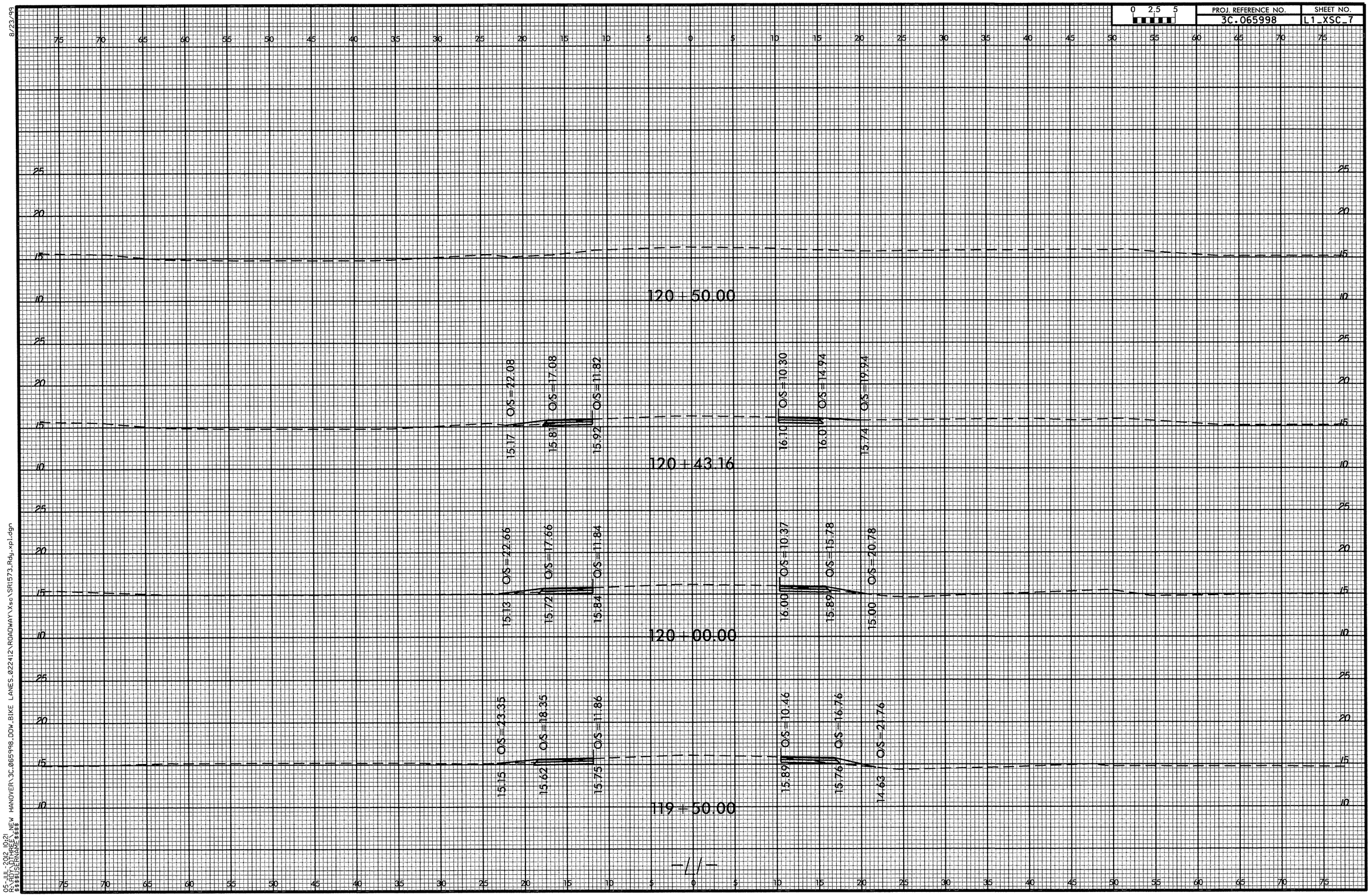
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PROJ. REFERENCE NO.
3C.065998
SHEET NO.
L1_XSC_7
8/23/99
120 + 50.00
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O/S=17.08
O/S=11.82
15.17
15.81
15.92
O/S=10.30
O/S=14.94
O/S=19.94
16.10
16.01
15.74
120 + 43.16
O/S=22.66
O/S=17.66
O/S=11.84
15.13
15.72
15.84
O/S=10.37
O/S=15.78
O/S=20.78
16.00
15.89
15.00
120 + 00.00
O/S=23.35
O/S=18.35
O/S=11.86
15.15
15.62
15.75
O/S=10.46
O/S=16.76
O/S=21.76
15.89
15.76
14.63
119 + 50.00
-4/-
05-JUL-2012 10:21
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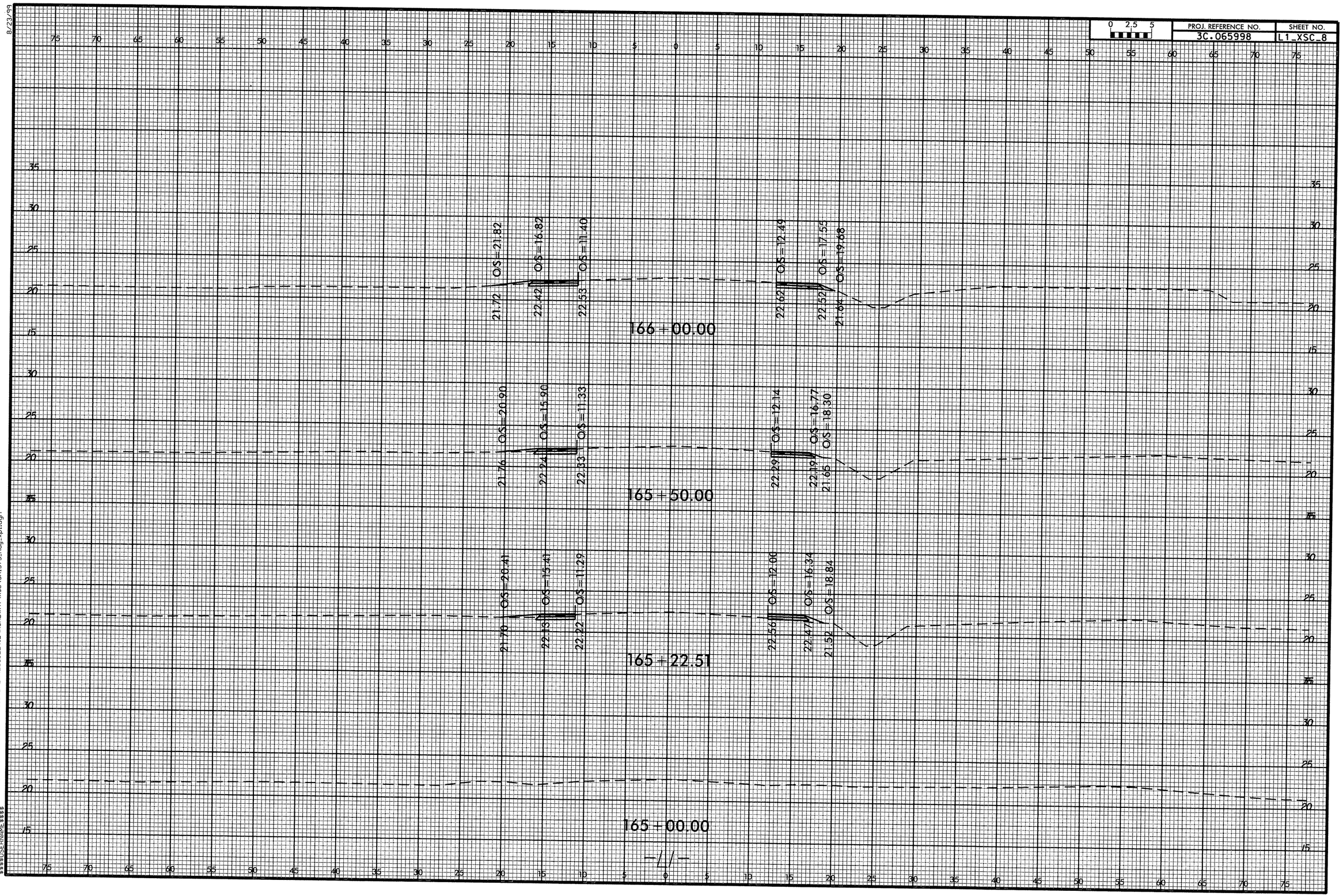
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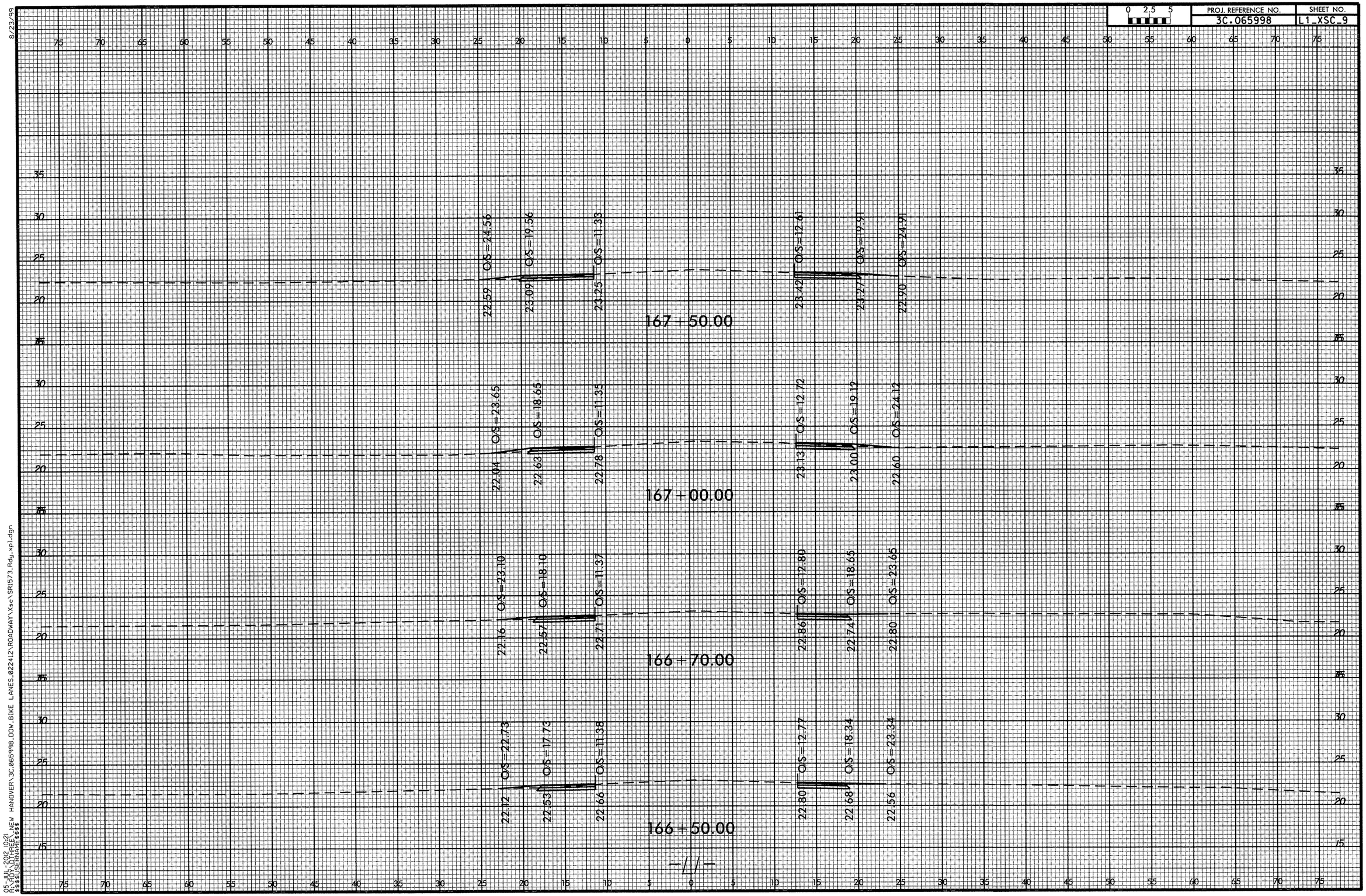
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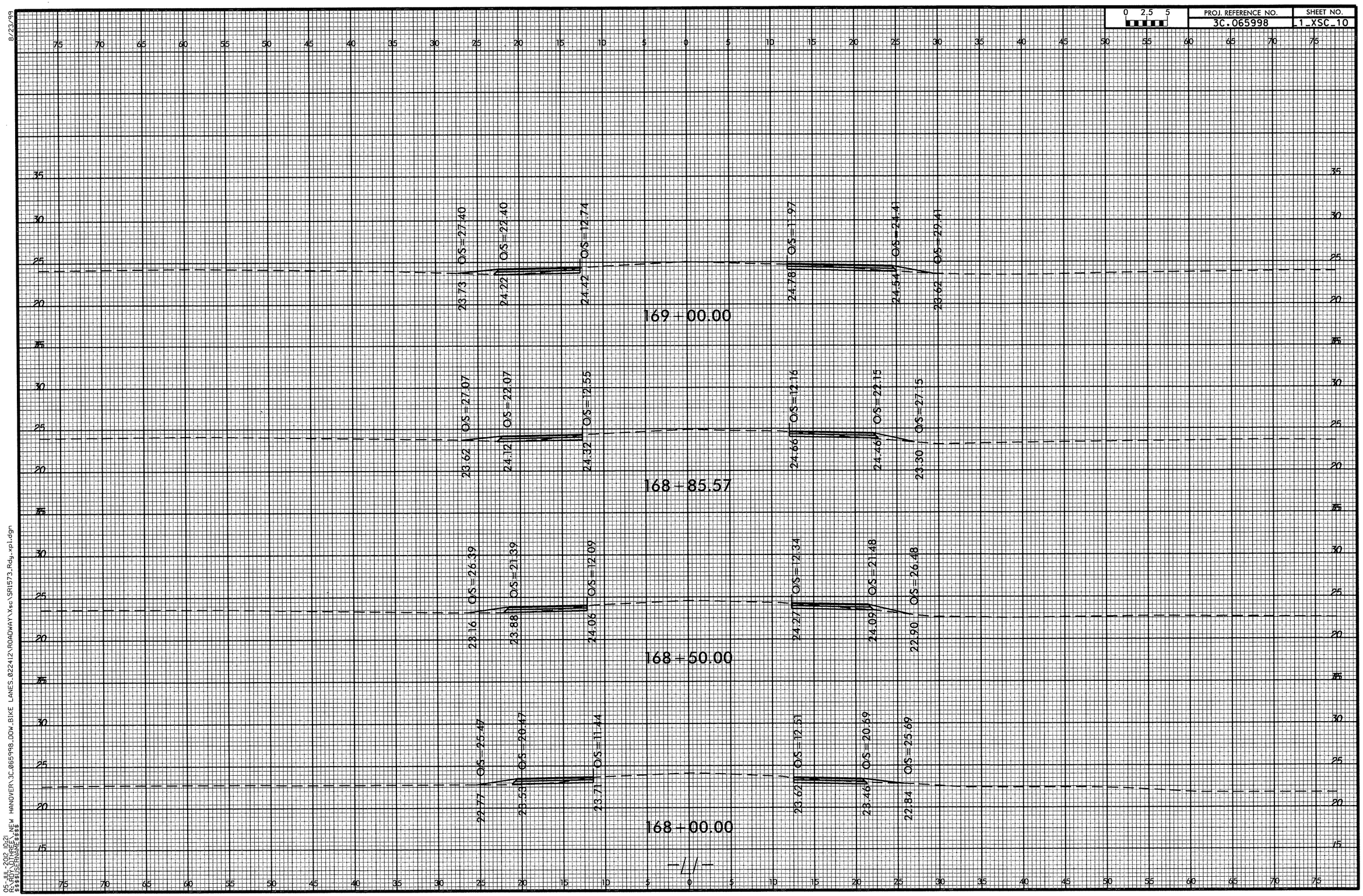

