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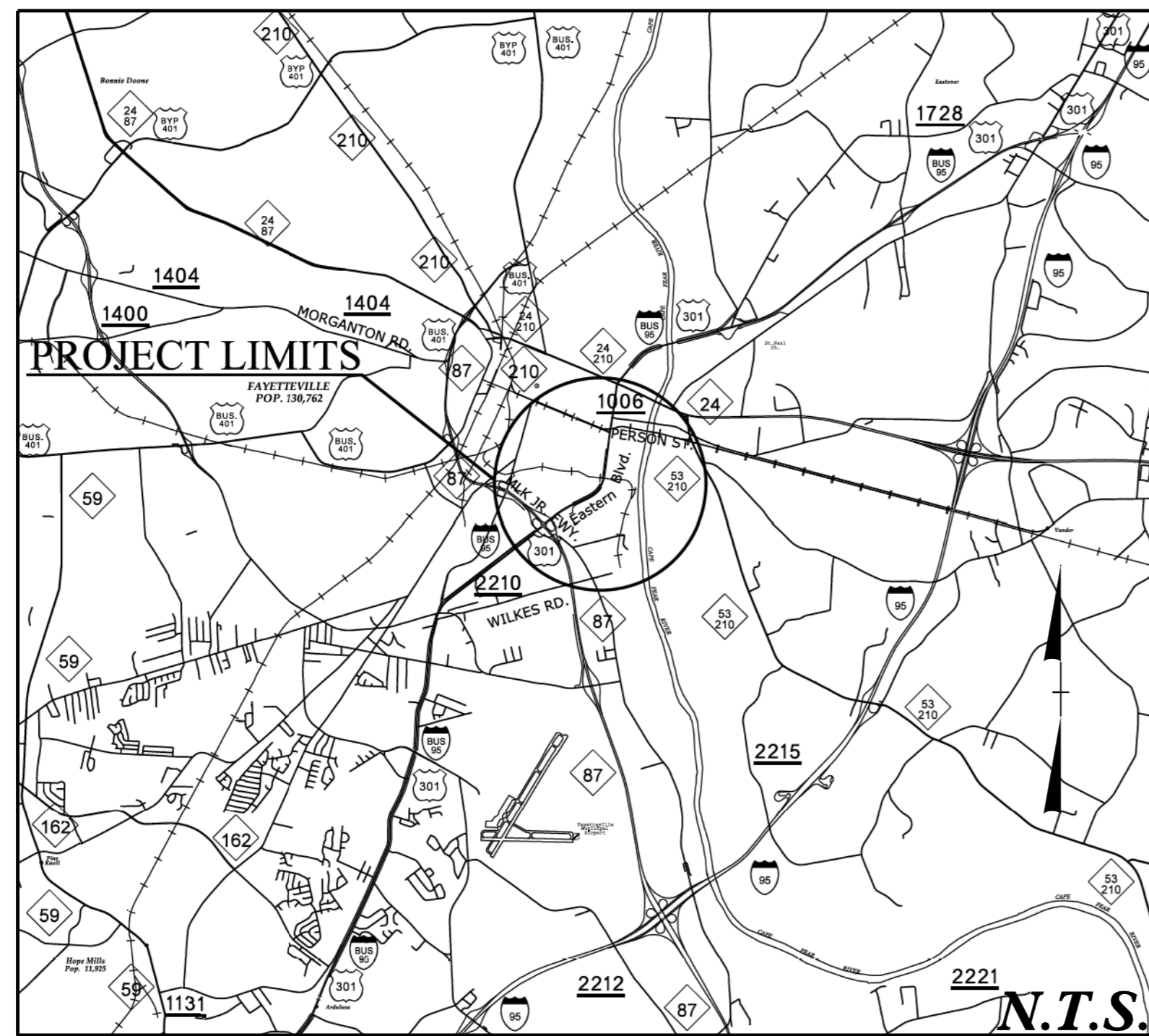
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09/08/99

28-FEB-2018 16:50 H:\DDC\Projects\W-5601CD Eastern Blvd Islands I-95 BUS-US 301\Roadway\project\W-5601CD_Rdy_TSH.dgn \$\$\$USERNAME\$\$\$

TIP PROJECT: W-5601CD

CONTRACT: DF00196



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CUMBERLAND COUNTY

LOCATION: I-95 BUS/US 301 (EASTERN BLVD.) FROM BROCK ST. (NON-SYSTEM) TO SR 1006 (PERSON ST.)

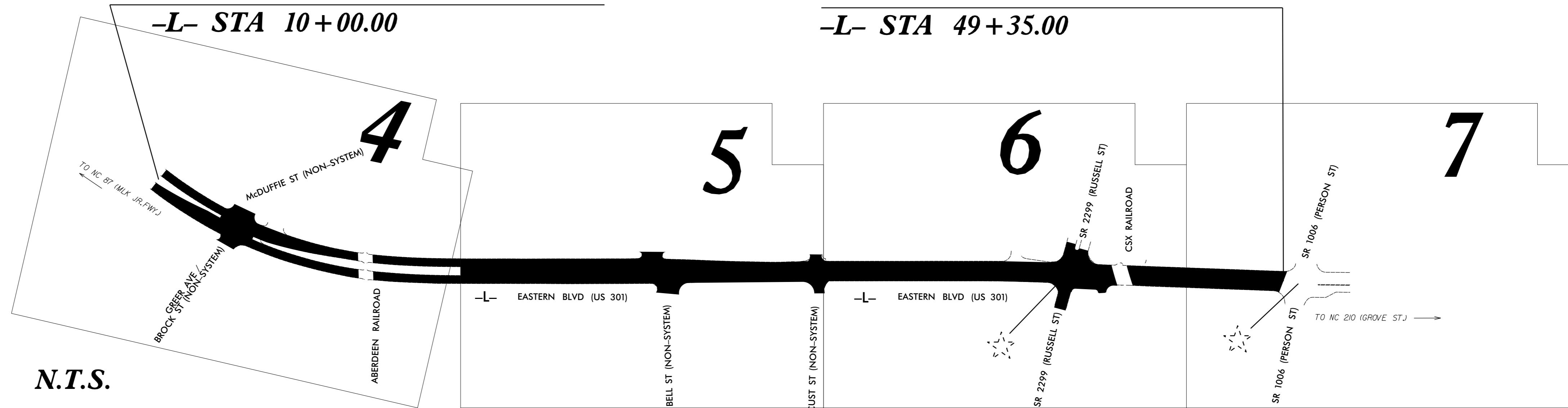
TYPE OF WORK: WIDENING, PAVING, CONCRETE ISLANDS, DRAINAGE, SIGNALS, AND PAVEMENT MARKINGS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	W-5601CD	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
50138.1.83	HSIP-0095(19)	P.E.	
50138.2.83	HSIP-0095(19)	ROW /UTIL	
50138.3.83	HSIP-0095(19)	CONSTRUCTION	



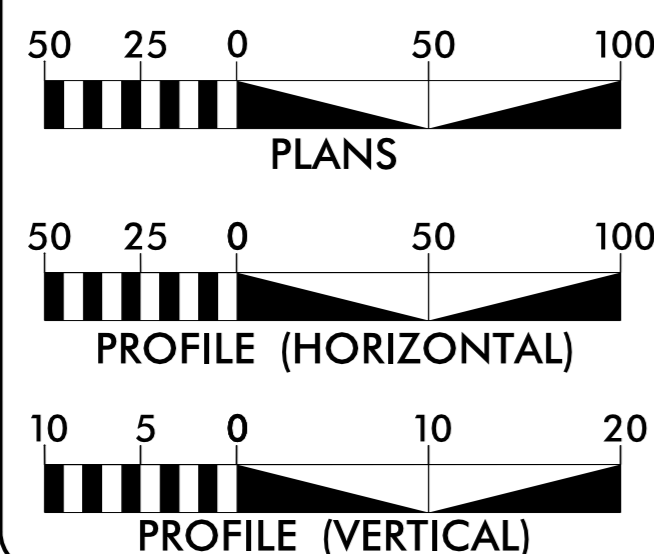
BEGIN STATE PROJECT W-5601CD

END STATE PROJECT W-5601CD



EXISTING TRAFFIC SIGNAL

GRAPHIC SCALES



DESIGN DATA

ADT 2017 = 17500
ADT 2037 = 31600

PROJECT LENGTH

TOTAL PROJECT LENGTH = 0.745 MILES

Prepared in the Office of:
DIVISION OF HIGHWAYS

431 Transportation Dr., Fayetteville NC 28301

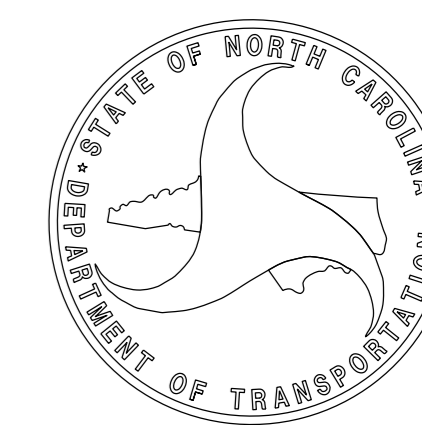
2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
FEBRUARY 28, 2017

LETTING DATE:
MARCH 21, 2018

SEAN MATUSZEWSKI
PROJECT ENGINEER

ALEX HENDERSON
PROJECT DESIGN ENGINEER



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	○ EIP
Computed Property Corner	----->
Property Monument	□ ECM
Parcel/Sequence Number	(123)
Existing Fence Line	-x-x-x-
Proposed Woven Wire Fence	○
Proposed Chain Link Fence	□
Proposed Barbed Wire Fence	◇
Existing Wetland Boundary	----- MLB
Proposed Wetland Boundary	----- MLB
Existing Endangered Animal Boundary	----- EAB
Existing Endangered Plant Boundary	----- EPB
Existing Historic Property Boundary	----- HPB
Known Contamination Area: Soil	---S---S---
Potential Contamination Area: Soil	---S---S---
Known Contamination Area: Water	---W---W---
Potential Contamination Area: Water	---W---W---
Contaminated Site: Known or Potential	☠ ?

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	----- FLOW
False Sump	▽

RAILROADS:

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

Note: Not to Scale

*S.U.E. = Subsurface Utility Engineering

RIGHT OF WAY & PROJECT CONTROL:

Secondary Horiz and Vert Control Point	○
Primary Horiz Control Point	○
Primary Horiz and Vert Control Point	○
Exist Permanent Easement Pin and Cap	○
New Permanent Easement Pin and Cap	◇
Vertical Benchmark	△
Existing Right of Way Marker	△
Existing Right of Way Line	-----
New Right of Way Line	----- (R/W)
New Right of Way Line with Pin and Cap	----- (R/W) ▲
New Right of Way Line with Concrete or Granite R/W Marker	----- (R/W) ▲
New Control of Access Line with Concrete C/A Marker	----- (C/A)
Existing Control of Access	----- (C/A)
New Control of Access	----- (C/A)
Existing Easement Line	----- E
New Temporary Construction Easement	----- E
New Temporary Drainage Easement	----- TDE
New Permanent Drainage Easement	----- PDE
New Permanent Drainage / Utility Easement	----- DUE
New Permanent Utility Easement	----- PUE
New Temporary Utility Easement	----- TUE
New Aerial Utility Easement	----- AUE

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	⊕
Power Line Tower	⊠
Power Transformer	⊠
U/G Power Cable Hand Hole	○
H-Frame Pole	●
U/G Power Line LOS B (S.U.E.*)	----- P
U/G Power Line LOS C (S.U.E.*)	----- P
U/G Power Line LOS D (S.U.E.*)	----- P

TELEPHONE:

Existing Telephone Pole	●
Proposed Telephone Pole	○
Telephone Manhole	⊕
Telephone Pedestal	⊠
Telephone Cell Tower	⊠
U/G Telephone Cable Hand Hole	○
U/G Telephone Cable LOS B (S.U.E.*)	----- T
U/G Telephone Cable LOS C (S.U.E.*)	----- T
U/G Telephone Cable LOS D (S.U.E.*)	----- T
U/G Telephone Conduit LOS B (S.U.E.*)	----- TC
U/G Telephone Conduit LOS C (S.U.E.*)	----- TC
U/G Telephone Conduit LOS D (S.U.E.*)	----- TC
U/G Fiber Optics Cable LOS B (S.U.E.*)	----- T FO
U/G Fiber Optics Cable LOS C (S.U.E.*)	----- T FO
U/G Fiber Optics Cable LOS D (S.U.E.*)	----- T FO

WATER:

Water Manhole	⊕
Water Meter	○
Water Valve	⊗
Water Hydrant	⊕
U/G Water Line LOS B (S.U.E.*)	----- W
U/G Water Line LOS C (S.U.E.*)	----- W
U/G Water Line LOS D (S.U.E.*)	----- W
Above Ground Water Line	----- A/G Water

TV:

TV Pedestal	⊠
TV Tower	⊗
U/G TV Cable Hand Hole	○
U/G TV Cable LOS B (S.U.E.*)	----- TV
U/G TV Cable LOS C (S.U.E.*)	----- TV
U/G TV Cable LOS D (S.U.E.*)	----- TV
U/G Fiber Optic Cable LOS B (S.U.E.*)	----- TV FO
U/G Fiber Optic Cable LOS C (S.U.E.*)	----- TV FO
U/G Fiber Optic Cable LOS D (S.U.E.*)	----- TV FO

GAS:

Gas Valve	◇
Gas Meter	◇
U/G Gas Line LOS B (S.U.E.*)	----- G
U/G Gas Line LOS C (S.U.E.*)	----- G
U/G Gas Line LOS D (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
SS Forced Main Line LOS B (S.U.E.*)	----- FSS
SS Forced Main Line LOS C (S.U.E.*)	----- FSS
SS Forced Main Line LOS D (S.U.E.*)	----- FSS

MISCELLANEOUS:

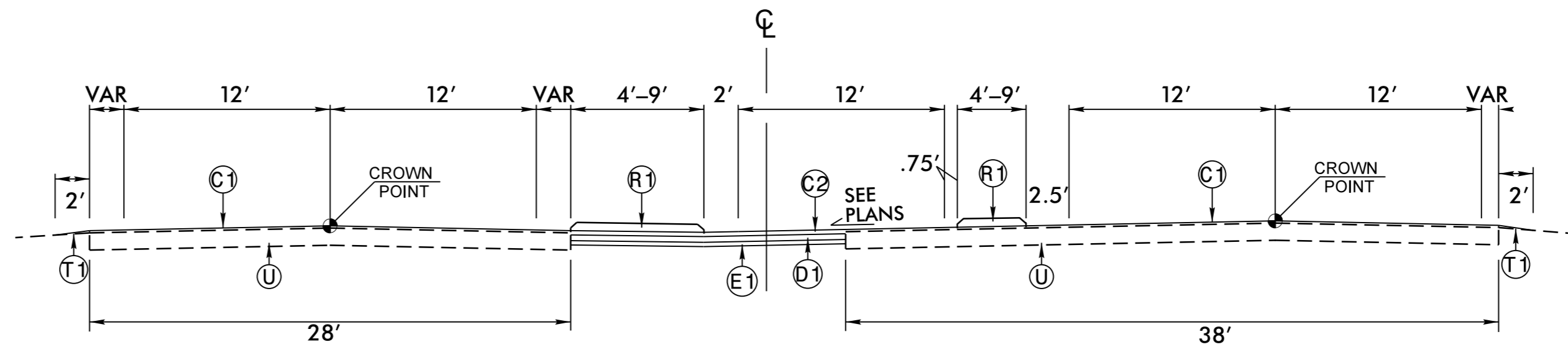
Utility Pole	●
Utility Pole with Base	□
Utility Located Object	○
Utility Traffic Signal Box	⊠
Utility Unknown U/G Line LOS B (S.U.E.*)	----- ?UTL
U/G Tank; Water, Gas, Oil	□
Underground Storage Tank, Approx. Loc.	⊕
A/G Tank; Water, Gas, Oil	□
Geoenvironmental Boring	⊕
U/G Test Hole LOS A (S.U.E.*)	○
Abandoned According to Utility Records	AATUR
End of Information	E.O.I.

PAVEMENT SCHEDULE

C1	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 336 LBS. PER SQ. YD.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE TYPE S9.5C, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 2" IN DEPTH.
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 2.5" IN DEPTH OR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX. 3" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5.5" IN DEPTH.
R1	5" KEYED IN MONOLITHIC CONCRETE ISLAND. (STD 852.01)
R2	PROPOSED 1'-6" CONCRETE CURB AND GUTTER
R3	EXISTING 2'-6" CONCRETE CURB AND GUTTER
T1	AGGREGATE SHOULDER BORROW
T2	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	MILLING ASPHALT PAVEMENT 0"-1.5" DEPTH (CURB MILLING) 8' WIDTH OR AS DIRECTED BY ENGINEER
V2	MILLING ASPHALT PAVEMENT 5.5" DEPTH (2' WIDTH)
W	WEDGING (SEE DETAIL)

TRANSITION FROM EXISTING TO TYPICAL SECTION NO. 1

-L- STATION 10+00.00 - 12+00.00



TYPICAL SECTION NO. 1

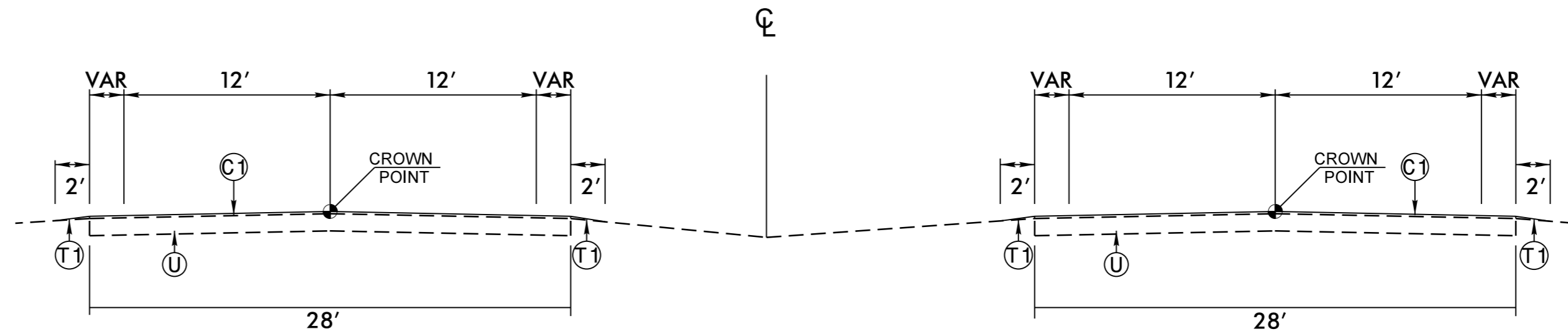
-L- STATION 12+00.00 - 14+30.00
-L- STATION 26+00.00 - 30+00.00

TRANSITION FROM TYPICAL SECTION NO. 1 TO TYPICAL SECTION NO. 2

-L- STATION 14+30.00 - 17+20.00

TRANSITION FROM TYPICAL SECTION NO. 1 TO TYPICAL SECTION NO. 3

-L- STATION 30+00.00 - 32+00.00

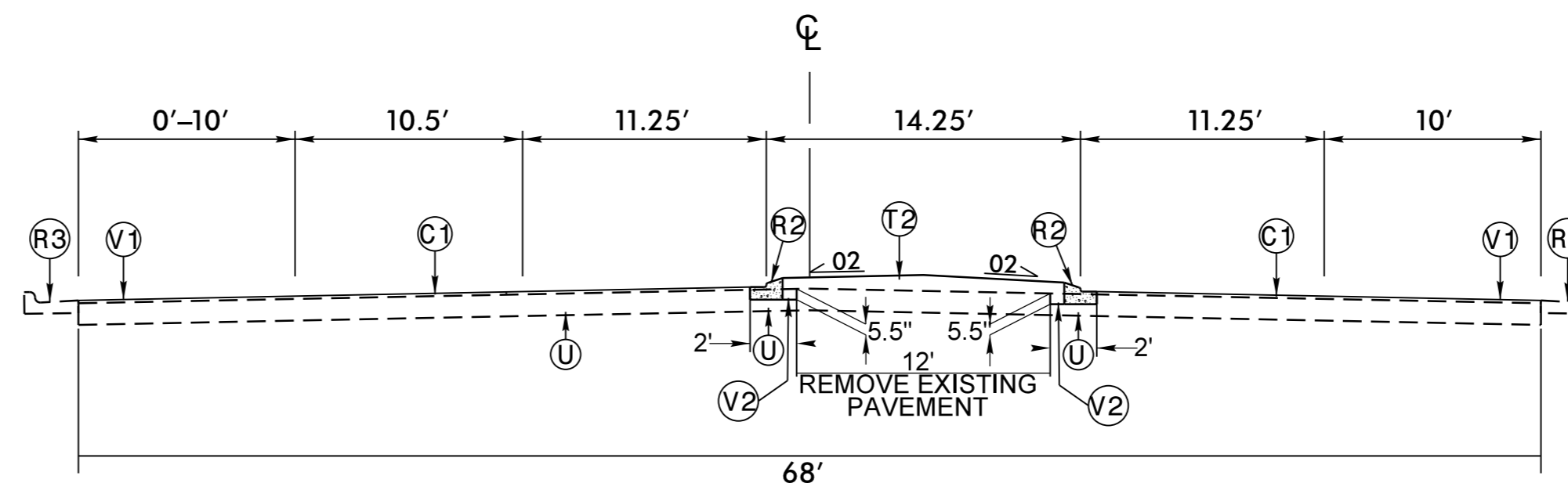


TYPICAL SECTION NO. 2

-L- STATION 17+20.00 - 22+95.00

TRANSITION FROM TYPICAL SECTION NO. 2 TO TYPICAL SECTION NO. 1

-L- STATION 22+95.00 - 26+00.00

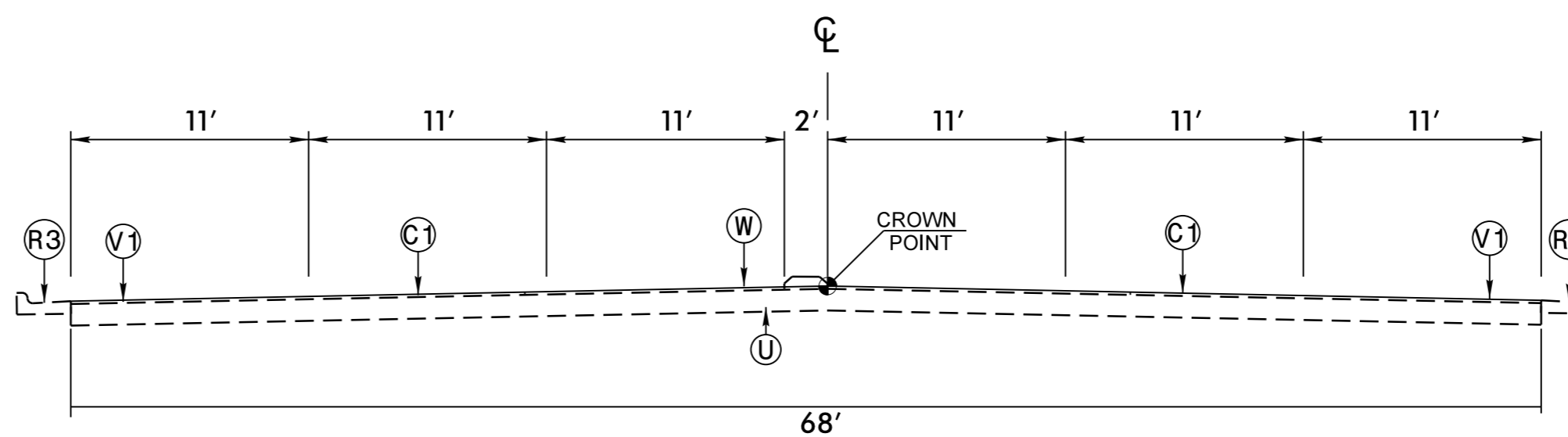


TYPICAL SECTION NO. 3

-L- STATION 32+00.00 - 38+50.00

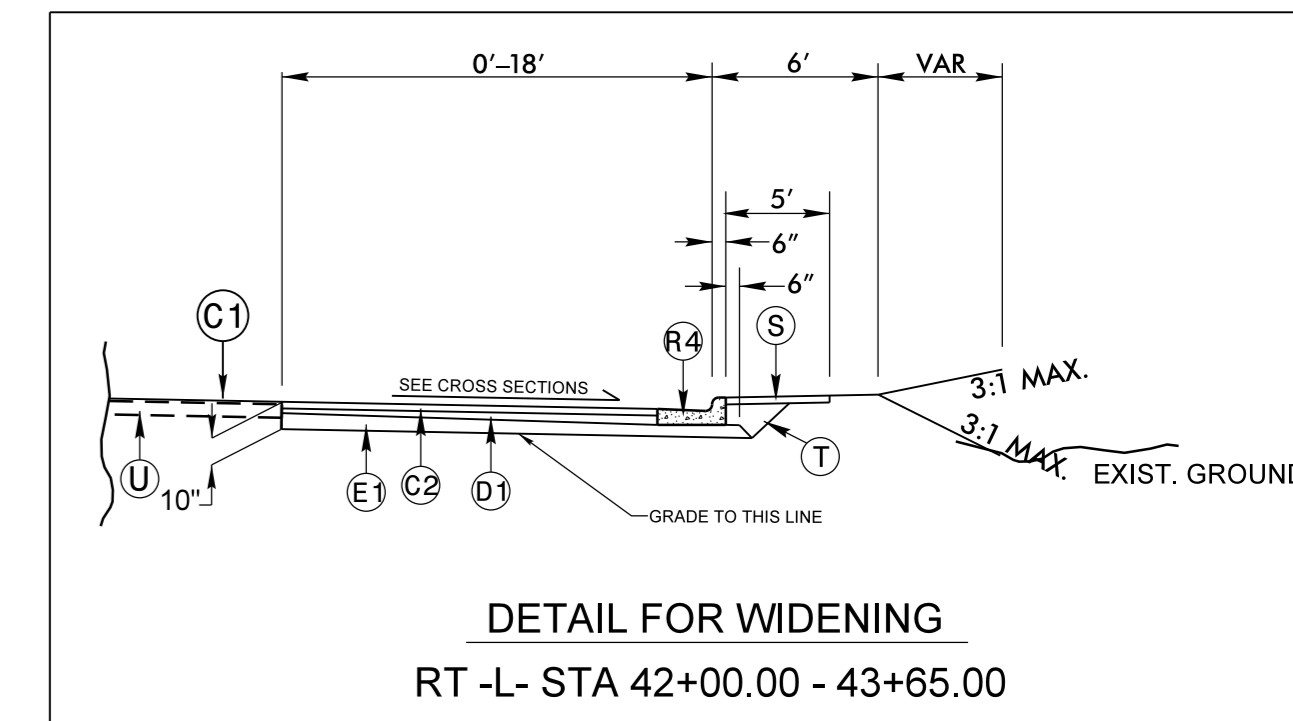
TRANSITION FROM TYPICAL SECTION NO. 3 TO TYPICAL SECTION NO. 4

-L- STATION 38+50.00 - 39+00.00

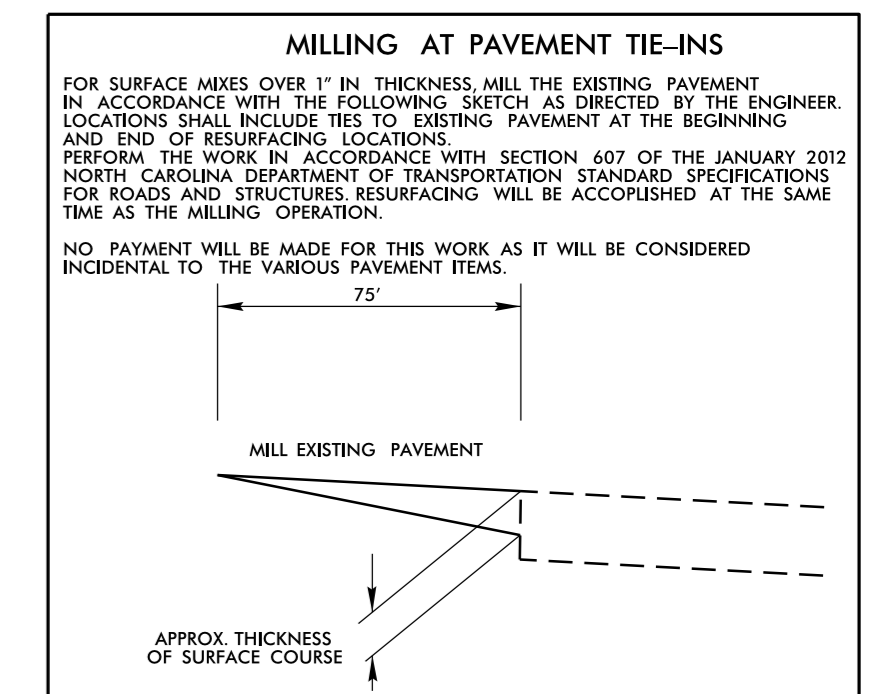
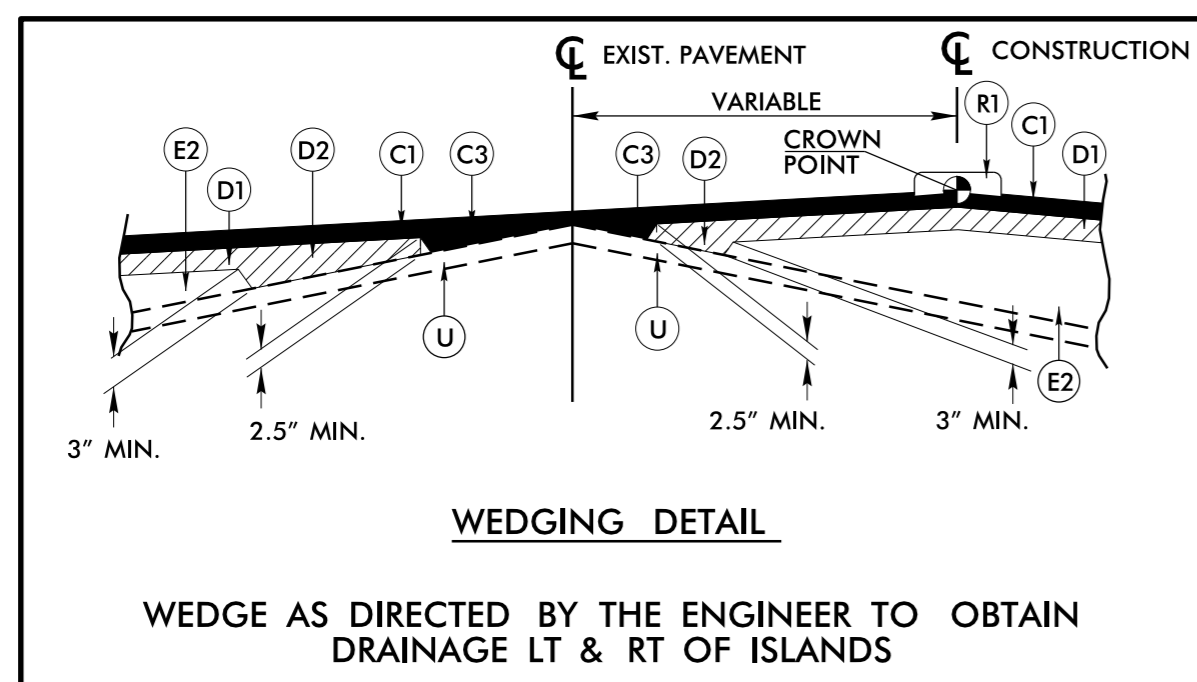


TYPICAL SECTION NO. 4

-L- STATION 39+00.00 - 49+35.00



DETAIL FOR WIDENING
RT -L- STA 42+00.00 - 43+65.00



PROJECT NOTES

1. The contractor shall not work on both sides of the road simultaneously within the same area.
2. Ingress and egress shall be maintained to all businesses and dwellings on the project.
3. At the end of each workday, the contractor shall be required to backfill any area adjacent to existing travelway that has been graded, leaving no more than a 1" drop-off.
4. A minimum of two-way, two-lane traffic (plus all existing left and right turn lanes) shall be maintained during periods of construction inactivity.
5. The Contractor shall not be allowed to stop traffic for more than 5 minutes at a time in any one direction.
6. During periods of construction inactivity, the difference in elevation between lanes shall not exceed 1-1/2 inch.
7. Access to police and fire stations, fire hydrants and hospitals shall be maintained at all times.
8. During periods of construction inactivity, place cones/drums 3' from existing edge of pavement (travelway) as directed by the Engineer.
9. Channelizing devices in work areas shall be spaced not greater than 50' on center in tangent areas, 45' on center in tapers, and 10' on center in radii, and shall be set 3' off the edge of travelway, unless otherwise indicated on plans.
10. Contractor to install Erosion Control devices as directed by the Engineer.
11. Contractor shall coordinate with the Division Six Traffic Services Unit (910-364-0606) for placement of all pavement markings and signs.
12. Relocation of all signs in conflict will be incidental to the project.
13. Provide blockouts in concrete islands as well as coring asphalt for sign installation. Core asphalt at a minimum of 42" or per 904.50 sht 2 of 2. Coordinate with Division Six Traffic Services Unit (910-364-0606) for locations.
14. Pedestrian signs on RRFB's will be paid for under Signs for Signals.
15. All right of way is to be monumented upon completion of project and will be paid for under construction surveying.
16. Drainage inverts are estimated based on the available survey data. The contract surveyor is responsible to verify these inverts will work. If the contractor finds the provided inverts will not work, he will provide suggestions to fix if necessary.

CONTRACTOR SHALL COORDINATE WITH LOCAL TRAFFIC SERVICES UNIT FOR PROPOSED SIGNAL DESIGN, SIGNS, AND PLACEMENT OF ALL PAVEMENT MARKINGS.

FOR SIGNAL WORK, CONTACT TRAFFIC SERVICES 910-364-0606, 28 DAYS PRIOR TO PLACEMENT.

FOR SIGNS AND PAVEMENT MARKINGS, CONTACT TRAFFIC SERVICES 910-364-0606, 14 DAYS PRIOR TO FINAL PLACEMENT.

