

# CONSTRUCTION PLANS FOR CHERRY STREET DRAINAGE IMPROVEMENTS

## TASK 3 - DRAINAGE INFRASTRUCTURE TYNDALL PARKWAY TO STAR AVENUE

PREPARED FOR



CITY OF CALLAWAY

CITY OFFICIALS

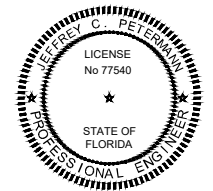
PAMN HENDERSON	MAYOR
SCOTT DAVIS	WARD I COMMISSIONER
DAVID GRIGGS	WARD II COMMISSIONER
BOB PELLETIER	WARD III COMMISSIONER
FRANK MANCINELLI	WARD IV COMMISSIONER

**BDI PROJECT No. 27655.01**  
**JULY 2021**

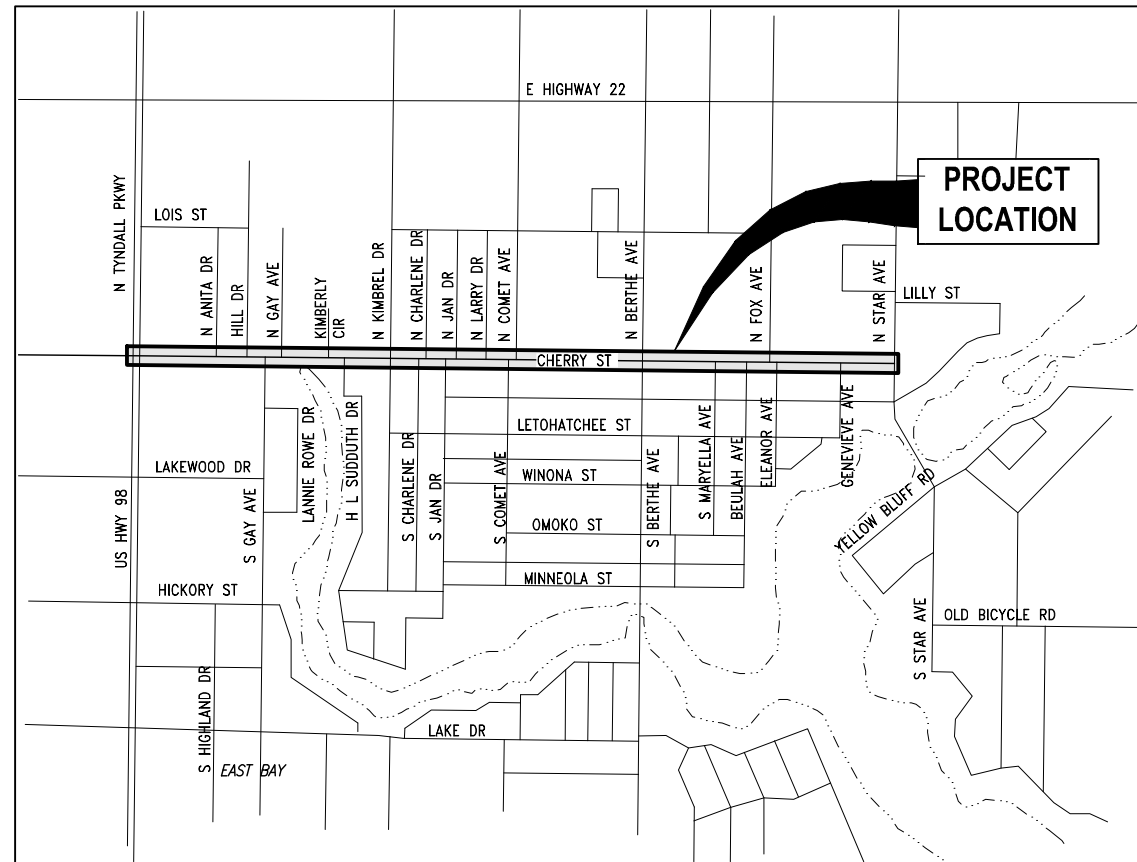
PREPARED BY

**BASKERVILLE-DONOVAN, INC.**  
**ENGINEERING THE SOUTH SINCE 1927**

449 W. MAIN ST., PENSACOLA, FL 32502 (850)438-9661  
ENGINEERING BUSINESS: EB-0000340  
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### SHEET INDEX

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G-001	GENERAL NOTES
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C-110-125	PLAN & PROFILE
C-900	DETAILS
	FDOT DETAILS

100% COMPLETE  
RELEASED FOR CONSTRUCTION

**GENERAL NOTES:**

1. THE CONTRACTORS SHALL NOTIFY THE PROJECT ADMINISTRATOR 48 HOURS PRIOR TO CONSTRUCTION.
2. ALL CONDITIONS AND STIPULATIONS OF THE CONSTRUCTION PERMITS AND THE APPROVALS ISSUED BY THE CITY OF CALLAWAY ENGINEER SHALL BE COMPLIED WITHIN EVERY DETAIL.
3. ALL ROADS DAMAGED BY CONSTRUCTION OPERATIONS ARE TO BE PATCHED OR RECONSTRUCTED AS DIRECTED BY THE PROJECT ADMINISTRATOR OR DESIGNEE.
4. THE CONTRACTOR SHALL TAKE STEPS NECESSARY TO PREVENT EROSION AND ANY OFF SITE SEDIMENT TRANSPORT RESULTING FROM INCREASED RUNOFF DURING CONSTRUCTION BY PROVIDING SILT FENCE AND/OR STAKED HAY BALES AS REQUIRED BY THE FLORIDA STORMWATER, EROSION, AND SEDIMENT CONTROL INSPECTOR'S MANUAL, 2000 EDITION, OR AS INDICATED ON THE PLANS. ALL EROSION CONTROL MEASURES SHALL REMAIN IN PLACE UNTIL ASSOCIATED DISTURBED AREAS ARE STABILIZED AS TO REDUCE SEDIMENT RUNOFF, UNLESS OTHERWISE DIRECTED BY THE PROJECT ADMINISTRATOR OR DESIGNEE.
5. ANY NECESSARY PERMITS WILL BE THE RESPONSIBILITY OF THE CONTRACTOR.
6. THE CONTRACTOR IS CAUTIONED TO VISIT THE SITE AND FAMILIARIZE HIMSELF WITH THE PROJECT PRIOR TO BIDDING AND/OR CONSTRUCTION.
7. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO PRESERVE OR RELOCATE ALL BENCHMARKS (VERTICAL CONTROL) AS NEEDED DURING CONSTRUCTION. ALL PUBLIC OR PRIVATE CORNER MONUMENTATION SHALL BE PROTECTED. IF A PUBLIC OR PRIVATE CORNER MONUMENTATION IS IN DANGER OF BEING DESTROYED AND HAS NOT BEEN PROPERLY REFERENCED, THE CONTRACTOR SHALL NOTIFY THE ENGINEER OR DESIGNEE IMMEDIATELY. ANY BAY COUNTY HARN/GPS NETWORK MONUMENTS OR BUREAU OF SURVEY AND MAPPING GPS NETWORK MONUMENTS WITHIN THE LIMITS OF CONSTRUCTION SHALL BE PROTECTED. IF A HARN/GPS NETWORK MONUMENTS OR BUREAU OF SURVEY AND MAPPING GPS NETWORK MONUMENTS ARE DISTURBED OR DESTROYED THE CONTRACTOR SHALL BE RESPONSIBLE FOR RELACEMENT OF THE MONUMENTS AND HAVE THE MONUMENTS POSITION DETERMINED BY A FLORIDA LICENSED PROFESSIONAL SURVEYOR AND MAPPER USING GUIDELINES AS ESTABLISHED BY NATIONAL GEODETIC SURVEY FOR BLUE BOOKING AND APPROVAL.
8. EXISTING DRAINAGE FEATURES WITHIN CONSTRUCTION LIMITS SHALL REMAIN UNLESS OTHERWISE NOTED.
9. THE CONTRACTOR SHALL MATCH EXISTING CONDITIONS AT THE BEGINNING AND END OF CONSTRUCTION AS DIRECTED BY THE PROJECT ADMINISTRATOR DESIGNEE. PROVIDE A STRAIGHT-END TAPER WHERE DROP CURB MEETS EXISTING RURAL SECTIONS.
10. ACCESS TO EXISTING STREETS AND DRIVES SHALL BE MAINTAINED TO LOCAL TRAFFIC AND PROPERTY OWNERS.
11. ALL ROADWAY CONSTRUCTION SHALL COMPLY WITH THE FDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, LATEST EDITION, THE AMERICANS WITH DISABILITIES ACT (ADA), THE ADA COMPLIANCE HANDBOOK, LATEST EDITION, AND THE FLORIDA ACCESSIBILITY CODE.
12. EXISTING STREET AND ROAD NAME SIGNS ON THE PROJECT SHALL BE KEPT VISIBLE AT ALL TIMES FOR THE FACILITATION OF ACCESS BY EMERGENCY VEHICLES. ALL OTHER EXISTING SIGNS THAT CONFLICT WITH CONSTRUCTION OPERATIONS SHALL BE TAKEN DOWN AND STOCKPILED WITHIN THE R/W LIMITS BY THE CONTRACTOR AS DIRECTED BY THE PROJECT ADMINISTRATOR OR DESIGNEE. ANY EXISTING SIGNS THAT ARE TO BE RELOCATED AND ARE DAMAGED BEYOND USE BY THE CONTRACTOR SHALL BE REPLACED BY THE CONTRACTOR AT HIS EXPENSE.
13. THE CONTRACTOR SHALL MAINTAIN AT LEAST ONE 10' OPEN LANE AT ALL TIMES. NO OPEN EXCAVATION SHALL REMAIN OVER NIGHT. CONTRACTOR SHALL RESTORE ROAD TO TWO LANES OF TRAFFIC AT THE END OF EACH WORK DAY.
14. CONTRACTOR SHALL COMPLY WITH ALL F.D.E.P. AND ARMY CORP. OF ENGINEERS REQUIREMENTS.
15. ONLY ACCESS TO THE ROAD R/W AND TEMPORARY WORK AGREEMENTS (TWA) AS SHOWN IS GUARANTEED BY THE CITY. PRIVATE R/W REQUIRED BY THE CONTRACTOR TO FACILITATE CONSTRUCTION SHALL BE ACQUIRED BY THE CONTRACTOR WITH NO ADDITIONAL COMPENSATION OR ASSISTANCE FROM THE CITY.
16. IN THE EVENT THAT SURVEY MONUMENTATION OR REFERENCE POINTS ARE MISSING OR HAVE BEEN DESTROYED, PLEASE CONTACT:  
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17. VEGETATION ON R/W AND EASEMENTS SHALL BE RESTORED TO ORIGINAL CONDITION UNLESS OTHERWISE NOTED ON THE PLAN SHEETS. COST OF SAID RESTORATION SHALL BE CONSIDERED INCIDENTAL TO OTHER PAY ITEMS.
18. ALL TREES WITHIN LIMITS OF CONSTRUCTION SHALL REMAIN UNLESS OTHERWISE NOTED IN PLANS.
19. ALL COMPACTED FILL SHALL BE PLACED IN 4" LIFTS FOR HAND POWERED TAMPERS AND 8" LIFTS FOR HEAVY EQUIPMENT OPERATED TAMPERS.
20. MAINTENANCE OF TRAFFIC AS PER FDOT STANDARD PLANS INDEX 102 AND THE TRAFFIC CONTROL PLANS.
21. ALL EXISTING MAILBOXES INTERFERING WITH NEW CONSTRUCTION SHALL BE RELOCATED OR REPLACED BY THE CONTRACTOR IN ACCORDANCE WITH FDOT DESIGN STANDARDS AND UNITED POSTAL REQUIREMENTS. ALL EXISTING BRICK MAILBOXES WITHIN LIMITS OF CONSTRUCTION OR CITY RIGHT OF WAY SHALL BE REMOVED AND PLACED ON THE PROPERTY LINE OF THE OWNER. CONTRACTOR SHALL REPLACE EXISTING BRICK MAILBOX WITH APPROVED PLASTIC BREAK AWAY MAILBOX.
22. THE CONTRACTOR SHALL, AT A MINIMUM, MATCH EXISTING SIGNING AND PAVEMENT MARKINGS. ALL SIGNING AND PAVEMENT MARKINGS SHALL BE PLACED IN ACCORDANCE WITH THE LATEST FDOT DESIGN STANDARDS. THE CONTRACTOR SHALL CONTACT THE PROJECT ADMINISTRATOR PRIOR TO INSTALLATION OF ANY SIGNING AND PAVEMENT MARKINGS.
23. WHERE UNSUITABLE MATERIAL IS ENCOUNTERED IN THE AREAS PROPOSED FOR PAVING, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE PROJECT ADMINISTRATOR PRIOR TO ANY EXCAVATION.
24. PIPE LENGTHS SHOWN IN THE PLANS DO NOT INCLUDE THE LENGTH OF PIPE THAT MUST BE INSTALLED WITH THE MITERED END SECTION. THEREFORE, ALL PIPES LENGTHS ASSOCIATED WITH MITERED END SECTIONS SHALL BE PAID FOR IN THE UNIT COST OF THE MITERED END