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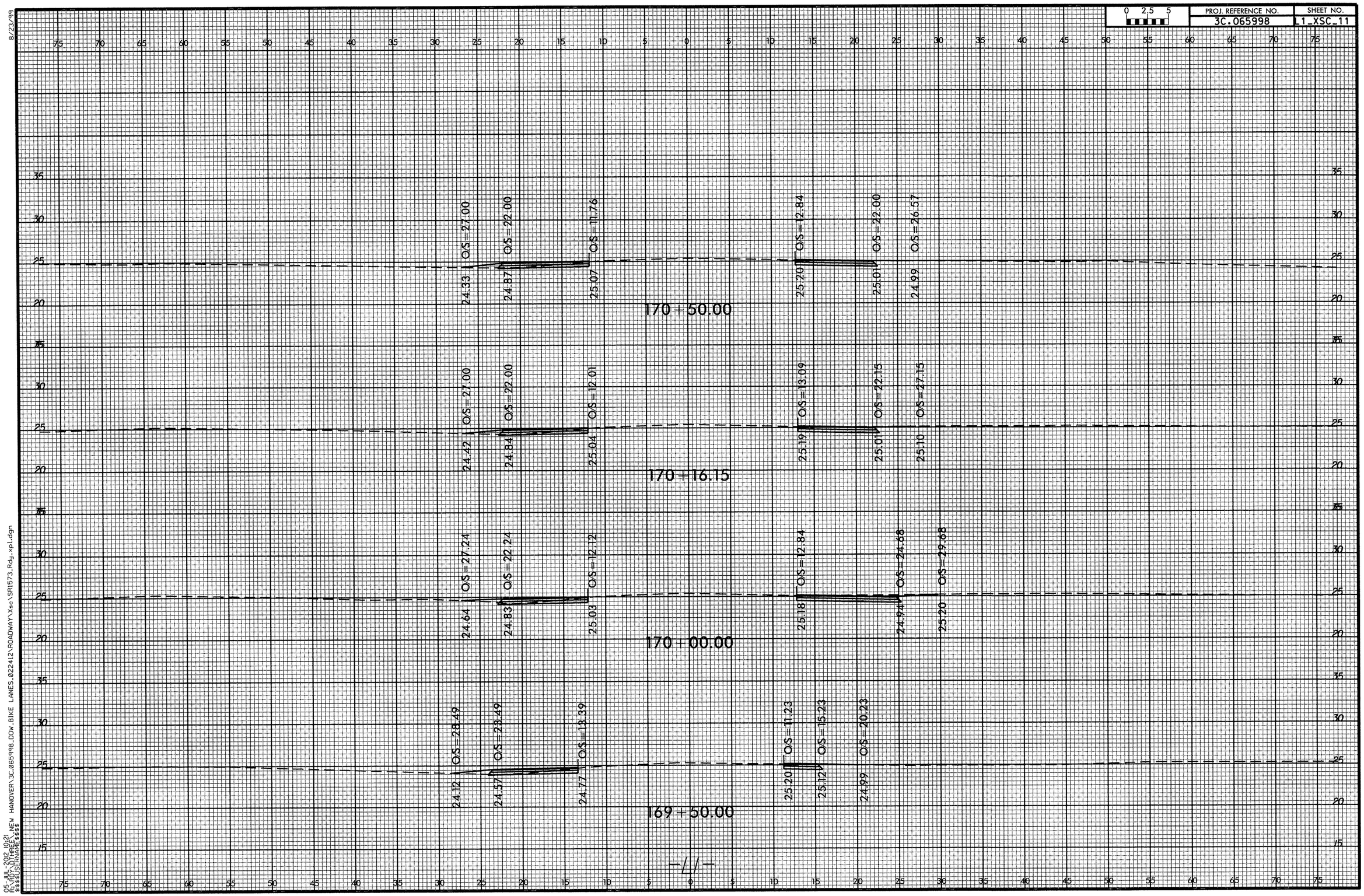
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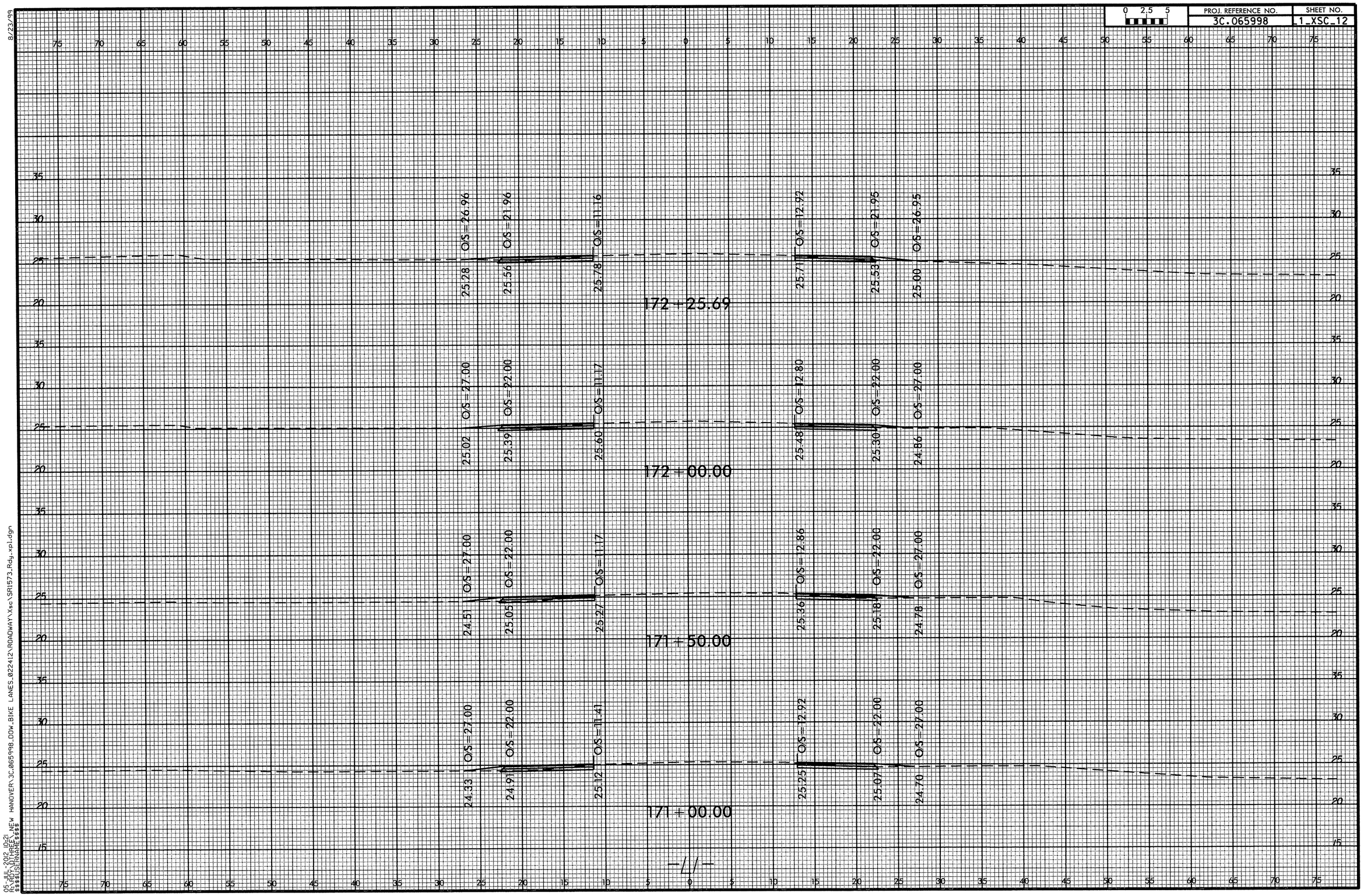
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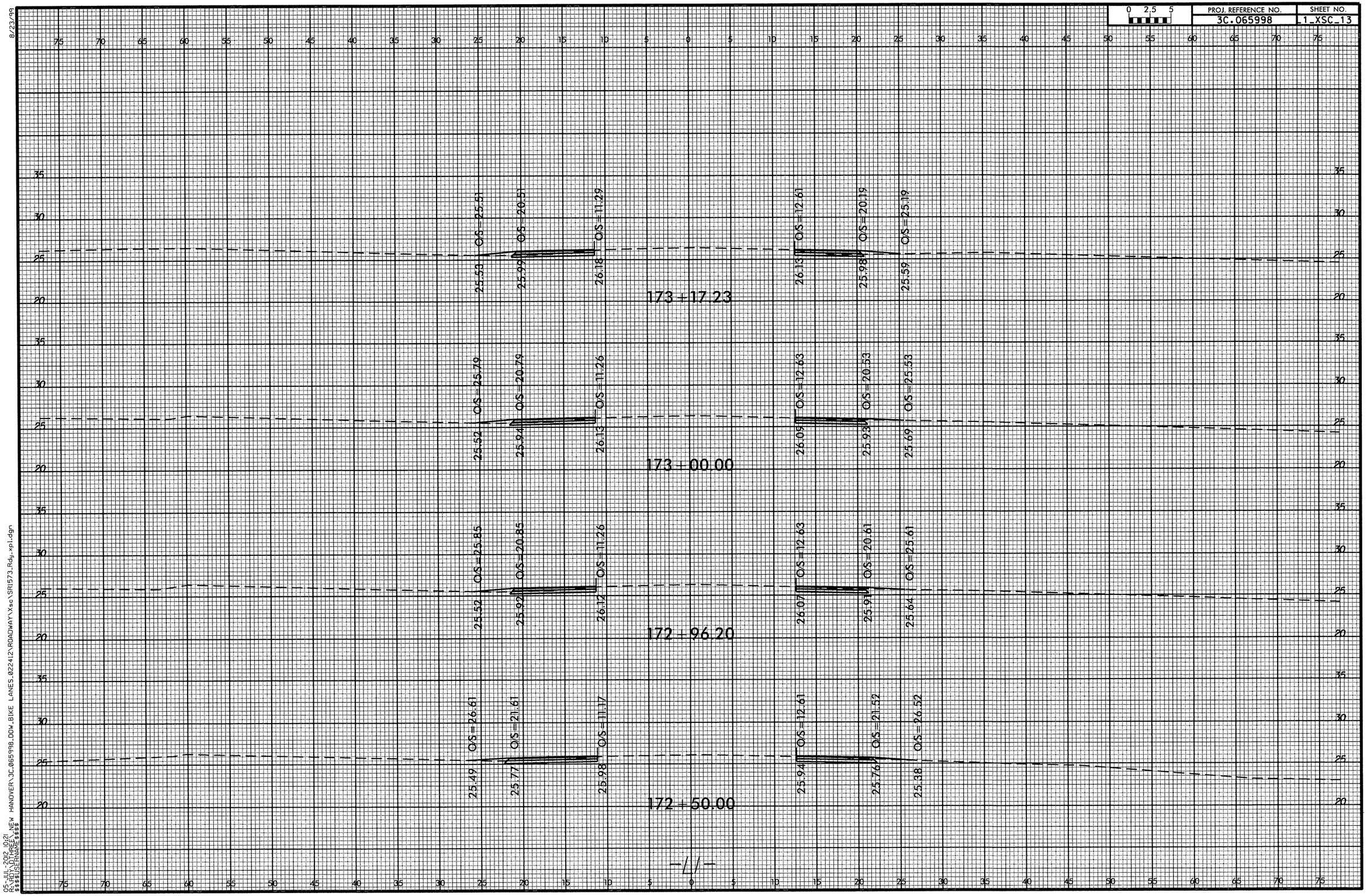