DIVISION OF HIGHWAYS
 STATE OF NORTH CAROLINA

SUMMARY OF EARTHWORK
 IN CUBIC YARDS

LOCATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBT + %	BORROW	WASTE
10+00 - 49+35.00	369		960	591	
MATERIAL FOR SHOULDER CONSTRUCTION			1256	1256	
5% TO REPLACE TOP SOIL ON BORROW PIT				92	
PROJECT TOTAL	369		2216	1939	
SAY	375		2225	1950	

SUMMARY OF PAVEMENT REMOVAL
 IN SQUARE YARDS

SURVEY LINE	STATION	STATION	YD ²
-L-	13+05	14+15	345
-L-	13+94	14+92	185
-L-	27+35	27+44	5
-L-	32+00	38+50	900
TOTAL:			1435

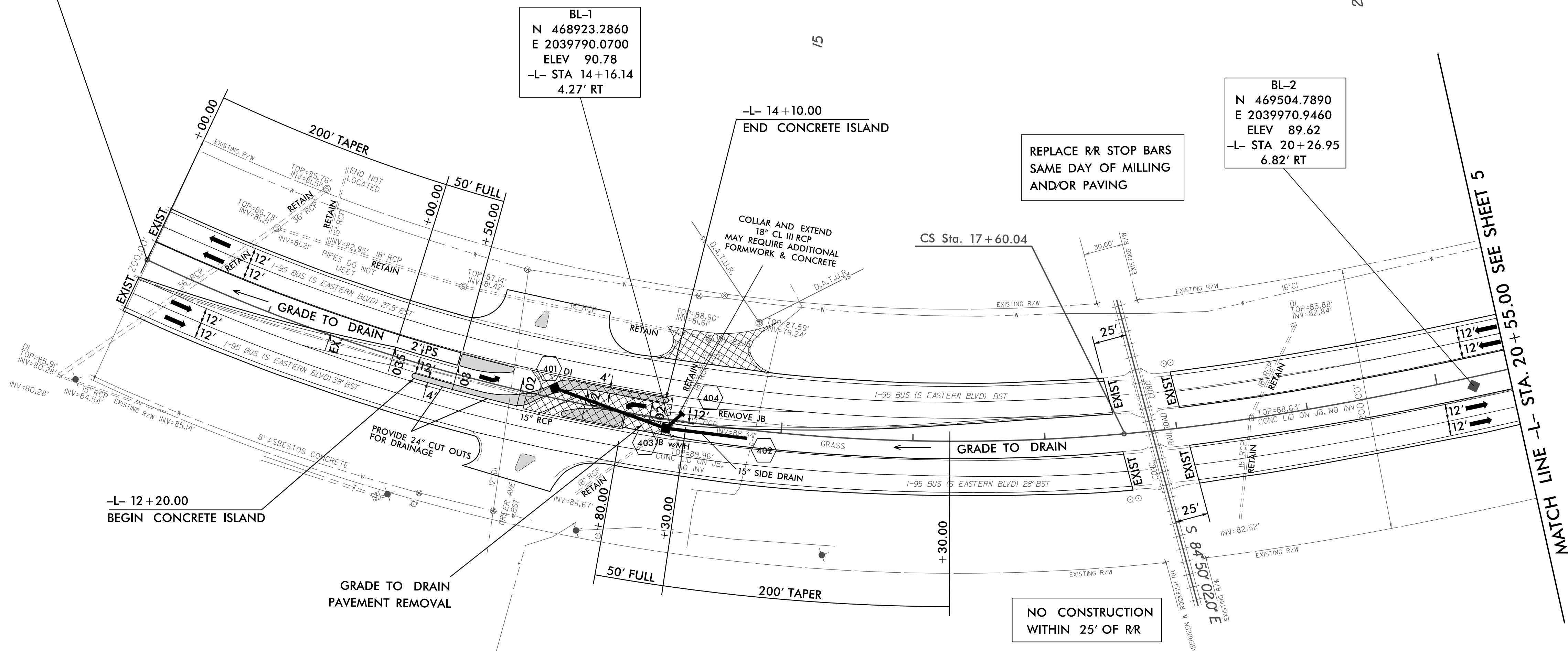
APPROXIMATE QUANTITIES ONLY. GRADING WILL BE PAID AS LUMP SUM. SEE SPECIAL PROVISION.

BEGIN STATE PROJECT W-5601CD
-L- STA 10+00.00



REVISIONS

28-FEB-2018 17:01 \\S:\Users\jtr\My Documents\Projects\W-5601CD\Roadway\Project\W-5601CD-Rdwy-psh_4.dgn



BL-1
N 468923.2860
E 2039790.0700
ELEV 90.78
-L- STA 14+16.14
4.27' RT

BL-2
N 469504.7890
E 2039970.9460
ELEV 89.62
-L- STA 20+26.95
6.82' RT

-L- 12+20.00
BEGIN CONCRETE ISLAND

-L- 14+10.00
END CONCRETE ISLAND

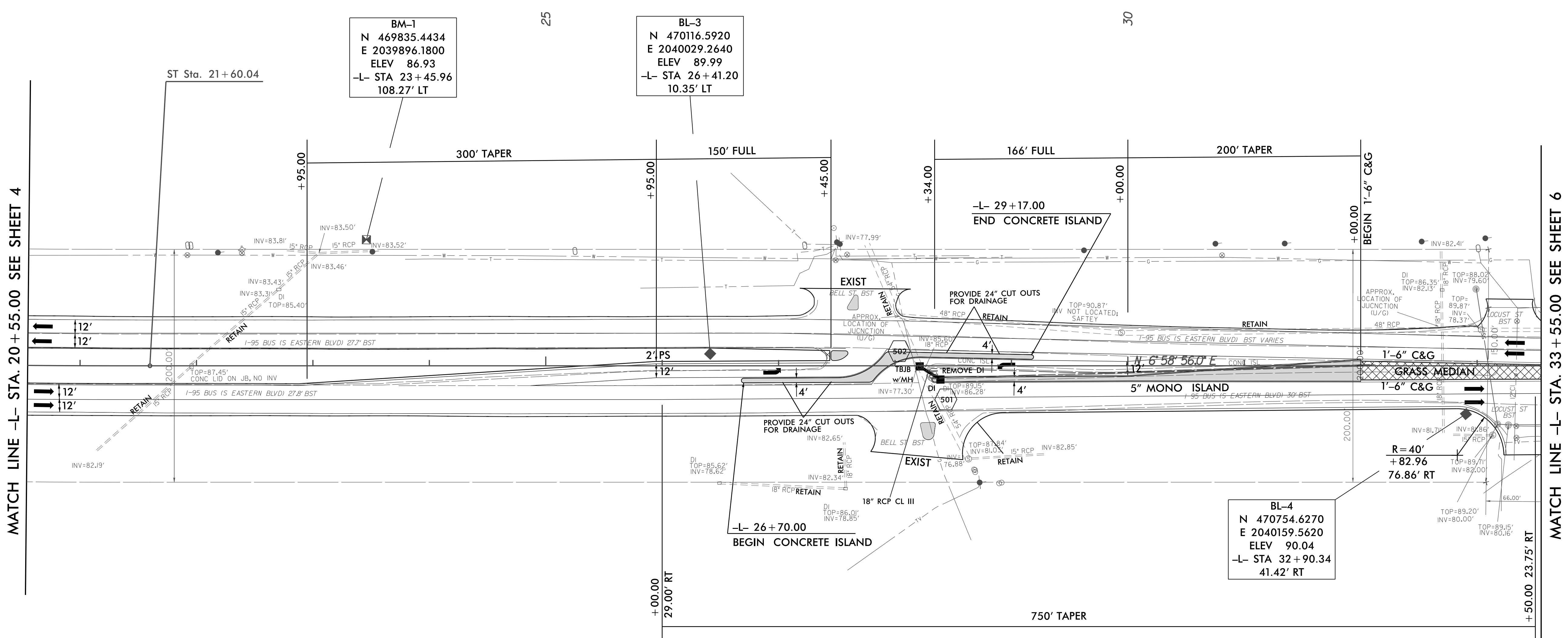
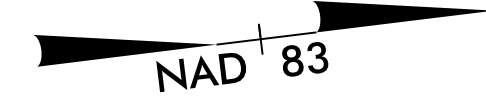
REPLACE R/R STOP BARS
SAME DAY OF MILLING
AND/OR PAVING

NO CONSTRUCTION
WITHIN 25' OF RR

PI Sta 13+89.19
Δ = 30° 24' 05.3" (LT)
D = 4' 00' 00.0"
L = 760.04'
T = 389.19'
R = 1,432.39'

PIs Sta 18+93.62
Θs = 8° 00' 00.0"
Ls = 400.00'
LT = 266.94'
ST = 133.58'

MATCH LINE -L- STA. 20+55.00 SEE SHEET 5



MATCH LINE -L- STA. 20 + 55.00 SEE SHEET 4

MATCH LINE -L- STA. 33 + 55.00 SEE SHEET 6

BM-1
 N 469835.4434
 E 2039896.1800
 ELEV 86.93
 -L- STA 23+45.96
 108.27' LT

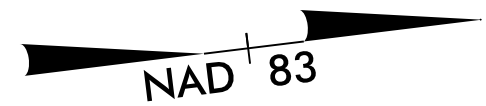
BL-3
 N 470116.5920
 E 2040029.2640
 ELEV 89.99
 -L- STA 26+41.20
 10.35' LT

BL-4
 N 470754.6270
 E 2040159.5620
 ELEV 90.04
 -L- STA 32+90.34
 41.42' RT

Pls Sta 18+93.62
 $\theta_s = 8^\circ 00' 00.0''$
 $L_s = 400.00'$
 $LT = 266.94'$
 $ST = 133.58'$

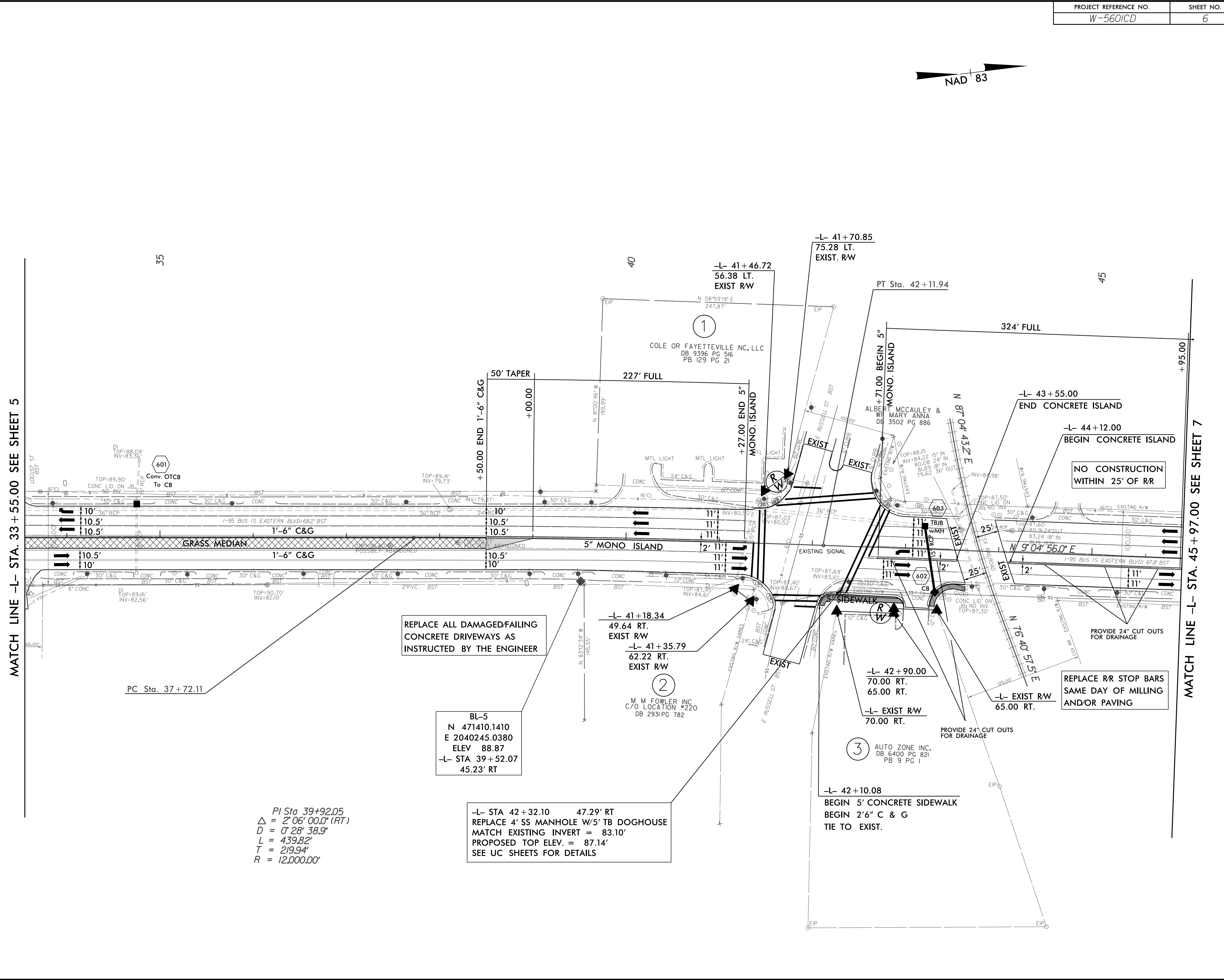
REVISIONS

28-FEB-2018 17:01 \\Roadway\project\W-560ICD_Rdy.psh_5.dgn
 8/17/99
 I-95 BUS-US 301 Eastern Blvd Islands
 4:53:51 PM



REVISIONS
 R/W REVISION 02/22/2018: ADDED ADDITIONAL ROW ON PARCEL 3 TO ACCOMMODATE FOR BULB OUT REVISION.

28-FEB-2018 16:54 W-5601CD Eastern Blvd Islands
 9:55:51 AM
 8/17/99
 I-95 BUS-US 301\Roadway\project\W-5601CD_Rdy_psh_6.dgn



MATCH LINE -L- STA. 33 + 55.00 SEE SHEET 5

MATCH LINE -L- STA. 45 + 97.00 SEE SHEET 7

REPLACE ALL DAMAGED/FAILING
CONCRETE DRIVEWAYS AS
INSTRUCTED BY THE ENGINEER

BL-5
 N 471410.1410
 E 2040245.0380
 ELEV 88.87
 -L- STA 39 + 52.07
 45.23' RT

PI Sta 39+92.05
 $\Delta = 2'06''00.0''$ (RT)
 $D = 0'28''38.9''$
 $L = 439.82'$
 $T = 219.94'$
 $R = 12,000.00'$

-L- STA 42+32.10 47.29' RT
 REPLACE 4' SS MANHOLE W/5' TB DOGHOUSE
 MATCH EXISTING INVERT = 83.10'
 PROPOSED TOP ELEV. = 87.14'
 SEE UC SHEETS FOR DETAILS

3
 AUTO ZONE INC.
 DB 6400 PG 821
 PB 9 PG 1

NO CONSTRUCTION
 WITHIN 25' OF RR

REPLACE RR STOP BARS
 SAME DAY OF MILLING
 AND/OR PAVING

-L- 41+70.85
 75.28 LT.
 EXIST. RW

-L- 41+46.72
 56.38 LT.
 EXIST RW

-L- 41+18.34
 49.64 RT.
 EXIST RW

-L- 41+35.79
 62.22 RT.
 EXIST RW

-L- 42+90.00
 70.00 RT.
 65.00 RT.

-L- EXIST RW
 70.00 RT.

-L- 42+10.08
 BEGIN 5' CONCRETE SIDEWALK
 BEGIN 2'6" C & G
 TIE TO EXIST.

-L- 43+55.00
 END CONCRETE ISLAND

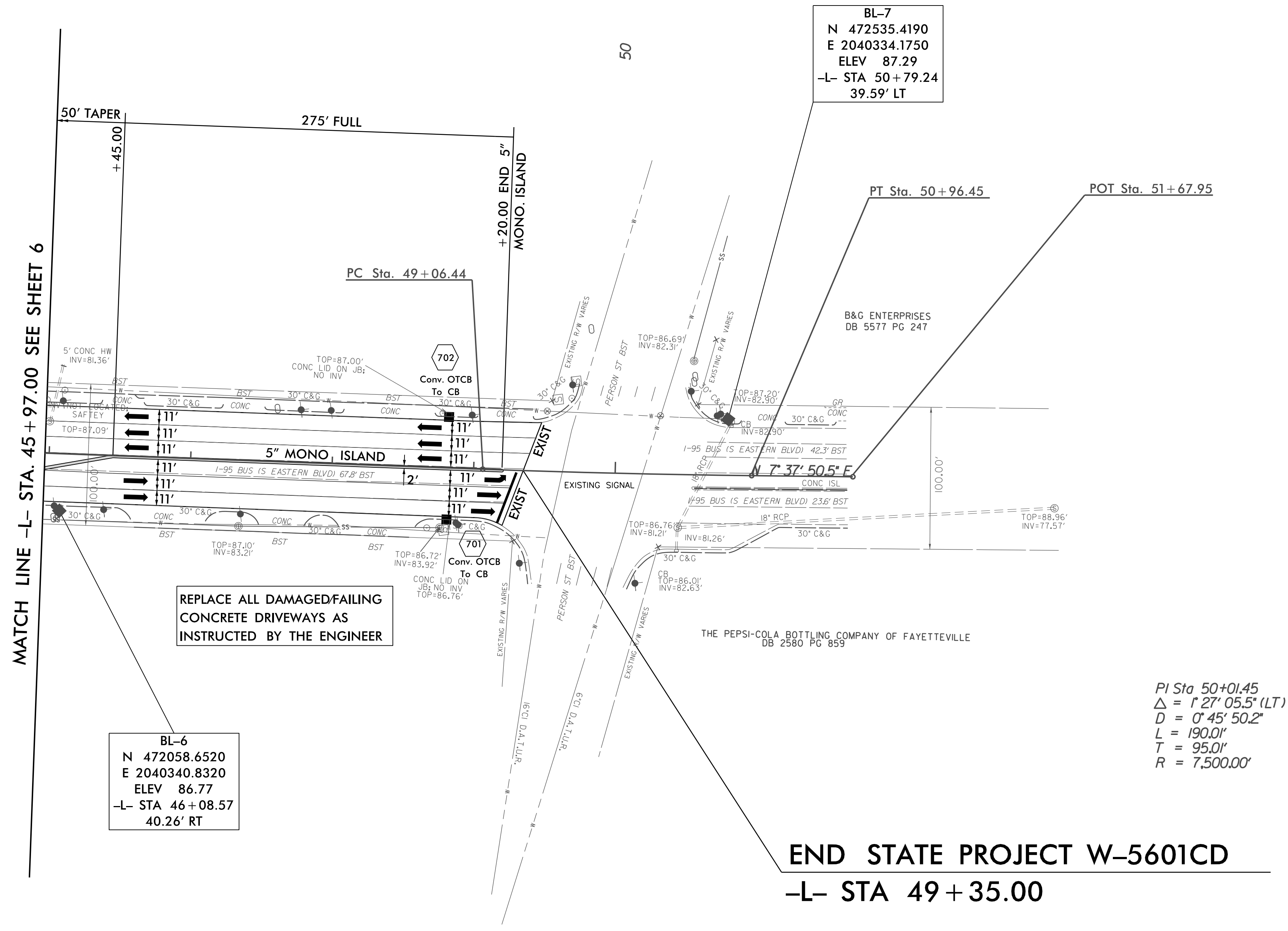
-L- 44+12.00
 BEGIN CONCRETE ISLAND



8/17/99

REVISIONS

28-FEB-2018 16:54 W-5601CD Eastern Blvd Islands I-95 BUS-US 301\Roadway\project\W-5601CD_Rdy.psh_7.dgn
 3:53:51 PM USER:HW



MATCH LINE -L- STA. 45 + 97.00 SEE SHEET 6

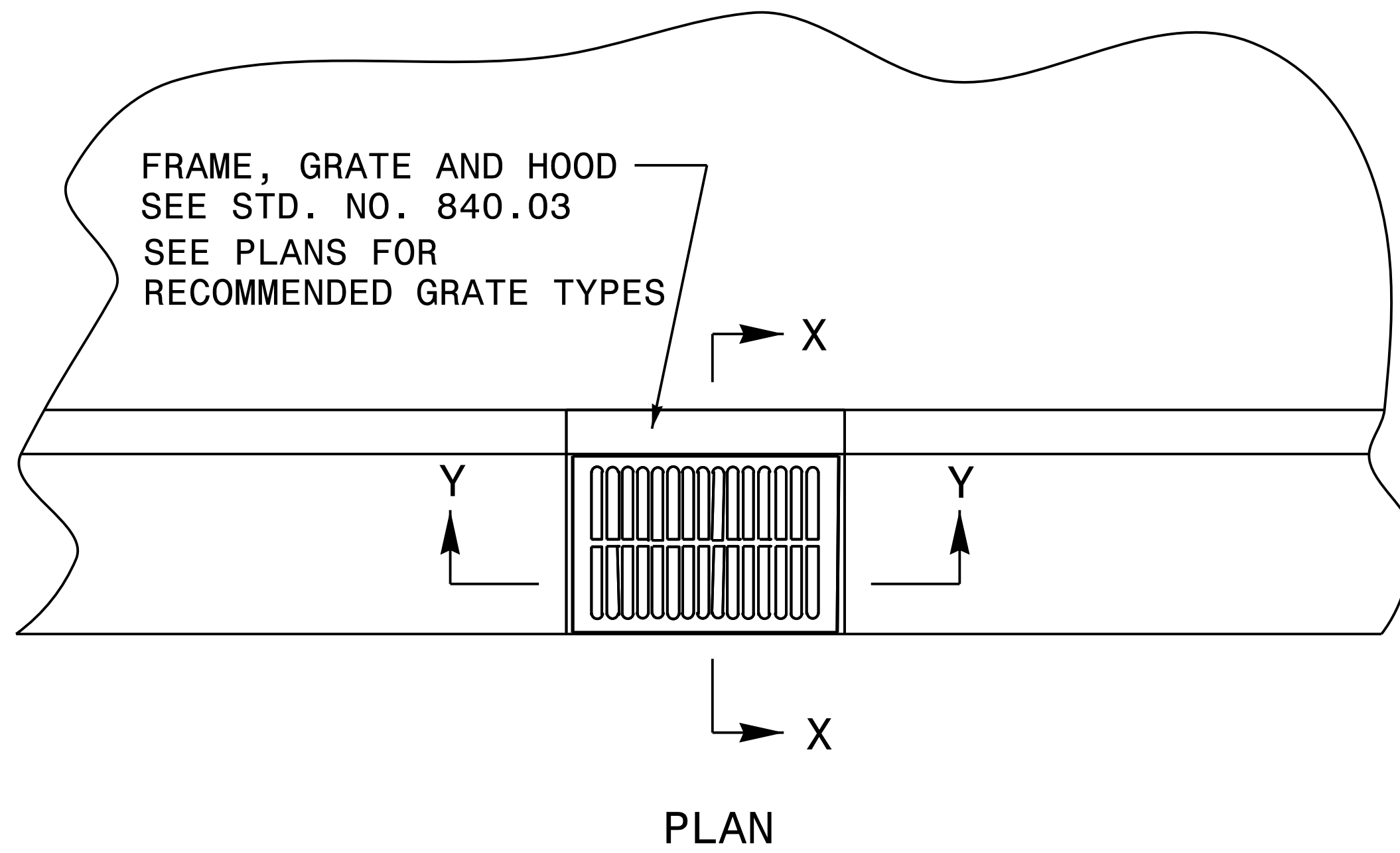
BL-6
 N 472058.6520
 E 2040340.8320
 ELEV 86.77
 -L- STA 46 + 08.57
 40.26' RT

BL-7
 N 472535.4190
 E 2040334.1750
 ELEV 87.29
 -L- STA 50 + 79.24
 39.59' LT

REPLACE ALL DAMAGED/FAILING
 CONCRETE DRIVEWAYS AS
 INSTRUCTED BY THE ENGINEER

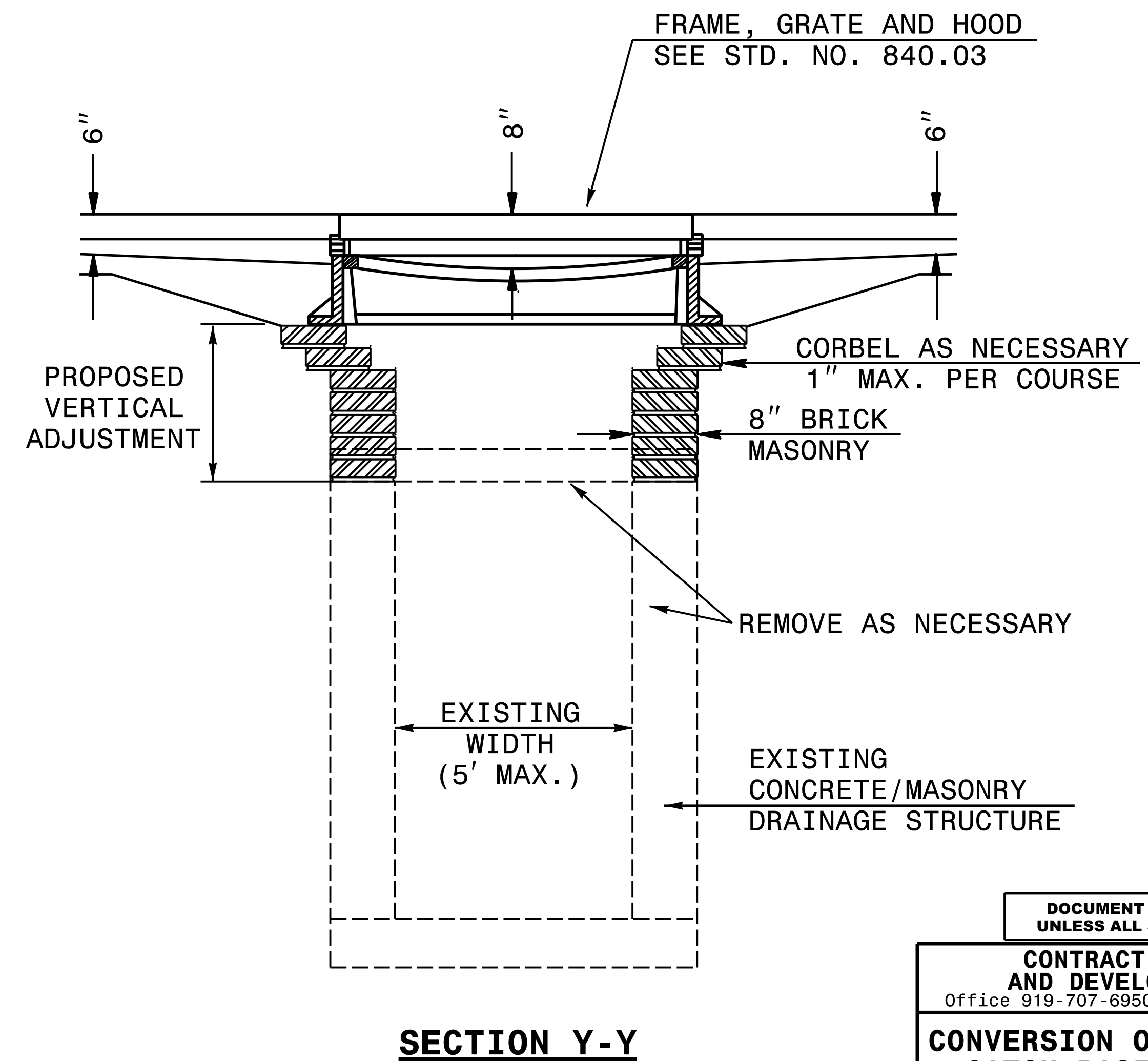
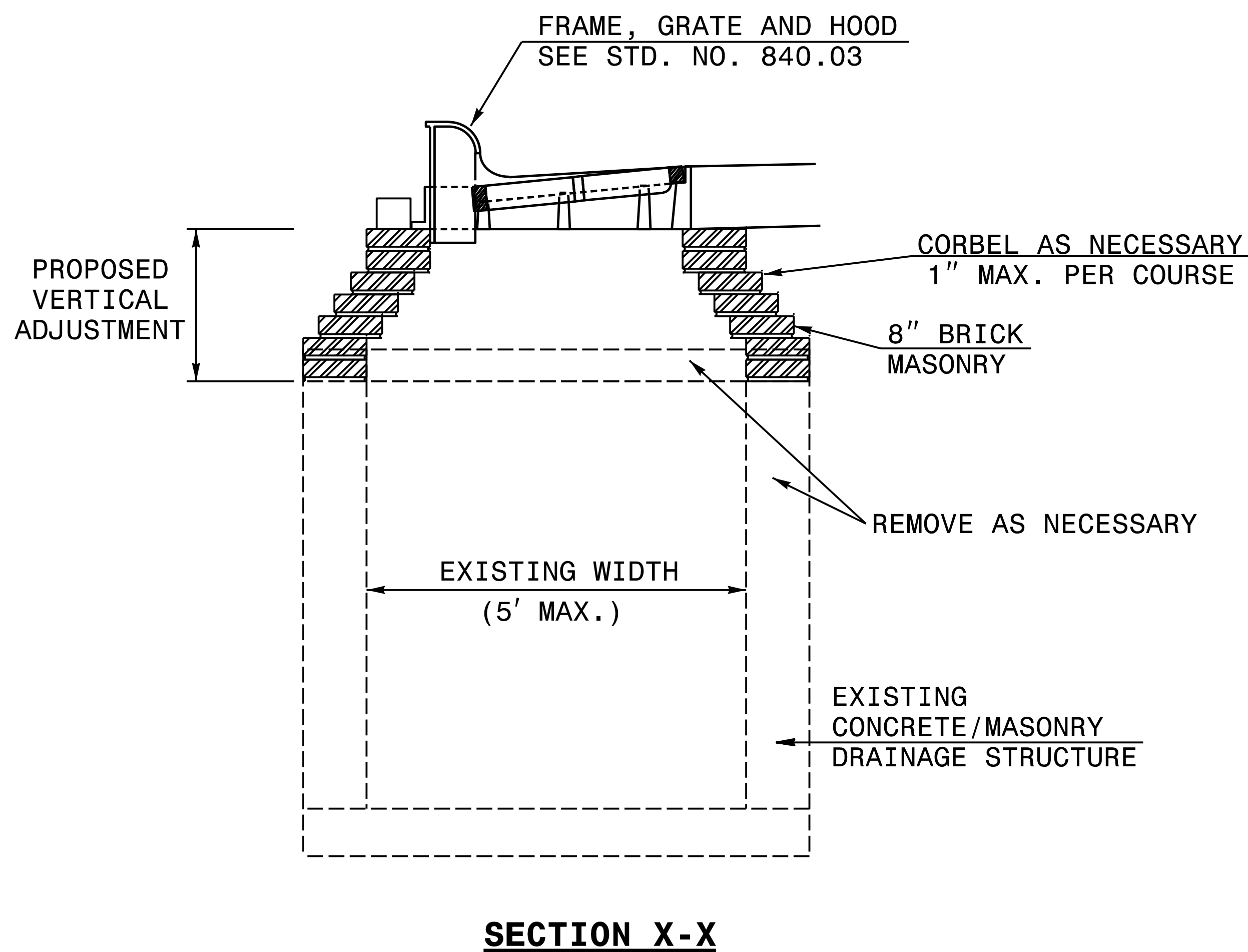
END STATE PROJECT W-5601CD
 -L- STA 49 + 35.00

PI Sta 50+01.45
 Δ = 127° 05.5' (LT)
 D = 0° 45' 50.2\"/>



GENERAL NOTES:

- THE ROADWAY PLANS INDICATE STRUCTURES TO BE CONVERTED.
- AFTER REMOVAL, GRATES AND FRAMES SHALL BE STORED AS DIRECTED BY THE ENGINEER.
- 4" SOLID CLAY BRICK, JUMBO BRICK, CONCRETE, OR 4" SOLID CONCRETE BLOCK MAY BE USED FOR VERTICAL ADJUSTMENT OF THE STRUCTURE.
- ALL CONVERSIONS SHALL BE IN ACCORDANCE WITH SECTION 859 OF THE STANDARD SPECIFICATIONS.



DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

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

**CONVERSION OF OPEN THROAT
CATCH BASIN TO HOODED
CATCH BASIN (STD. 840.02)**

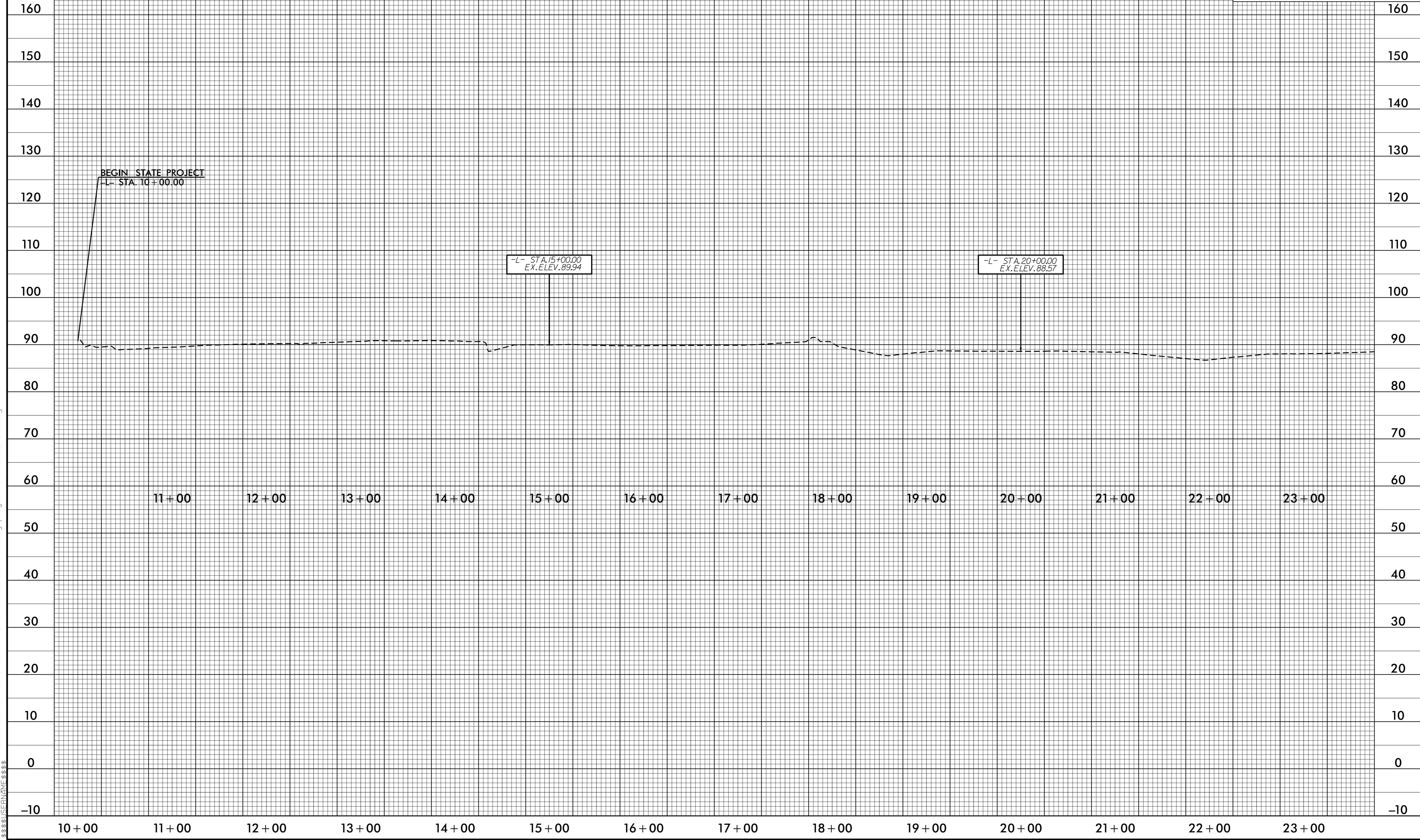
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\$\$\$\$SYTIME\$\$\$\$
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5/14/99

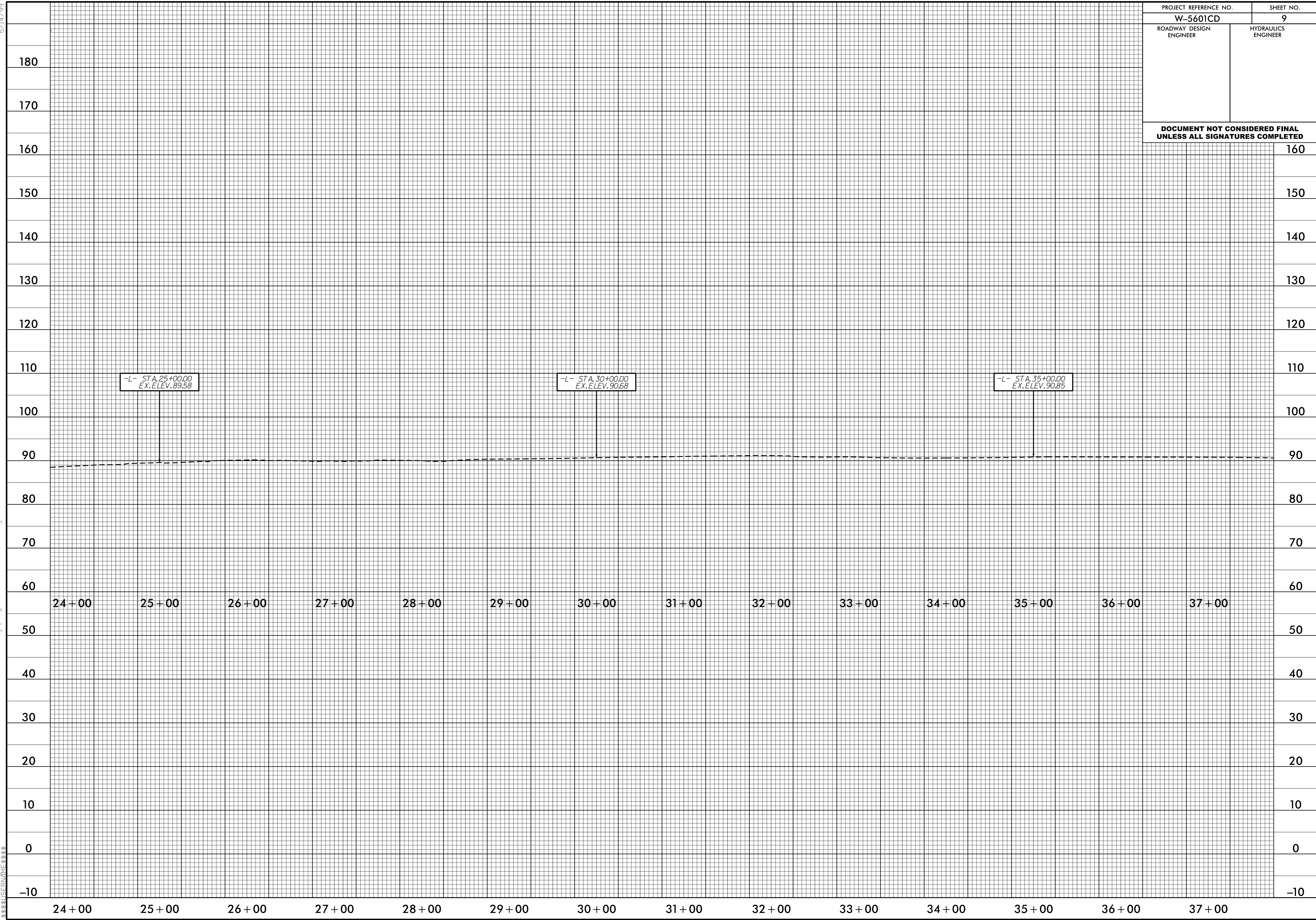
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PROJECT REFERENCE NO. W-5601CD	SHEET NO. 8
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



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PROJECT REFERENCE NO.	SHEET NO.
W-5601CD	9
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

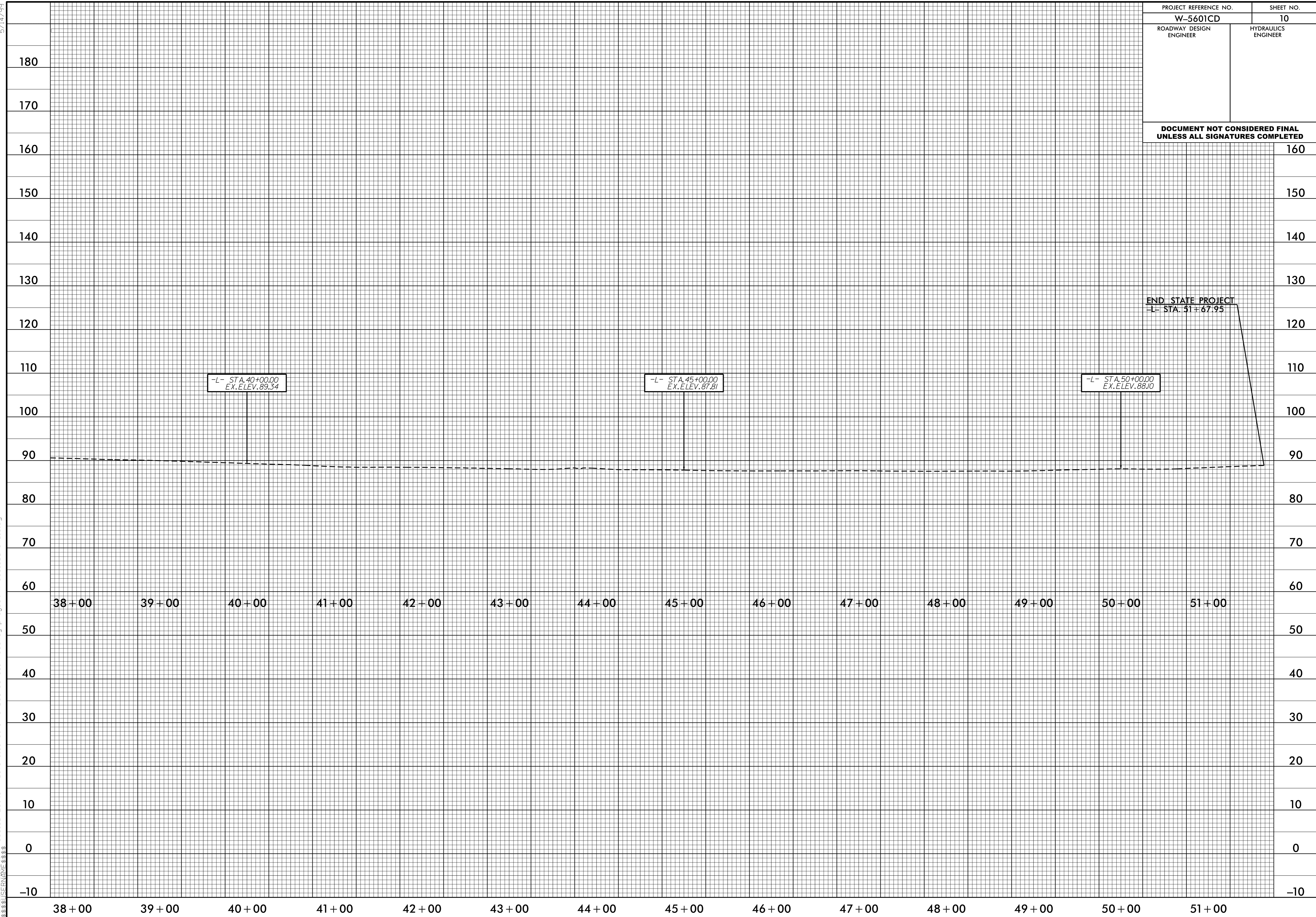


5/14/99

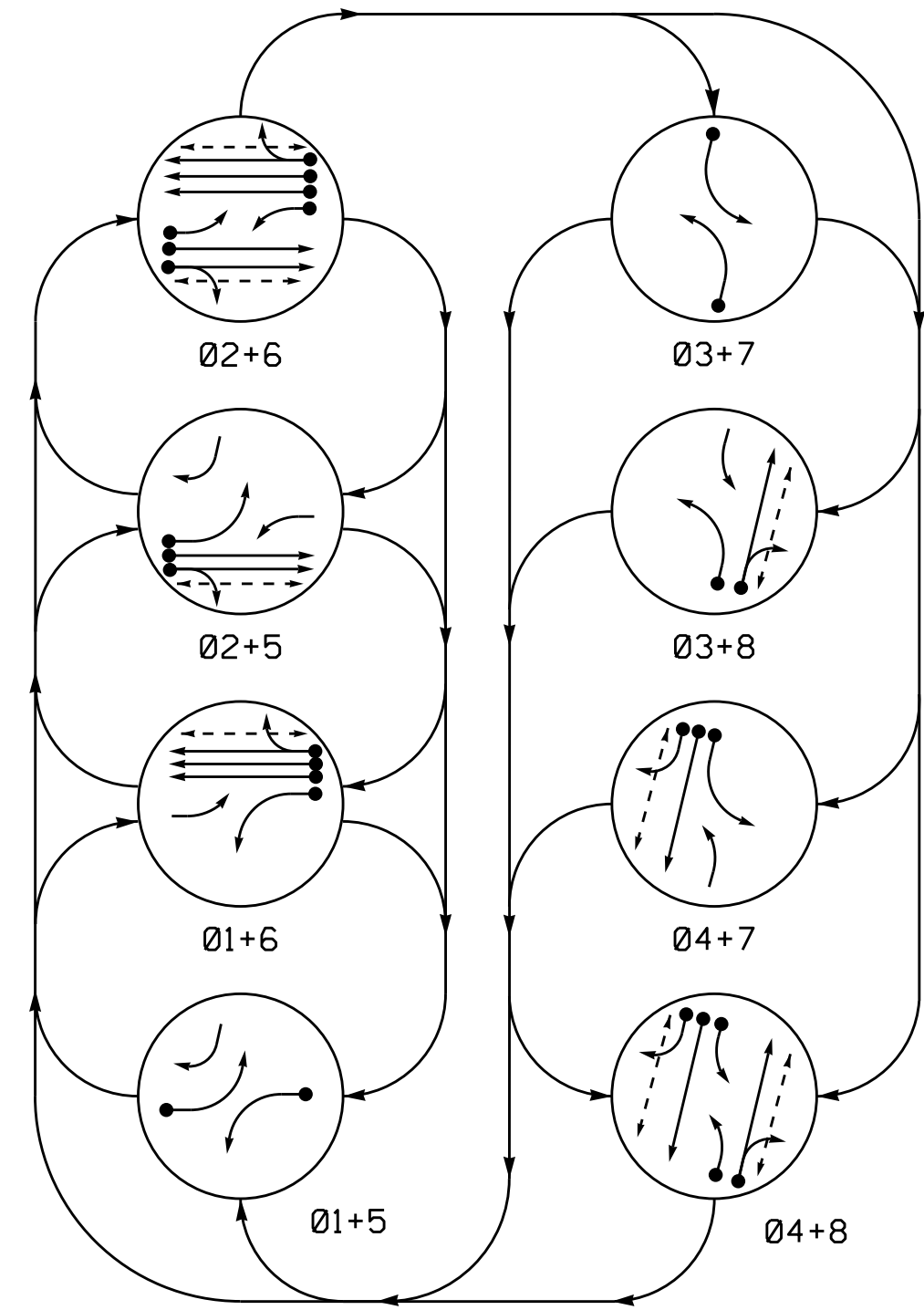
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PROJECT REFERENCE NO.	SHEET NO.
W-5601CD	10
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

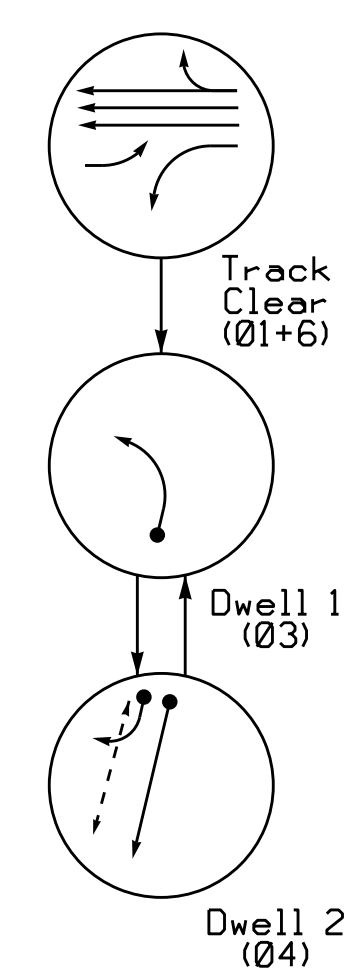
**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**



PHASING DIAGRAM



RAIL PREEMPT PHASES (High Priority)



PHASING DIAGRAM DETECTION LEGEND

- ← ● DETECTED MOVEMENT
- ← ○ UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- ← - - - PEDESTRIAN MOVEMENT

ASC/3 RR PREEMPT	
FUNCTION	PRE 1
Exit Phase(s)	2,6
Preempt Override	ON
Delay Time	0
Ped Clear Trough Yellow	Y
Terminate Phases	N
Track Clear Reserve	Y
Entrance Walk	1
Entrance Ped Clear	3
Entrance Min Green	1
Entrance Yellow Change	25.5*
Entrance Red Clear	25.5*
Track Clear Min Green	19
Track Clear Yellow Change	25.5*
Track Clear Red Clear	25.5*
Min Dwell Time	10
Exit Yellow Change	25.5*
Exit Red Clear	25.5*

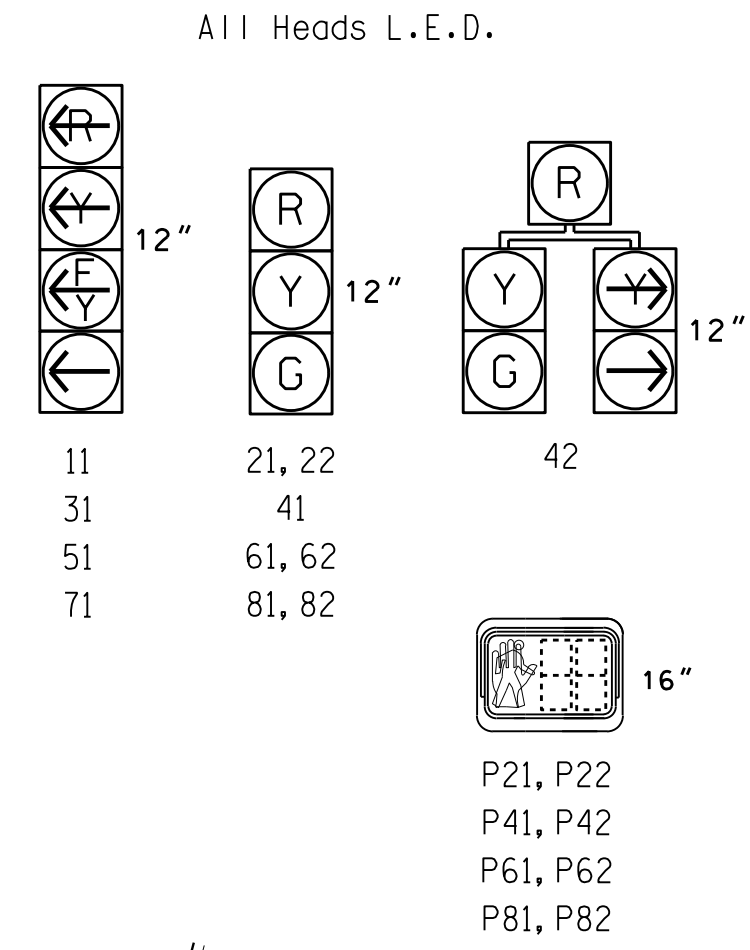
* Allows normal phase times to be used.

This location designed for Simultaneous Preemption.

SIGNAL FACE	PHASE											
	Ø1+5	Ø1+6	Ø2+5	Ø2+6	Ø3+7	Ø3+8	Ø4+7	Ø4+8	TRUCK	PEDEST	PEDEST	PEDEST
11	---	---	---	---	---	---	---	---	---	---	---	---
21,22	R	R	G	G	R	R	R	R	R	R	R	Y
31	R	R	R	R	---	---	---	---	---	---	---	---
41	R	R	R	R	R	G	G	R	R	R	R	---
42	R	R	R	R	R	G	G	R	R	R	R	---
51	---	---	---	---	---	---	---	---	---	---	---	---
61,62	R	G	R	G	R	R	R	R	G	R	R	Y
71	R	R	R	R	---	---	---	---	---	---	---	---
81,82	R	R	R	R	R	G	G	R	R	R	R	---
P21,P22	DW	DW	W	W	DW	DW	DW	DW	DW	DW	DW	DRK
P41,P42	DW	DW	DW	DW	DW	DW	W	W	DW	DW	W	DRK
P61,P62	DW	W	DW	W	DW	DW	DW	DW	DW	DW	DW	DRK
P81,P82	DW	DW	DW	DW	DW	W	DW	W	DW	DW	DW	DRK
SIGN "A"	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	ON	ON	ON	*

* See Note 9

SIGNAL FACE I.D.

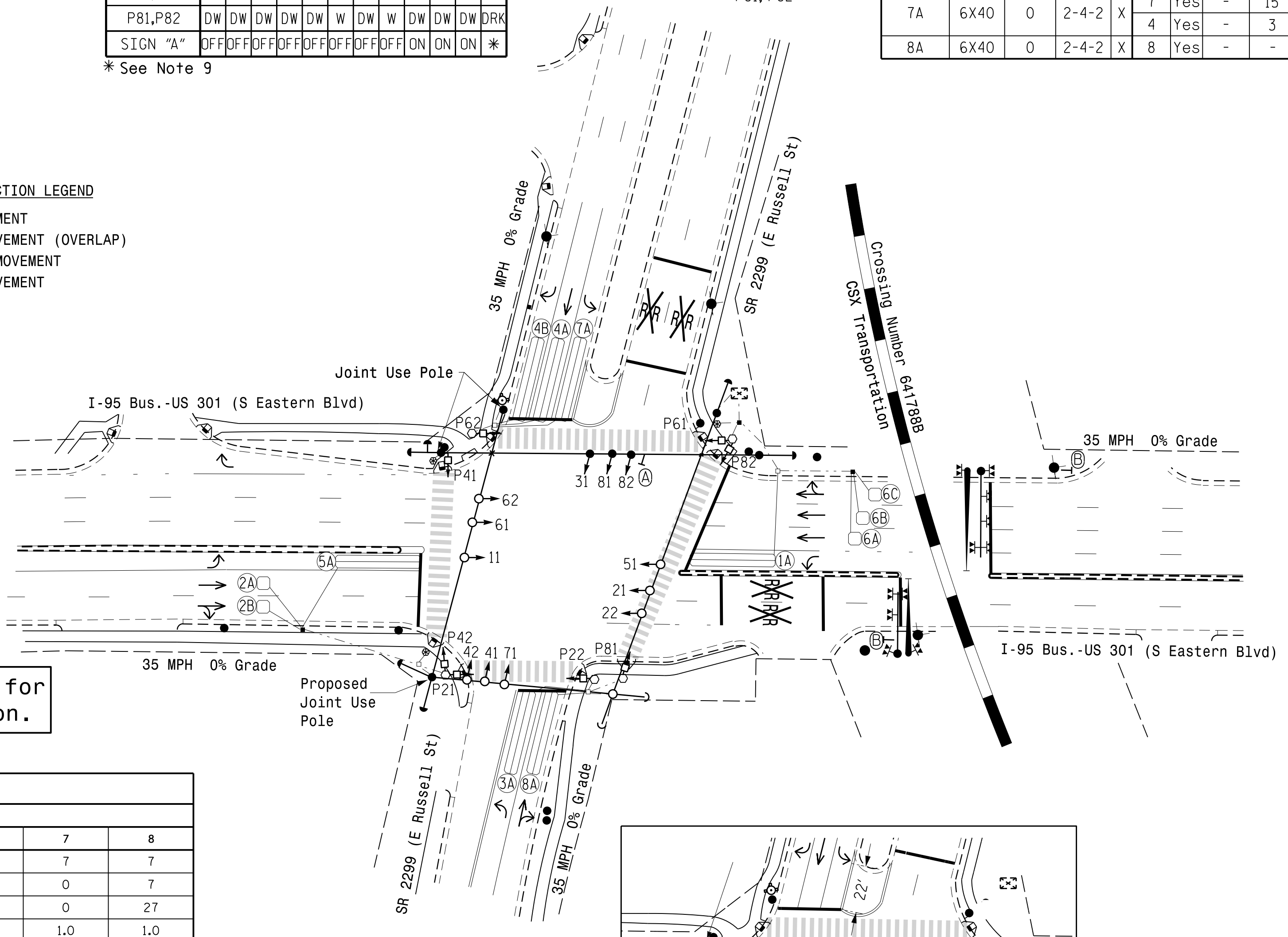


ASC/3 DETECTOR INSTALLATION CHART										
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PROGRAMMING					
					PHASE	CALLING	EXTEND TIME	DELAY TIME	TYPE	SYSTEM LOOP
1A	6X40	0	2-4-2	X	1	Yes	-	15	S	-
6					6	Yes	-	-	S	-
2A	6X6	70	4	X	2	Yes	-	-	S	-
2B	6X6	70	4	X	2	Yes	-	-	S	-
3A	6X40	0	2-4-2	X	3	Yes	-	15	S	-
8					8	Yes	-	3	S	-
4A	6X40	0	2-4-2	X	4	Yes	-	-	S	-
4B	6X40	0	2-4-2	X	4	Yes	-	-	S	-
5A	6X40	0	2-4-2	X	5	Yes	-	15	S	-
2					2	Yes	-	-	S	-
6A	6X6	70	3	X	6	Yes	-	-	S	-
6B	6X6	70	3	X	6	Yes	-	-	S	-
6C	6X6	70	3	X	6	Yes	-	-	S	-
7A	6X40	0	2-4-2	X	7	Yes	-	15	S	-
4					4	Yes	-	3	S	-
8A	6X40	0	2-4-2	X	8	Yes	-	-	S	-

8 Phase Fully Actuated with Railroad Preemption Fayetteville Signal System

NOTES

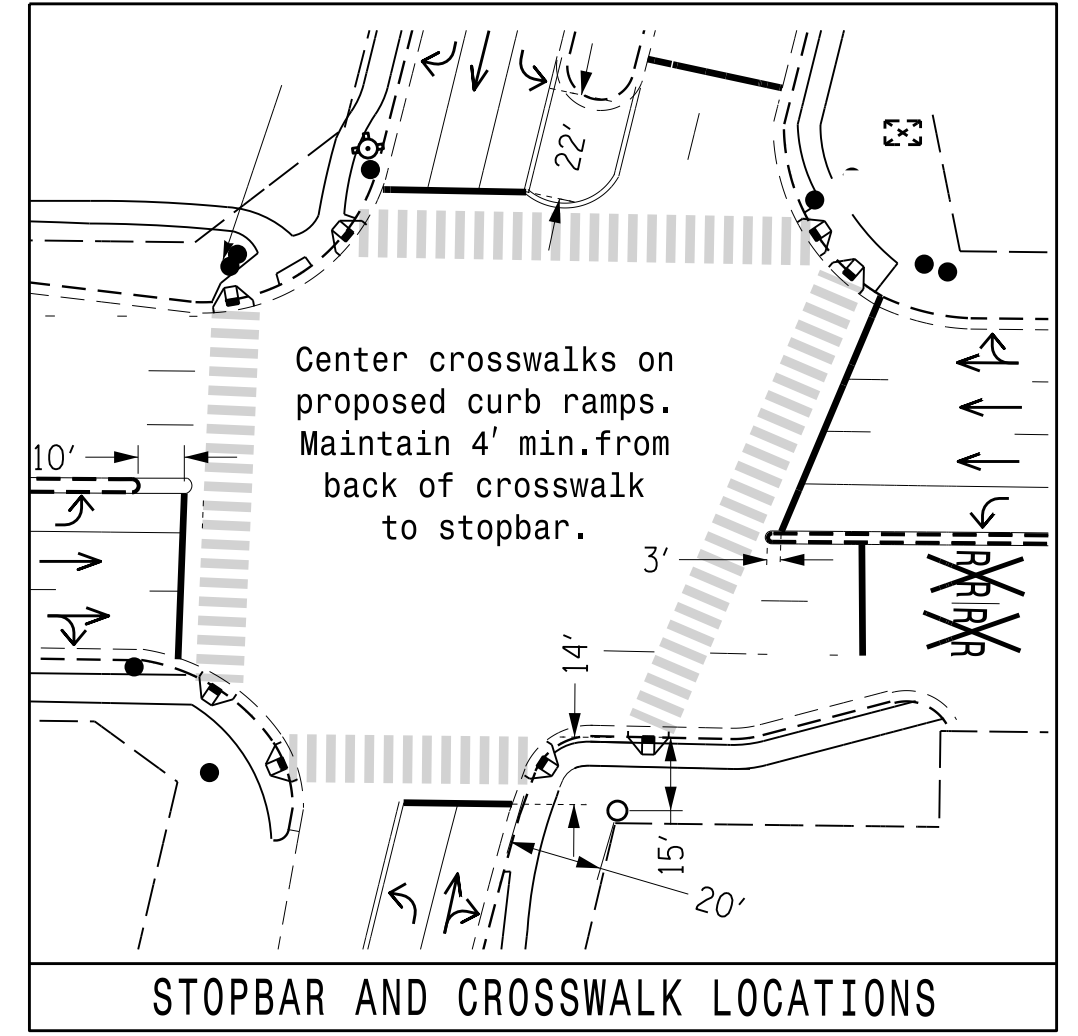
- Refer to "Roadway Standard Drawings NCDOT" dated January 2018 and "Standard Specifications for Roads and Structures" dated January 2018.
- This location contains railroad preemption phasing. Do not program signal for late night flashing operation. Phase 1 and/or phase 5 may be lagged.
- Phase 3 and/or phase 7 may be lagged.
- Set all detector units to presence mode.
- Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
- Program pedestrian heads to countdown the flashing "Don't Walk" time only. Pedestrian pedestals are conceptual and shown for reference only. See sheets P1-P3 for pushbutton location details.
- Ensure flashing operation does not alter operation of blankout sign.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.



LEGEND			
PROPOSED	EXISTING		
○ →	Traffic Signal Head	● →	Modified Signal Head
○	Sign	○	N/A
□	Pedestrian Signal Head With Push Button & Sign	□	Sign
○	Type II Signal Pedestal	○	N/A
⊗	Type I Pushbutton Post	⊗	N/A
○	Signal Pole with Guy	○	N/A
○	Signal Pole with Sidewalk Guy	○	N/A
□	Inductive Loop Detector	□	N/A
□	Controller & Cabinet	□	N/A
□	Junction Box	□	N/A
---	2-in Underground Conduit	---	N/A
N/A	Right of Way	N/A	N/A
→	Directional Arrow	→	N/A
N/A	Fire Hydrant	N/A	N/A
□	Curb Ramp	□	N/A
	Hi Viz Cross Walk		N/A
N/A	Railroad Track	N/A	N/A
N/A	Railroad Cantilever	N/A	N/A
N/A	Railroad Gate and Flasher	N/A	N/A
⊗	"NO RIGHT TURN - TRAIN" Fiber Optic Blankout Sign	⊗	N/A
⊗	"DO NOT STOP ON TRACKS" Sign (R8-8)	⊗	N/A

ASC/3 TIMING CHART								
FEATURE	PHASE							
	1	2	3	4	5	6	7	8
Min Green *	7	10	7	7	7	10	7	7
Walk *	0	7	0	7	0	7	0	7
Ped Clear	0	12	0	20	0	25	0	27
Veh. Extension *	1.0	3.0	1.0	1.0	1.0	3.0	1.0	1.0
Max 1 *	20	45	30	20	20	45	20	30
Yellow	3.0	3.9	3.0	3.8	3.0	3.9	3.0	3.8
Red Clear	3.2	2.5	2.9	2.4	3.3	2.5	3.1	2.4
Actuations B4 Add *	-	-	-	-	-	-	-	-
Seconds / Actuation *	-	-	-	-	-	-	-	-
Max Initial *	-	-	-	-	-	-	-	-
Time Before Reduction *	-	-	-	-	-	-	-	-
Time To Reduce *	-	-	-	-	-	-	-	-
Minimum Gap	-	-	-	-	-	-	-	-
Locking Detector	-	X	-	-	-	X	-	-
Recall Position	-	VEH. RECALL	-	-	-	VEH. RECALL	-	-
Dual Entry	-	-	-	X	-	-	-	X
Simultaneous Gap	X	X	X	X	X	X	X	X

* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.



Signal Upgrade

Prepared in the Offices of:

 TRANSPORTATION MOBILITY AND SAFETY SOLUTIONS, INC.
 750 N. Greenfield Pkwy, Garner, NC 27529

I-95 Bus.- US 301 (S Eastern Blvd) at SR 2299 (E Russell Street)

Division 6 Cumberland County Fayetteville
 PLAN DATE: April 2017 REVIEWED BY: MEG
 PREPARED BY: EM Minshew REVIEWED BY: MEG

SCALE: 1" = 40'

REVISIONS: _____

INITIALS: _____ DATE: _____

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL: MEHAN E. GILES, PROFESSIONAL ENGINEER, No. 042608

DocuSigned by: Mehan E. Giles 10/17/2017

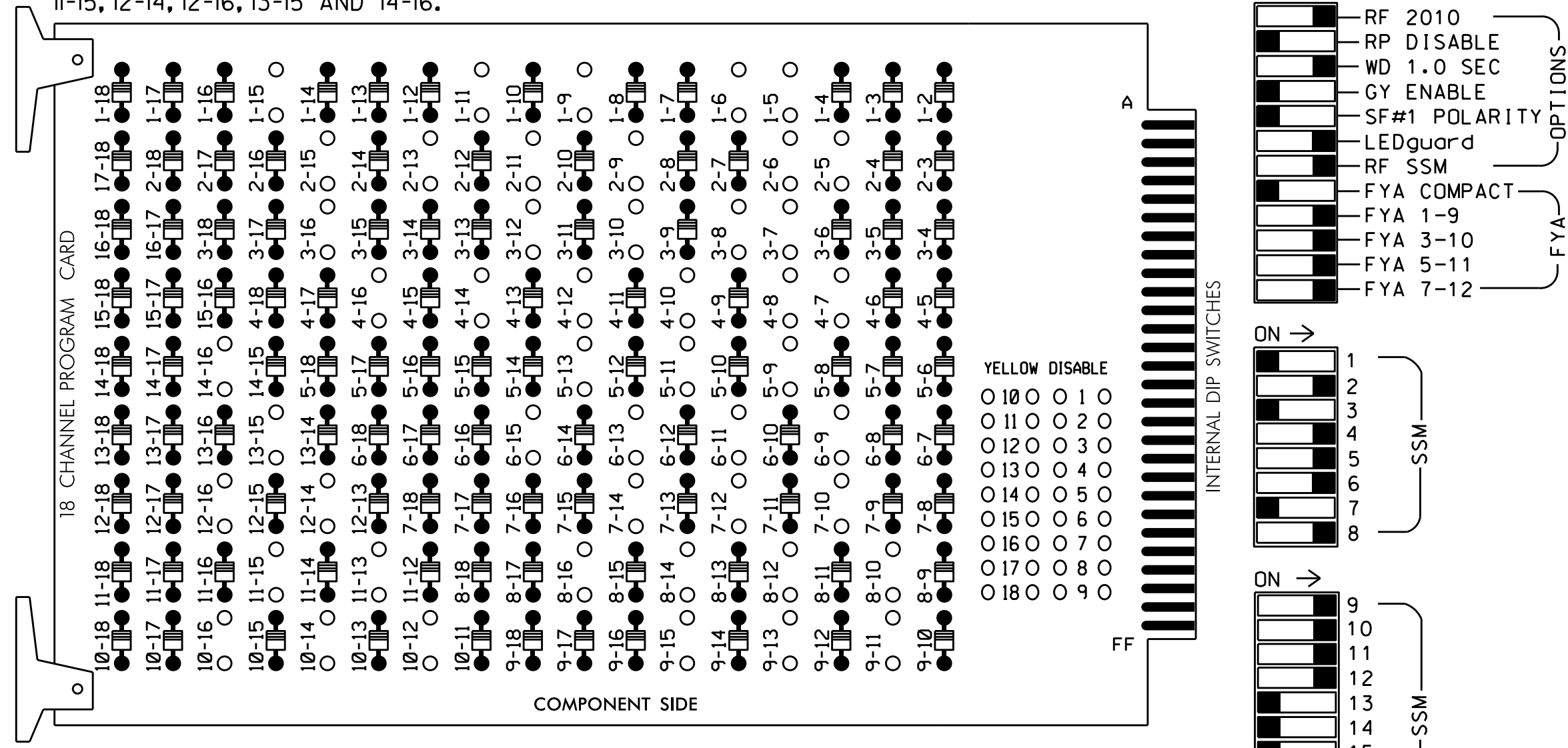
SIG. INVENTORY NO. 06-0016

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**EDI MODEL 2018ECLip-NC CONFLICT MONITOR
PROGRAMMING DETAIL**

(remove jumpers and set switches as shown)

REMOVE DIODE JUMPERS 1-5, 1-6, 1-9, 1-11, 1-15, 2-5, 2-6, 2-9, 2-11, 2-13, 2-15, 3-7, 3-8, 3-10, 3-12, 3-16, 4-7, 4-8, 4-10, 4-12, 4-14, 4-16, 5-9, 5-11, 5-13, 6-9, 6-11, 6-13, 6-15, 7-10, 7-12, 7-14, 8-10, 8-12, 8-14, 8-16, 9-11, 9-13, 9-15, 10-12, 10-14, 10-16, 11-13, 11-15, 12-14, 12-16, 13-15 AND 14-16.



REMOVE JUMPERS AS SHOWN

NOTES:

1. Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
2. Ensure jumpers SEL2-SEL5 and SEL9 are present on the monitor board.
3. Ensure that Red Enable is active at all times during normal operation.
4. Integrate monitor with Ethernet network in cabinet.

NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
2. Program phases 4 and 8 for Dual Entry.
3. Enable Simultaneous Gap-Out for all phases.
4. Program controller to start up in phase 2 Walk and 6 Walk.
5. The cabinet and controller are part of the Fayetteville Signal System.