**SECTION.**

25. HORIZONTAL DATA SHOWN HEREON ARE GRID PROJECTED IN THE FLORIDA STATE PLANE COORDINATE SYSTEM, FLORIDA NORTH, ZONE 0903, RELATIVE TO THE NORTH AMERICAN DATUM 83/2007 (NAD 83/2007). VERTICAL DATUM IS NORTH AMERICAN VERTICAL DATUM 1988 (NAVD 88).
26. ALL CONCRETE DRIVEWAY TURNOUTS ARE TO BE CONSTRUCTED AS TYPE G1 PER FDOT STANDARD PLANS INDEX 522-003 UNLESS OTHERWISE NOTED ON THE PLANS.
27. ALL RAMPS AND DRIVEWAYS MUST MEET ADA COMPLIANCE AND MUST BE BUILT TO CURRENT FLORIDA DESIGN STANDARDS.
28. TO FACILITATE EARTHWORK CALCULATIONS, PROPOSED DRAINAGE STRUCTURES AND PIPES ARE NOT SHOWN ON THE ROADWAY CROSS SECTIONS. REFER TO THE DRAINAGE STRUCTURE SHEETS FOR INFORMATION ABOUT THE PROPOSED STRUCTURES.
29. ALL ADA DETECTABLE WARNING MATS SHALL EXTEND THE FULL WIDTH OF THE CURB RAP AND EXTEND 2 FT. FROM THE TOE OF THE CURB RAMP. ALL DETECTABLE WARNINGS SHALL BE IN ACCORDANCE WITH FDOT STANDARD PLANS INDEX 522 AND FDOT SPECIFICATION 527. ALL ADA DETECTABLE WARNING SYSTEMS MUST BE ON THE FDOT APPROVED PRODUCTS LIST.
30. ALL FILL MATERIAL SHALL BE SELECT FILL.
31. CONTRACTOR SHALL NOTIFY ALL ADJACENT PROPERTY OWNERS IF THEIR LANDSCAPING IS TO BE REMOVED TO COORDINATE THE REMOVAL AND POSSIBLE RELOCATION.
32. THE CONTRACTOR SHALL REPAIR OR REPLACE ANY METERS, VALVES, SERVICE LATERALS, FIRE HYDRANTS, MAINS, WATER, WASTEWATER, OR GAS FACILITIES DAMAGED DURING CONSTRUCTION AT NO ADDITIONAL COST TO THE CITY.
33. SWEEPING SHALL OCCUR IMMEDIATELY AFTER SUCH EVENTS THAT CAUSE TRACKING ONTO STREET.
34. ALL PROPOSED STRIPING AND MESSAGES SHALL BE THERMOPLASTIC. THERMOPLASTIC IS TO BE USED FOR FINAL STRIPING ONLY. INTERMEDIATE STRIPING SHALL BE PAINTED.
35. ALL CURB INLET THROAT ELEVATIONS ARE FOR REFERENCE. CONTRACTOR TO VERIFY STRUCTURE IS INSTALLED FLUSH WITH EDGE OF PAVEMENT FOR PROPER INLET PERFORMANCE. SEE FDOT INDEX 424-020 FOR CURB INLET GEOMETRY.

**UTILITY NOTES:**

1. THE LOCATION SHOWN FOR EXISTING UNDERGROUND UTILITIES IS APPROXIMATE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK IN EACH AREA. THE CONTRACTOR AGREES TO BE COMPLETELY RESPONSIBLE FOR ALL DAMAGES WHICH MIGHT OCCUR BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE ALL UTILITIES.
2. UTILITY OWNERS SHALL BE NOTIFIED AT LEAST 48 HOURS PRIOR TO ANY CONSTRUCTION SO THAT THE UTILITY OWNER CAN SPOT VERIFY AND/OR EXPOSE THEIR UTILITIES. KNOWN UTILITIES OWNERS INCLUDE:
 

WATER - CITY OF CALLAWAY DAVID KUBAN 850-871-1033  KNOLOGY RANDALL HAIRSTON 850-215-5719  GULF POWER SANDRA PERRY 850-872-3315  TECO MIKE MCQUIRE 850-914-6104	SEWER - CITY OF CALLAWAY JOHN FRANKLIN 850-215-7232  COMCAST JEFFREY SMITH 850-770-8056  AT&T DISTRIBUTION AL RUDOLPH 850-436-1488
--	--
3. ALL LOOP DETECTOR INSTALLATION SHALL BE DONE AS PER FDOT STANDARD PLANS INDEX 660-001.
4. CONTRACTOR IS TO USE CAUTION WHEN WORKING IN OR AROUND AREAS OF OVERHEAD TRANSMISSION LINES AND UNDERGROUND UTILITIES.
5. UTILITIES TO REMAIN AND BE PROTECTED DURING CONSTRUCTION. NECESSARY REPAIRS SHALL BE CONSIDERED INCIDENTAL TO OTHER PAY ITEMS AND SHALL BE TO THE SATISFACTION OF UTILITY OWNERS.