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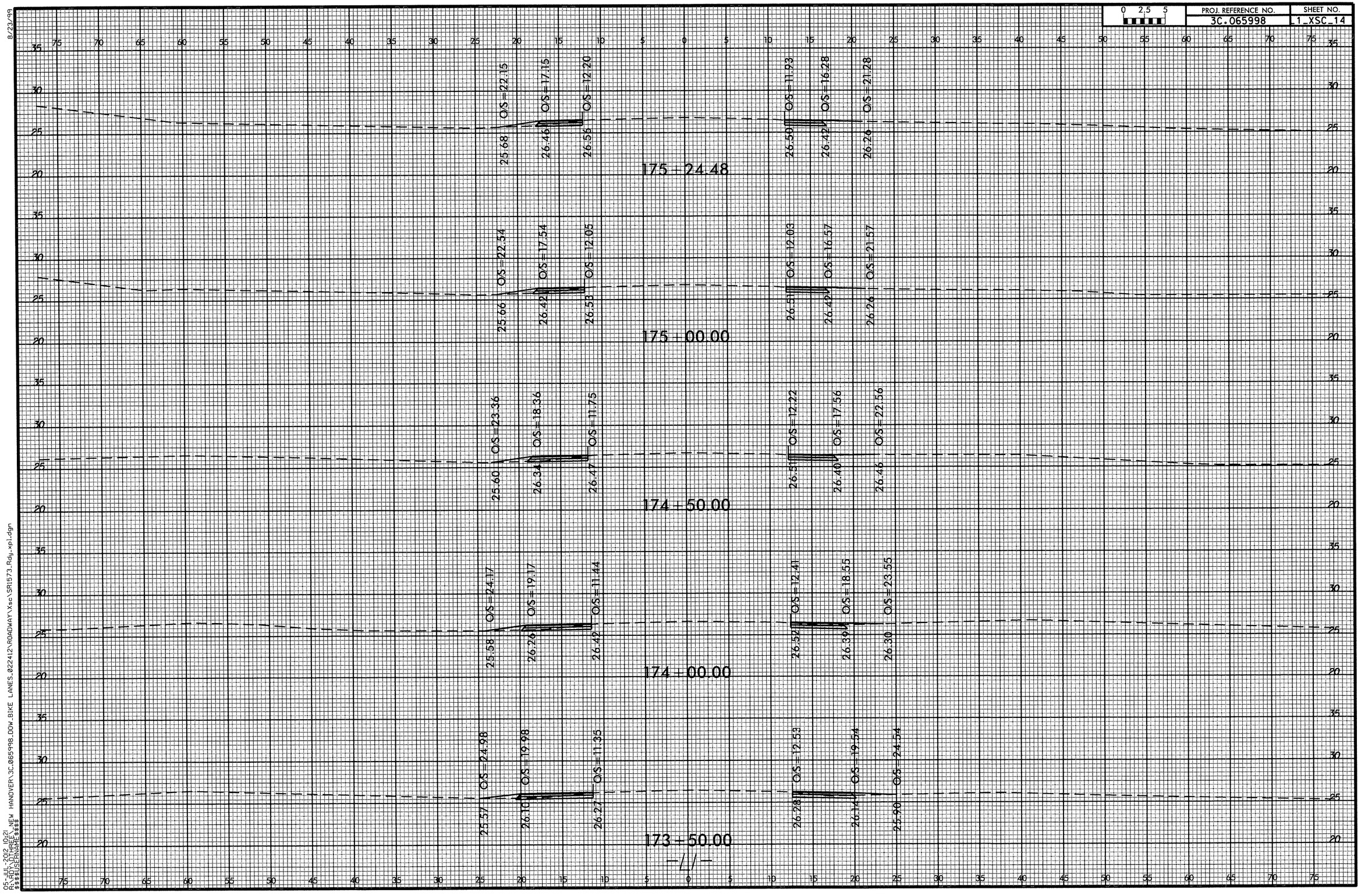