EQUIPMENT INFORMATION

CONTROLLER.....2070E
 CABINET.....332 W/AUX
 SOFTWARE.....ECONOLITE ASC/3-2070
 CABINET MOUNT.....BASE
 OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE
 LOAD SWITCHES USED.....S1,S2,S3,S4,S5,S6,S7,S8,S9,S10,S11,
 S12,AUX S1,AUX S2,AUX S4,AUX S5
 PHASES USED.....1,2,2 PED,3,4,4 PED,5,6,6 PED,7,
 8,8 PED
 OVERLAP "A".....*
 OVERLAP "B".....*
 OVERLAP "C".....*
 OVERLAP "D".....*
 * See overlap programming detail on sheet 2

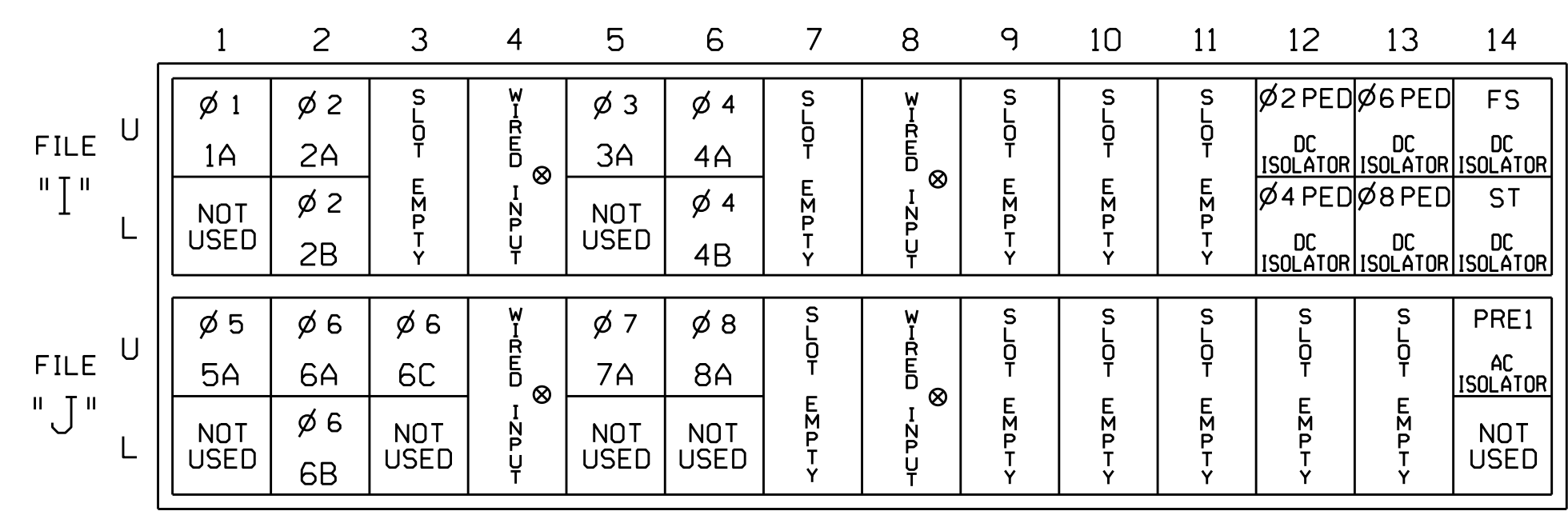
SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	AUX S1	AUX S2	AUX S3	AUX S4	AUX S5	AUX S6
CMU CHANNEL NO.	1	2	13	3	4	14	5	6	15	7	8	16	9	10	17	11	12	18
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	7	8	8 PED	OLA	OLB	SPARE	OLC	OLD	SPARE
SIGNAL HEAD NO.	11	21,22	P21, P22	31	41,42	P41, P42	42	51	61,62	P61, P62	71	81,82	P81, P82	11	31	NU	51	71
RED		128			101		*		134			107						
YELLOW	*	129		*	102				135		*	108						
GREEN		130			103				136			109						
RED ARROW														A121	A124		A114	A101
YELLOW ARROW							132							A122	A125		A115	A102
FLASHING YELLOW ARROW														A123	A126		A116	A103
GREEN ARROW	127						133	133			124							
Hand				113			104			119			110					
Walker				115			106			121			112					

NU = Not Used
 * Denotes install load resistor. See load resistor installation detail this sheet.
 * See pictorial of head wiring in detail below.

INPUT FILE POSITION LAYOUT

(front view)



EX.: 1A, 2A, ETC. = LOOP NO.'S

FS = FLASH SENSE
 ST = STOP TIME
 PRE = PREEMPT

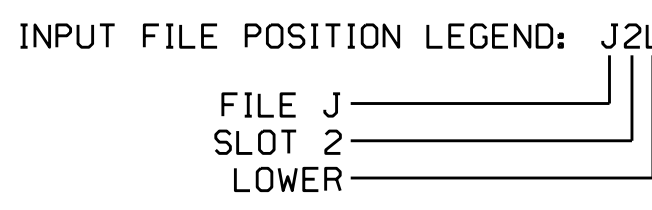
⊗ Wired Input - Do not populate slot with detector card

INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND TIME	DELAY TIME	DETECTOR TYPE
1A ¹	TB2-1,2	I1U	56	1	1	YES		15	S
	-	J4U	48	26	6	YES			S
2A	TB2-5,6	I2U	39	2	2	YES			S
2B	TB2-7,8	I2L	43	12	2	YES			S
3A ²	TB4-5,6	I5U	58	3	3	YES		15	S
	-	J8U	50	28	8	YES		3	S
4A	TB4-9,10	I6U	41	4	4	YES			S
4B	TB4-11,12	I6L	45	14	4	YES			S
5A ³	TB3-1,2	J1U	55	5	5	YES		15	S
	-	I4U	47	22	2	YES			S
6A	TB3-5,6	J2U	40	6	6	YES			S
6B	TB3-7,8	J2L	44	16	6	YES			S
6C	TB3-9,10	J3U	64	36	6	YES			S
7A ⁴	TB5-5,6	J5U	57	7	7	YES		15	S
	-	I8U	49	24	4	YES		3	S
8A	TB5-9,10	J6U	42	8	8	YES			S
PED PUSH BUTTONS									
P21,P22	TB8-4,6	I12U	67	PED 2	2 PED				
P41,P42	TB8-5,6	I12L	69	PED 4	4 PED				
P61,P62	TB8-7,9	I13U	68	PED 6	6 PED				
P81,P82	TB8-8,9	I13L	70	PED 8	8 PED				

NOTE:
 INSTALL DC ISOLATORS IN INPUT FILE SLOTS 112 AND 113.

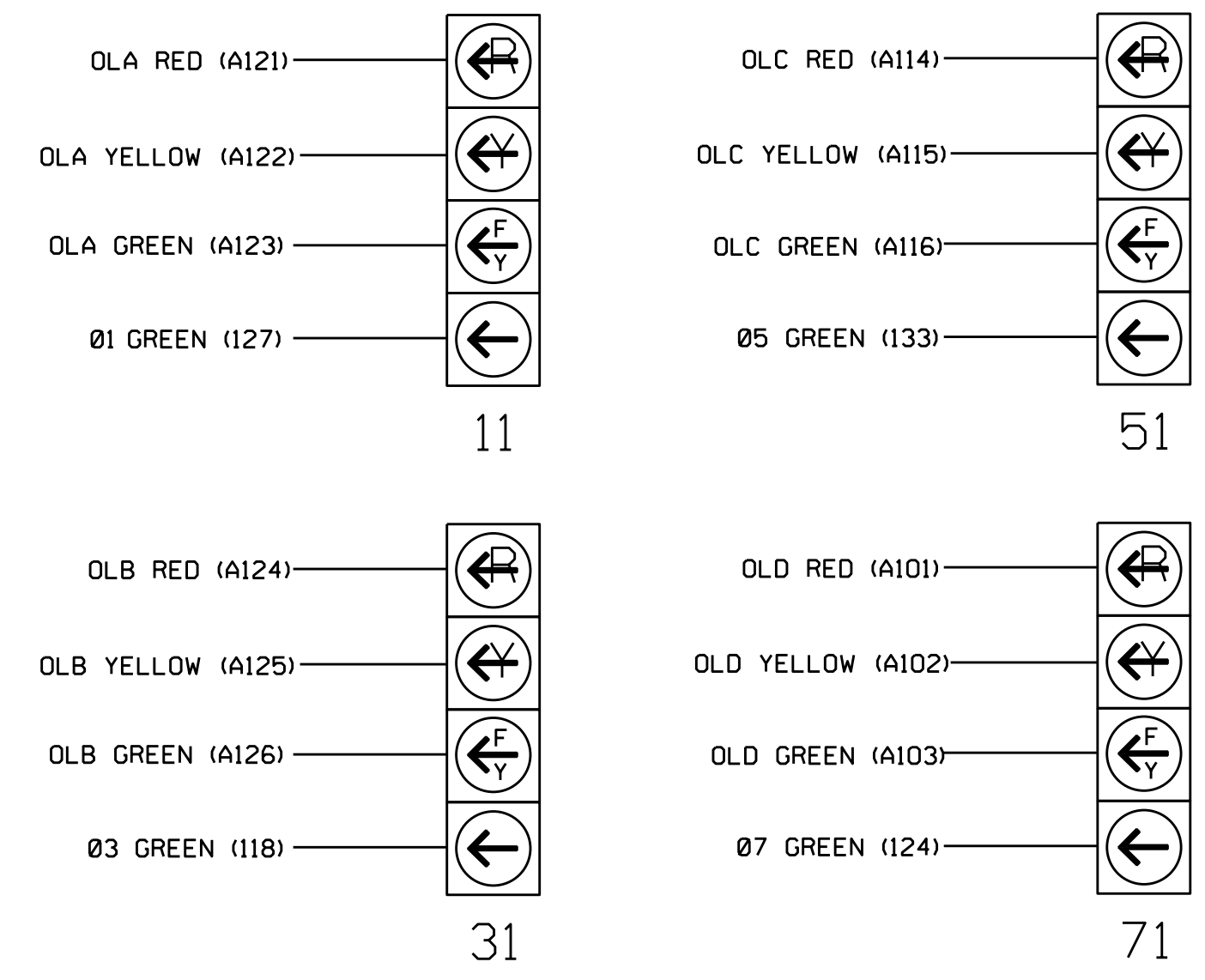
- 1 Add jumper from I1-W to J4-W, on rear of input file.
- 2 Add jumper from I5-W to J8-W, on rear of input file.
- 3 Add jumper from J1-W to I4-W, on rear of input file.
- 4 Add jumper from J5-W to I8-W, on rear of input file.



THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 06-0016
 DESIGNED: April 2017
 SEALED: 10/17/2017
 REVISED:

FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



COUNTDOWN PEDESTRIAN SIGNAL OPERATION

Countdown Ped Signals are required to display timing only during Ped Clearance Interval. Consult Ped Signal Module user's manual for instructions on selecting this feature.

Electrical Detail Sheet 1 of 3

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Electrical and Programming Details for: I-95 Bus.- US 301 (S Eastern Blvd) at SR 2299 (E Russell Street)

Division 6 Cumberland County Fayetteville

PLAN DATE: July 2017 REVIEWED BY: T. Joyce

PREPARED BY: C. Strickland REVIEWED BY:

REVISIONS: INIT. DATE

750 N. Greenfield Pkwy, Garner, NC 27529

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 06-0016

DESIGNED: April 2017

SEALED: 10/17/2017

REVISED:

Prepared in the Offices of: [Signature]

Division 6 Cumberland County Fayetteville

PLAN DATE: July 2017 REVIEWED BY: T. Joyce

PREPARED BY: C. Strickland REVIEWED BY:

REVISIONS: INIT. DATE

750 N. Greenfield Pkwy, Garner, NC 27529

DocuSigned by: D. Todd Joyce 10/19/2017

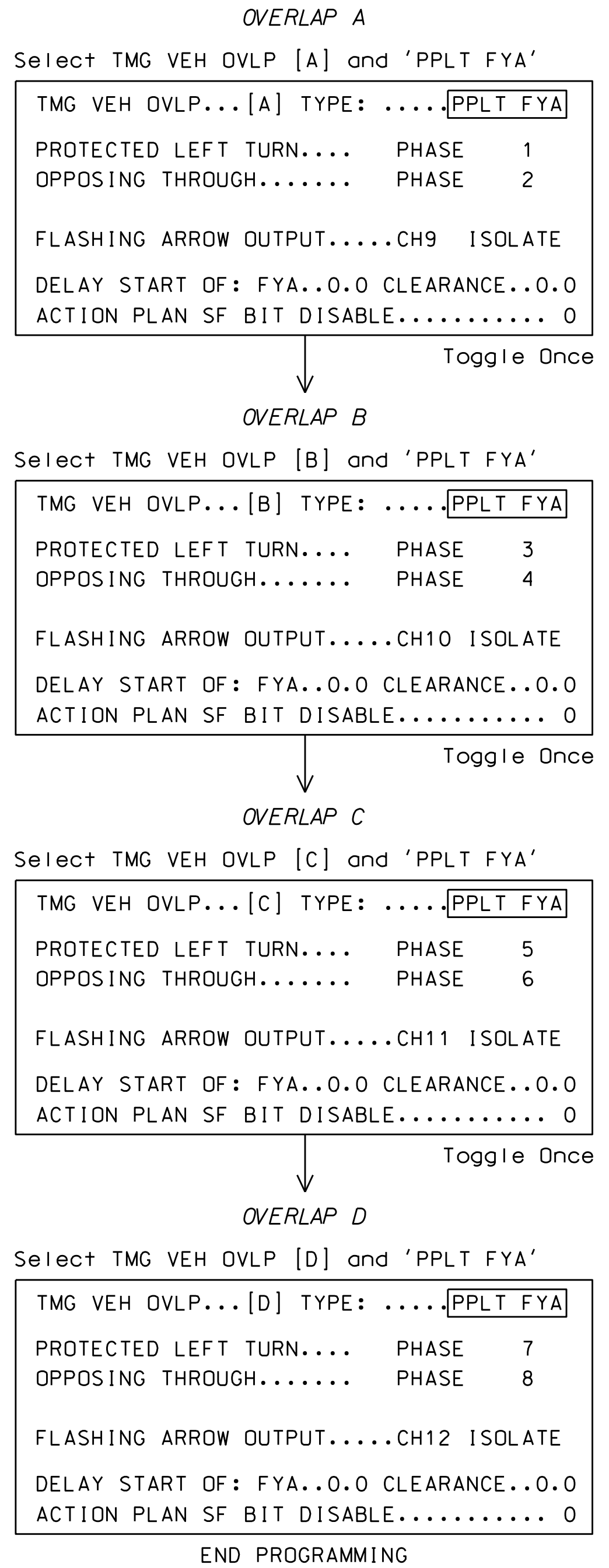
SIG. INVENTORY NO. 06-0016

18-0017-2017 10/31
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ECONOLITE ASC/3-2070 OVERLAP PROGRAMMING DETAIL

(program controller as shown)

1. From Main Menu select 2. CONTROLLER
2. From CONTROLLER Submenu select 2. VEHICLE OVERLAPS



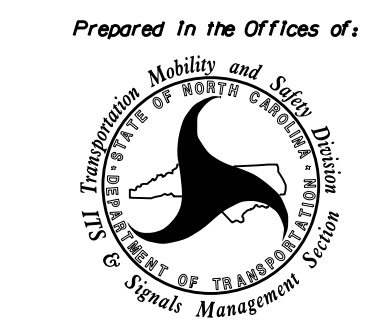

FLASHER CIRCUIT MODIFICATION DETAIL

In order to ensure that signals flash concurrently on the Same approach, make the following flasher circuit changes:

1. On rear of PDA - remove wire from Term. T2-4 and terminate on T2-2.
2. On rear of PDA - remove wire from Term. T2-5 and terminate on T2-3.
3. Remove flasher unit 2.

The changes listed above ties all phases and overlaps to flasher unit 1.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 06-0016
DESIGNED: April 2017
SEALED: 10/17/2017
REVISED:

Electrical Detail Sheet 2 of 3		DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
 <small>750 N. Greenfield Pkwy, Garner, NC 27529</small>	Prepared In the Offices of: I-95 Bus.- US 301 (S Eastern Blvd) at SR 2299 (E Russell Street)		
ELECTRICAL AND PROGRAMMING DETAILS FOR:	Division 6 Cumberland County Fayetteville	PLAN DATE: July 2017	REVIEWED BY: T. Joyce
PREPARED BY: C. Strickland	REVIEWED BY:	REVISIONS	INIT. DATE
DocuSigned by: <i>D. Todd Joyce</i> 10/19/2017		SIG. INVENTORY NO. 06-0016	DATE

18-0017-2017_10172
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C:\Strickland

ECONOLITE ASC/3-2070 RAILROAD PREEMPT PROGRAMMING DETAIL

(program controller as shown)

- From Main Menu select **4. PREEMPTOR/TSP**
- From PREEMPTOR/TSP/SCP Submenu select **1. PREEMPT PLAN 1-10**

Place cursor in [] next to Preempt Plan and press 1. Then press the right cursor arrow and toggle the controller to YES. Next cursor down. This will select Railroad Preempt #1.

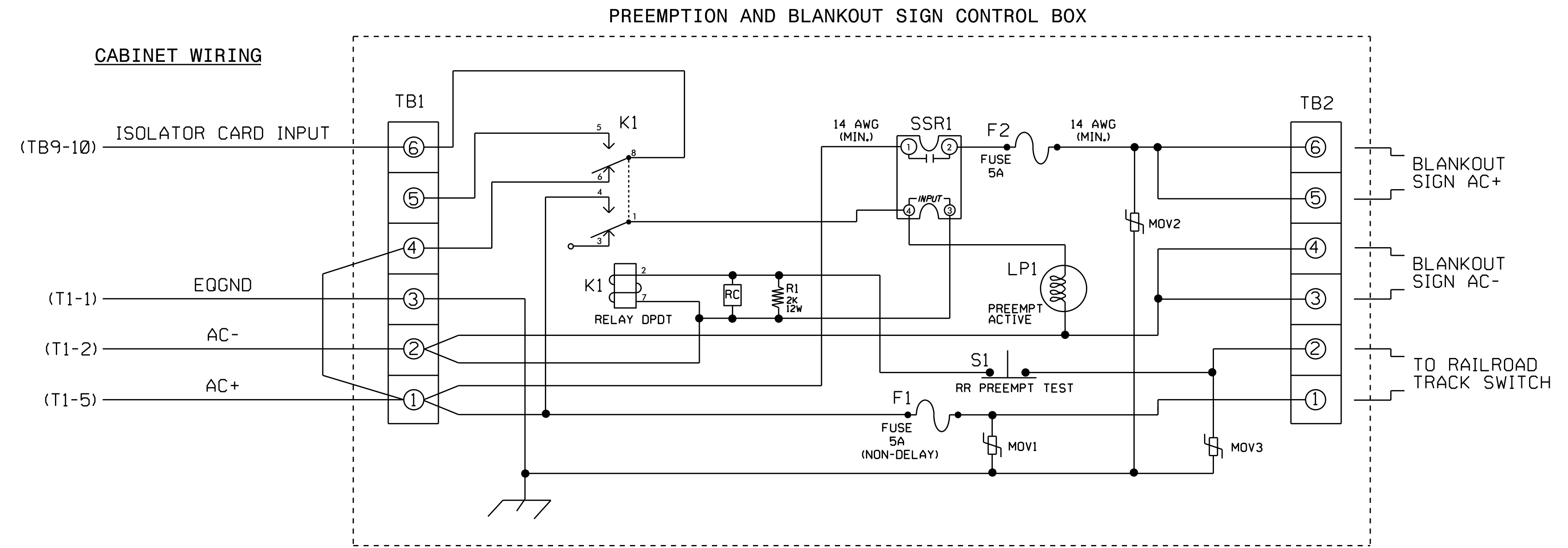
PREEMPT PLAN [1]	ENABLE....YES
VEH/PED 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6	
OVERLAP A B C D E F G H I J K L M N O P	
TRKCLR V X X	
TRKCLR D F1.F1	
ENA TRL	
DWEL VEH	
DWEL PED	
DWEL OLP	
CYC VEH . . X X	
CYC PED . . . X	
CYC OLP	
EXIT PH . X X	
EXIT CAL	
SP FUNC	

ENABLE... YES IPMT OVRIDE.XIINTERLOCK. NO
 DET LOCK... XIDELAY.. OIINHIBIT... 0
 OVERRIDE FL. .IDURATION OICLR-GRN... NO
 TERM OLP. NOIPC>YEL YESITERM PH NO
 PED DARK.. NOITC RESRV YESIDWELL FL OFF
 LINK PMT...OIX FLCCLR REDIEXIT OPT. OFF
 X TMG PLN...OIRE-SERV.. OIFLT TYPE.HARD
 FREE DUR PMTIR1 NOIR2 NOIR3 NOIR4 NO
 --TIMING----WALKIPED CLIMN GRI YELI RED
 ENTRANCE TM. 11 31 1125.5125.5
 -----MIN GRIEXT GRIMX GRI YELI RED
 TRACK CLEAR 191 01 0125.5125.5
 -----MIN DLIPMTEXTIMX TMI YELI RED
 DWL/CYC-EXIT 101 0.01 0125.5125.5
 PMT ACTIVE OUT..ON PMT ACT DWELL...NO
 OTHER - PRI PMT.OFF NON-PRI PMT....OFF
 INH EXT TIME... 0.0 PED PR RETURN...OFF
 PRIORITY RETURN.OFF QUEUE DELAY.... OFF
 COND DELAY.....OFF

PHASES	1	2	3	4	5	6	7	8
PR RTN%	0	0	0	0	0	0	0	0
PHASES	9	10	11	12	13	14	15	16
PR RTN%	0	0	0	0	0	0	0	0

RAILROAD PREEMPTION WIRING DETAIL

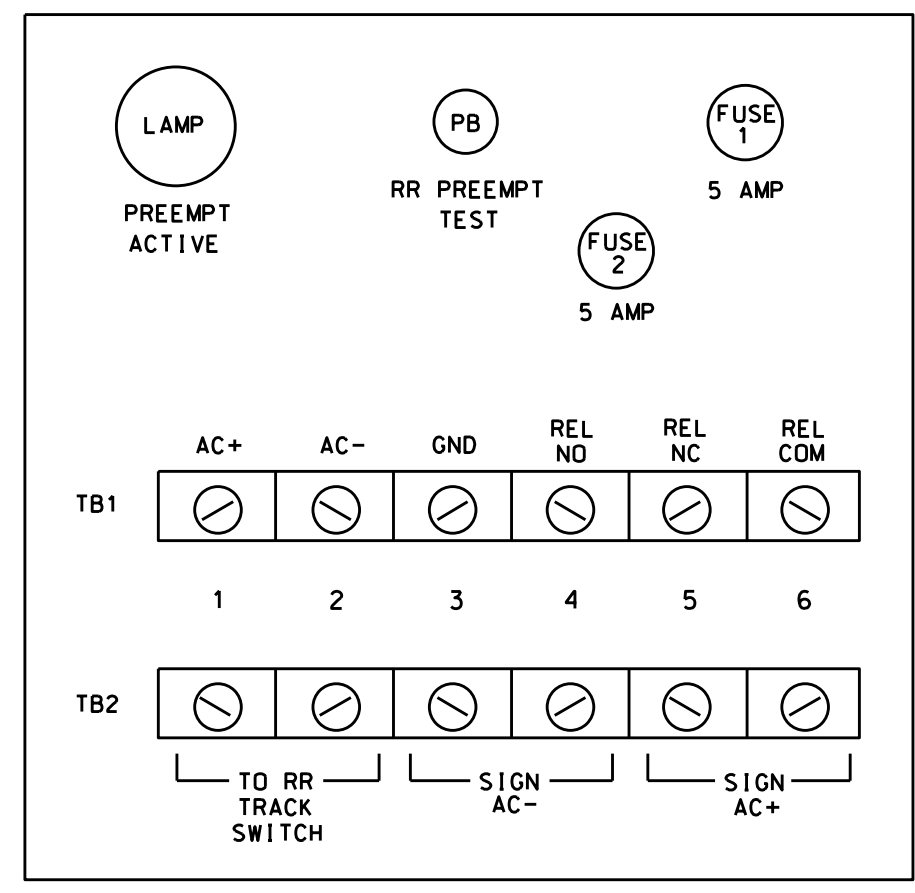
(wire as shown below)



NOTES

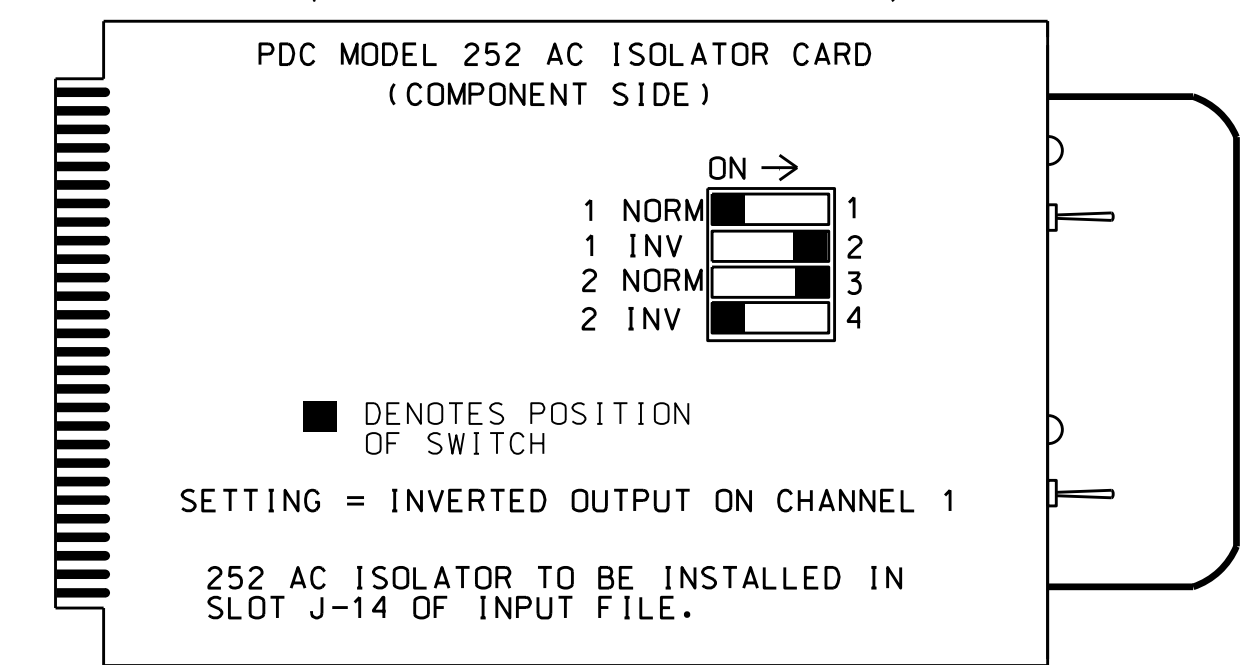
- Relay K1 is shown in the energized (Preempt not active) normal operation state.
- Relay K1 is a DPDT with 120VAC coil with octal base.
- Relay SSR1 is a SPST (normally open) Solid State Relay with AC input and AC (25 amp) output.
- AC Isolator Card shall activate preemption upon removal of AC+ from the input (as shown above). To accomplish this set invert dip switch on AC Isolator Card.
- IMPORTANT!! A jumper must be added between input file terminals J14-E and J14-K if not already present. Also, terminal TB9-12 (on input panel) shall be connected to AC neutral (jumper may have to be added).

FRONT VIEW



PREEMPT 1 AC ISOLATOR (MODEL 252) OUTPUT PROGRAMMING DETAIL

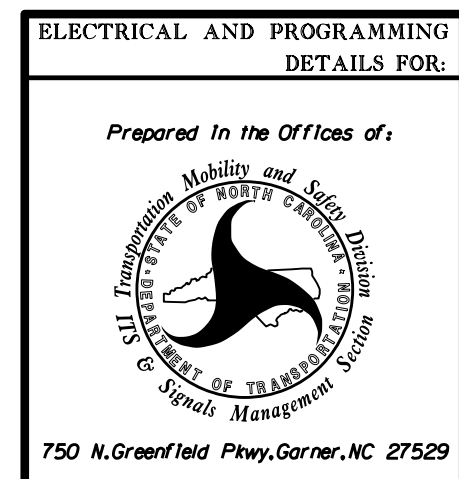
(set DIP switches as shown below)



NOTE: IF ANOTHER MANUFACTURER TYPE OF AC ISOLATOR IS USED, OUTPUT PROGRAMMING IS LIKELY NOT TO EQUATE TO THAT SHOWN ABOVE.

Electrical Detail Sheet 3 of 3

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 06-0016
 DESIGNED: April 2017
 SEALED: 10/17/2017
 REVISED:



I-95 Bus.- US 301 (S Eastern Blvd) at SR 2299 (E Russell Street)		
Division 6	Cumberland County	Fayetteville
PLAN DATE: July 2017	REVIEWED BY: T. Joyce	
PREPARED BY: C. Strickland	REVIEWED BY:	
REVISIONS	INIT.	DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DocuSigned by:
 D. Todd Joyce
 10/19/2017
 SIG. INVENTORY NO. 06-0016

18-007-2017 10:33 S:\IT\ASIS\TIS\Sig\asc\work\asc\sig\Map\511\ck\lanc\06016_sml_e_xxx.dgn


SANITARY SEWER 5' DIAMETER MANHOLE

-L- STA. 42 + 32.10 47.29' RT
INVERT = EXISITING(83.10') TOP = 87.14'

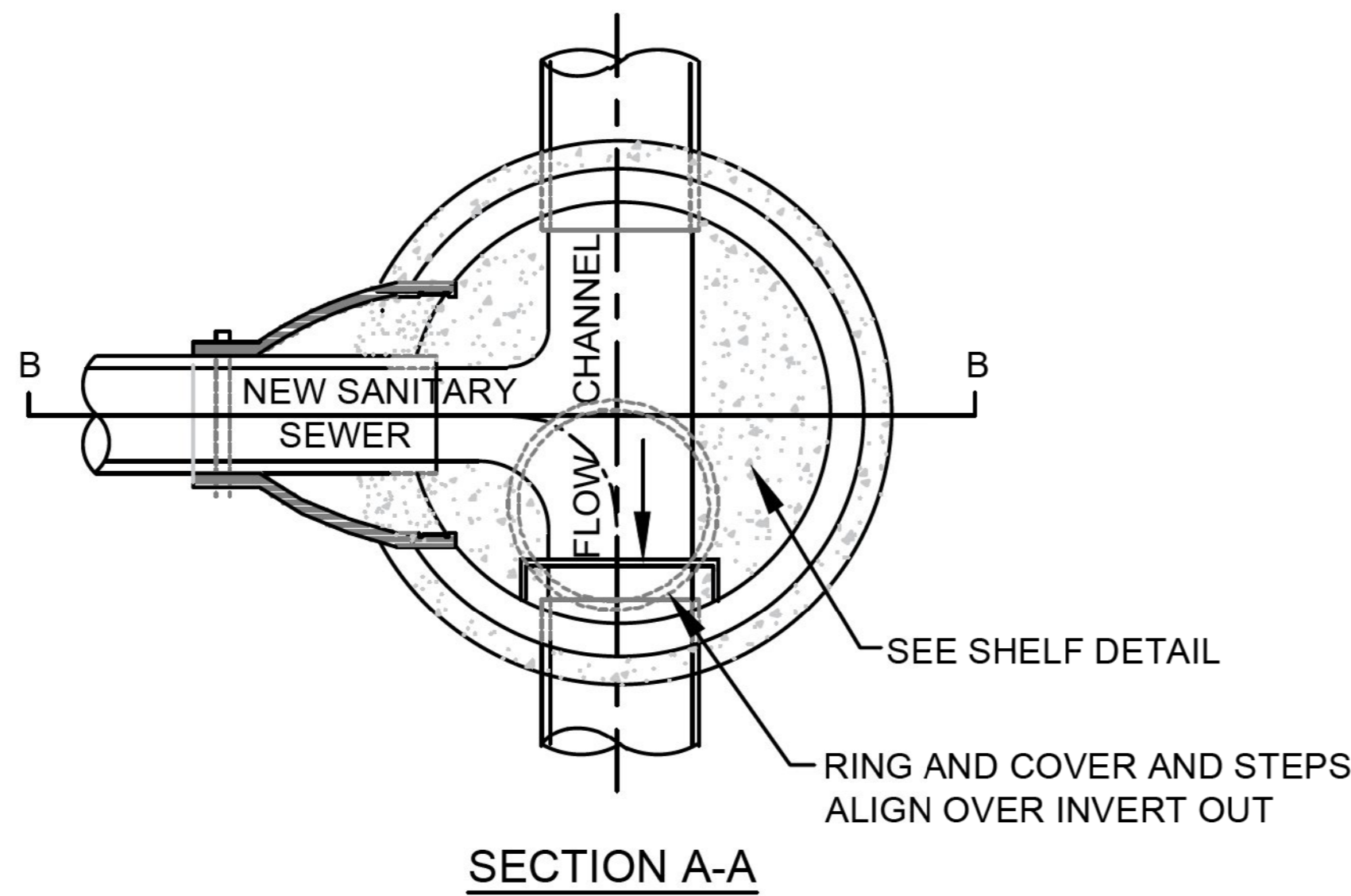
PROJECT NOTES

1. All work will be incidental to line item #5776000000-E 5' DIA UTILITY MANHOLE. Including but not limited to: removal of the existing structure, flow control, bypass pumping, foundation and installation of the new structure, and Anti-Microbial Additive.