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**LESTER C. PETERMAN, P.E.**  
 FL. Reg. Engineer #77540

**TYNDALL PKWY TO  
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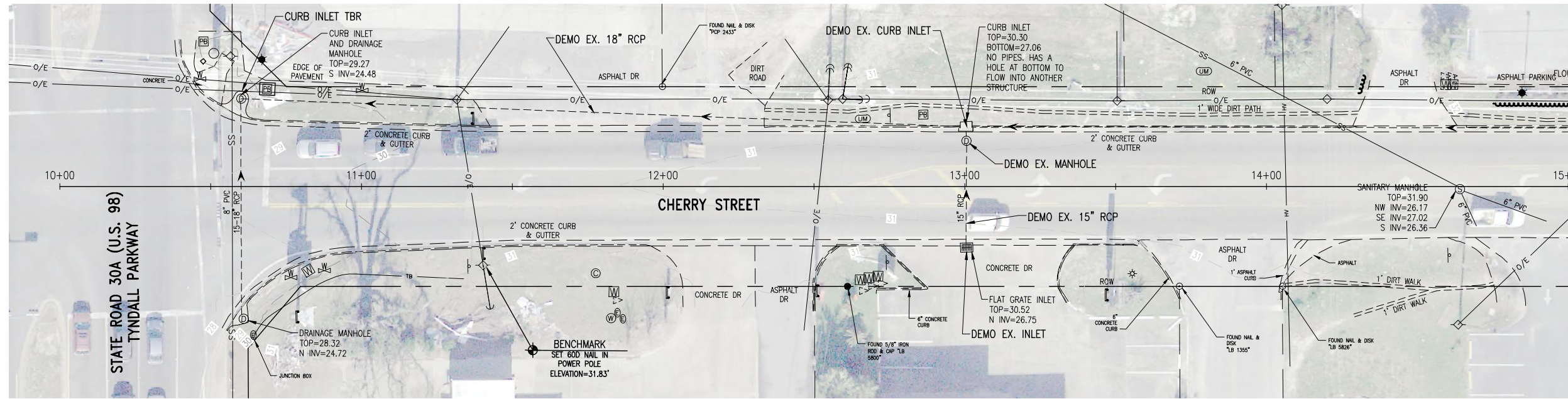
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**GENERAL NOTES**

**G-001**



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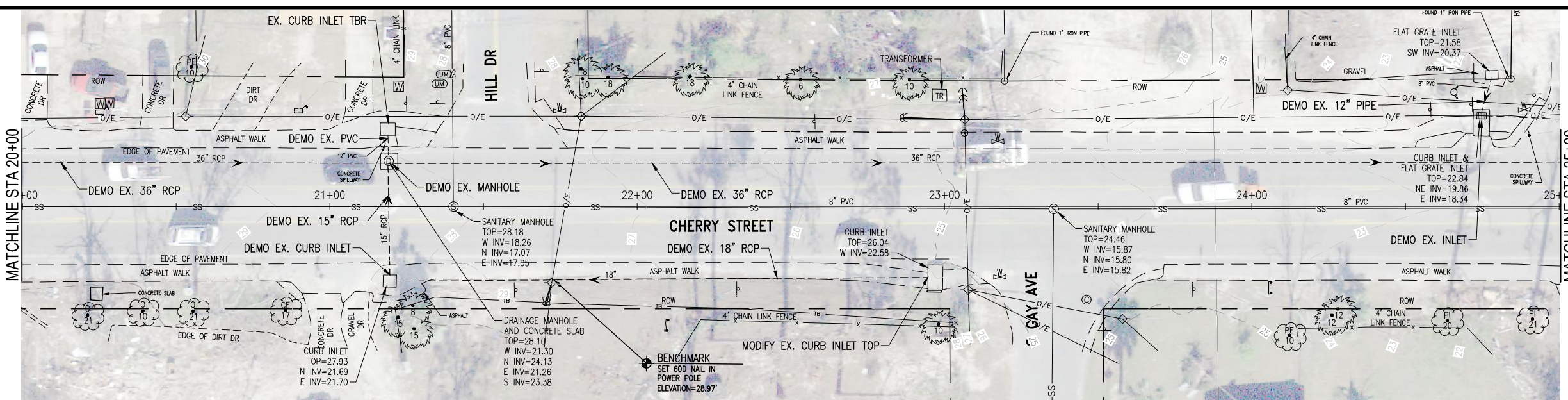
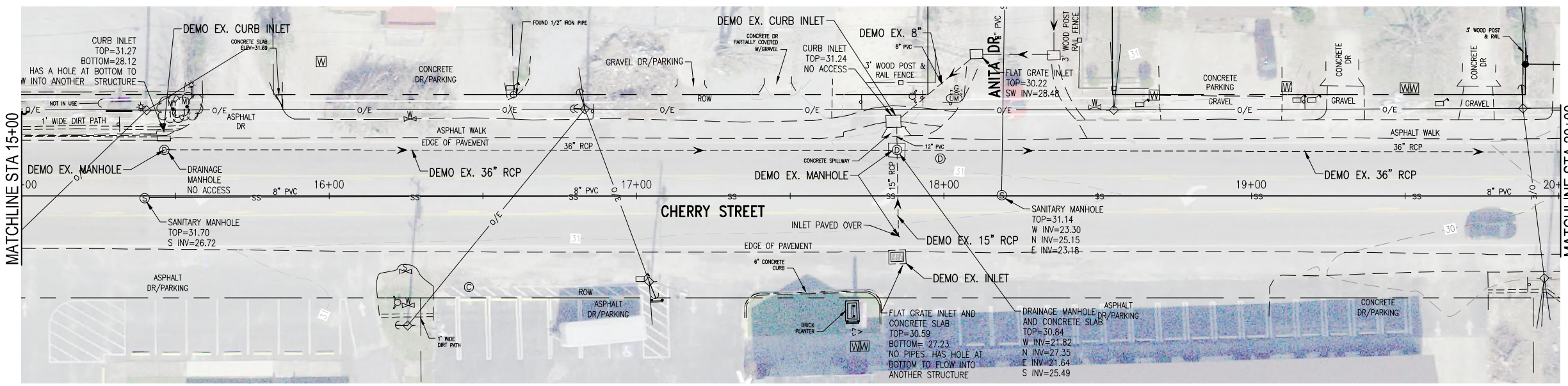
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 DRAWN BY: RGC  
 CHK'D BY: JCP  
 PROJ. MGR: JCP  
 DATE: JULY 2021