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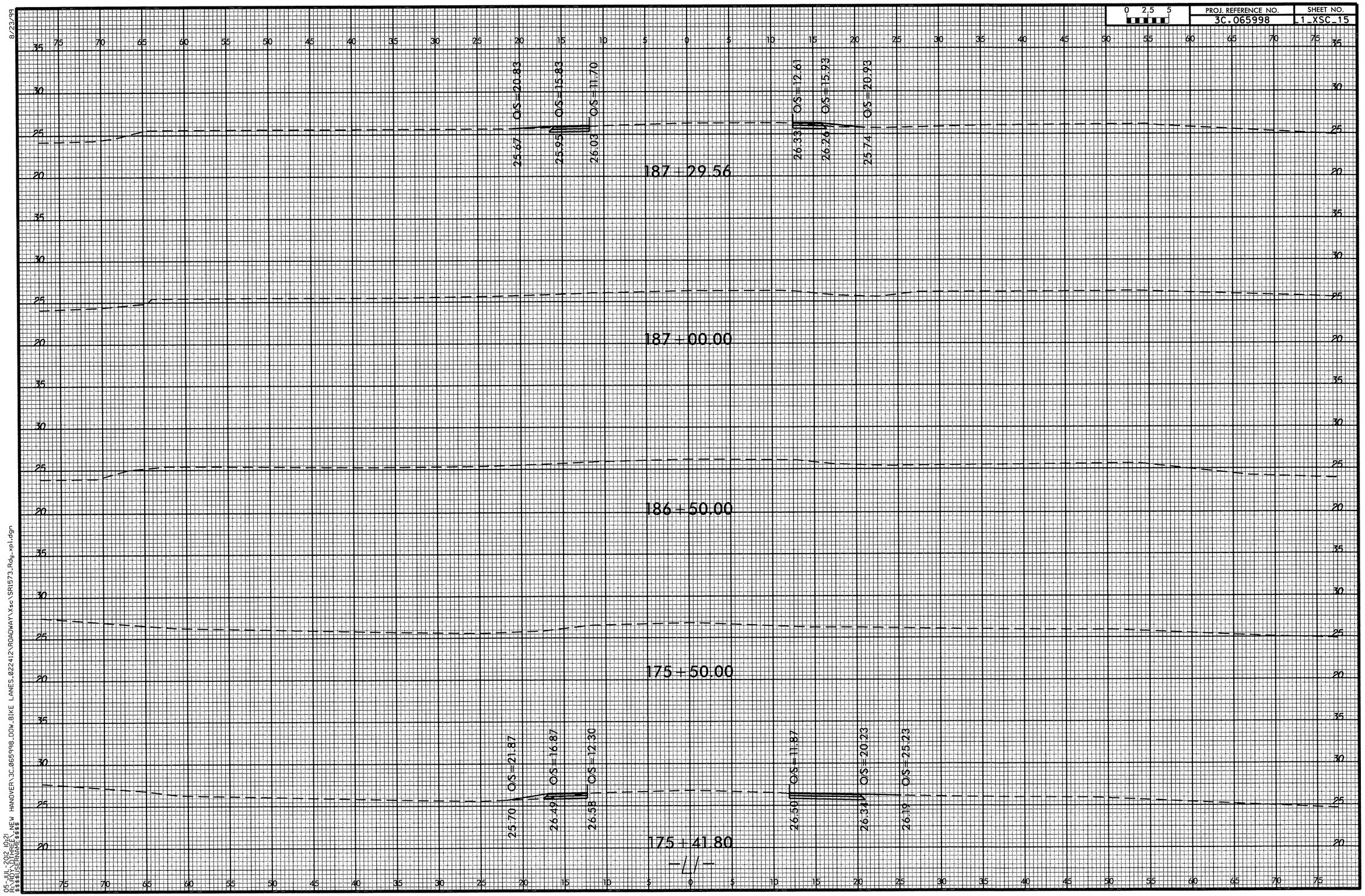