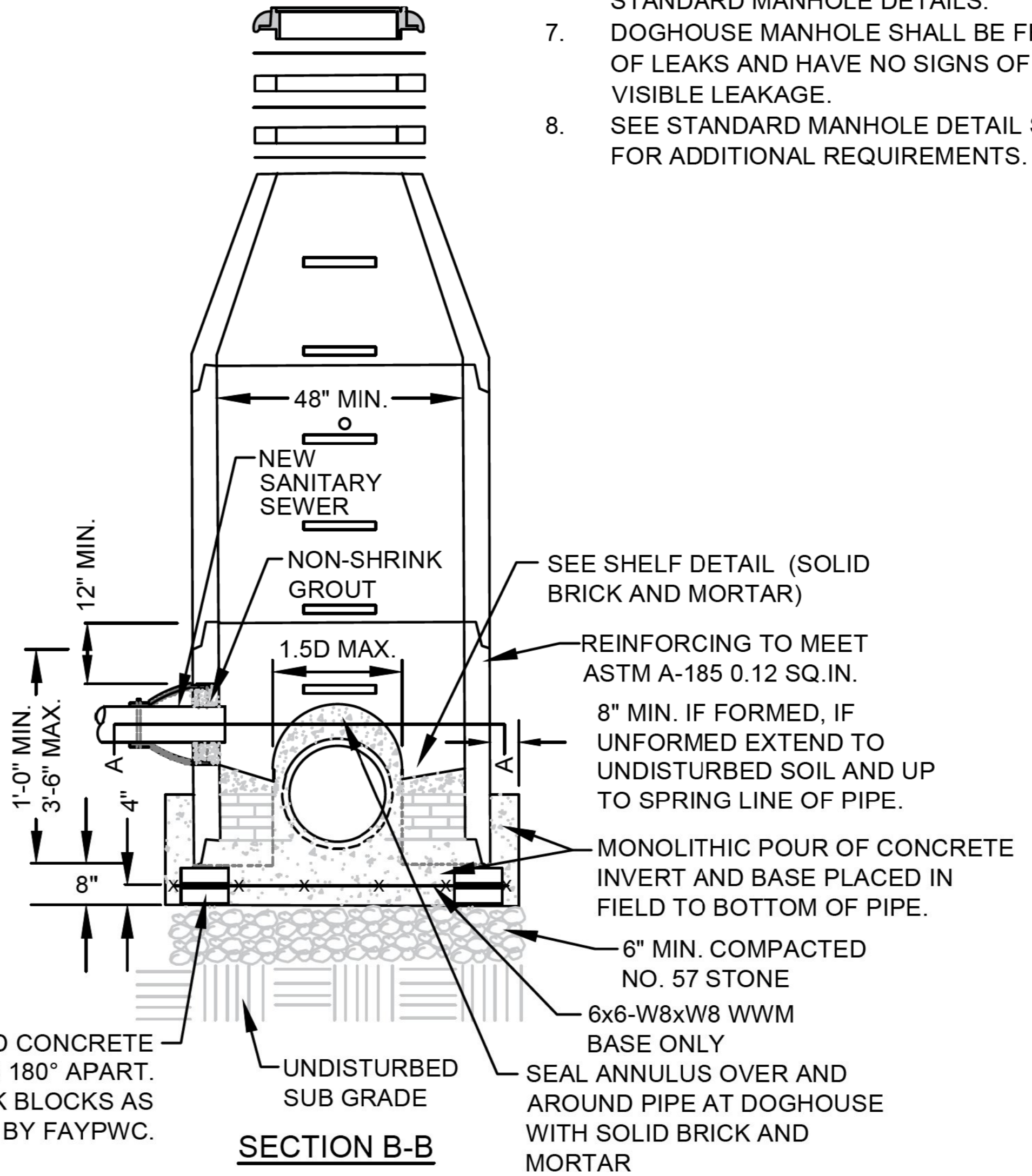
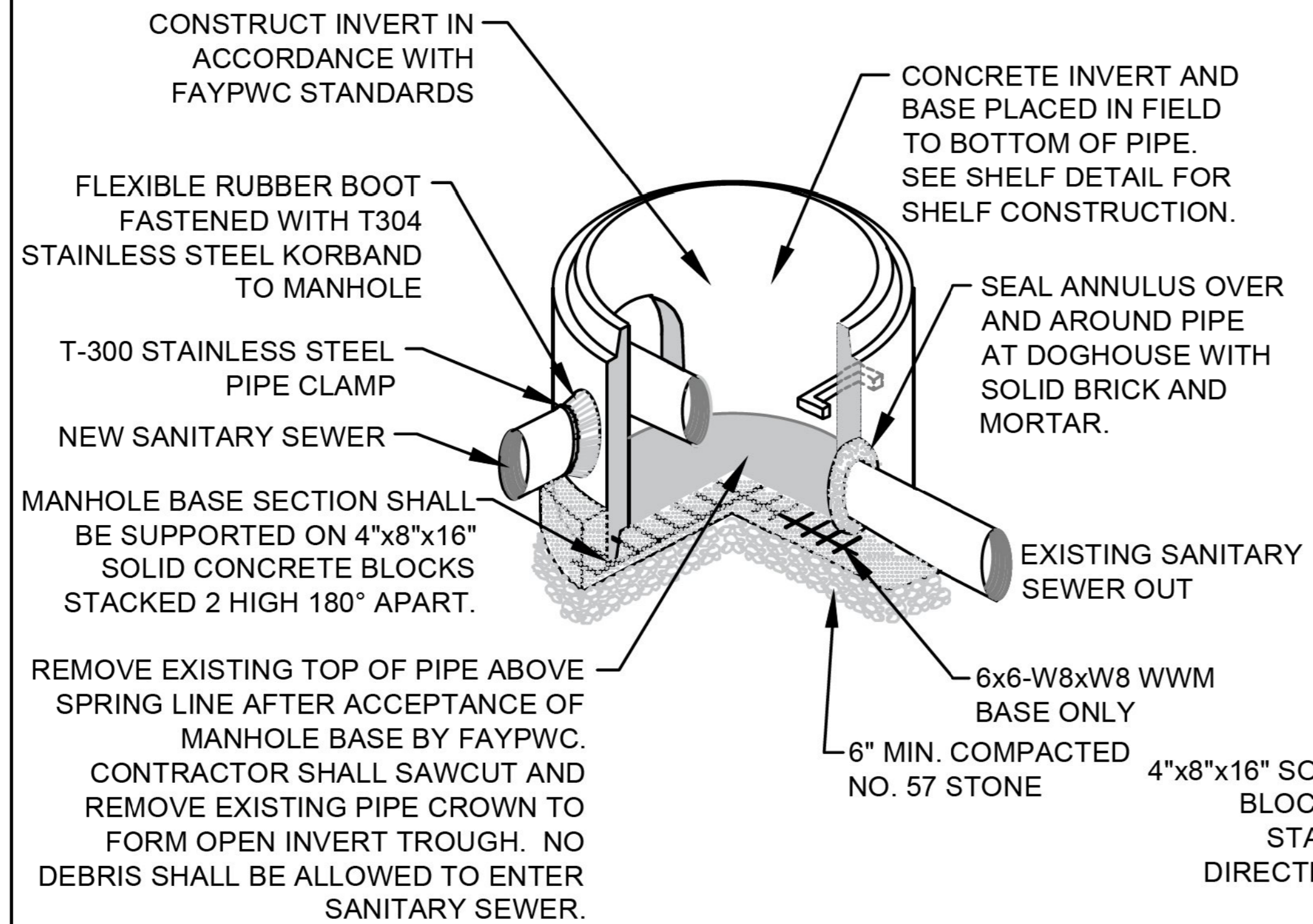
1. CONTRACTOR SHALL REPAIR ALL SEWER LATERALS AND MAINS DAMAGED DURING CONSTRUCTION. THE CONTRACTOR SHALL IMMEDIATELY REPORT ALL SEWER MAIN AND LATERAL BREAKS TO THE FAYPWC PROJECT COORDINATOR. THE CONTRACTOR SHALL INITIATE IMMEDIATE REPAIRS IN ACCORDANCE WITH FAYPWC STANDARDS.
2. SEWER MAINS, LATERALS, AND MANHOLES SHALL BE INSTALLED UTILIZING A FAYPWC APPROVED CUT-SHEET, INDICATING INSTALLATION DEPTH.
3. TRANSFER OF SEWER SERVICES SHALL BE ACCOMPLISHED AS FOLLOWS:
 - A. INSTALL AND TEST NEW MAINS, MANHOLES, AND LATERALS. CLEANOUTS SHALL BE INSTALLED 18" INSIDE R/W UNLESS OTHERWISE DIRECTED BY FAYPWC.
 - B. CONNECT EXISTING PLUMBING TO NEW LATERAL UTILIZING THE NECESSARY FITTINGS AS DIRECTED BY FAYPWC.
 - C. AFTER ALL SERVICES HAVE BEEN TRANSFERRED TO THE NEW MAIN, THE EXISTING SEWER SYSTEM SHALL BE ABANDONED IN ACCORDANCE WITH FAYPWC REQUIREMENTS.
4. WHEN THE EXISTING MAIN IS NOT TO BE ABANDONED, THE CONTRACTOR SHALL UNCOVER THE EXISTING LATERAL AT THE MAIN, CUT AND PLUG BOTH ENDS, REMOVE THE EXISTING CLEANOUT AND COMBINATION, AND PLUG THE LATERAL TO ABANDON THE OLD SERVICE.
5. CONTRACTOR SHALL ABANDON ("KILL-OUT") ANY EXISTING SEWER SERVICES THAT WILL NOT BE UTILIZED BY UNCOVERING THE EXISTING LATERAL AT THE MAIN, CUT AND PLUG AT BOTH ENDS, REMOVE THE EXISTING CLEANOUT AND COMBINATION, AND PLUG THE TAP OR TEE AT THE MAIN. FOR LATERALS THAT CONNECT TO A MANHOLE AND ARE TO BE ABANDONED ("KILLED-OUT"), THE LATERAL SHALL BE REMOVED FROM THE MANHOLE AND THE REMAINING VOID IN THE MANHOLE SHALL BE FILLED WITH BLOCK AND MORTAR.
6. SEWER PLUGS SHALL BE INSTALLED TO ELIMINATE ANY DEBRIS OR OTHER MATERIAL FROM ENTERING THE ACTIVE SEWER SYSTEM. UPON ACCEPTANCE OF THE NEW SEWER SYSTEM, THE CONTRACTOR SHALL CLEAN THE NEW MAINS, REMOVE ALL DEBRIS, AND THEN REMOVE THE PLUG.
7. ALL EXISTING UTILITIES IMPACTED BY CONSTRUCTION SHALL BE ADJUSTED TO FINISHED GRADE, IN ACCORDANCE WITH FAYPWC REQUIREMENTS.
8. ALL WORK ON FAYPWC SEWER UTILITIES (MAINS, LATERALS, ETC) SHALL BE PERFORMED BY A LICENSED UTILITY CONTRACTOR. THE FAYETTEVILLE PUBLIC WORKS COMMISSION SHALL OBSERVE AND APPROVE ALL WORK ON FAYPWC SEWER UTILITIES. ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH FAYPWC REQUIREMENTS.
9. SEPARATION REQUIREMENTS:
 - A. **LATERAL SEPARATION OF SEWERS AND WATER MAINS:** WATER MAINS SHALL BE LAID AT LEAST 10 FEET Laterally FROM EXISTING OR PROPOSED SEWER MAIN/LATERAL, UNLESS LOCAL CONDITIONS OR BARRIERS PREVENT A 10-FOOT LATERAL SEPARATION - IN WHICH CASE:
 - i. THE WATER MAIN IS LAID IN A SEPARATE TRENCH, WITH THE ELEVATION OF THE BOTTOM OF THE WATER MAIN AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER MAIN/LATERAL; OR
 - ii. THE WATER MAIN IS LAID IN THE SAME TRENCH AS THE SEWER MAIN/LATERAL WITH THE WATER MAIN LOCATED AT ONE SIDE ON A BENCH OF UNDISTURBED EARTH AND WITH THE ELEVATION OF THE BOTTOM OF THE WATER MAIN AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER MAIN/LATERAL
 - B. **CROSSING A WATER MAIN OVER A SEWER:** WHENEVER IT IS NECESSARY FOR A WATER MAIN TO CROSS OVER A SEWER MAIN/LATERAL, THE WATER MAIN SHALL BE LAID AT SUCH AN ELEVATION THAT THE BOTTOM OF THE WATER MAIN IS AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER MAIN/LATERAL, UNLESS LOCAL CONDITIONS OR BARRIERS PREVENT AN 18 INCH VERTICAL SEPARATION - IN WHICH CASE BOTH THE WATER MAIN AND SEWER MAIN/LATERAL SHALL BE CONSTRUCTED OF FERROUS MATERIAL AND WITH JOINTS THAT ARE EQUIVALENT TO WATER MAIN STANDARDS FOR A DISTANCE OF 10 FEET ON EACH SIDE OF THE POINT OF CROSSING.
 - C. **CROSSING WATER MAIN UNDER A SEWER:** WHENEVER IT IS NECESSARY FOR A WATER MAIN TO CROSS UNDER A SEWER MAIN/LATERAL, BOTH THE WATER MAIN AND THE SEWER MAIN/LATERAL SHALL BE CONSTRUCTED OF DUCTILE IRON MATERIAL AND WITH JOINTS EQUIVALENT TO WATER MAIN STANDARDS FOR A DISTANCE OF 10 FEET ON EACH SIDE OF THE POINT OF CROSSING. A SECTION OF WATER MAIN PIPE SHALL BE CENTERED AT THE POINT OF CROSSING.
 - D. **CROSSING STORM DRAINAGE LINES:** A MINIMUM OF 24-INCHES OF VERTICAL CLEARANCE SHALL BE MAINTAINED BETWEEN A SEWER MAIN/LATERAL CROSSING UNDER A STORM DRAINAGE LINE UNLESS DUCTILE IRON PIPE IS USED. IF DUCTILE IRON PIPE IS USED, A MINIMUM OF SIX(6) INCHES OF SEPARATION SHALL BE MAINTAINED, UNLESS OTHERWISE APPROVED BY FAYPWC.

GENERAL NOTES SANITARY SEWER UTILITY			FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.			NO.	DATE	REVISION
SHEET NO. 1 OF 1	DWG. NO. S.1	DWG. BY: FAYPWC	WATER RESOURCES ENGINEERING DEPARTMENT			1	07/16	ADDED NOTE 6
	DATE: JAN. 01, 2018	APPROVED BY: J.E.G.				2	01/18	ADDED NOTES 5, 8

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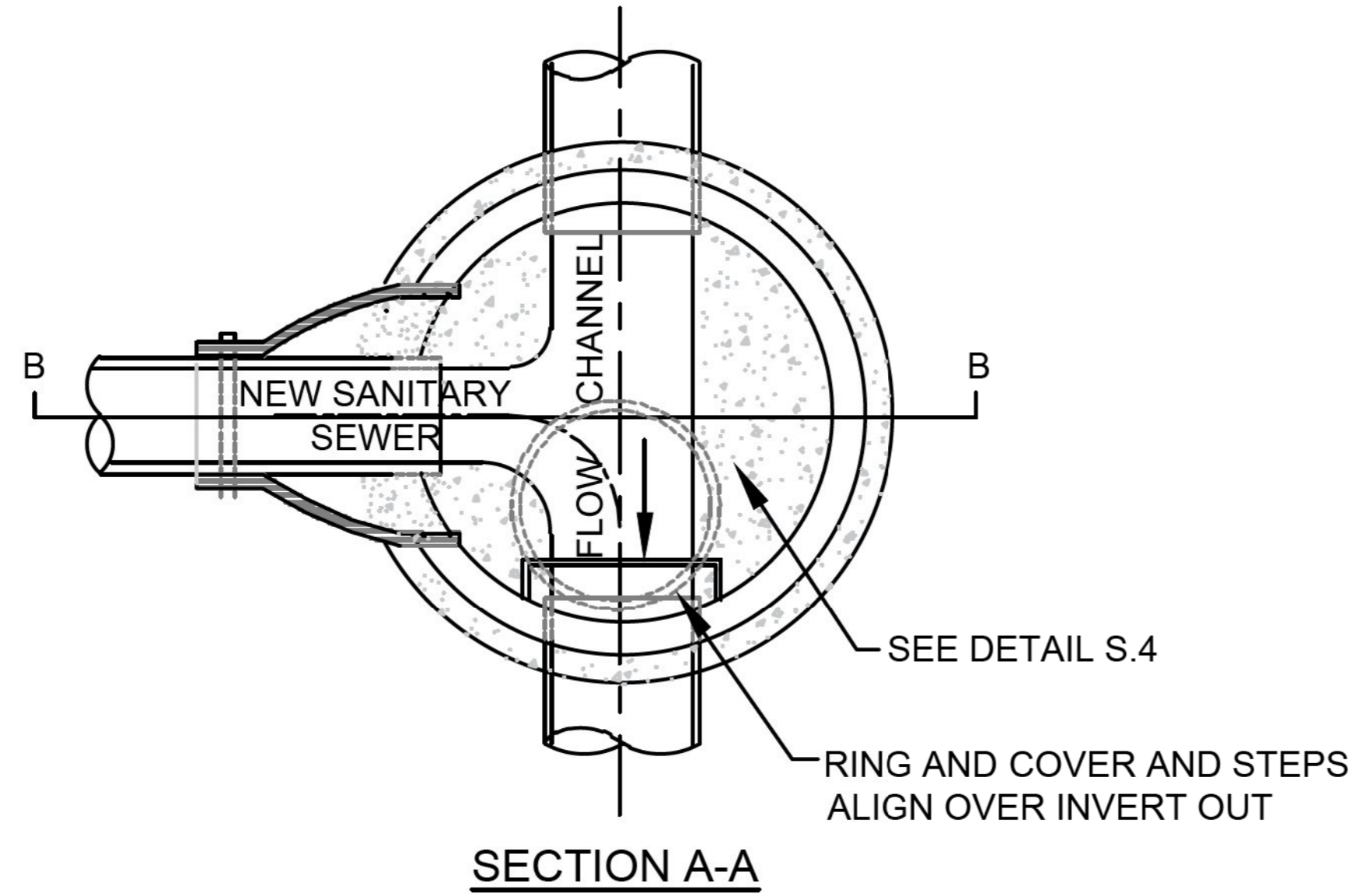
- NOTES:
1. MANHOLE MEETS ALL REQUIREMENTS OF ASTM C478.
 2. CONCRETE IS MINIMUM 4,000PSI COMPRESSIVE STRENGTH.
 3. MATERIAL USED TO SEAL AROUND PIPE SHALL BE NON-SHRINK GROUT.
 4. MANHOLE SHALL BE CONSTRUCTED OF PRECAST CONCRETE. FIBERGLASS MANHOLE IS NOT ACCEPTABLE.
 5. A DROP STRUCTURE SHALL BE PLACED WHERE PIPE VERTICAL SEPARATION BETWEEN INVERTS EXCEEDS 2.50'. USE 5' DIAMETER MANHOLES WHEN DROP STRUCTURES ARE NEEDED.
 6. WITH THE EXCEPTION OF THE MANHOLE BASE SECTION. ALL OTHER MATERIALS, INSTALLATION AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE FAYPWC STANDARD MANHOLE DETAILS.
 7. DOGHOUSE MANHOLE SHALL BE FREE OF LEAKS AND HAVE NO SIGNS OF VISIBLE LEAKAGE.
 8. SEE STANDARD MANHOLE DETAIL S.2 FOR ADDITIONAL REQUIREMENTS.



DOGHOUSE MANHOLE (MAINS 15" OR LESS) N.T.S.			FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.			NO.	DATE	REVISION
						1	07/16	ADDED SHEET 2
SHEET NO. 1 OF 2	DWG. NO.	S.3	DWG. BY:	FAYPWC	WATER RESOURCES ENGINEERING DEPARTMENT	2	11/25/08	MADE CHANGES TO NOTES
	DATE:	JAN. 01, 2018	APPROVED BY:	J.E.G.				

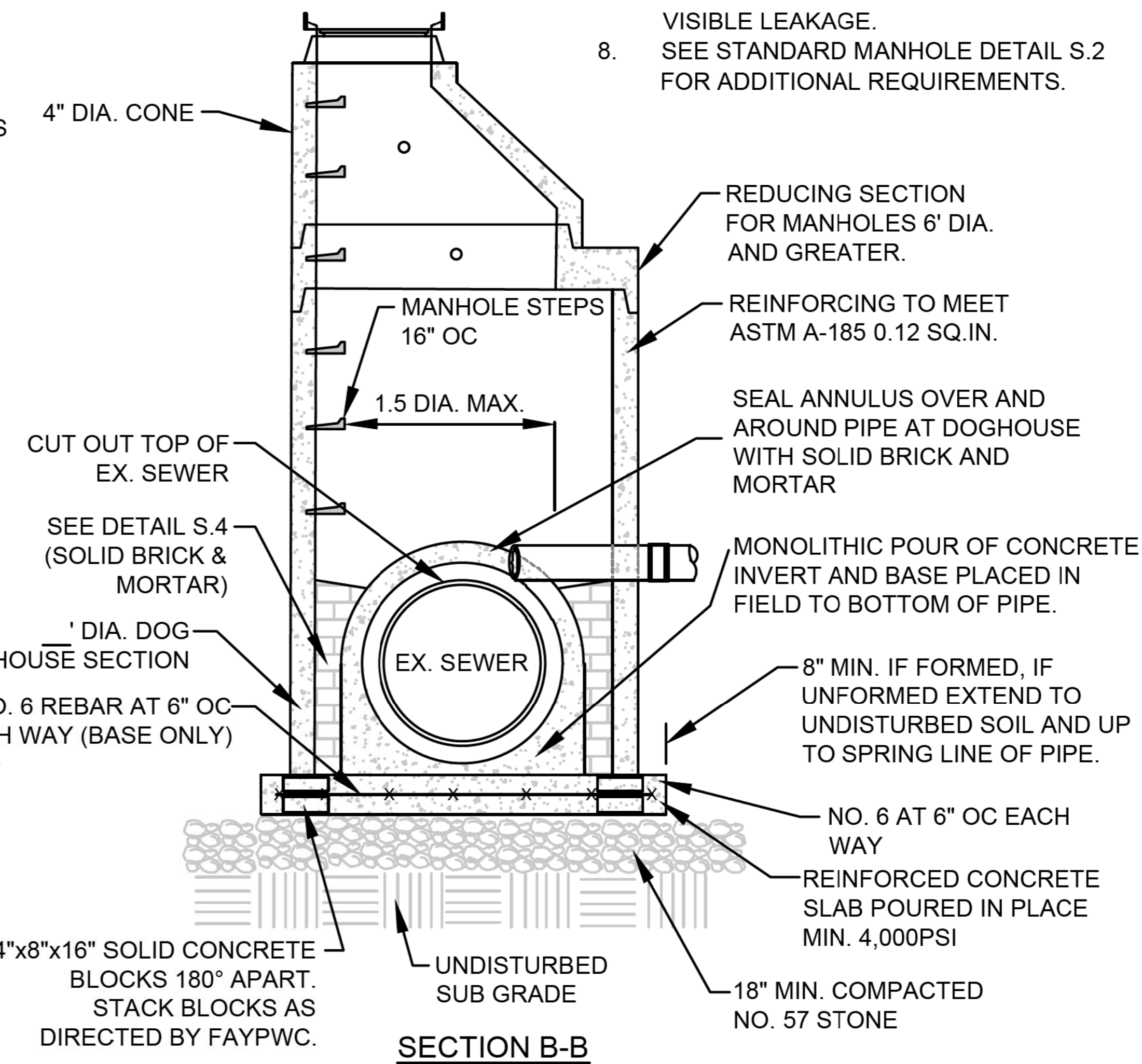
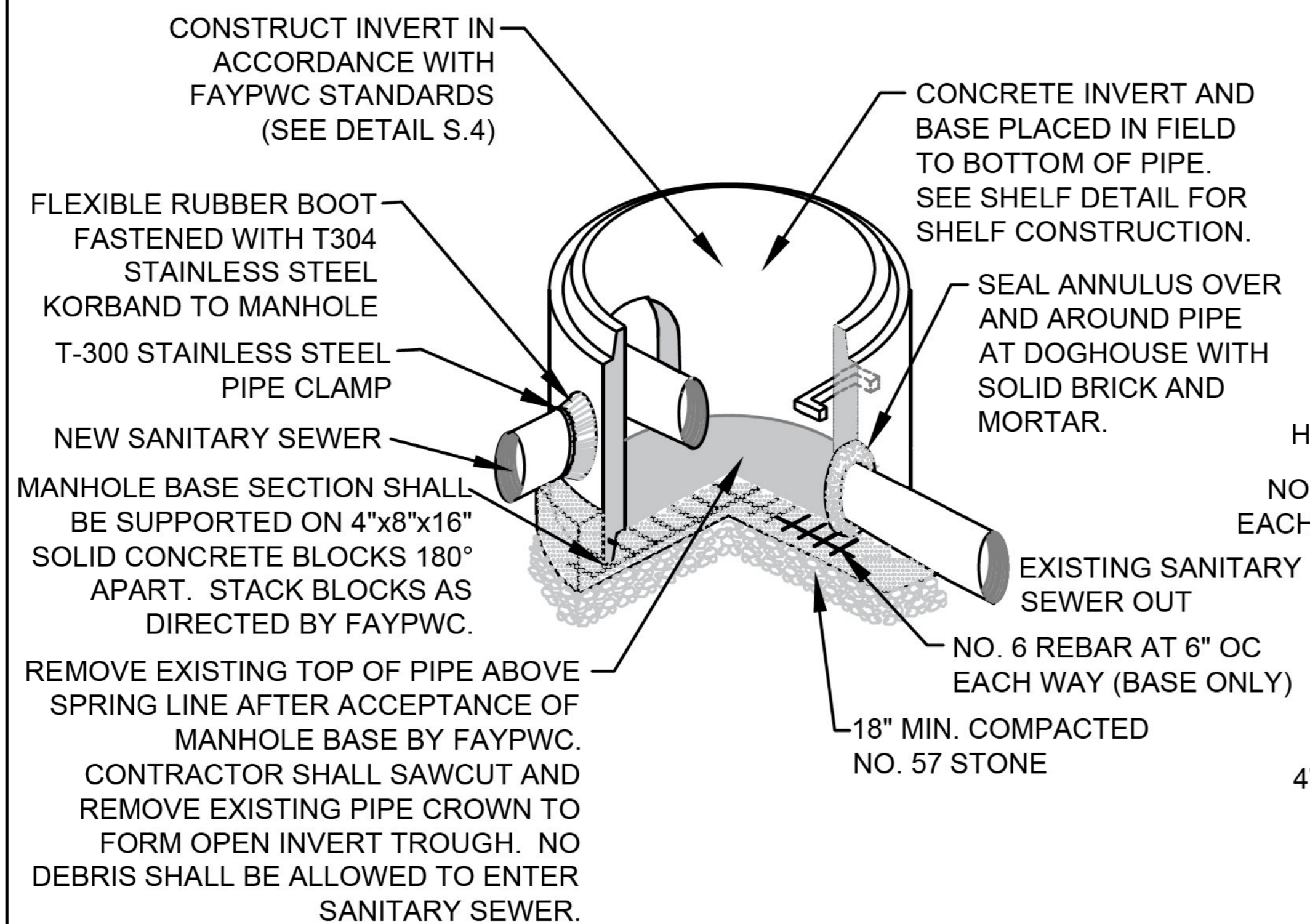
S3-DOGHOUSE-MH.dwg

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NOTES:

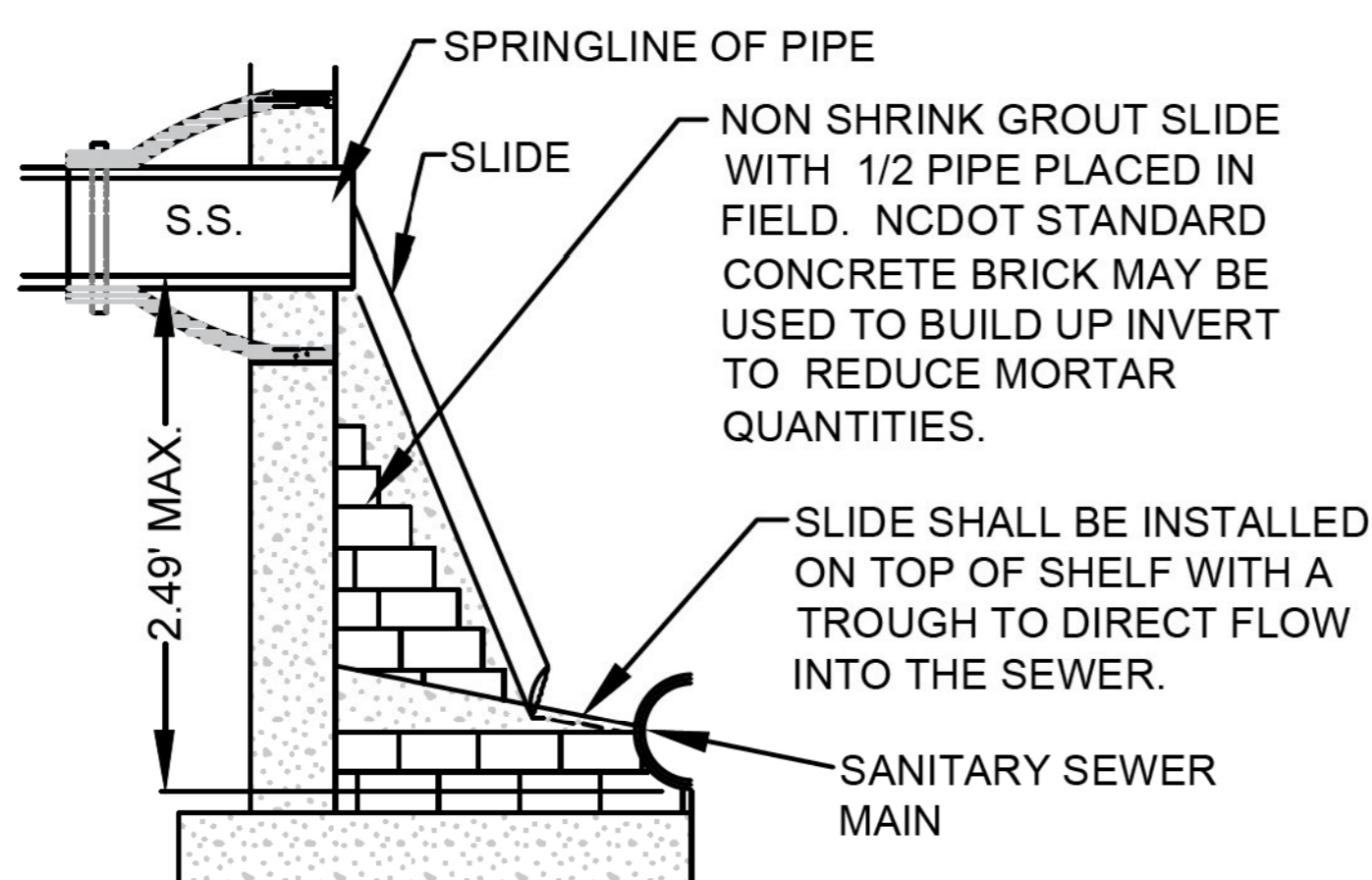
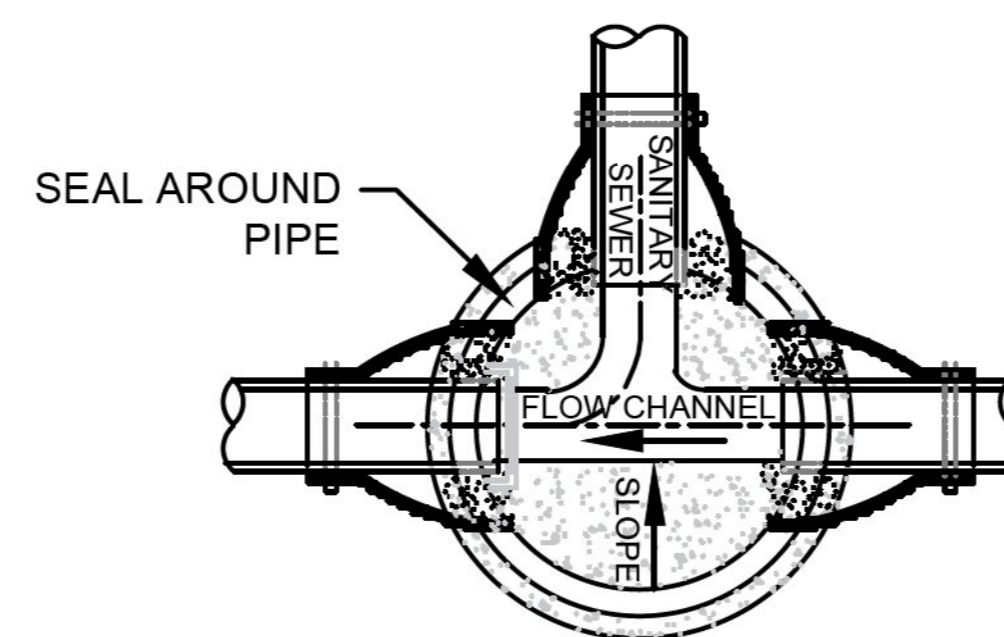
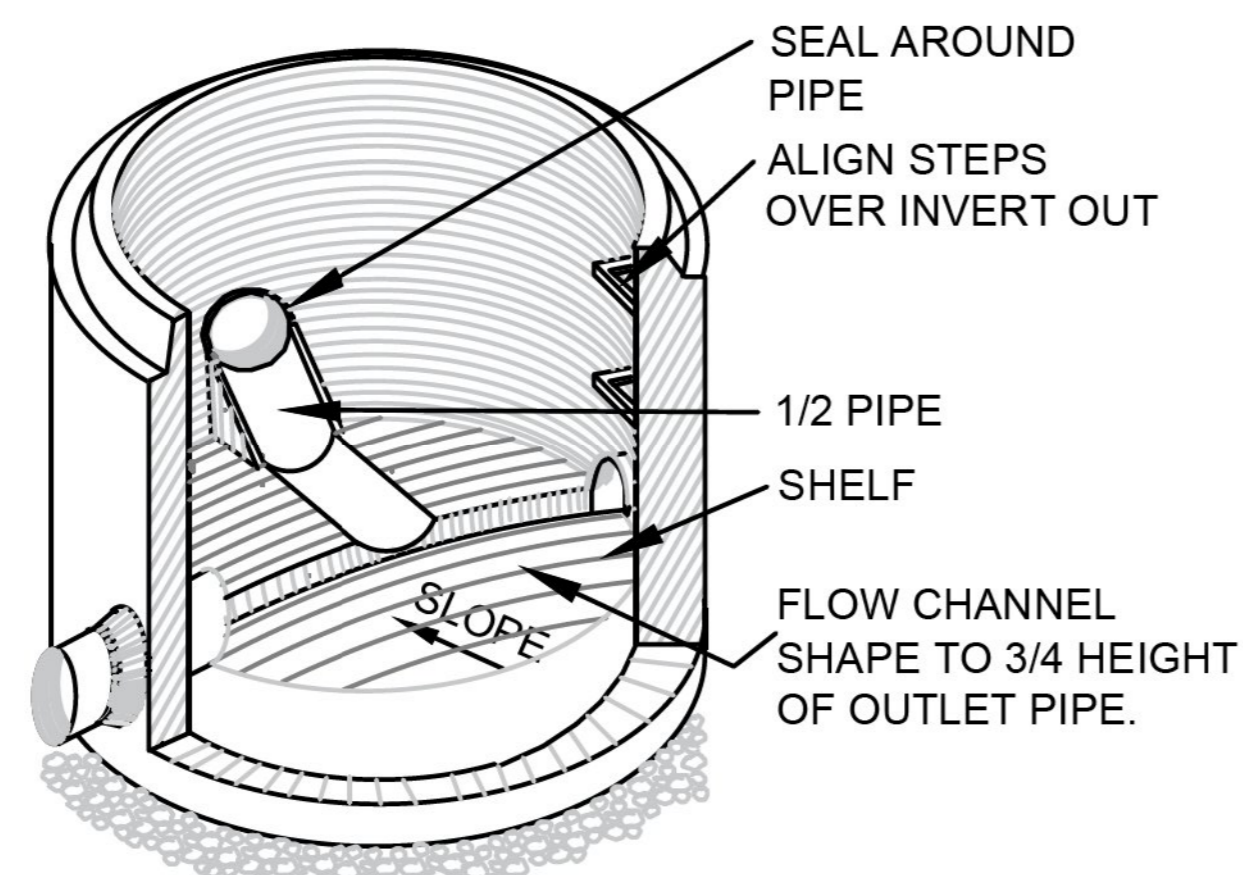
1. MANHOLE MEETS ALL REQUIREMENTS OF ASTM C478.
2. CONCRETE IS MINIMUM 4,000PSI COMPRESSIVE STRENGTH.
3. MATERIAL USED TO SEAL AROUND PIPE SHALL BE NON-SHRINK GROUT.
4. MANHOLE SHALL BE CONSTRUCTED OF PRECAST CONCRETE. FIBERGLASS MANHOLE IS NOT ACCEPTABLE.
5. A DROP STRUCTURE SHALL BE PLACED WHERE PIPE VERTICAL SEPARATION BETWEEN INVERTS EXCEEDS 2.50'. USE 5' DIAMETER MANHOLES WHEN DROP STRUCTURES ARE NEEDED.
6. WITH THE EXCEPTION OF THE MANHOLE BASE SECTION. ALL OTHER MATERIALS, INSTALLATION AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE FAYPWC STANDARD MANHOLE DETAILS.
7. DOGHOUSE MANHOLE SHALL BE FREE OF LEAKS AND HAVE NO SIGNS OF VISIBLE LEAKAGE.
8. SEE STANDARD MANHOLE DETAIL S.2 FOR ADDITIONAL REQUIREMENTS.