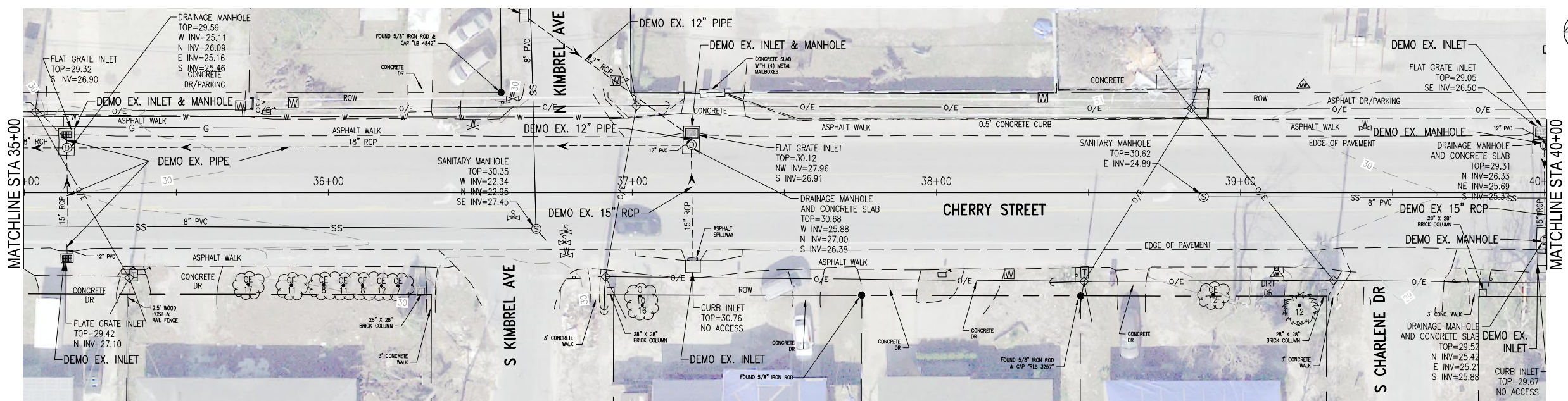
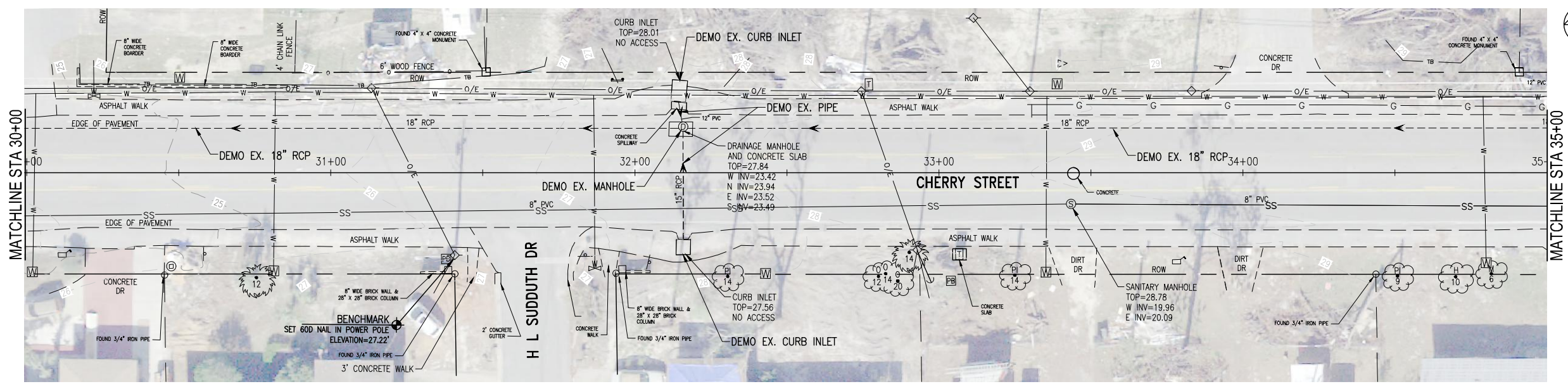
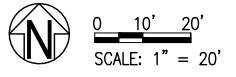
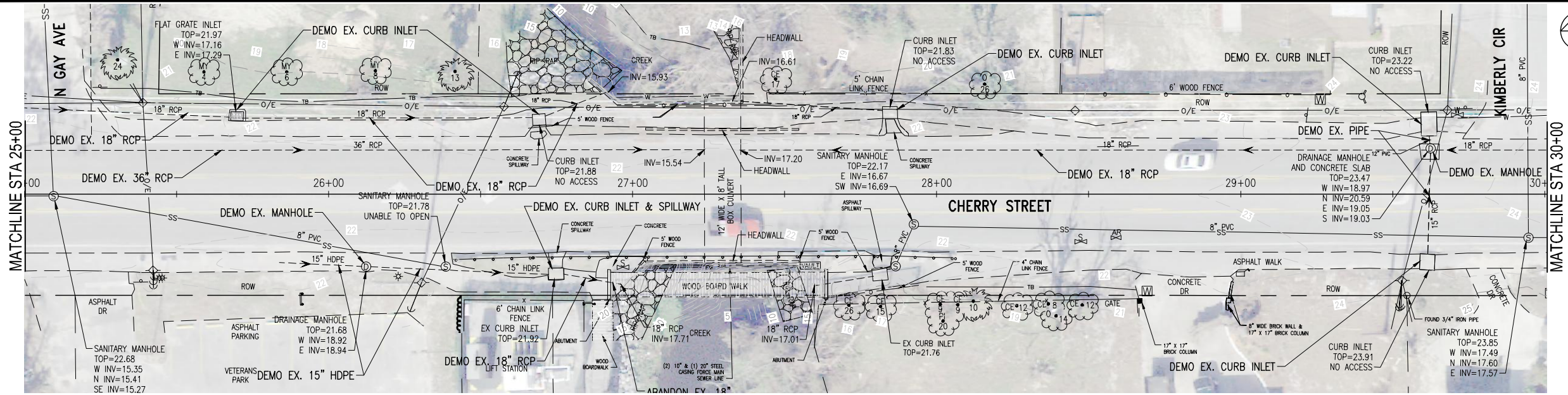
**EXISTING CONDITIONS  
 PLAN**

**C-101**





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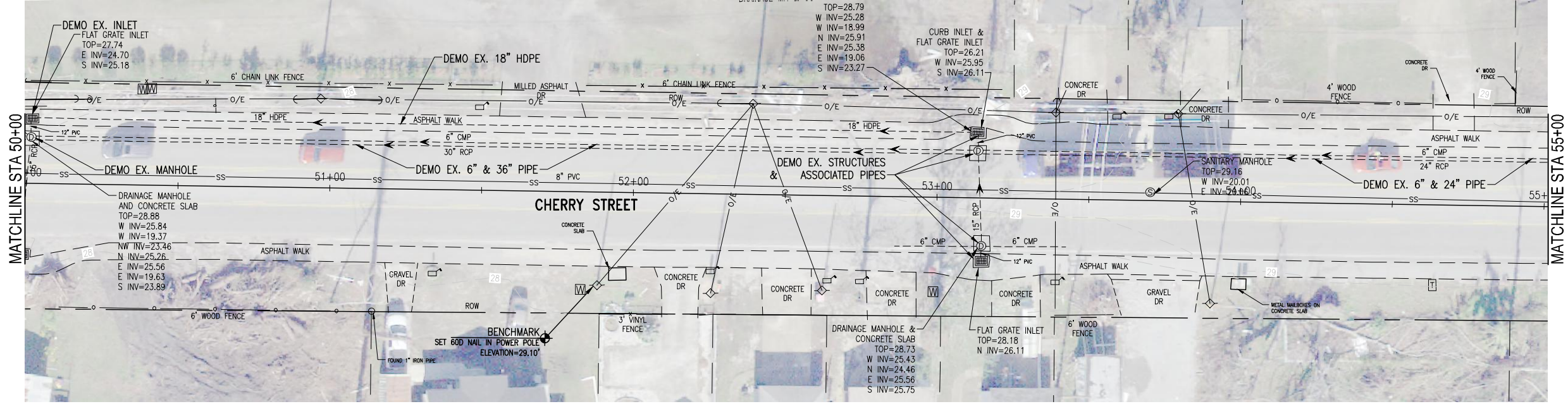
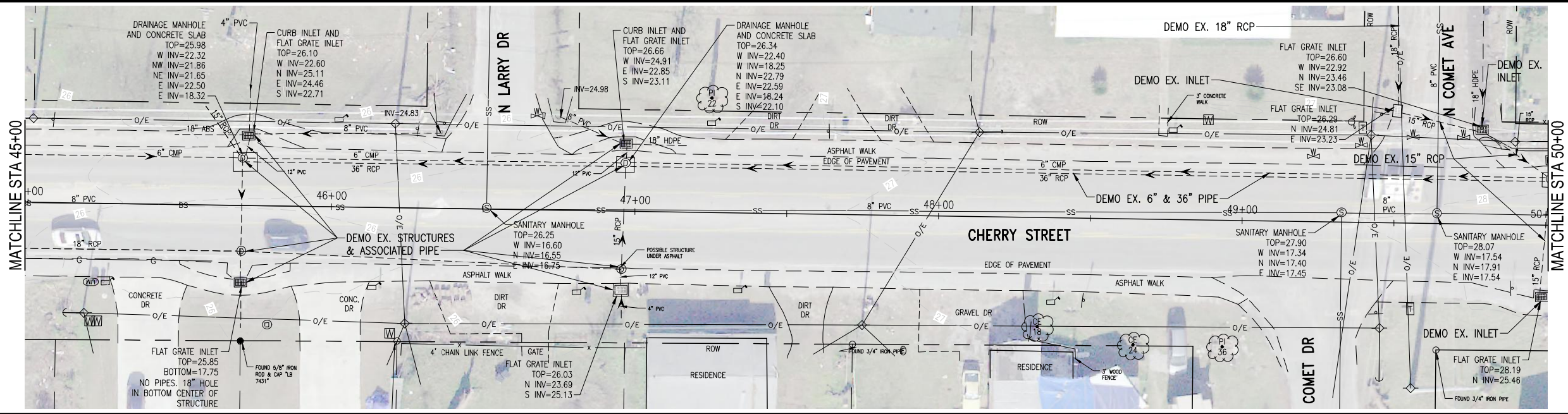
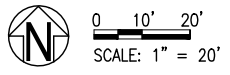
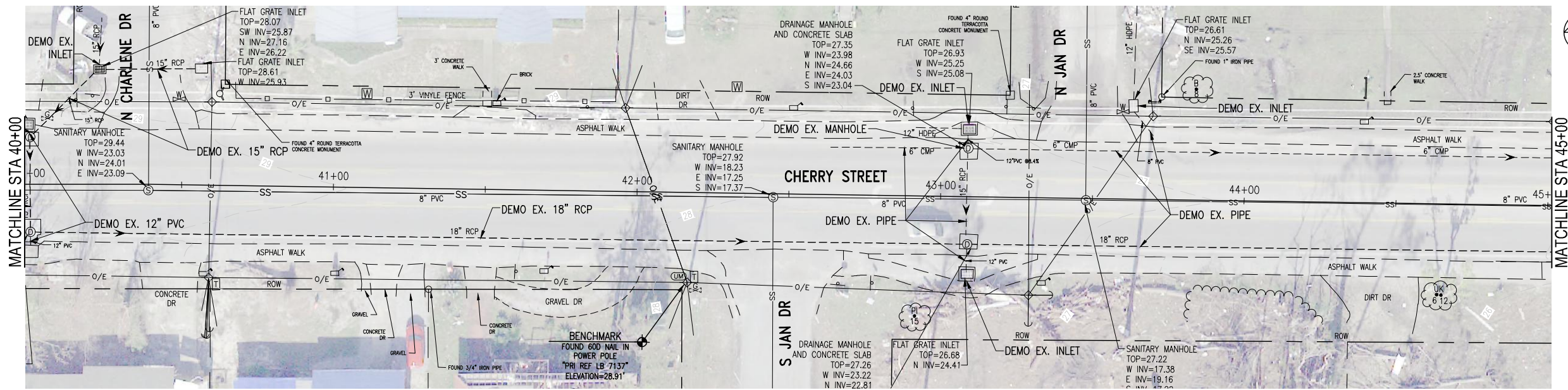
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**C-102**