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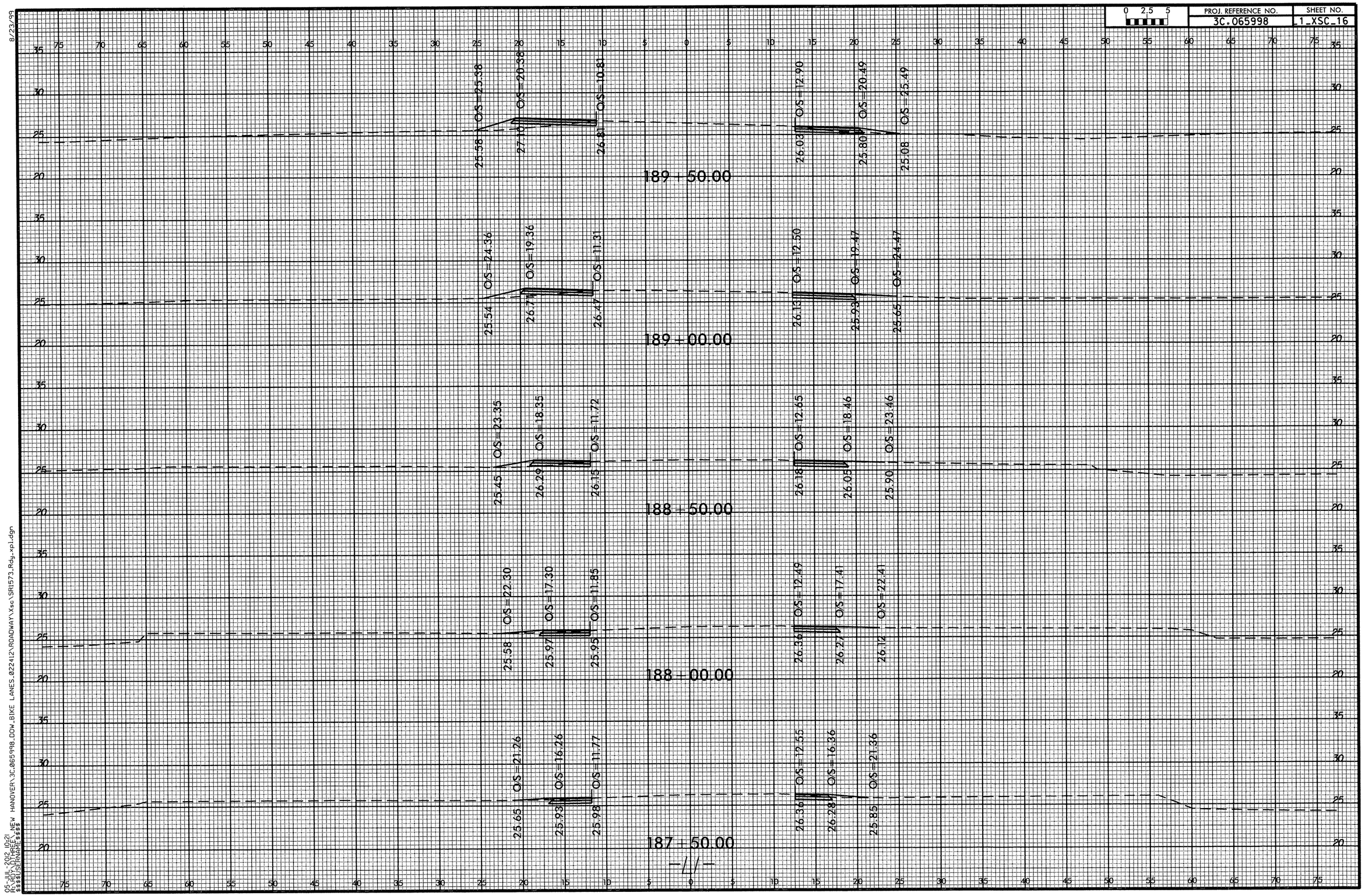
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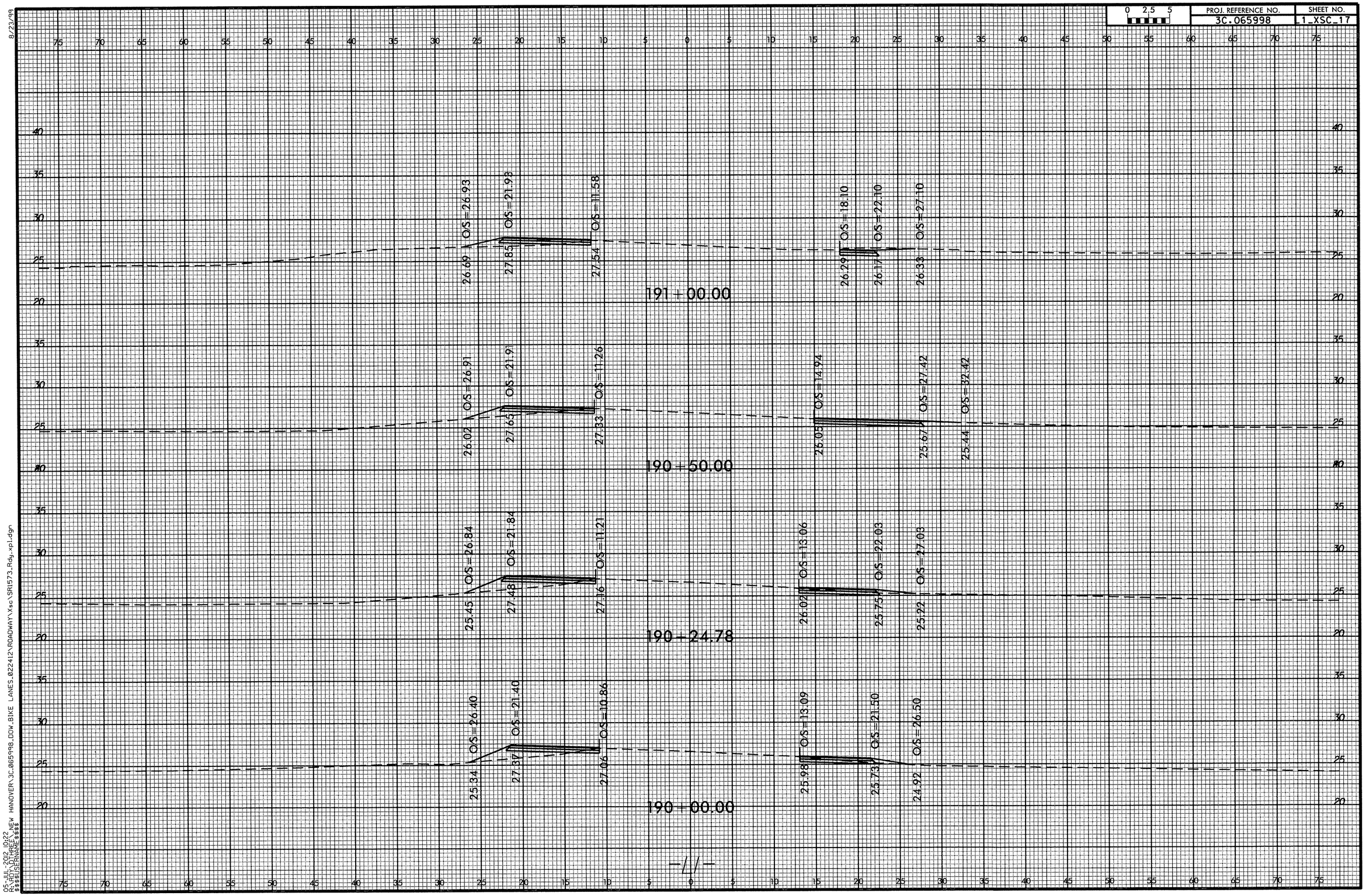