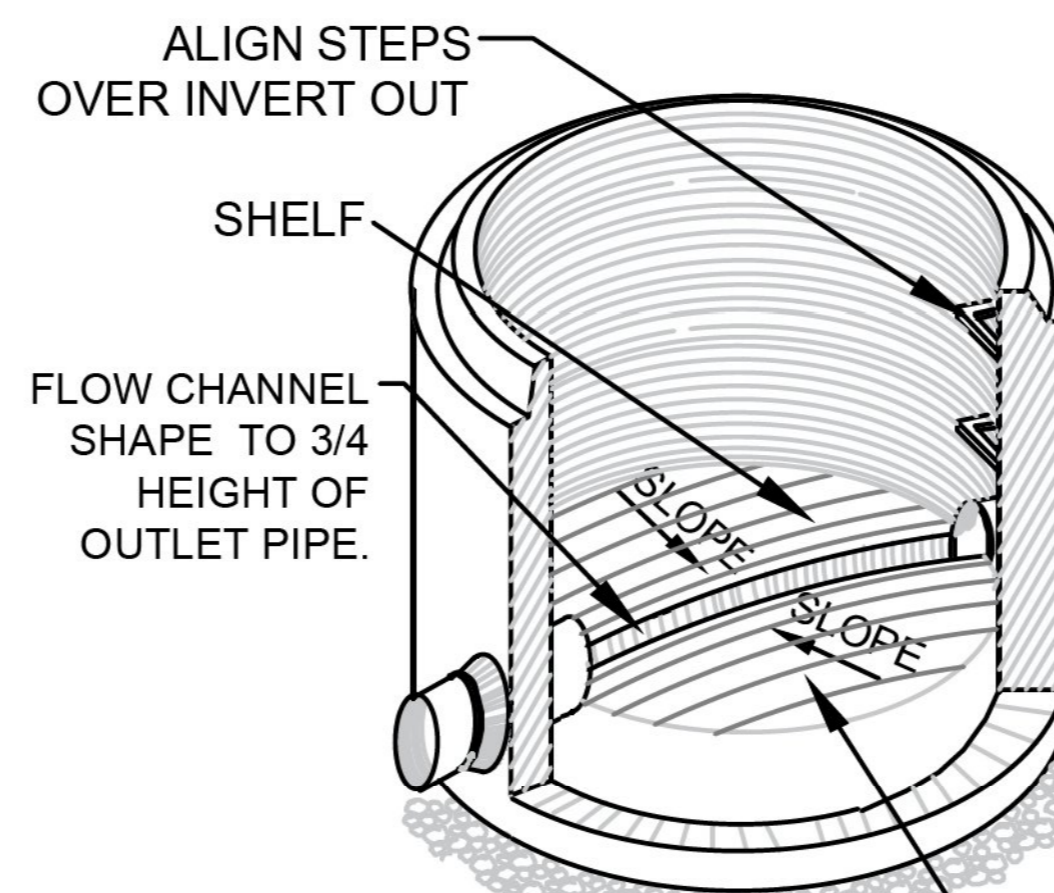
<p>DOGHOUSE MANHOLE (MANS 16" OR LARGER) N.T.S.</p>		<p>FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.</p>			NO.	DATE	REVISION
					1	07/16	ADDED SHEET 2
<p>SHEET NO. 2 OF 2</p>	DWG. NO. S.3	DWG. BY: FAYPWC	<p>WATER RESOURCES ENGINEERING DEPARTMENT</p>	2	11/25/08	MADE CHANGES TO NOTES	
	DATE: JAN. 01, 2018	APPROVED BY: J.E.G.					

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PIPE SLIDE DETAIL
N.T.S.



SLOPE TOP OF CONCRETE SHELF 1:12 MIN./2:12 MAX. TOWARD TROUGH.

SHELF DETAIL
N.T.S.

NOTES:

1. PIPE SLIDE REQUIRED WHERE VERTICAL SEPARATION BETWEEN PIPE INVERTS IS LESS THAN 2.5'. FOR LATERAL INVERTS AT OR WITHIN FOUR (4) INCHES OF THE SHELF, CONSTRUCT BENCH AND INVERT AS DIRECTED BY THE FAYPWC PROJECT COORDINATOR.
2. INTERIOR DROP STRUCTURE REQUIRED WHERE VERTICAL SEPARATION BETWEEN INVERTS EQUALS OR EXCEEDS 2.50'. FOR INTERIOR DROP STRUCTURE SEE FAYPWC DETAIL S.5.
3. VERIFY SLIDE INSTALLATION WITH PROJECT COORDINATOR PRIOR TO CONSTRUCTION.
4. MANHOLE AND CONNECTIONS SHALL BE IN ACCORDANCE WITH FAYPWC REQUIREMENTS.
5. BRICK USED FOR INVERT AND SHELF CONSTRUCTION SHALL BE NCDOT STANDARD CONCRETE BRICK.
6. MANHOLES GREATER THAN 12' IN DEPTH SHALL HAVE MINIMUM 6" EXTENDED BASE.
7. THE MINIMUM SLOPE ACROSS THE INVERT OF THE MANHOLE SHALL BE 1% UNLESS OTHERWISE APPROVED BY FAYPWC.
8. DROP AND/OR SLIDE REQUIREMENTS SHALL APPLY TO ALL LATERALS ENTERING MANHOLES AS OUTLINED IN NOTES 1, 2, AND 3. NO MORE THAN 4, FOUR INCH LATERALS OR 3, SIX INCH LATERALS SHALL ENTER A 4' DIAMETER TERMINAL MANHOLE. NO MORE THAN 2 LATERALS (REGARDLESS OF SIZE) SHALL ENTER ALL OTHER 4' DIAMETER MANHOLES. ALL LATERALS SHALL HAVE AN INDIVIDUAL TROUGH. 5' DIAMETER MANHOLES SHALL BE USED IF THE ABOVE CONDITIONS ARE NOT MET. THE INVERT OF THE LATERAL SHALL BE A MINIMUM OF 1" ABOVE THE SHELF.
9. NO MORE THAN 5 LATERALS SHALL ENTER A 5' DIAMETER TERMINAL MANHOLE.
10. USE OF TEE-WYES ON LATERALS IS NOT ALLOWED.

PIPE SLIDE AND SHELF DETAILS
N.T.S.

FAYETTEVILLE
PUBLIC WORKS COMMISSION
FAYETTEVILLE, N.C.

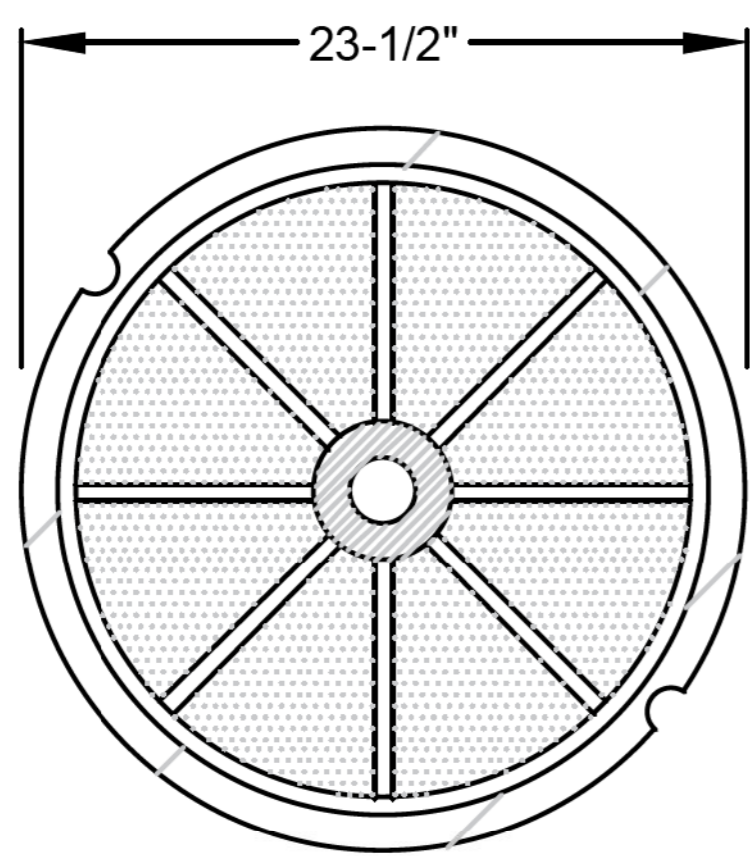
WATER RESOURCES
ENGINEERING DEPARTMENT



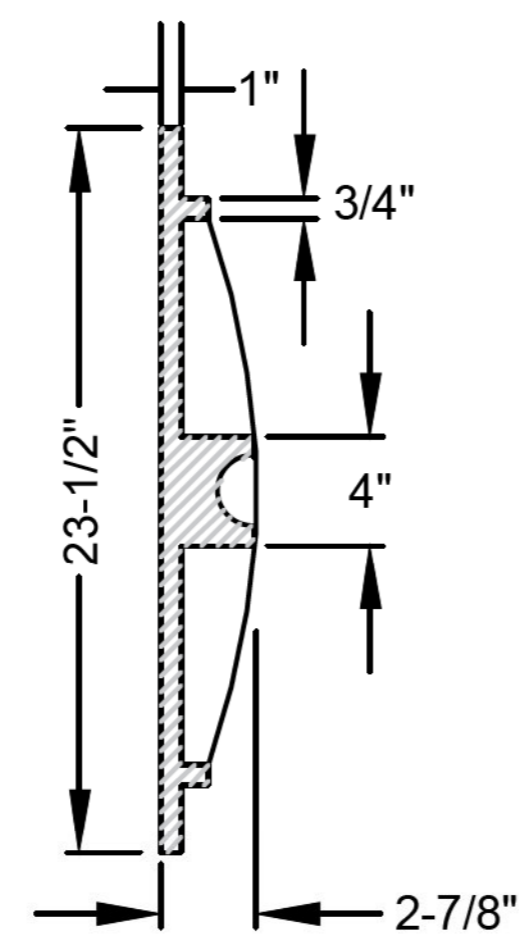
NO.	DATE	REVISION
1	01/05	ADDED NOTE 8
2	02/07	REVISED NOTE 8, SLIDE DETAIL, ADDED NOTES 10,11,12
3	01/18	DELETED MORTAR SLIDE, REVISED NOTES

SHEET NO. 1 OF 1	DWG. NO. S.4	DWG. BY: FAYPWC
	DATE: JAN. 01, 2018	APPROVED BY: J.E.G.

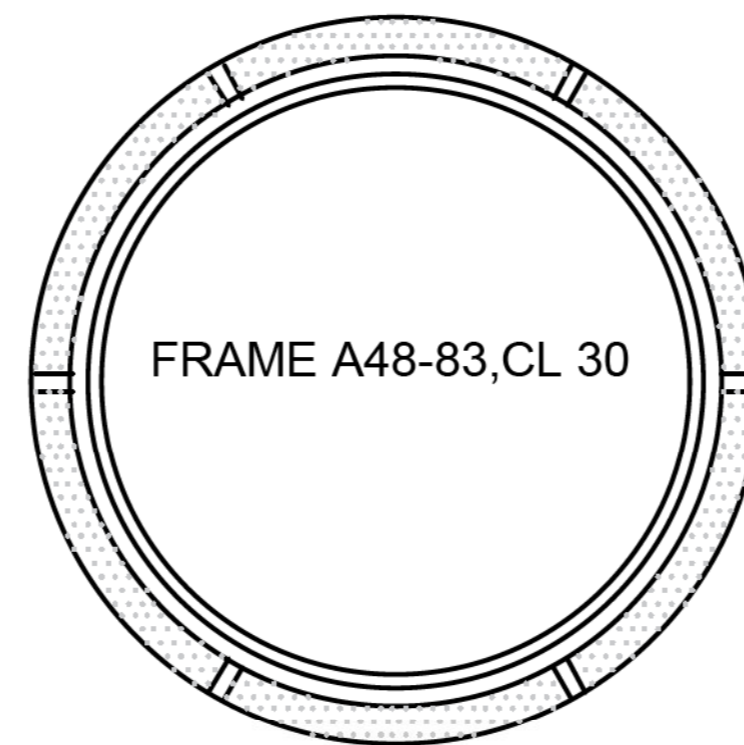
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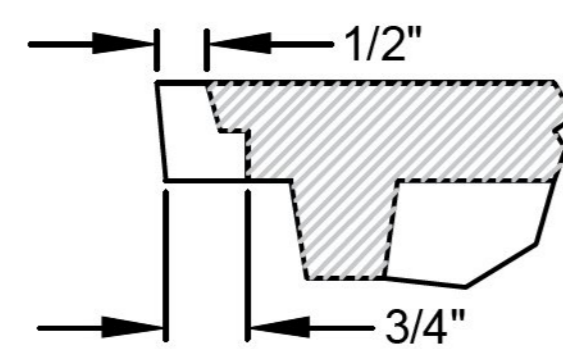
COVER BACK



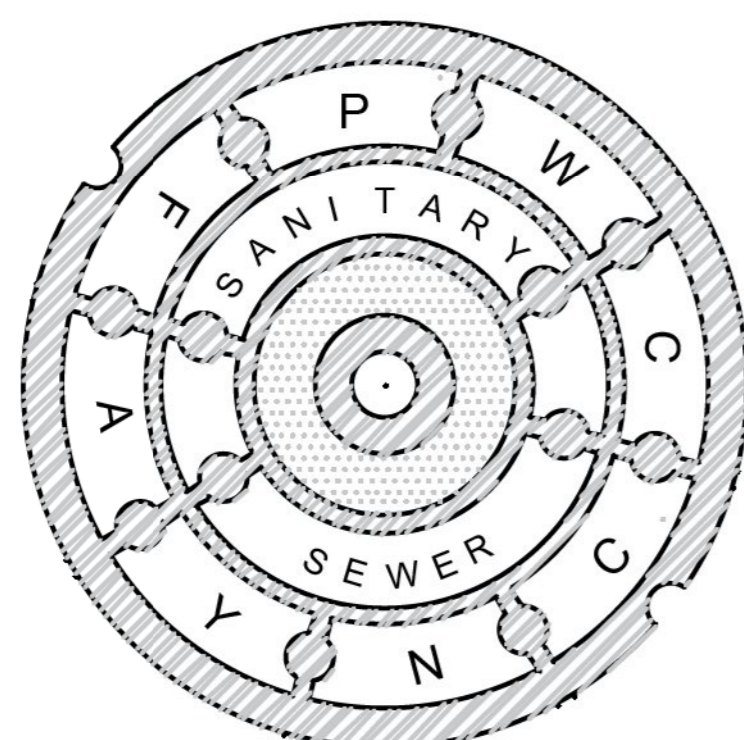
COVER SECTION



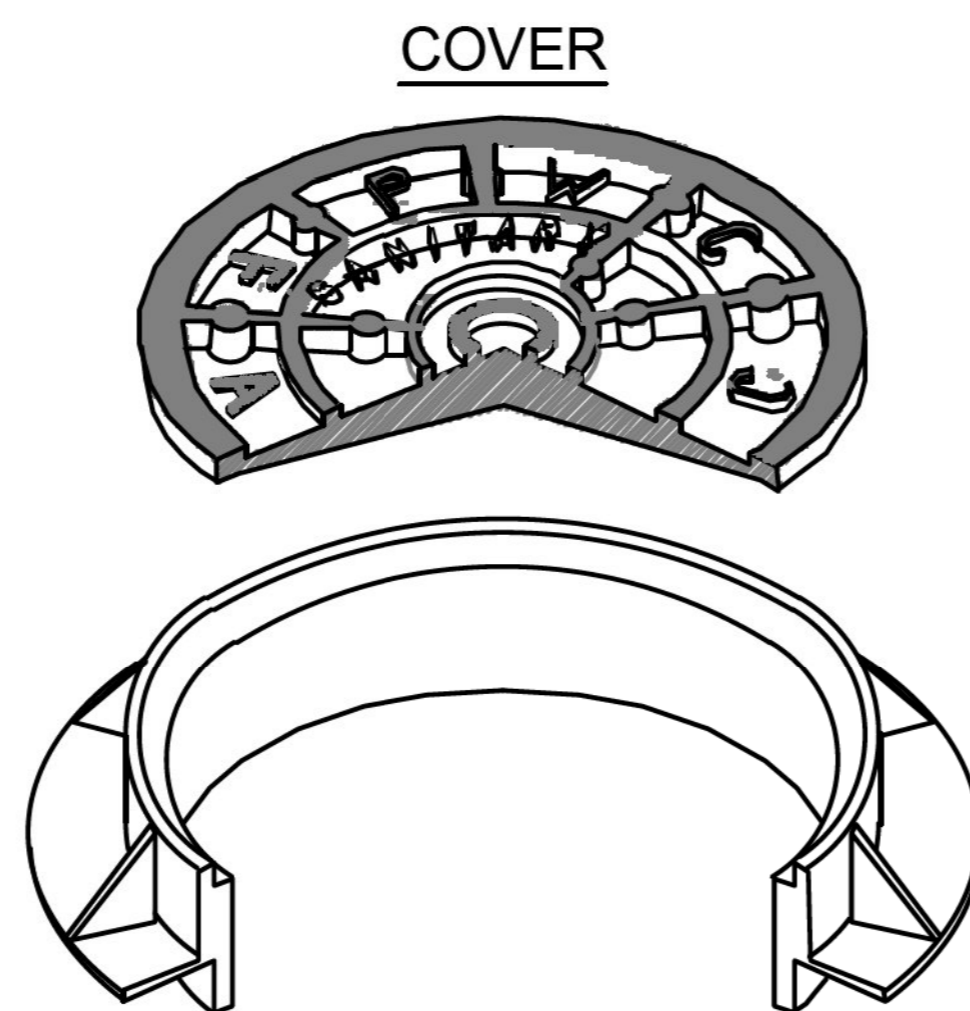
FRAME PLAN



PICK SLOT DETAIL



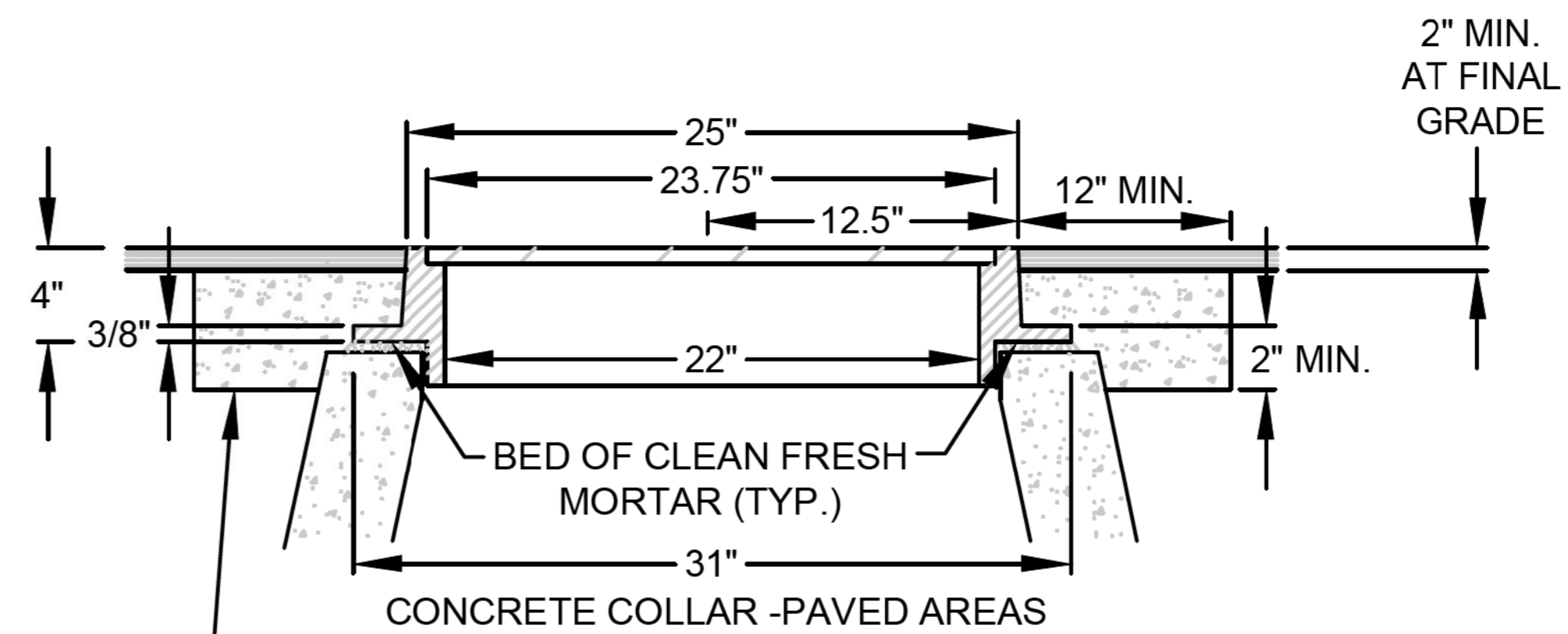
COVER A48-83, CL 35
COVER FACE



FRAME

NOTES:

1. DETAIL TO BE USED IN PAVED AREAS ONLY. ALL OTHER MANHOLES SHALL BE IN ACCORDANCE WITH DETAIL S.6, UNLESS OTHERWISE APPROVED.
2. MANHOLE FRAME AND COVER SHALL BE MADE OF GRAY CAST IRON CONFORMING TO ASTM SPEC. A48-83 CL 30/35 RESPECTIVELY, MANUFACTURED BY SAME MANUFACTURER. ALL CASTINGS SHALL CONFORM TO THE SHAPE AND DIMENSIONS SHOWN. THEY SHALL BE CLEAN AND PERFECT, WITHOUT BLOW OR SAND HOLES OR DEFECTS OF ANY KIND, TENDING TO IMPAIR THEIR STRENGTH. NO PLUGGING OR STOPPING OF DEFECTIVE HOLES WILL BE PERMITTED.
3. CASTINGS SHALL BE UNPAINTED AND SHALL HAVE THE LETTERS "PWC-FAY-NC" AND "SANITARY SEWER" CAST INTO COVER. LETTERS SHALL BE RAISED AND CLEARLY VISIBLE.
4. MANHOLE RING AND COVER SHALL WITHSTAND H-20 VEHICULAR TRAFFIC. ROCKING COVERS SHALL NOT BE ACCEPTABLE.
5. MINIMUM AVERAGE WEIGHT: PLUS OR MINUS 5% RING 175 LBS., COVER 135 LBS, UNIT 310 LBS.
6. PERFORATED COVERS WILL NOT BE ALLOWED.



CONCRETE COLLAR - PAVED AREAS
8" MIN. THICKNESS 3,000PSI CLASS "A"
CONCRETE COLLAR 3-6% AIR
ENTRAINMENT ALL AROUND FRAME.
(WHEN UTILIZING CONCRETE GRADE
RINGS THE CONCRETE COLLAR SHALL
EXTEND TO 2" MIN. BELOW THE TOP
OF CONE.)

**STANDARD TRAFFIC AREA MANHOLE
RING AND COVER**
N.T.S.

**FAYETTEVILLE
PUBLIC WORKS COMMISSION
FAYETTEVILLE, N.C.**

SHEET NO.
1 OF 1

DWG. NO. **S.7**

DWG. BY: FAYPWC

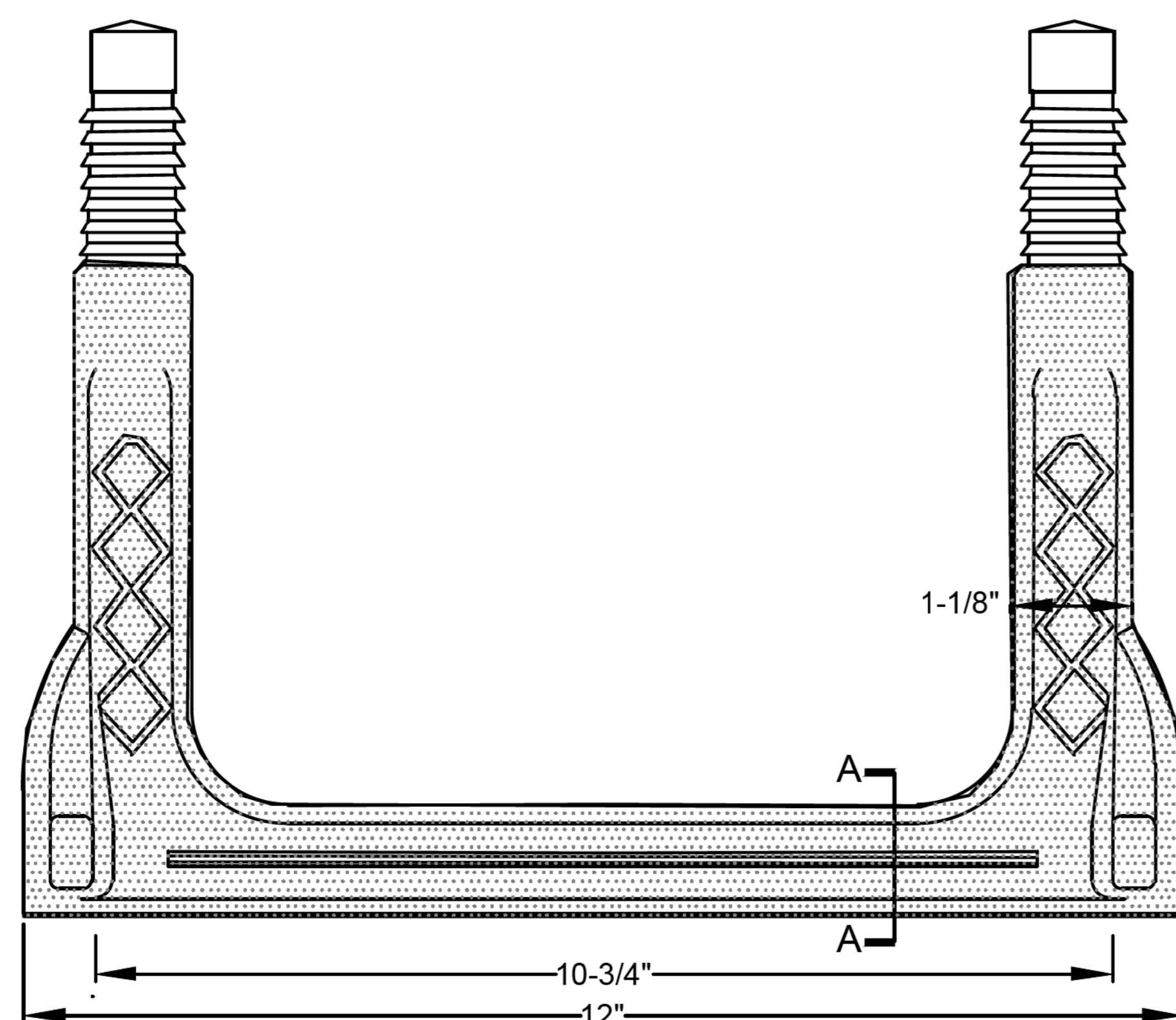
DATE: JAN. 01, 2018

APPROVED BY: JEG

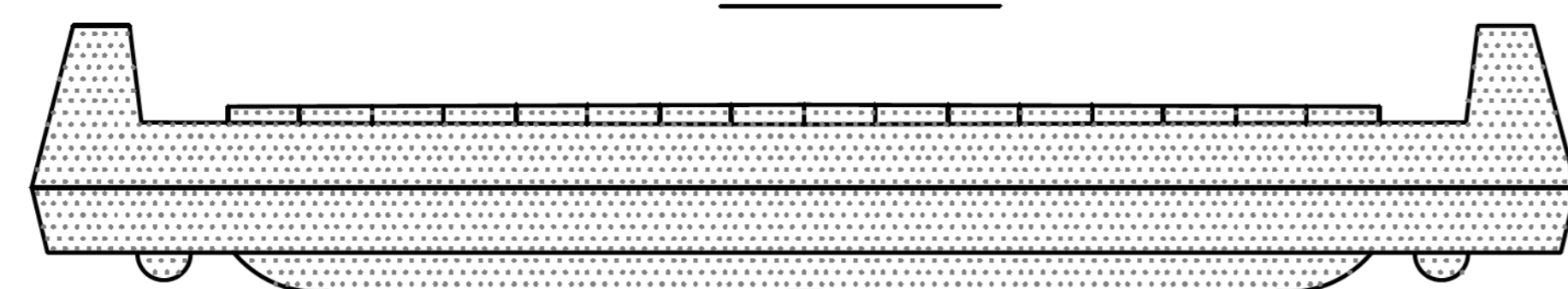
**WATER RESOURCES
ENGINEERING DEPARTMENT**



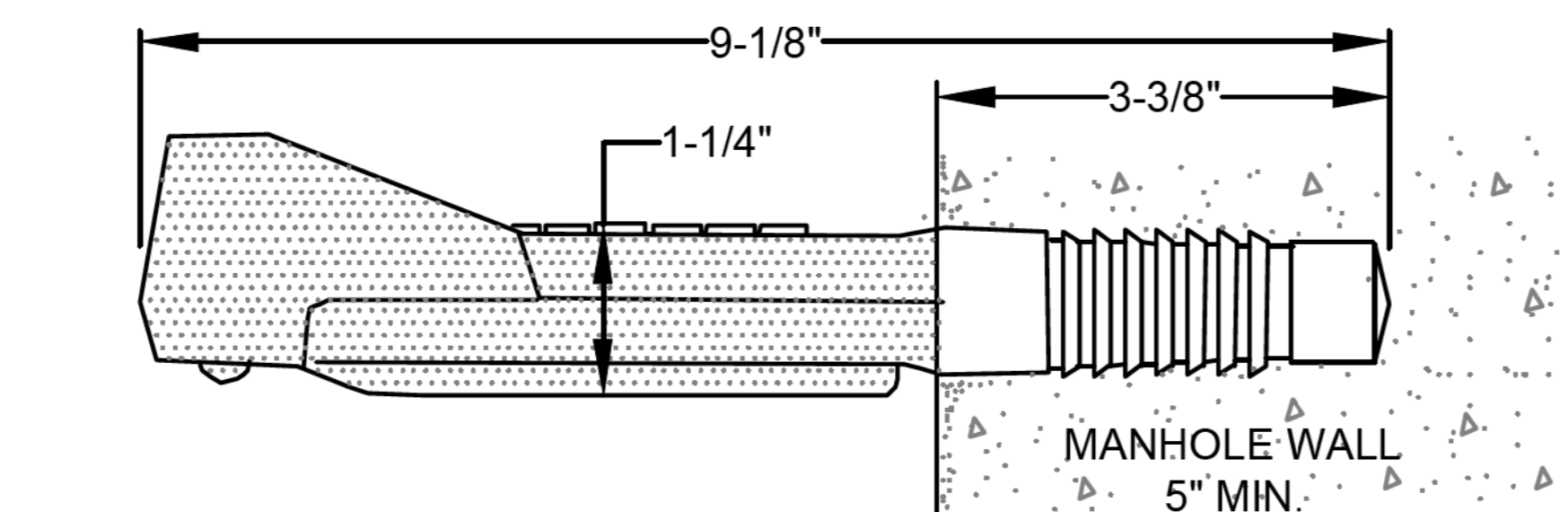
NO.	DATE	REVISION
1	01/05	CHANGED NON TRAFFIC DETAIL
2	07/06	ADDED NOTE ON CONCRETE COLLAR
3	02/07	REMOVED NON TRAFFIC AREA AND REVISED NOTES
4	07/08	REVISED ASPHALT THICKNESS



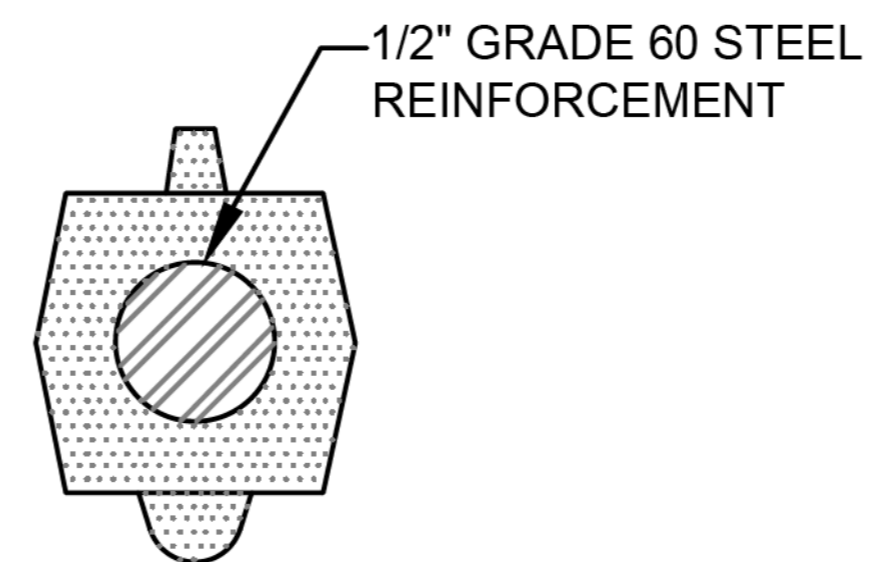
PLAN VIEW



FRONT VIEW



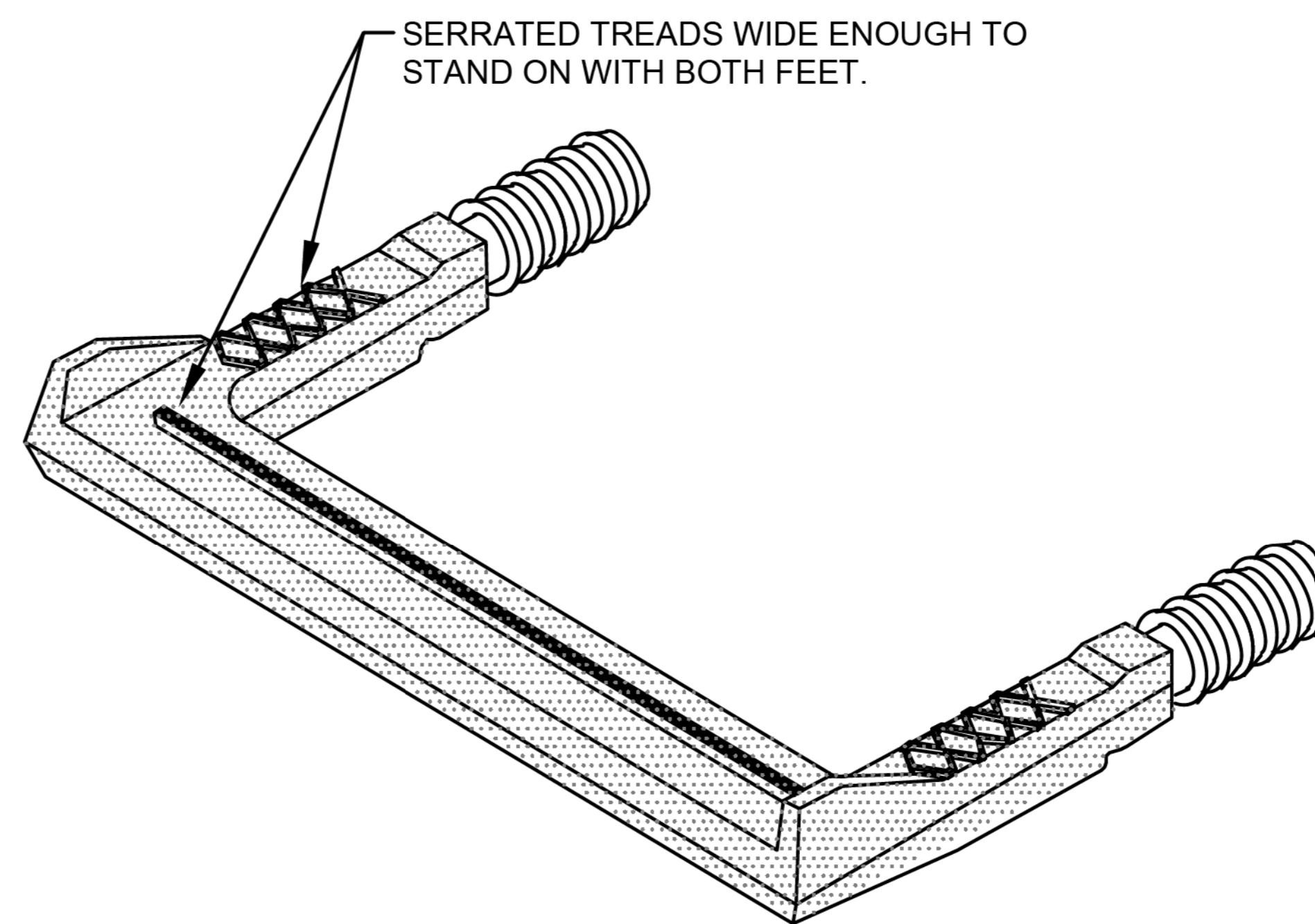
SIDE VIEW



SECTION "A-A"

NOTES:

1. COPOLYMER POLYPROPYLENE PLASTIC STEP SHALL BE PLACED 16" OC IN ALL STRUCTURES 5' DEPTH OR GREATER.
2. STEPS SHALL BE INSTALLED BY MANUFACTURER AND SHALL BE ALIGNED OVER STRUCTURE INVERT OUT.
3. DIMENSIONS SHOWN ARE TO CONVEY THE DESIRED SIZE OF THE STEP AND CONSTRUCTION MAY BE ACCEPTABLE PROVIDED MATERIAL SUBMITTAL IS APPROVED BY FAYPWC.
4. MATERIALS OF CONSTRUCTION AND METHOD OF INSTALLATION SHALL BE IN ACCORDANCE WITH OSHA STANDARDS AND ASTM C-478.