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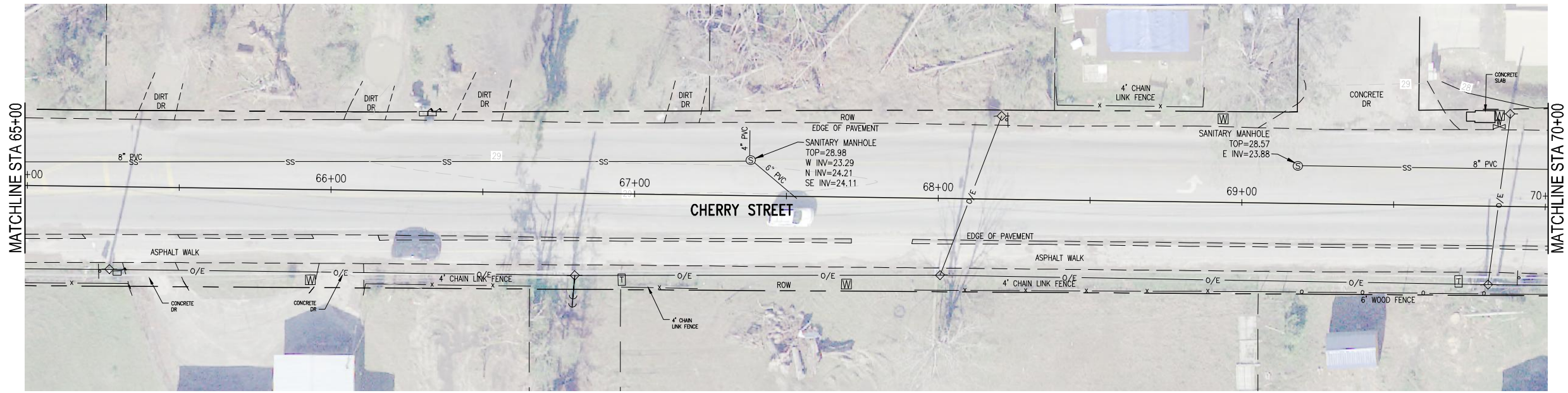
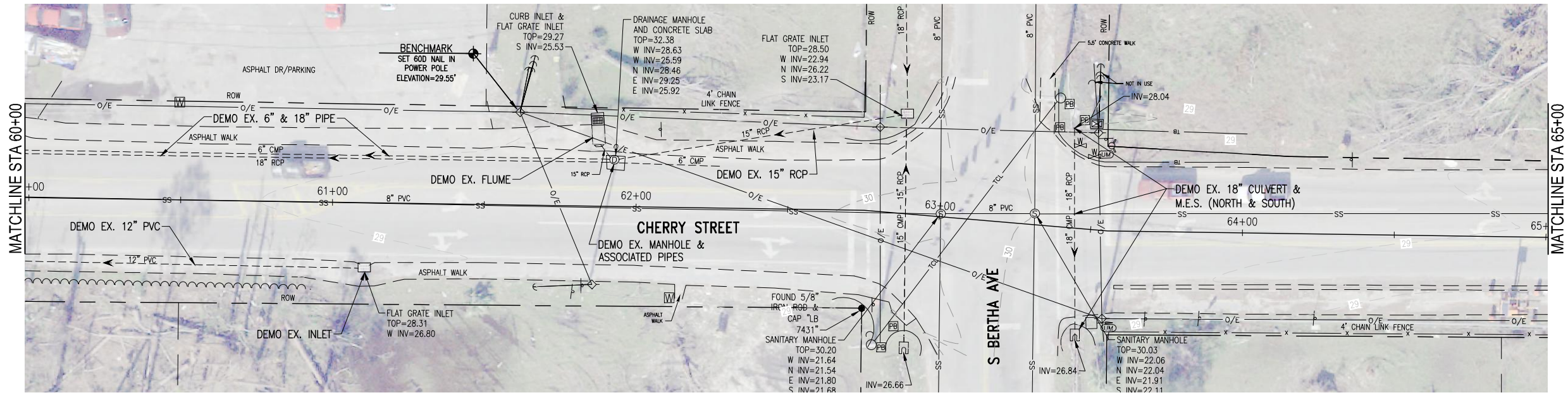
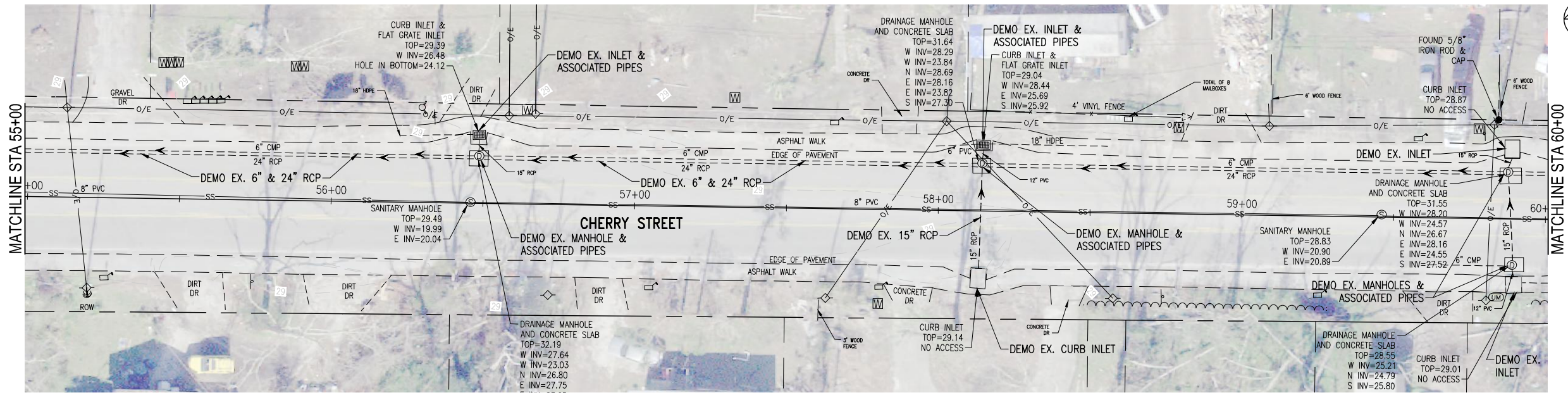
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**EXISTING CONDITIONS PLAN**