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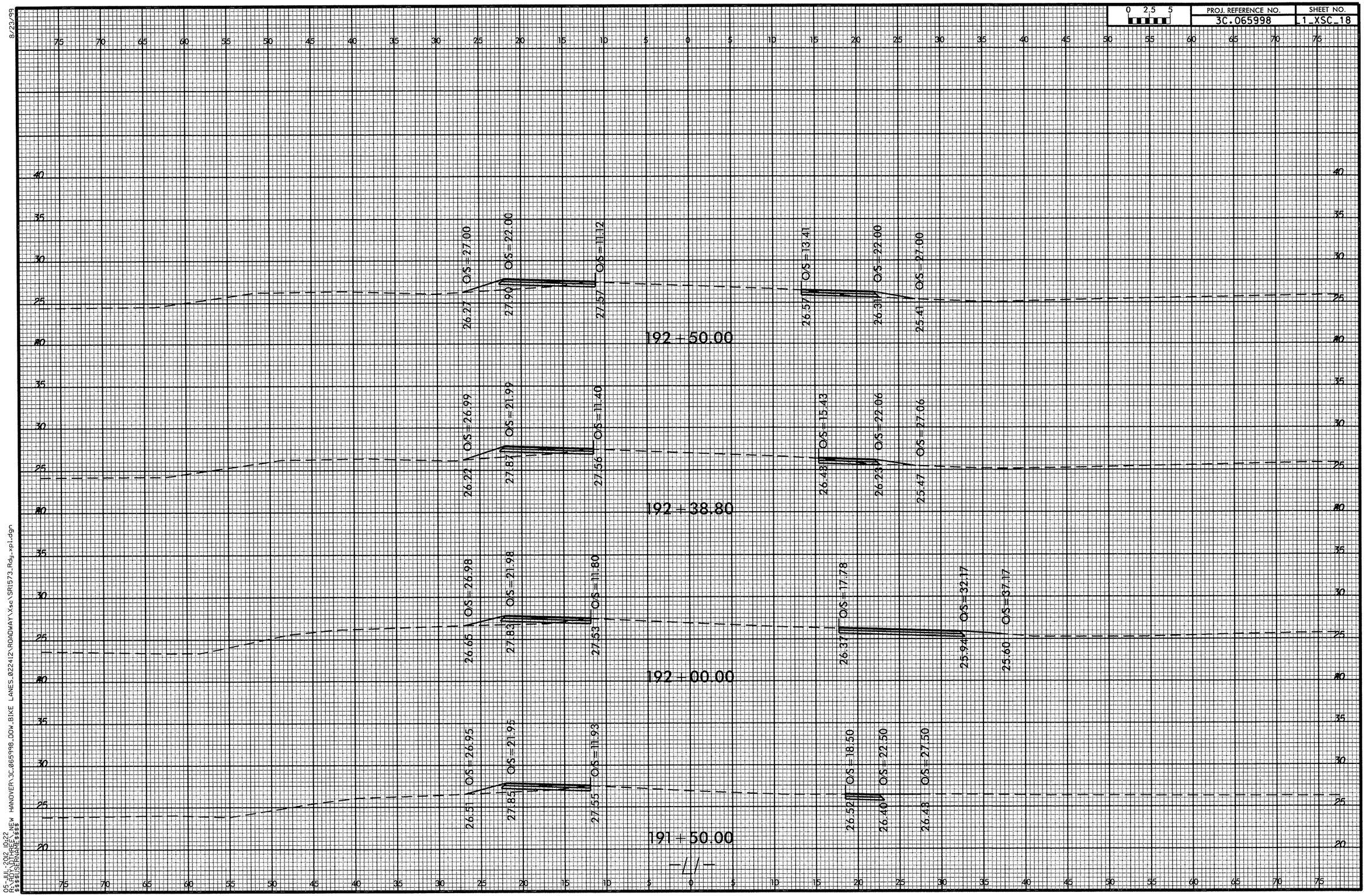
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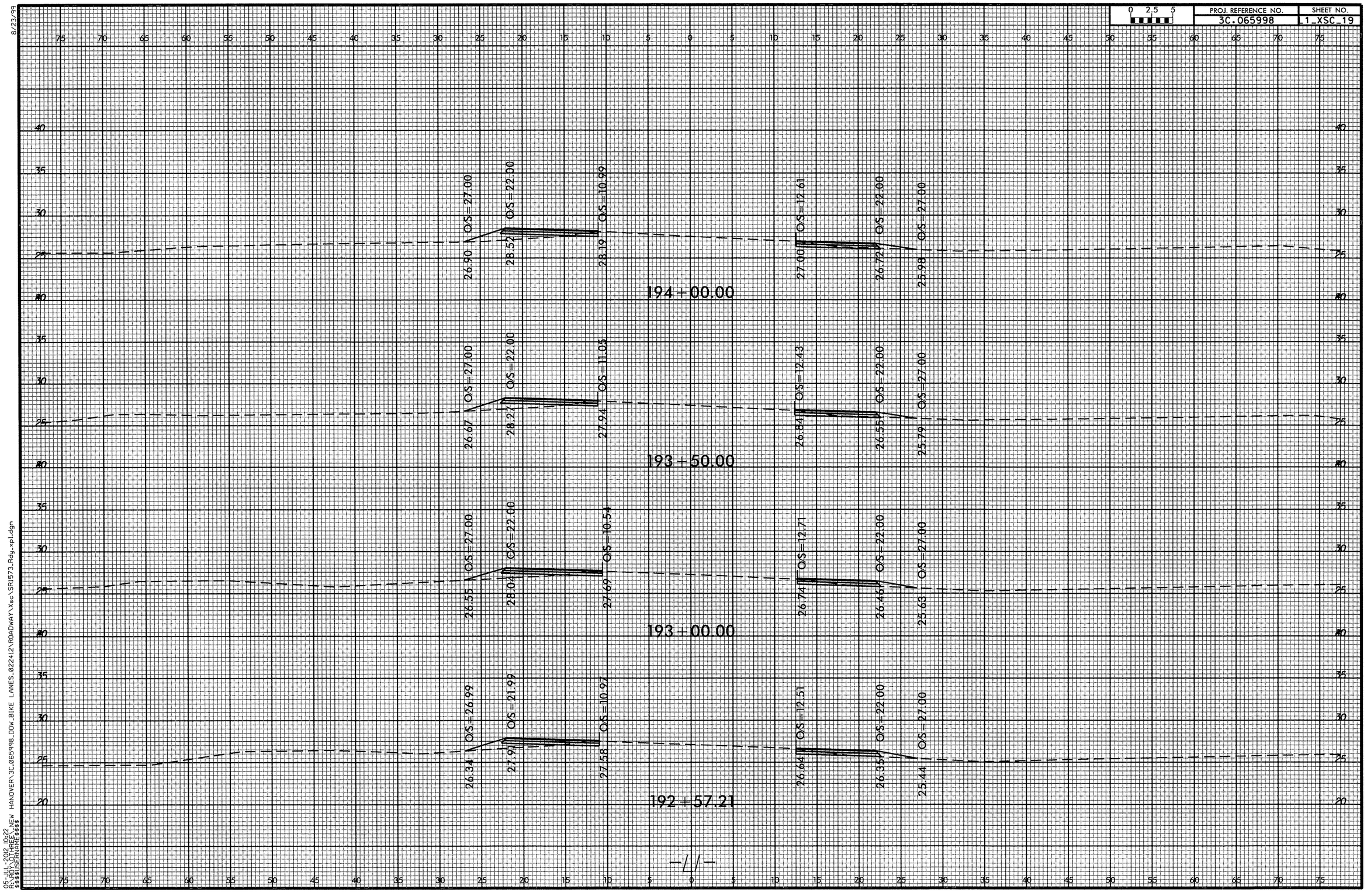

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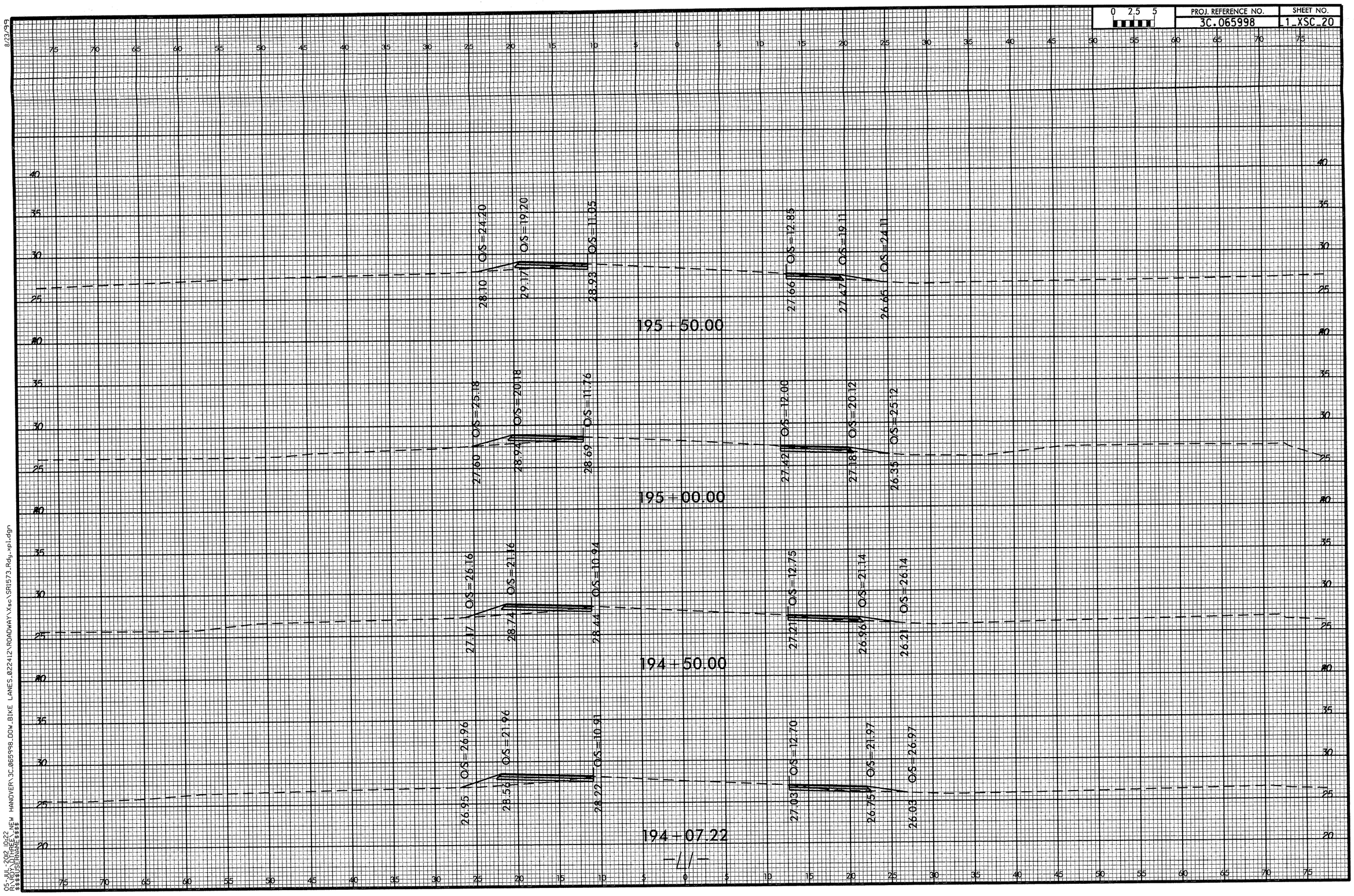