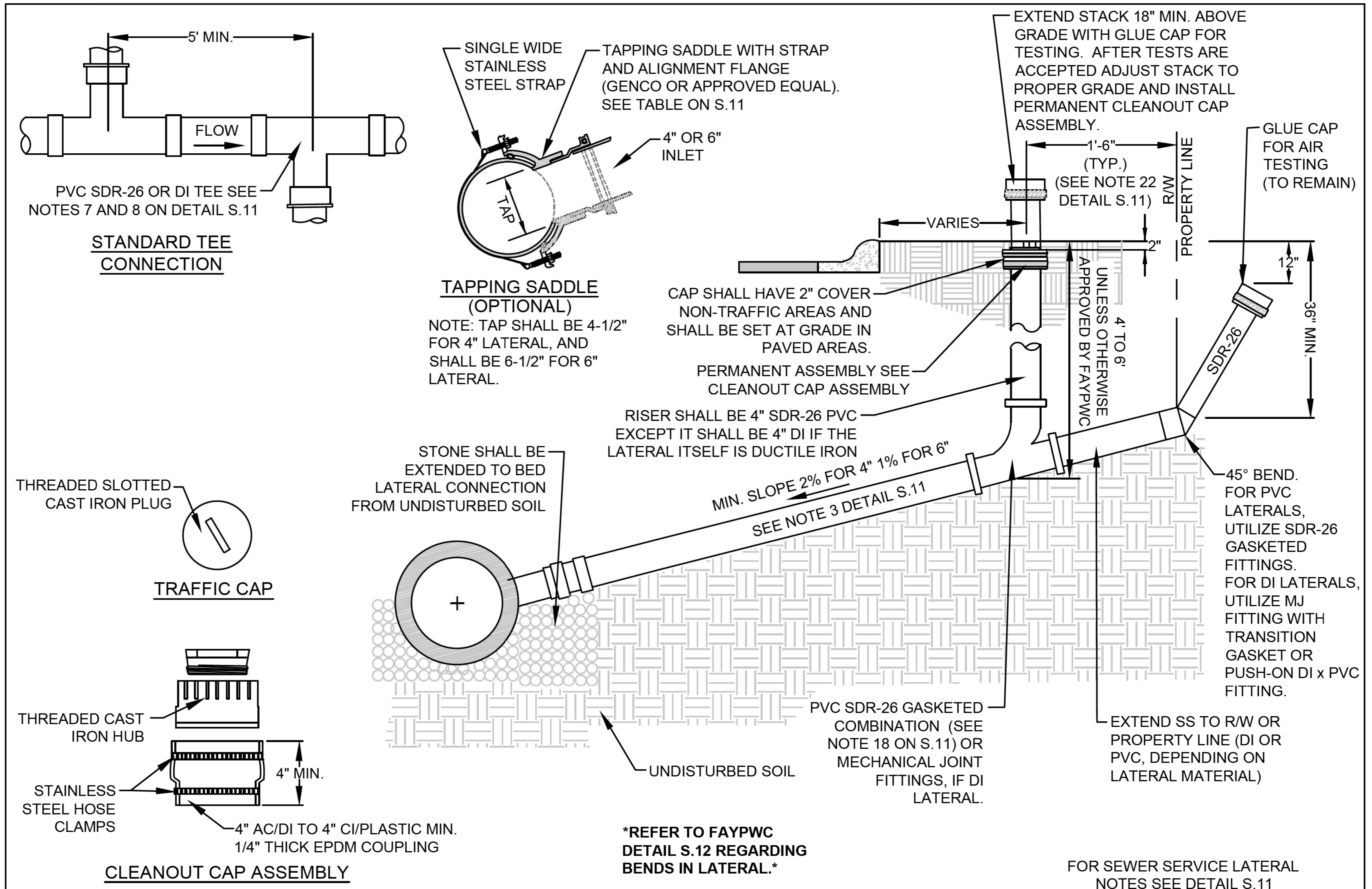


ISOMETRIC VIEW OF STEP

STRUCTURE STEP N.T.S.			FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		PWC	NO.	DATE	REVISION
SHEET NO. 1 OF 1	DWG. NO. S.8	DWG. BY: FAYPWC	WATER RESOURCES ENGINEERING DEPARTMENT					
	DATE: JAN. 01, 2018	APPROVED BY: J.E.G.						

S8-STEP.dwg

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SEWER SERVICE LATERAL (4-INCH AND 6-INCH) N.T.S.			FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.			NO.	DATE	REVISION
SHEET NO. 1 OF 1	DWG. NO. S.10	DWG. BY: FAYPWC	WATER RESOURCES ENGINEERING DEPARTMENT			1	01/13	REVISED NOTES
	DATE: JAN. 01, 2018	APPROVED BY: JEG				2	01/14	ADDED TAILPIECE, NOTES
					3	01/15	REVISED NOTES RE: TAILPIECE	

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SEWER SERVICE LATERAL NOTES

1. HOLE IN SANITARY SEWER MAIN MUST BE CUT WITH SHELL CUTTER NO HAMMER TAPS ALLOWED.
2. LATERAL SHALL CONFORM TO ASTM SPECS. D-3034 SDR-26 UNLESS OTHERWISE INDICATED AS DI.
3. ALL PIPE AND FITTINGS SHALL BE 4" OR 6" UNLESS OTHERWISE SPECIFIED.
4. ALL DI PIPE SHALL HAVE AN INTERIOR LINING OF CERAMIC EPOXY (PROTECTO 401). THE ENTIRE DI LATERAL SHALL BE COMPRISED OF DI PIPE AND MECHANICAL JOINT FITTINGS.
5. ALL CONNECTIONS SHALL HAVE RUBBER GASKET SEALS INSTALLED.
6. SANITARY SEWER SERVICE CLEANOUT STACK SHALL BE LOCATED 18" FROM WATER SERVICE LOCK VALVE WHEN IN THE SAME DITCH.
7. INSTALLATION OTHER THAN AS SHOWN MUST BE APPROVED BY THE FAYPWC.
8. CONNECTIONS TO THE TOP OF MAIN SHALL NOT BE ALLOWED, UNLESS OTHERWISE APPROVED BY THE FAYPWC PROJECT COORDINATOR.
9. SLOPE AND DEPTH OF THE SERVICE LATERAL SHALL BE DETERMINED BY THE TOPOGRAPHY OF THE LOT AS APPROVED BY THE FAYPWC ENGINEER OR AS INDICATED ON THE DRAWINGS.
10. LATERAL SHALL CONFORM TO THE 2% MINIMUM SLOPE FOR THE 4" OR THE 1% MINIMUM SLOPE FOR THE 6". MAXIMUM CLEANOUT SPACING FOR 4" PIPE 75', 6" PIPE 100'.
11. SEE INTERIOR DROP STRUCTURE OR SLIDE, MORTAR SLIDE AND SHELF DETAIL FOR VERTICAL DROPS OF MAINS AND LATERALS.
12. LATERALS LESS THAN 3' IN DEPTH OR GREATER THAN 20' DEPTH SHALL UTILIZE DUCTILE IRON PIPE AND FITTINGS WITH CERAMIC EPOXY (PROTECTO 401), OR WHEN SEPARATION REQUIREMENTS CANNOT BE MET.
13. ENTIRE SEWER LATERAL ASSEMBLY SHALL BE AIR TESTED CONCURRENTLY WITH SEWER MAIN.
14. INDIVIDUAL LATERALS SHALL BE CLEANED AND FLUSHED PRIOR TO FLUSHING SANITARY SEWER MAINS.
15. LATERAL SHALL NOT BE BACK-FILLED UNTIL INSPECTED BY THE FAYPWC PROJECT COORDINATOR.
16. WYE CONNECTIONS SHALL NOT BE USED TO TIE LATERALS INTO A MANHOLE.
17. IF BENDS ARE APPROVED BY THE PROJECT COORDINATOR, STONE BEDDING IS REQUIRED TO BE INSTALLED FROM UNDISTURBED (SEE DETAIL S.12) SOIL TO BOTTOM OF BEND.
18. PVC COMBINATION SHALL BE A MOLDED WYE AND BEND, GASKETED, SDR-26, AS MANUFACTURED BY HARCO, GPK OR APPROVED EQUAL.
19. NO MORE THAN 4, FOUR INCH LATERALS OR 3, SIX INCH LATERALS SHALL ENTER A 4' DIAMETER TERMINAL MANHOLE. NO MORE THAN 2 LATERALS (REGARDLESS OF SIZE) SHALL ENTER ALL OTHER 4' DIAMETER MANHOLES. ALL LATERALS SHALL HAVE AN INDIVIDUAL TROUGH. 5' DIAMETER MANHOLES SHALL BE USED IF THE ABOVE CONDITIONS ARE NOT MET.
20. ALL LATERALS (4" AND 6") SHALL UTILIZE A 4" RISER (STACK).
21. REFER TO DETAIL S.12 FOR SEPARATION REQUIREMENTS.
22. FOR SINGLE FAMILY RESIDENTIAL LOTS, CLEANOUT SHALL BE LOCATED 18" FROM RIGHT-OF-WAY OR EASEMENT. FOR ALL NON-SINGLE FAMILY LOTS, CLEANOUT SHALL BE NO CLOSER THAN 10' TO FRONT OF BUILDING, UNLESS OTHERWISE APPROVED BY FAYPWC.

THE FOLLOWING TABLE SUMMARIZES THE MATERIALS TO BE UTILIZED FOR SEWER MAIN TO LATERAL CONNECTIONS:

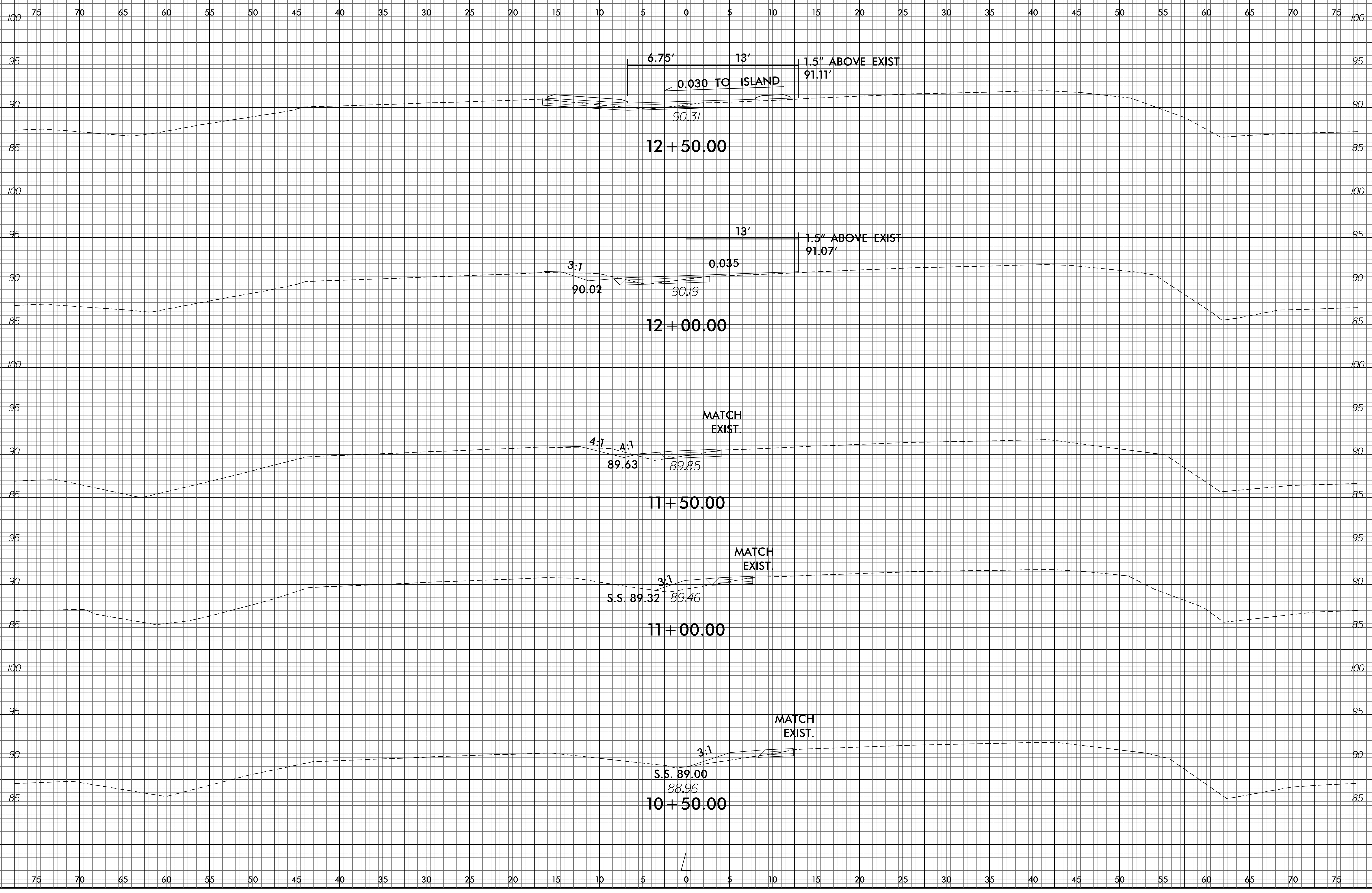
	PVC Main	DI Main
DI Lateral	DI fitting or approved saddle	MJ fitting or approved saddle
PVC Lateral	PVC fitting or approved saddle	MJ fitting with transition gasket or approved saddle

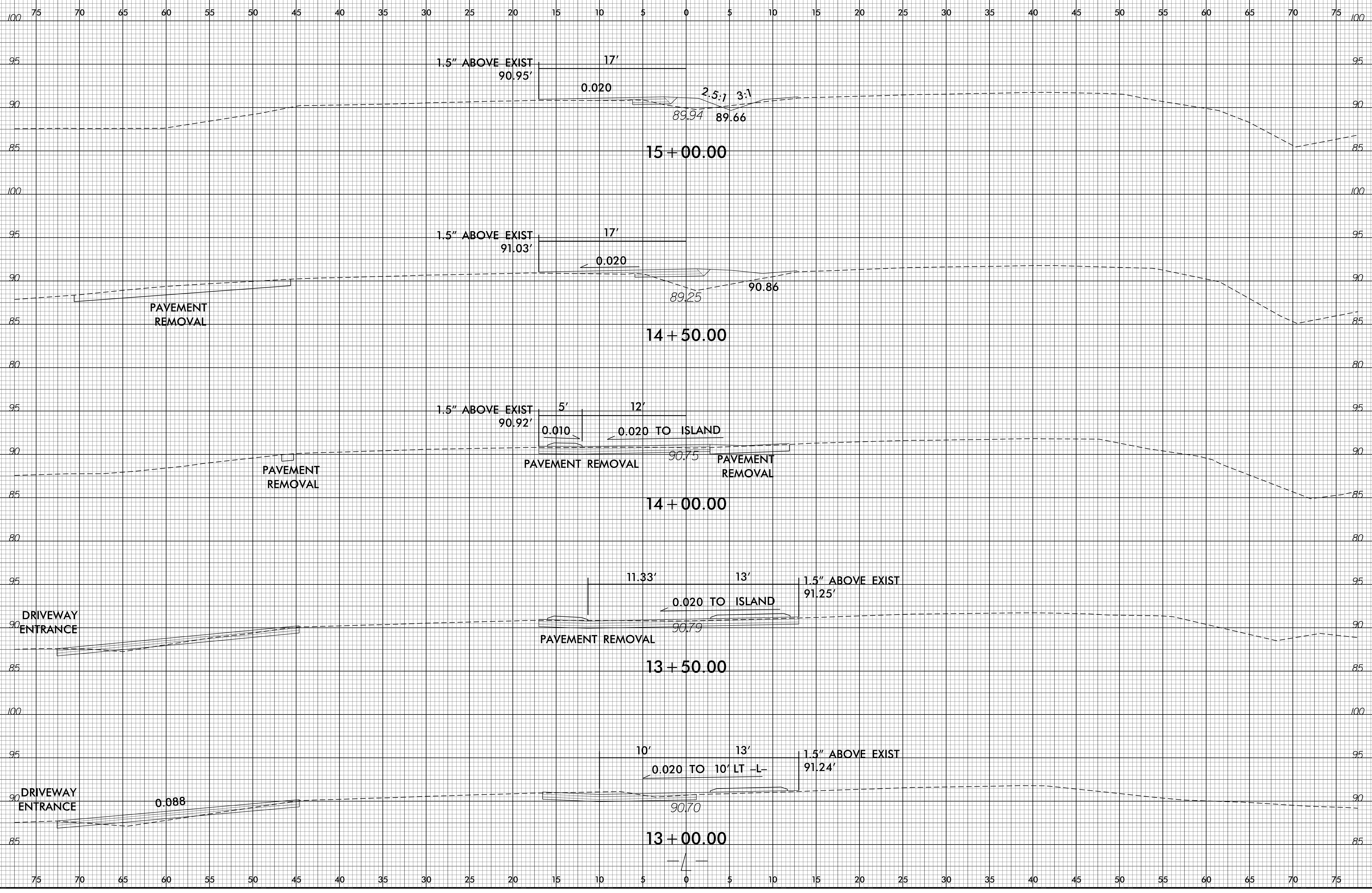
NOTE: REFER TO FAYPWC TECHNICAL SPECIFICATIONS FOR ADDITIONAL INFORMATION.

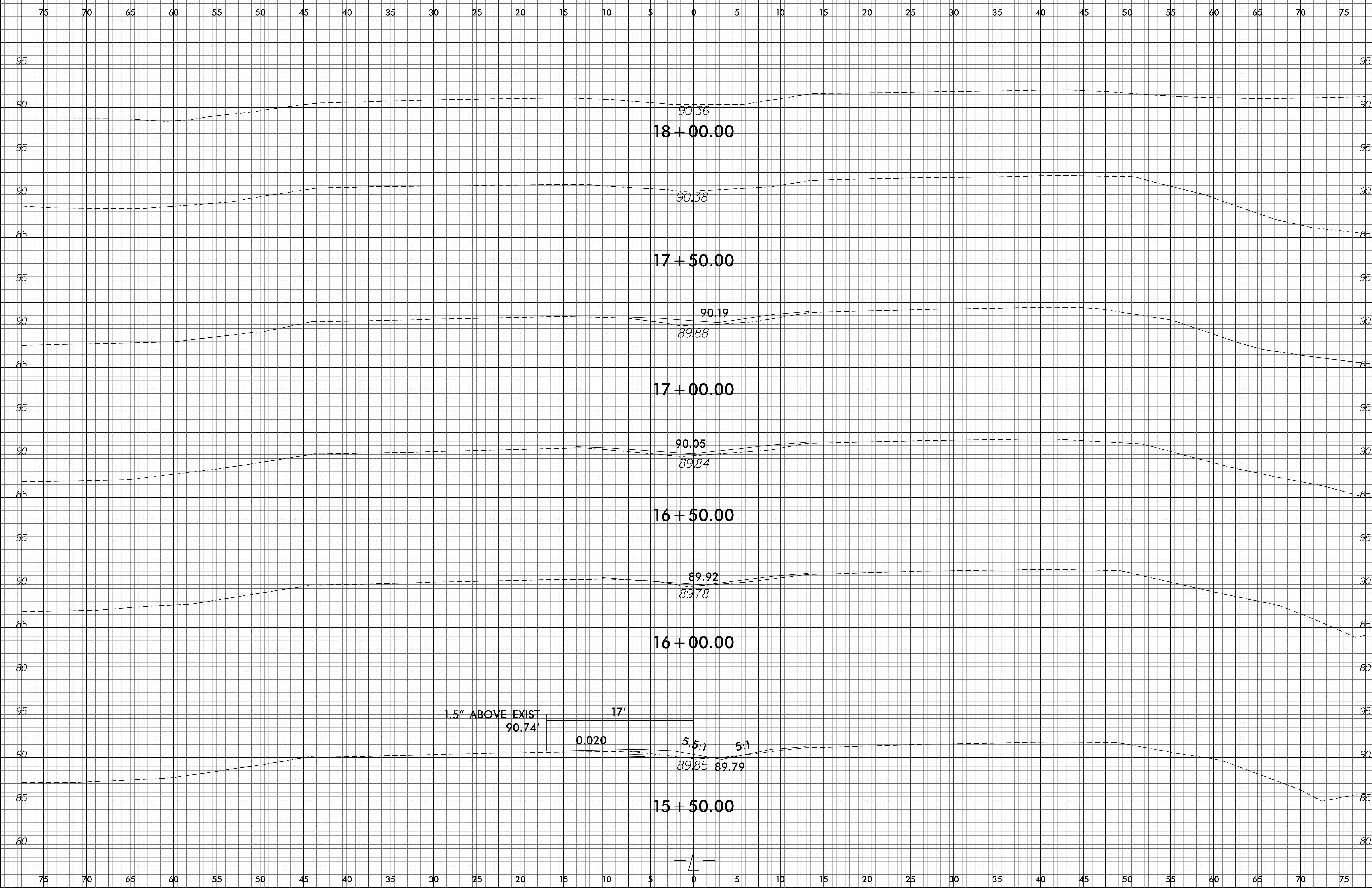
SEWER SERVICE LATERAL NOTES (4-INCH AND 6-INCH)			FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.			NO.	DATE	REVISION
SHEET NO. 1 OF 1	DWG. NO. S.11	DWG. BY: FAYPWC	WATER RESOURCES ENGINEERING DEPARTMENT			2	10/11	REVISED NOTES
	DATE: JAN. 01, 2018	APPROVED BY: JEG				3	01/13	REVISED NOTES AND ADDED TABLE
					4	01/15	REVISED NOTE 22, TABLE	

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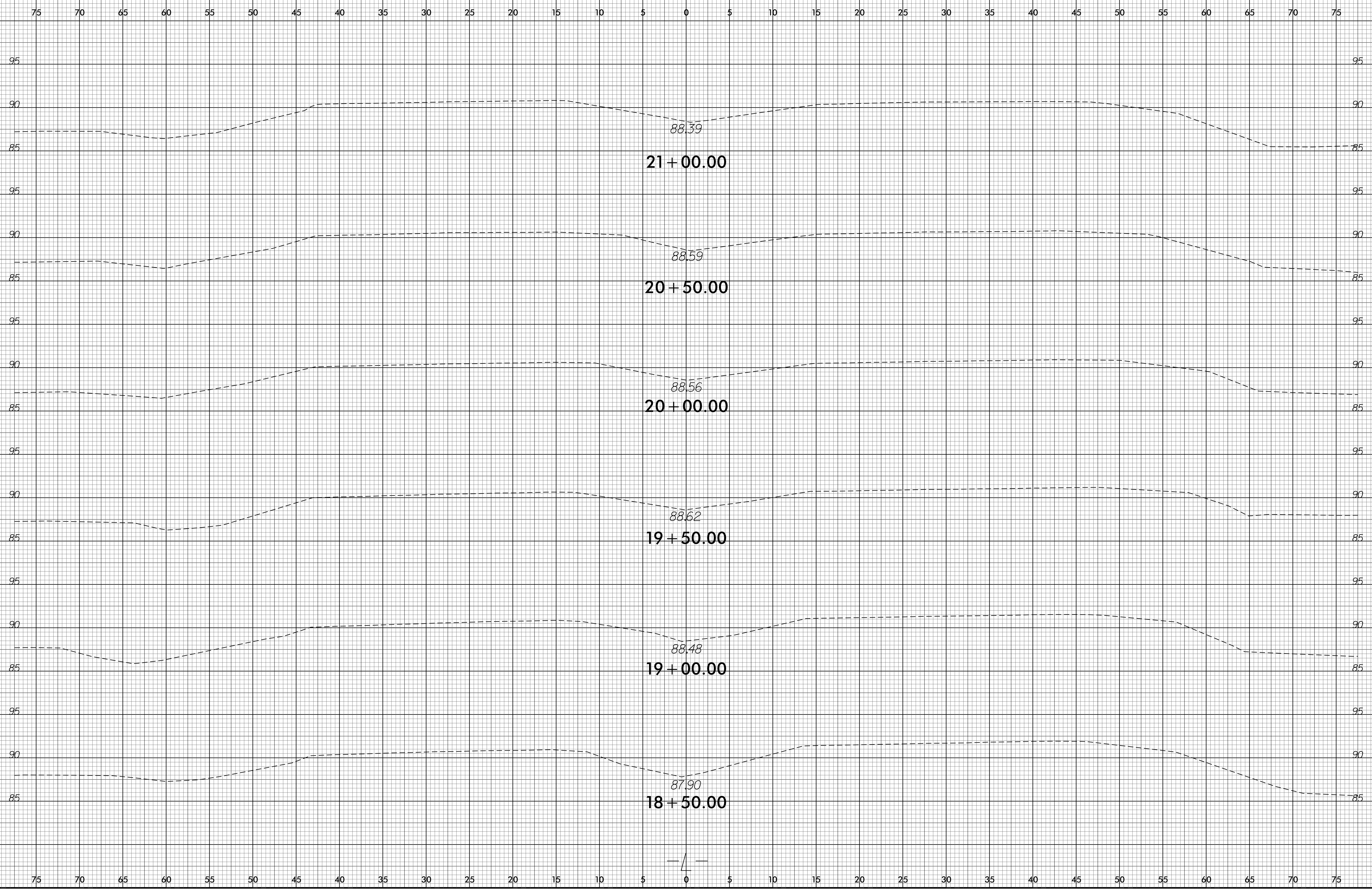
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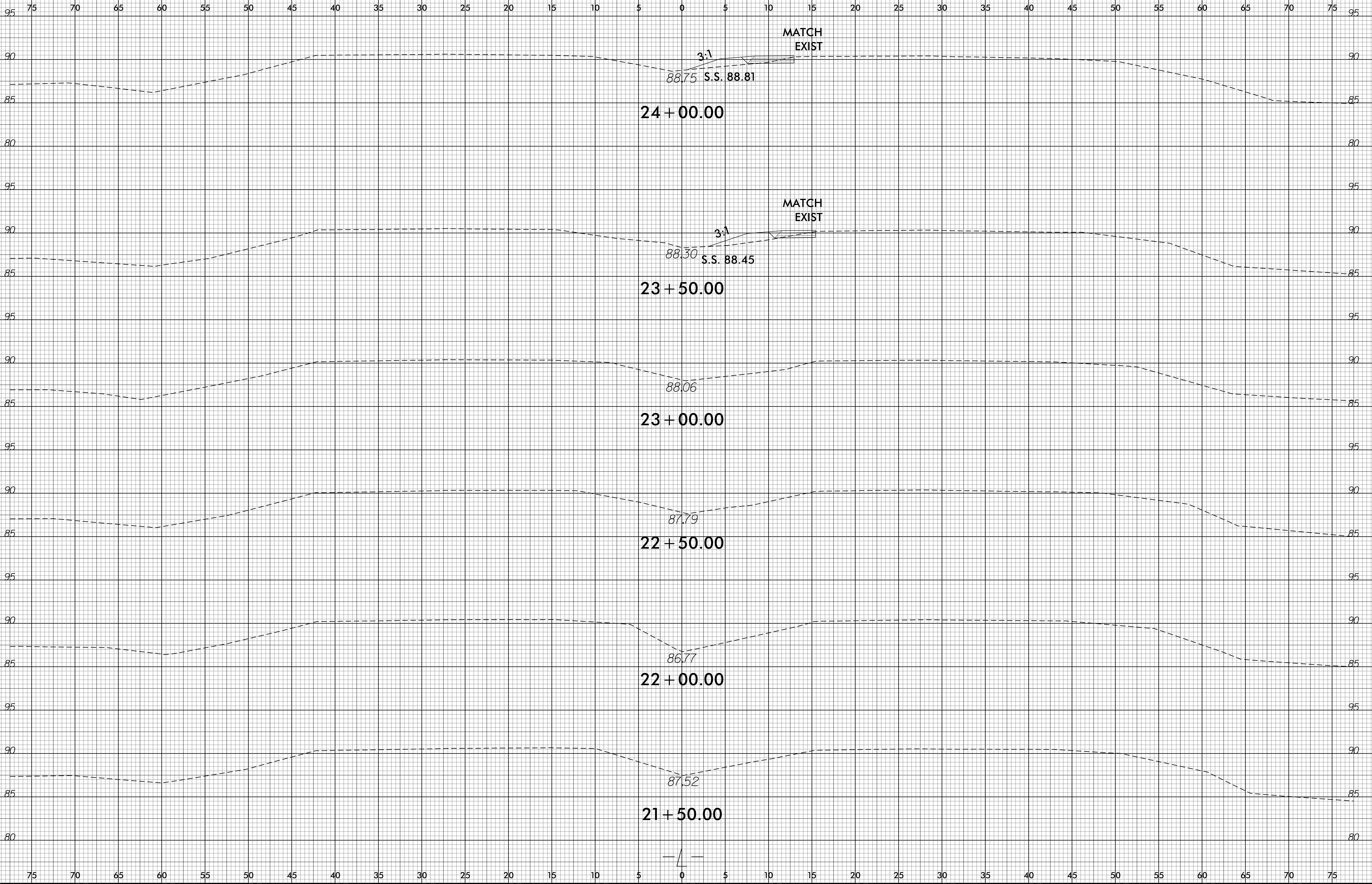