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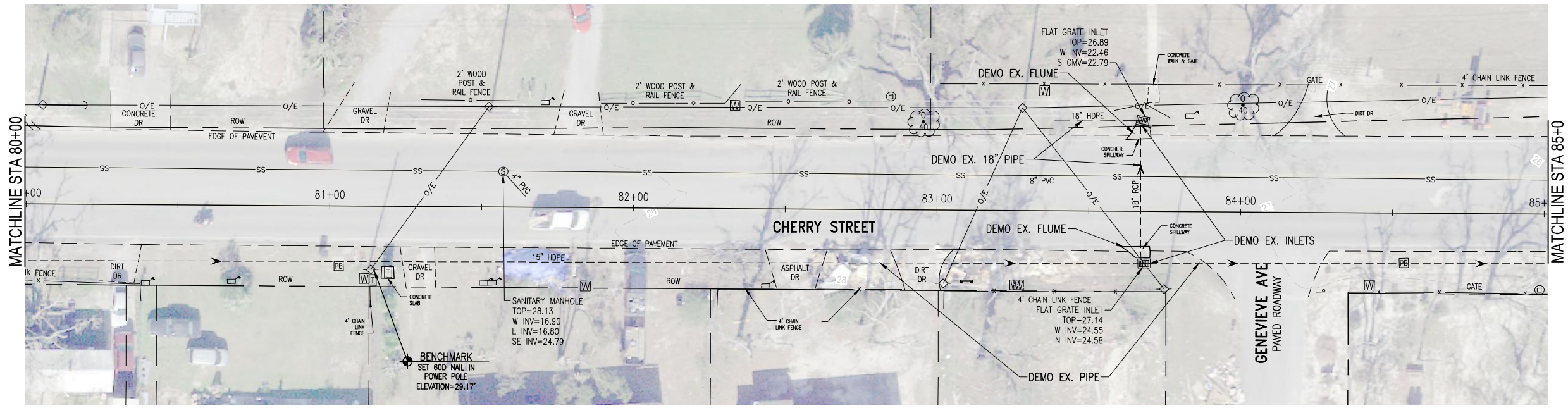
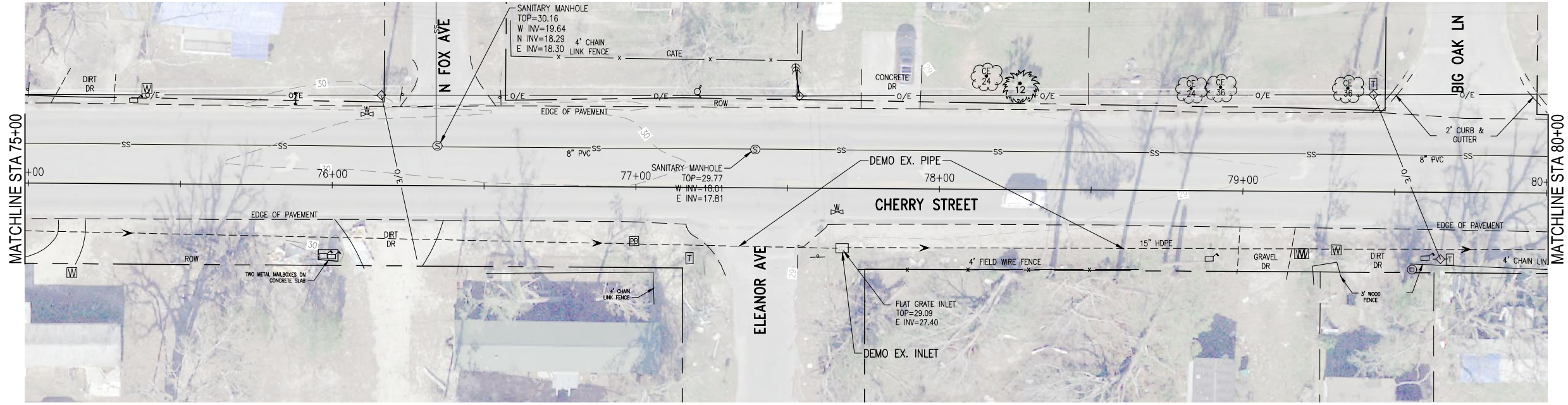
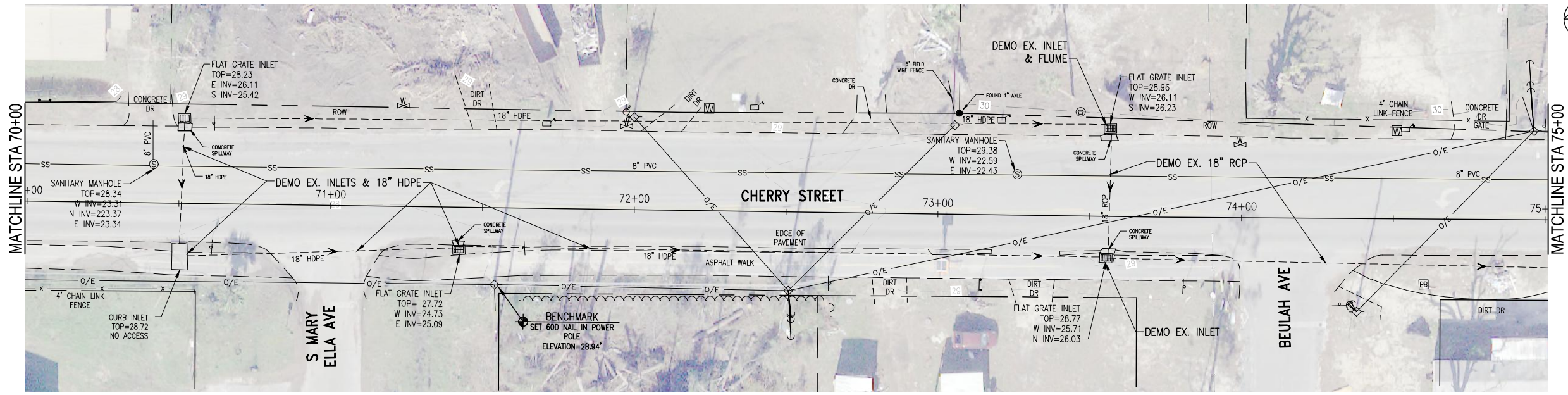
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PROJ. MGR:				
DATE:				