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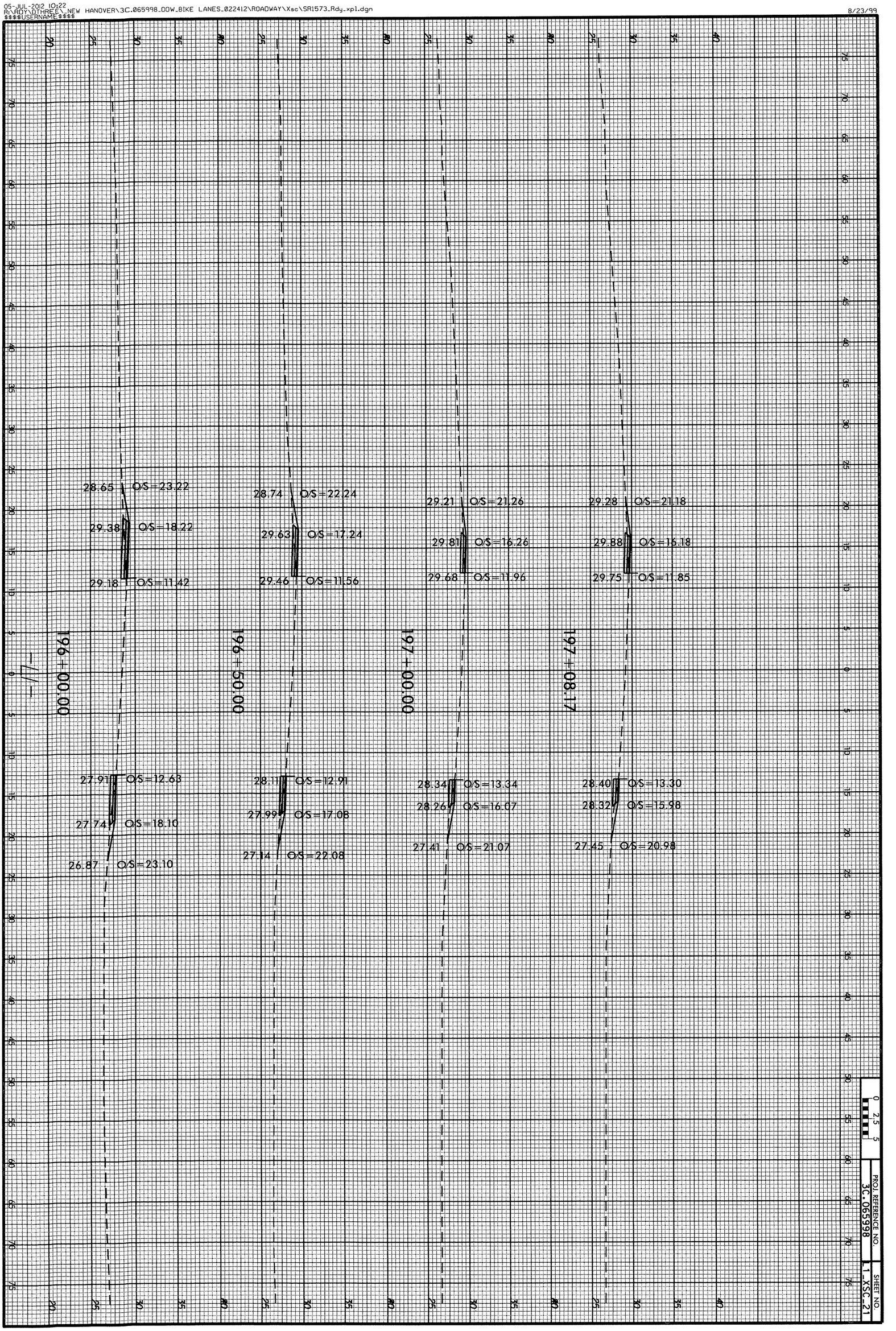
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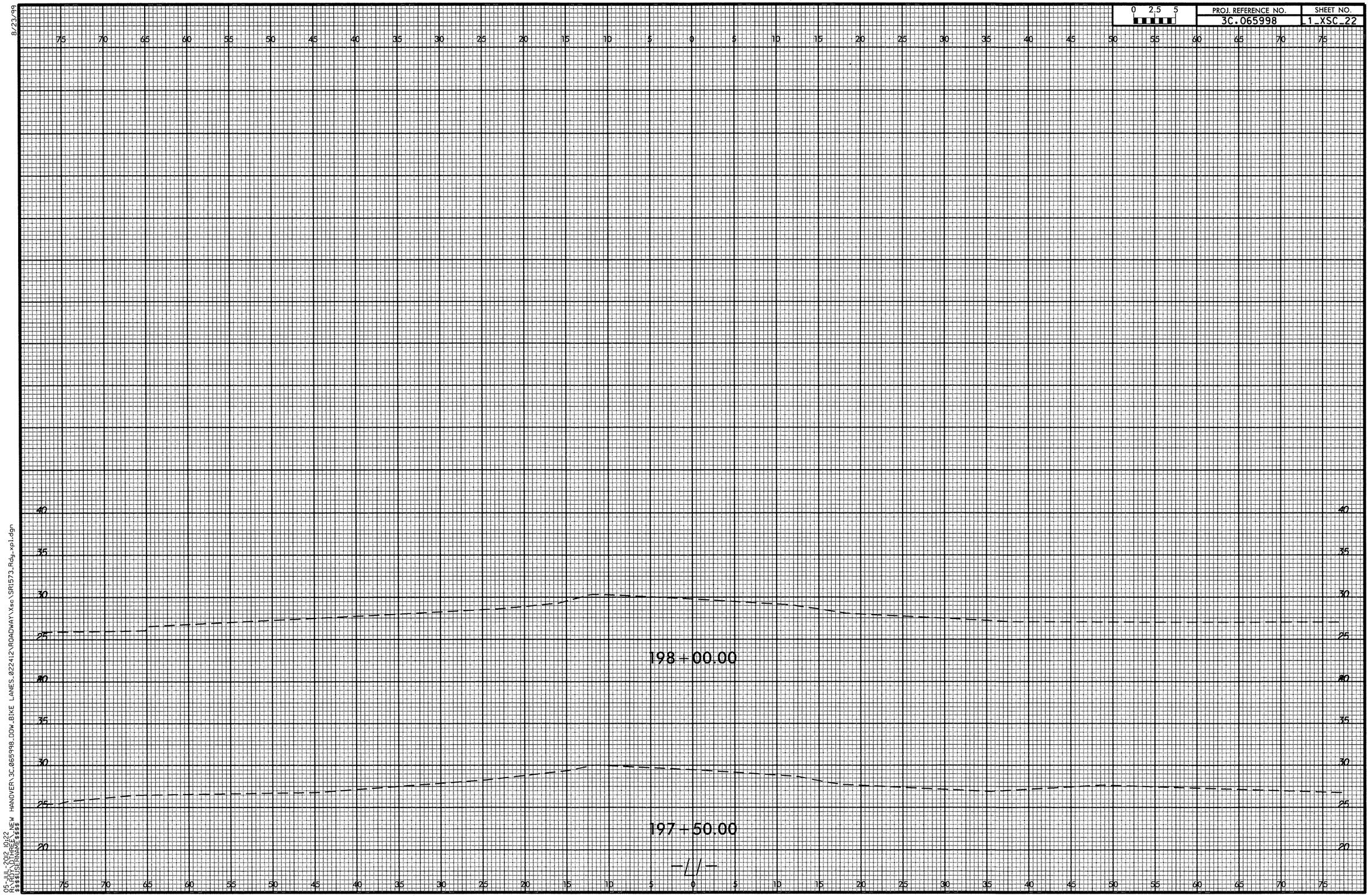