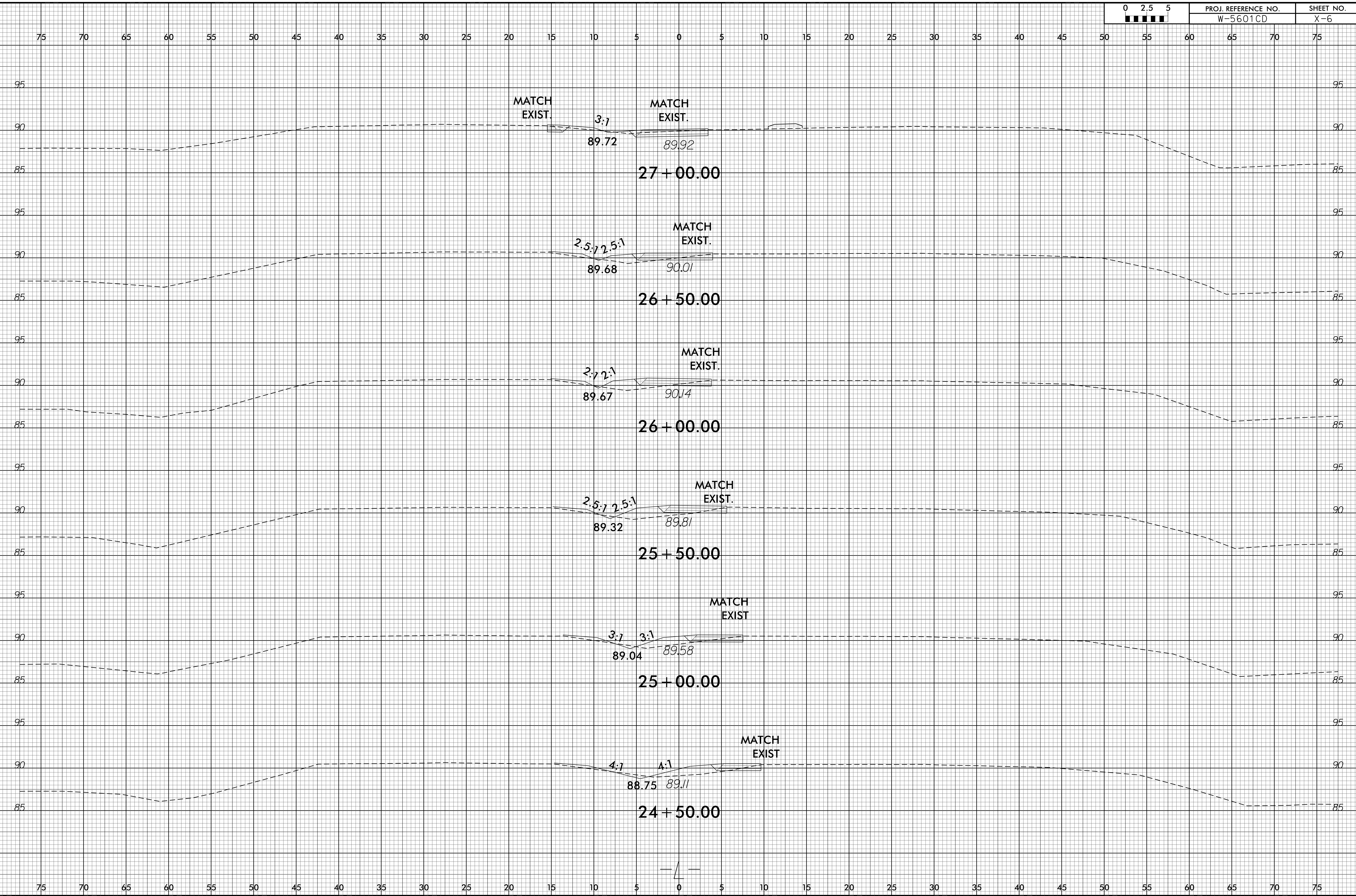


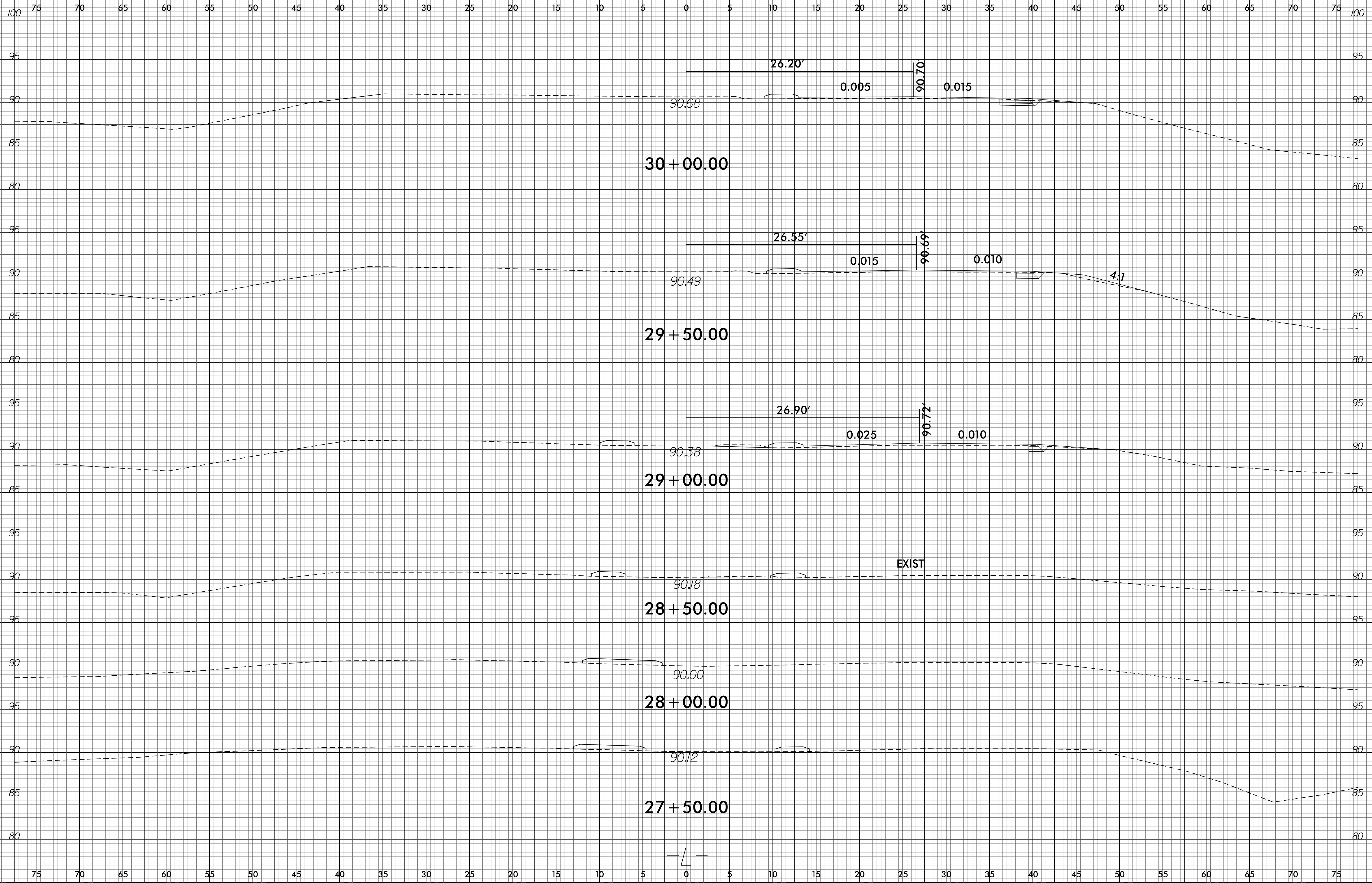


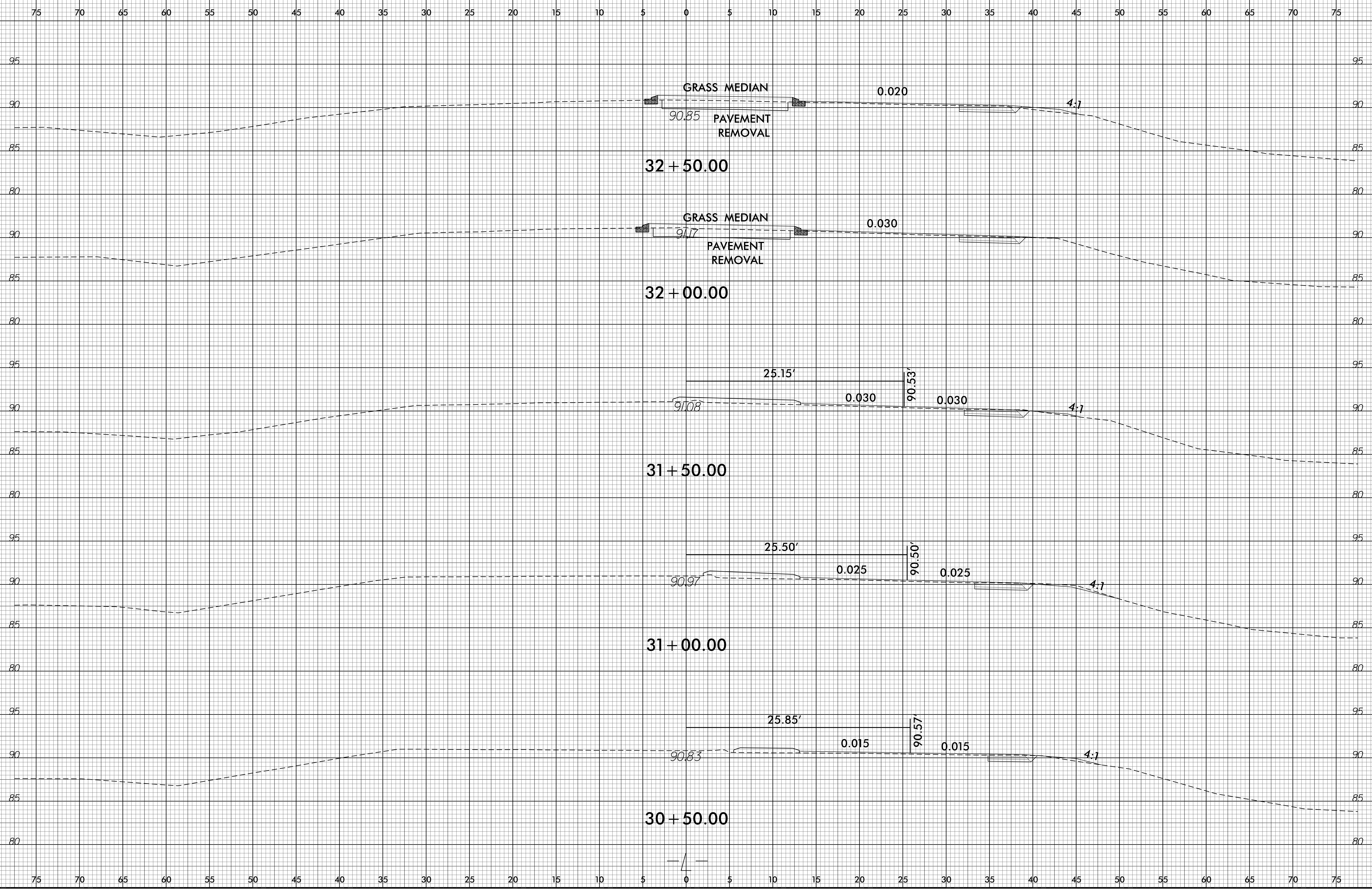
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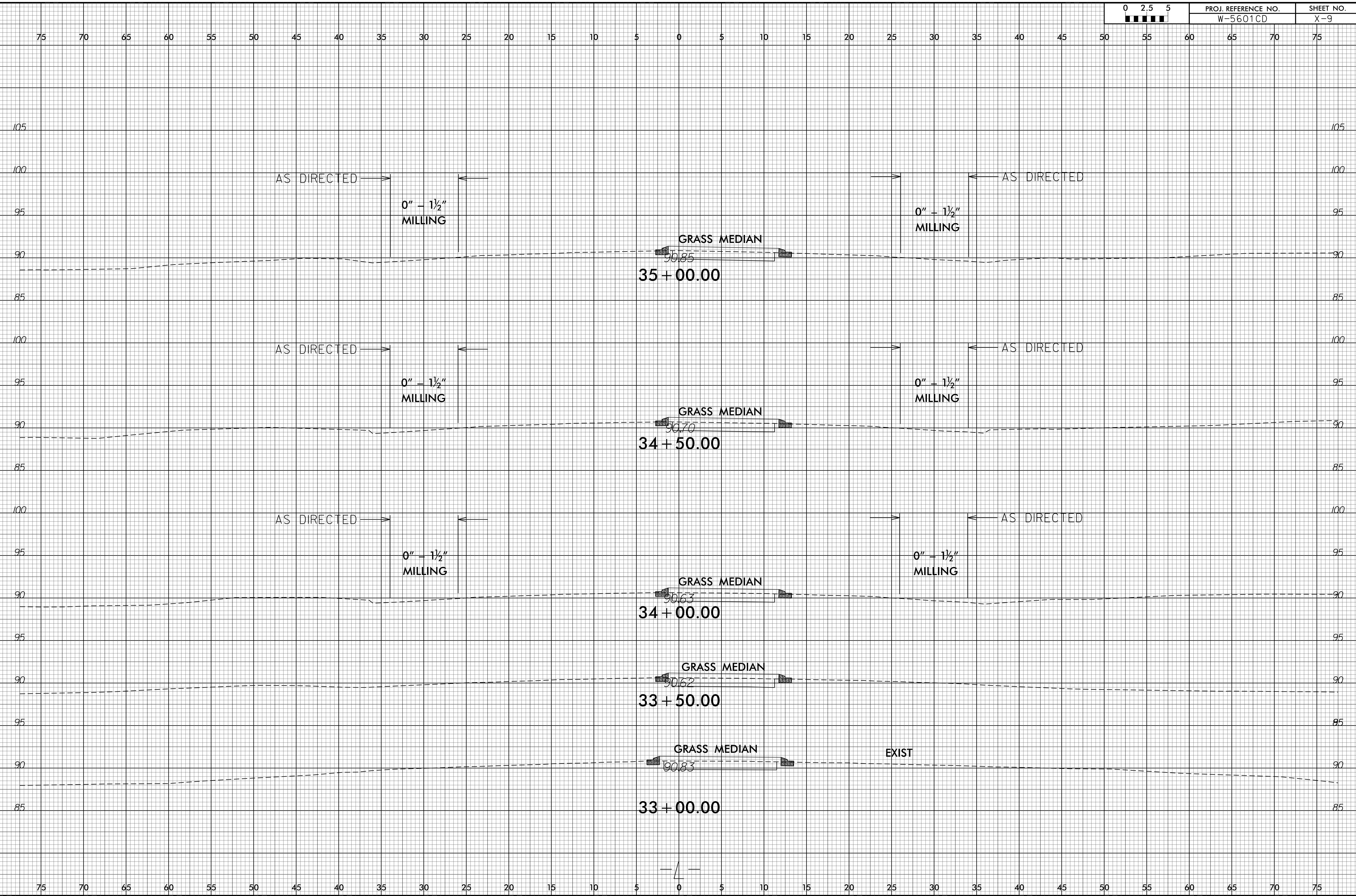


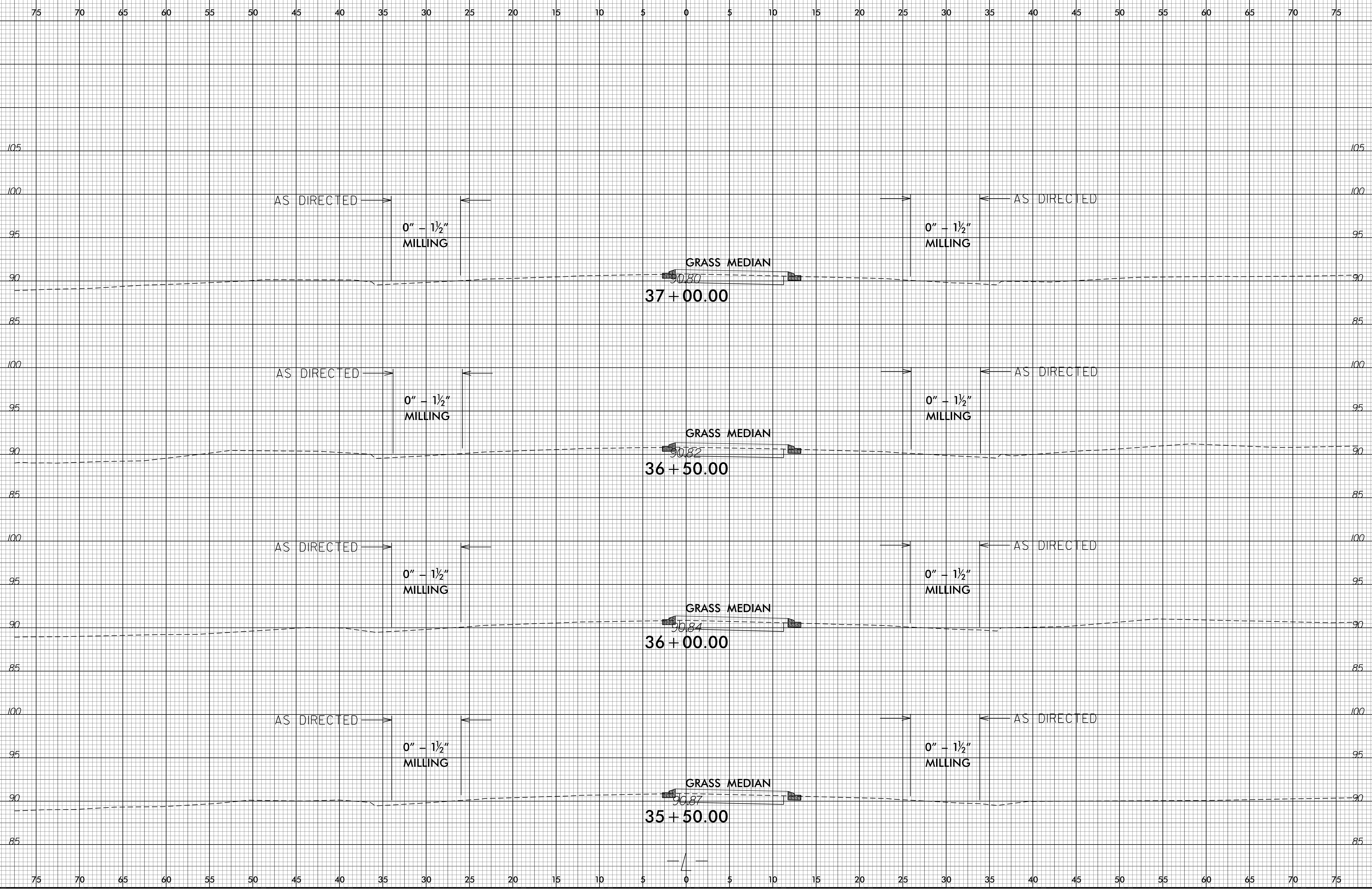


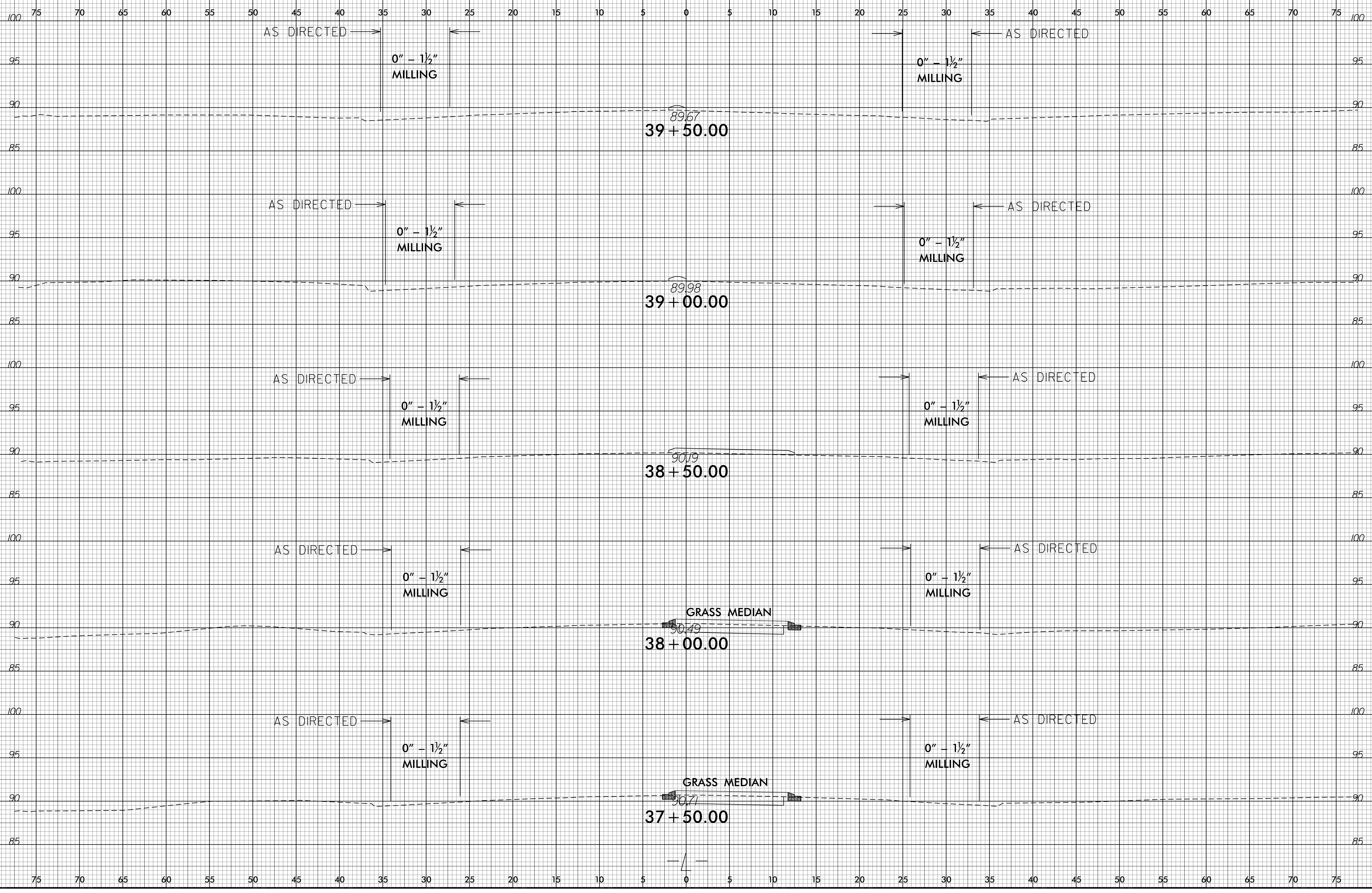


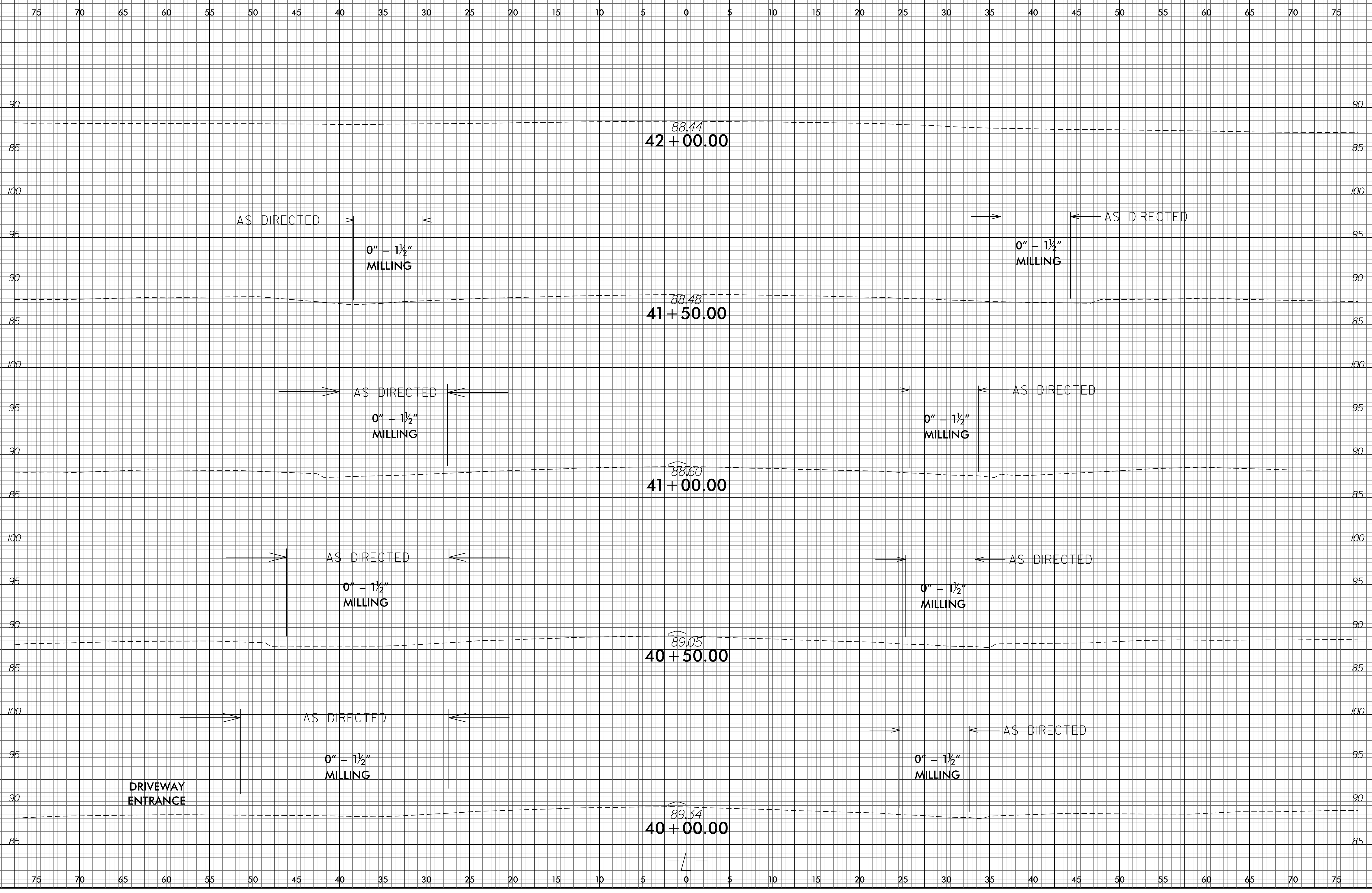


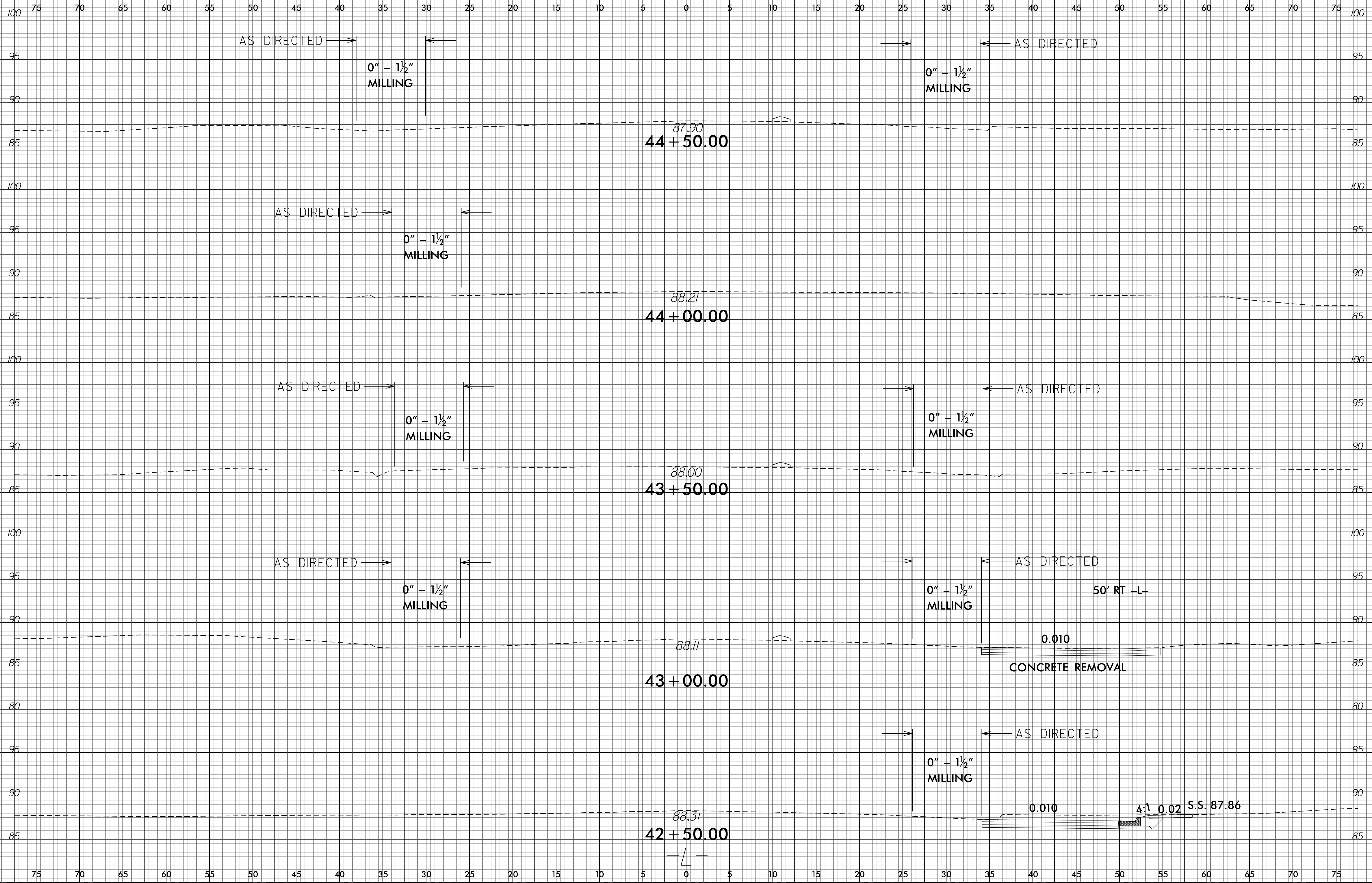


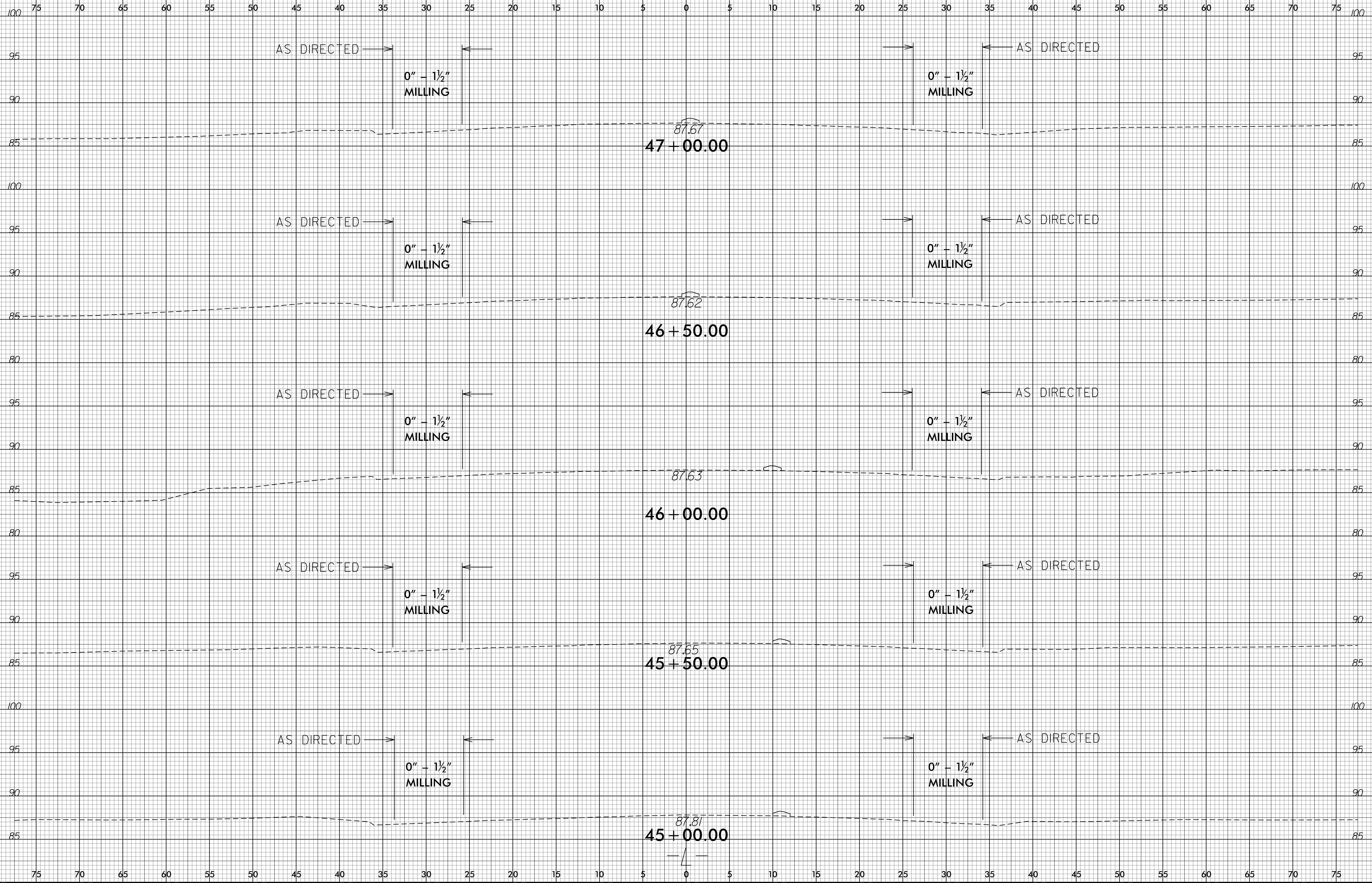


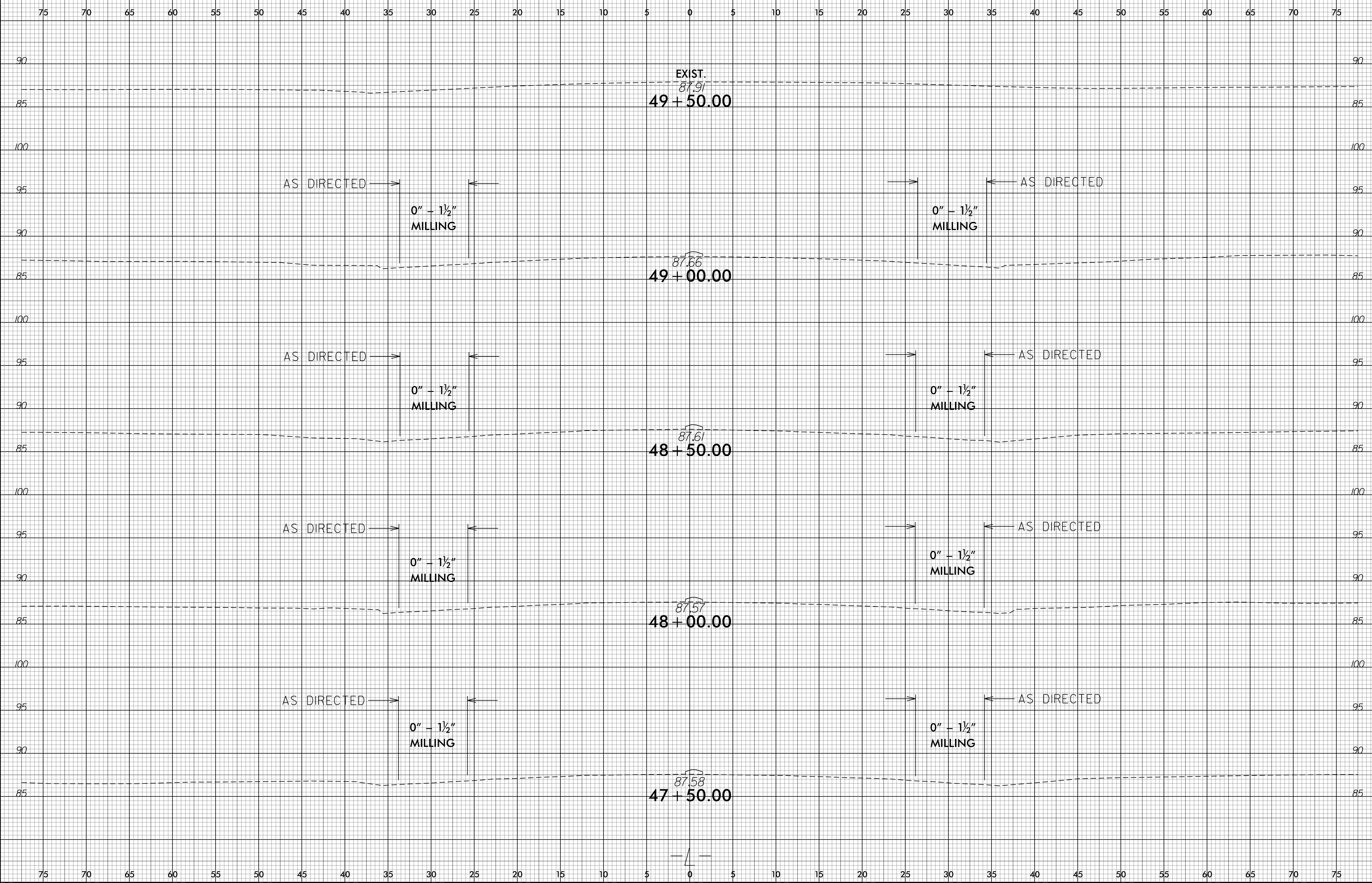




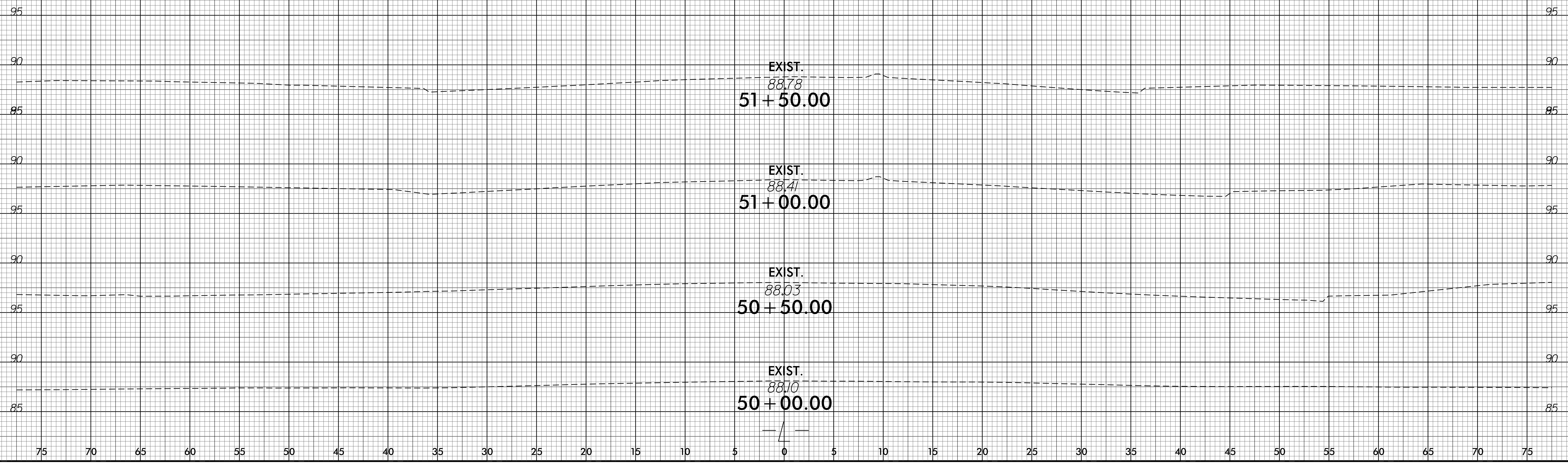








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