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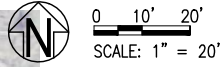
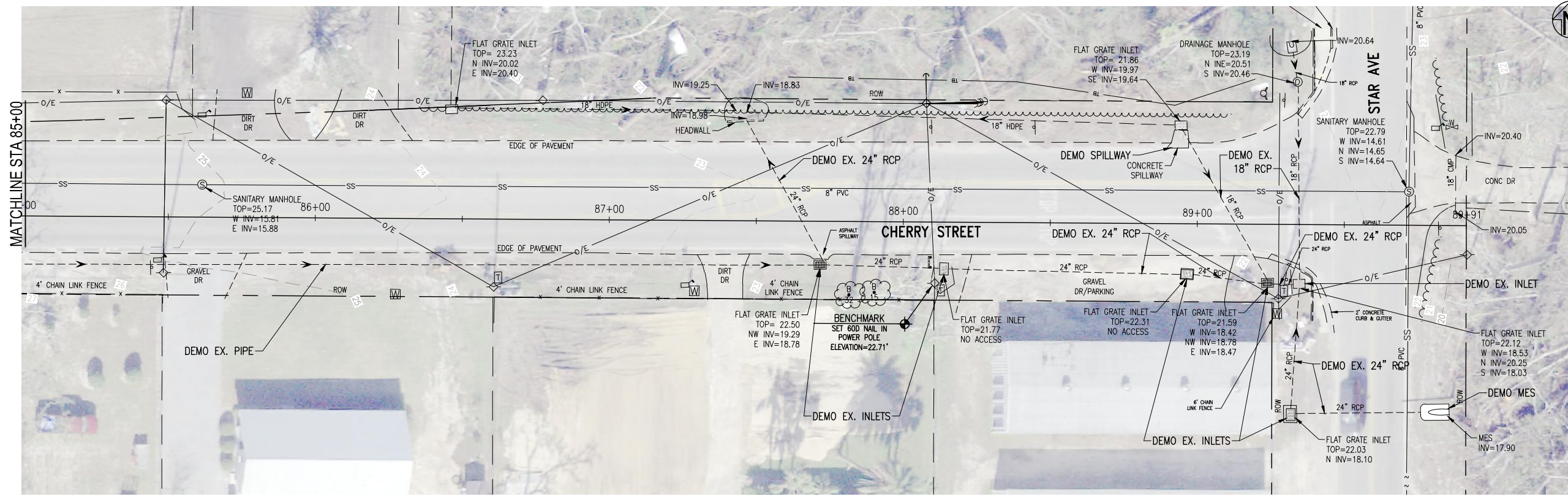
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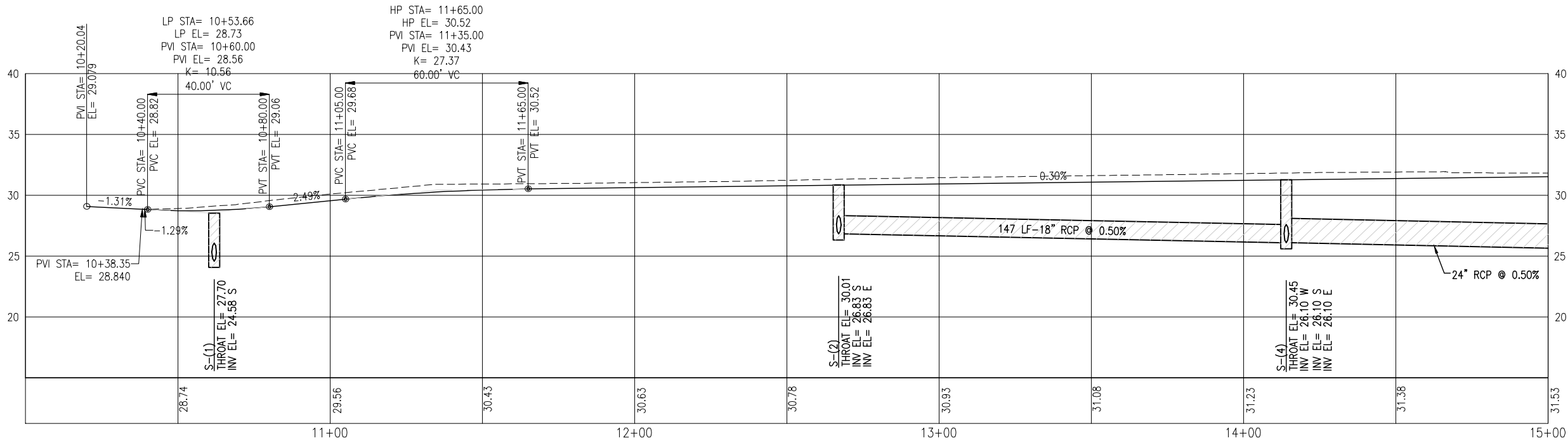
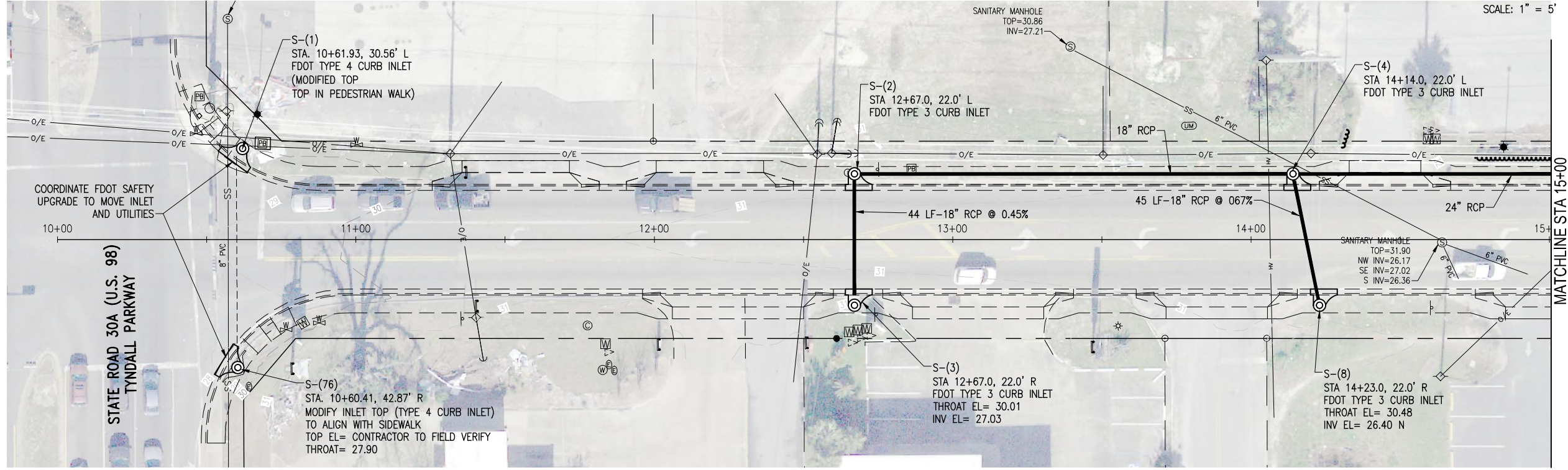
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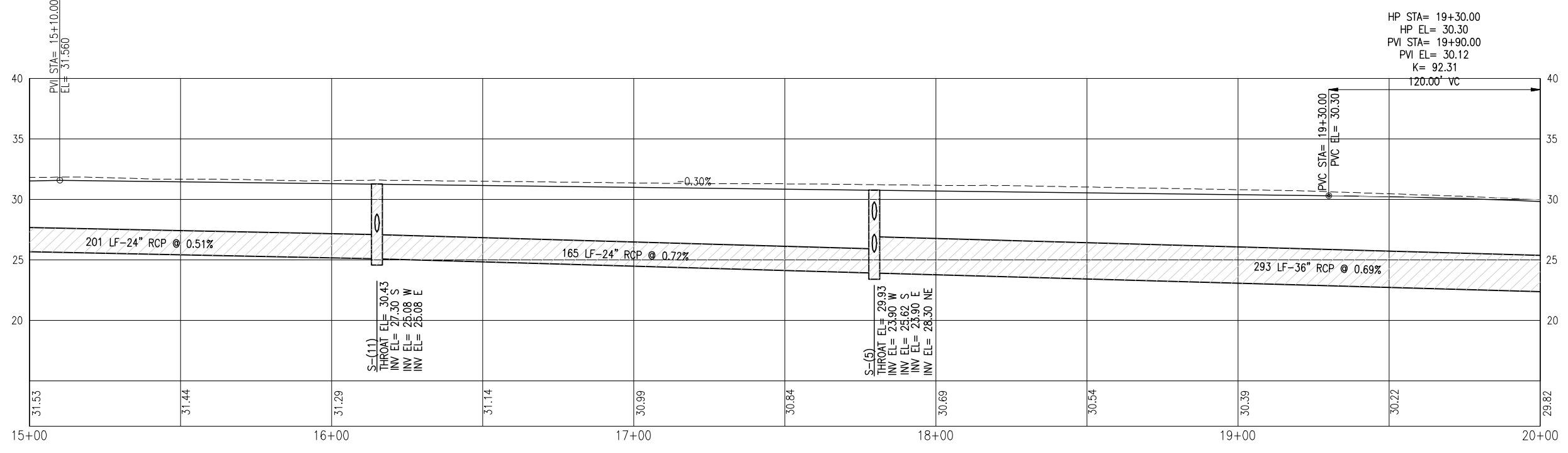
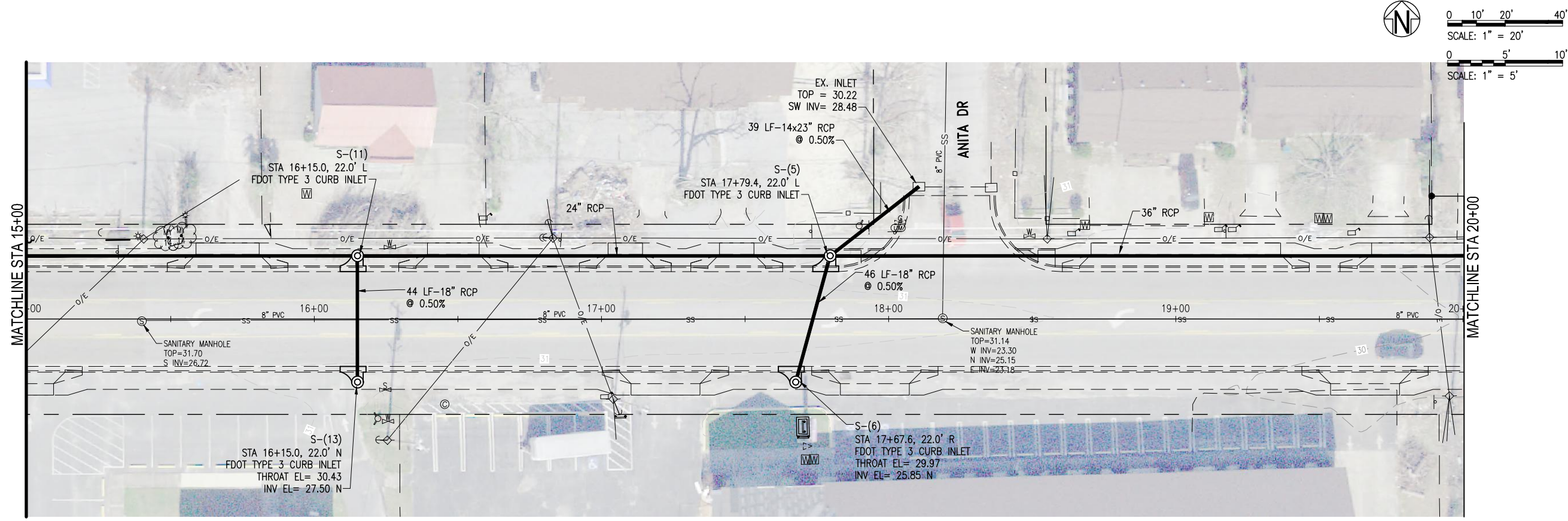
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**PLAN & PROFILE**

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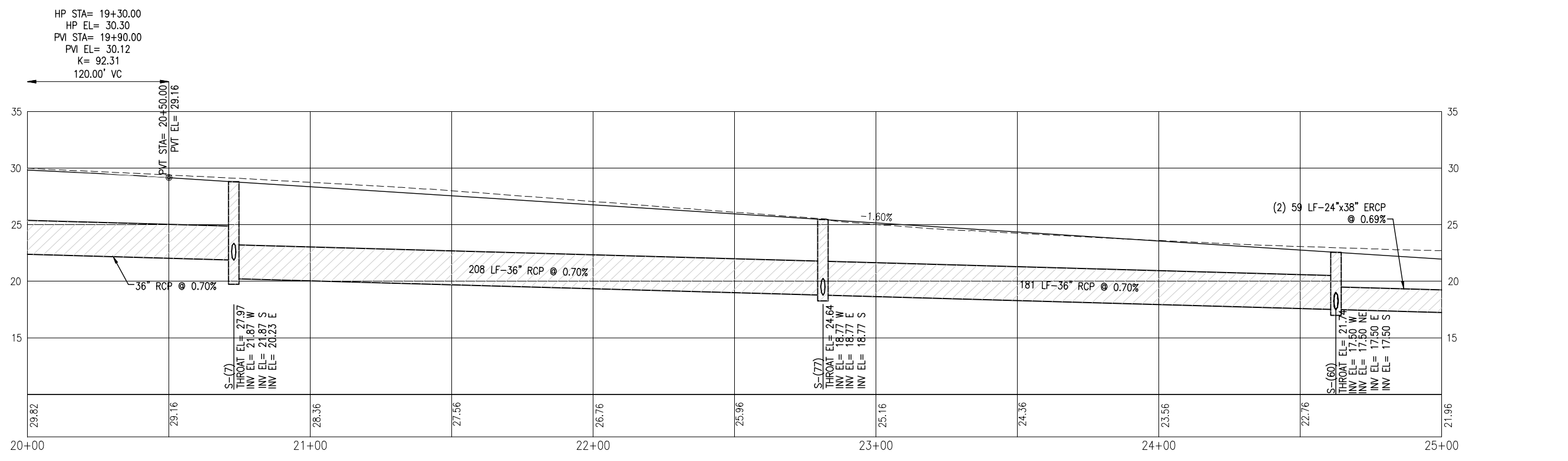
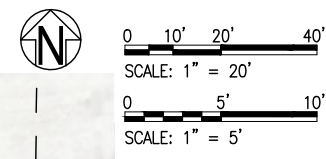
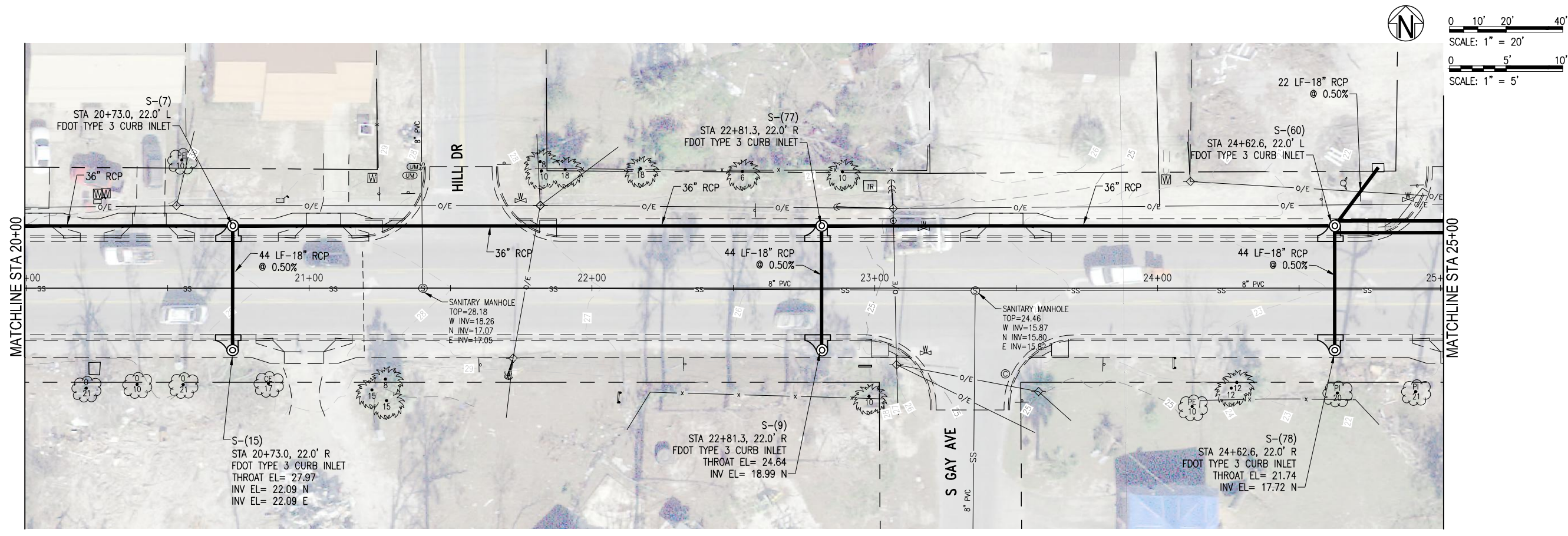
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CHK'D BY: JCP