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STANDARD NOTES

DESIGN DATA:

SPECIFICATIONS	A.A.S.H.T.O. (CURRENT)
LIVE LOAD	SEE PLANS
IMPACT ALLOWANCE	SEE A.A.S.H.T.O.
STRESS IN EXTREME FIBER OF	
STRUCTURAL STEEL - AASHTO M270 GRADE 36	20,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50W	27,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50	27,000 LBS. PER SQ. IN.
REINFORCING STEEL IN TENSION	
GRADE 60	24,000 LBS. PER SQ. IN.
CONCRETE IN COMPRESSION	1,200 LBS. PER SQ. IN.
CONCRETE IN SHEAR	SEE A.A.S.H.T.O.
STRUCTURAL TIMBER - TREATED OR	
UNTREATED - EXTREME FIBER STRESS	1,800 LBS. PER SQ. IN.
COMPRESSION PERPENDICULAR TO GRAIN OF TIMBER	375 LBS. PER SQ. IN.
EQUIVALENT FLUID PRESSURE OF EARTH	30 LBS. PER CU. FT. (MINIMUM)

MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2006 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N. C. DEPARTMENT OF TRANSPORTATION.

STEEL SHEET PILING FOR PERMANENT OR TEMPORARY APPLICATIONS SHALL BE HOT ROLLED.

CONCRETE:

UNLESS OTHERWISE REQUIRED ON PLANS, CLASS A CONCRETE SHALL BE USED FOR ALL PORTIONS OF ALL STRUCTURES WITH THE EXCEPTION THAT: CLASS AA CONCRETE SHALL BE USED IN BRIDGE SUPERSTRUCTURES, ABUTMENT BACKWALLS, AND APPROACH SLABS; AND CLASS B CONCRETE SHALL BE USED FOR SLOPE PROTECTION AND RIP RAP.

CONCRETE CHAMFERS:

UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED 3/4" WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO 1-1/2" RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A 1/4" FINISHING TOOL UNLESS OTHERWISE REQUIRED ON PLANS; AND CORNERS OF EXPANSION JOINTS IN THE ROADWAY FACES AND TOPS OF CURBS AND SIDEWALKS SHALL BE ROUNDED TO A 1/4" RADIUS WITH A FINISHING STONE OR TOOL UNLESS OTHERWISE REQUIRED ON PLANS.

DOWELS:

DOWELS WHEN INDICATED ON PLANS AS FOR CULVERT EXTENSIONS, SHALL BE EMBEDDED AT LEAST 12" INTO THE OLD CONCRETE AND GROUTED INTO PLACE WITH 1:2 CEMENT MORTAR.

ALLOWANCE FOR DEAD LOAD DEFLECTION, SETTLEMENT, ETC. IN CASTING SUPERSTRUCTURES:

BRIDGES SHALL BE BUILT ON THE GRADE OR VERTICAL CURVE SHOWN ON PLANS. SLABS, CURBS AND PARAPETS SHALL CONFORM TO THE GRADE OR CURVE.

ALL DIMENSIONS WHICH ARE GIVEN IN SECTION AND ARE AFFECTED BY DEAD LOAD DEFLECTIONS ARE DIMENSIONS AT CENTER LINE OF BEARING UNLESS OTHERWISE NOTED ON PLANS. IN SETTING FORMS FOR STEEL BEAM BRIDGES AND PRESTRESSED CONCRETE GIRDER BRIDGES, ADJUSTMENTS SHALL BE MADE DUE TO THE DEAD LOAD DEFLECTIONS FOR THE ELEVATIONS SHOWN. WHERE BLOCKS ARE SHOWN OVER BEAMS FOR BUILDING UP TO THE SLAB, THE VERTICAL DIMENSIONS OF THE BLOCKS SHALL BE ADJUSTED BETWEEN BEARINGS TO COMPENSATE FOR DEAD LOAD DEFLECTIONS, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER. WHERE BOTTOM OF SLAB IS IN LINE WITH BOTTOM OF TOP FLANGES, DEPTH OF SLAB BETWEEN BEARINGS SHALL BE ADJUSTED TO COMPENSATE FOR DEAD LOAD DEFLECTION, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER.

IN SETTING FALSEWORK AND FORMS FOR REINFORCED CONCRETE SPANS, AN ALLOWANCE SHALL BE MADE FOR DEAD LOAD DEFLECTIONS, SETTLEMENT OF FALSEWORK, AND PERMANENT CAMBER WHICH SHALL BE PROVIDED FOR IN ADDITION TO THE ELEVATIONS SHOWN. AFTER REMOVAL OF THE FALSEWORK, THE FINISHED STRUCTURES SHALL CONFORM TO THE PROFILE AND ELEVATIONS SHOWN ON THE PLANS AND CONSTRUCTION ELEVATIONS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR FALSEWORK OR FORMS FOR BRIDGE SUPERSTRUCTURE AND ANY STRUCTURE OR PARTS OF A STRUCTURE AS NOTED ON THE PLANS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE CONSTRUCTION OF THE FALSEWORK OR FORMS IS STARTED.

REINFORCING STEEL:

ALL REINFORCING STEEL SHALL BE DEFORMED. DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING ARE TO CENTERS OF BARS UNLESS OTHERWISE INDICATED IN THE PLANS. DIMENSIONS ON BAR DETAILS ARE TO CENTERS OF BARS OR ARE OUT TO OUT AS INDICATED ON PLANS.

WIRE BAR SUPPORTS SHALL BE PROVIDED FOR REINFORCING STEEL WHERE INDICATED ON THE PLANS. WHEN BAR SUPPORT PIECES ARE PLACED IN CONTINUOUS LINES, THEY SHALL BE SO PLACED THAT THE ENDS OF THE SUPPORTING WIRES SHALL BE LAPPED TO LOCK LEGS ON ADJOINING PIECES.

STRUCTURAL STEEL:

AT THE CONTRACTOR'S OPTION, HE MAY SUBSTITUTE 7/8" Ø SHEAR STUDS FOR THE 3/4" Ø STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF 7/8" Ø STUDS ALONG THE BEAM AS SHOWN FOR 3/4" Ø STUDS BASED ON THE RATIO OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-0".

EXCEPT AT THE INTERIOR SUPPORTS OF CONTINUOUS BEAMS WHERE THE COVER PLATE IS IN CONTACT WITH BEARING PLATE, THE CONTRACTOR MAY, AT HIS OPTION, SUBSTITUTE FOR THE COVER PLATES DESIGNATED ON THE PLANS COVER PLATES OF THE EQUIVALENT AREA PROVIDED THESE PLATES ARE AT LEAST 5/16" IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 2" OR A THICKNESS EQUAL TO 2 TIMES THE FLANGE THICKNESS. THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ANSI/AASHTO/AWS "BRIDGE WELDING CODE". ELECTROSLAG WELDING WILL NOT BE PERMITTED.

WITH THE SOLE EXCEPTION OF EDGES AT SURFACES WHICH BEAR ON OTHER SURFACES, ALL SHARP EDGES AND ENDS OF SHAPES AND PLATES SHALL BE SLIGHTLY ROUNDED BY SUITABLE MEANS TO A RADIUS OF APPROXIMATELY 1/16 INCH OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE PRIOR TO PAINTING, GALVANIZING, OR METALLIZING.

HANDRAILS AND POSTS:

METAL STANDARDS AND FACES OF THE CONCRETE END POSTS FOR THE METAL RAIL SHALL BE SET NORMAL TO THE GRADE OF THE CURB, UNLESS OTHERWISE SHOWN ON PLANS. THE METAL RAIL AND TOPS OF CONCRETE POSTS USED WITH THE ALUMINUM RAIL SHALL BE BUILT PARALLEL TO THE GRADE OF THE CURB.

METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. FINS AND OTHER DEFORMATIONS RESULTING FROM CASTING OR OTHERWISE SHALL BE REMOVED IN A MANNER SO THAT A UNIFORM COLORING OF THE COMPLETED CASTING SHALL BE OBTAINED. CASTINGS WITH DISCOLORATIONS OR OF NON-UNIFORM COLORING WILL NOT BE ACCEPTED. CERTIFIED MILL REPORTS ARE REQUIRED FOR METAL RAILS AND POSTS.

SPECIAL NOTES:

GENERALLY, IN CASE OF DISCREPANCY, THIS STANDARD SHEET OF NOTES SHALL GOVERN OVER THE SPECIFICATIONS, BUT THE REMAINDER OF THE PLANS SHALL GOVERN OVER NOTES HEREON, AND SPECIAL PROVISIONS SHALL GOVERN OVER ALL. SEE SPECIFICATIONS ARTICLE 105-4.

ENGLISH

JANUARY, 1990