PROJ. MGR: JCP

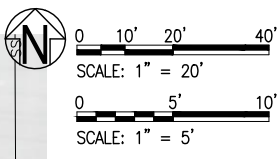
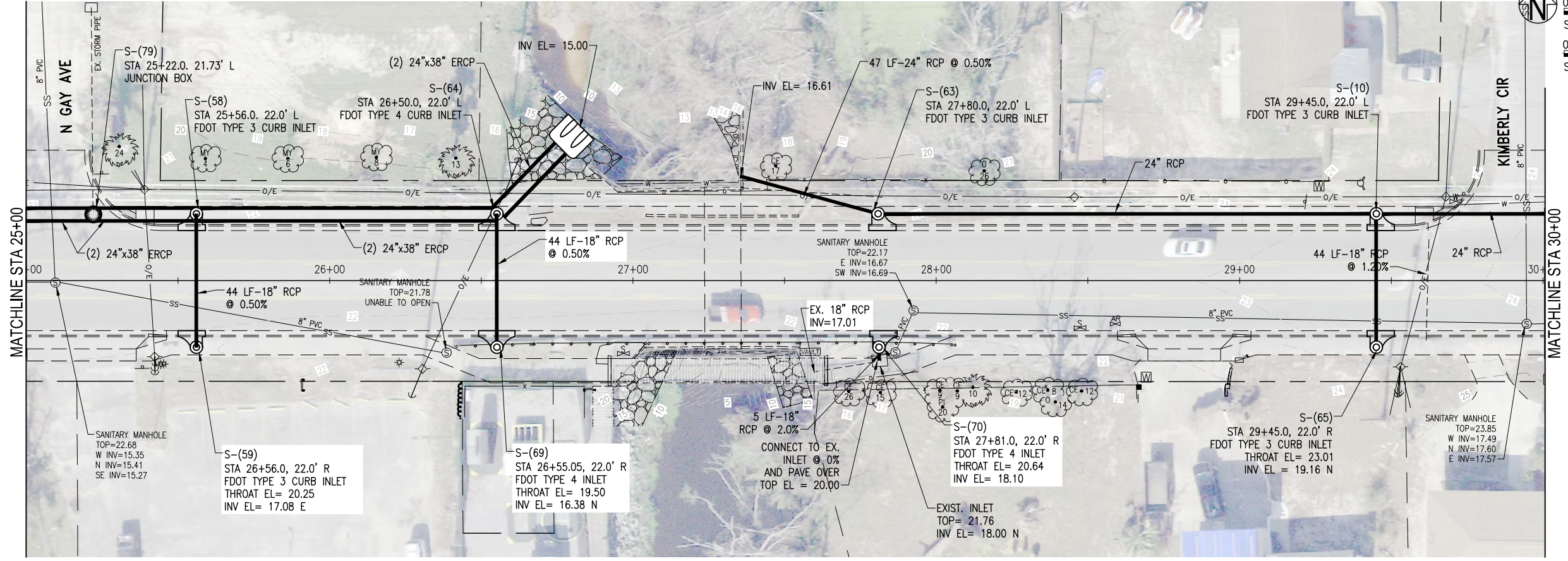
DATE: JULY 2021

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**PLAN & PROFILE**

**C-112**





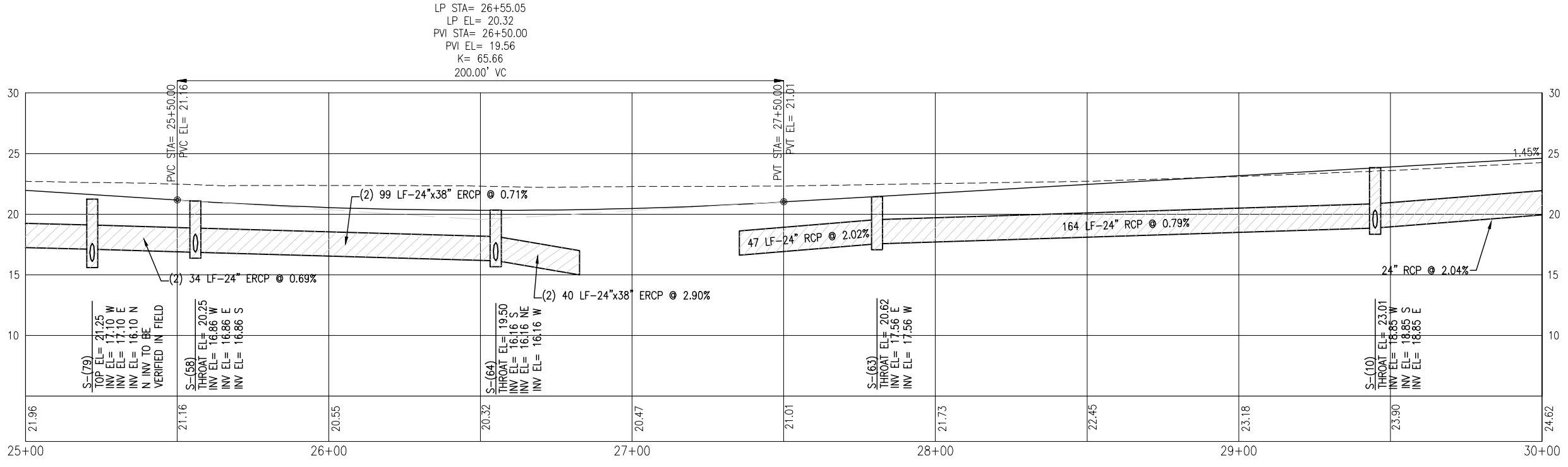
**BASKERVILLE-DONOVAN, INC.**  
 ENGINEERING THE SOUTH SINCE 1927  
 448 W. MAIN ST., PENSACOLA, FL 32502 (850) 438-9661  
 ENGINEERING BUSINESS: EB-0000340  
 Panama City Beach - Tallahassee - Mobile

LETTY C. PETERMAN, P.E.  
 FL. Reg. Engineer #77540

**TYNDALL PKWY TO  
 STAR AVE DRAINAGE  
 IMPROVEMENTS**

PROJECT NO:	NO.	DATE	APPR.	REVISION/ACTION TAKEN
27655.01				
DESIGNED BY: GM				
DRAWN BY: RGC				
CHK'D BY: JCP				
PROJ. MGR: JCP				
DATE: JULY 2021				

**PLAN & PROFILE**



LP STA= 26+55.05  
 LP EL= 20.32  
 PVI STA= 26+50.00  
 PVI EL= 19.56  
 K= 65.66  
 200.00' VC

S-(79)  
 TOP EL= 21.25  
 INV EL= 17.10 W  
 INV EL= 17.10 E  
 INV EL= 16.10 N  
 INV EL= 16.10 S  
 N INV TO BE  
 VERIFIED IN FIELD

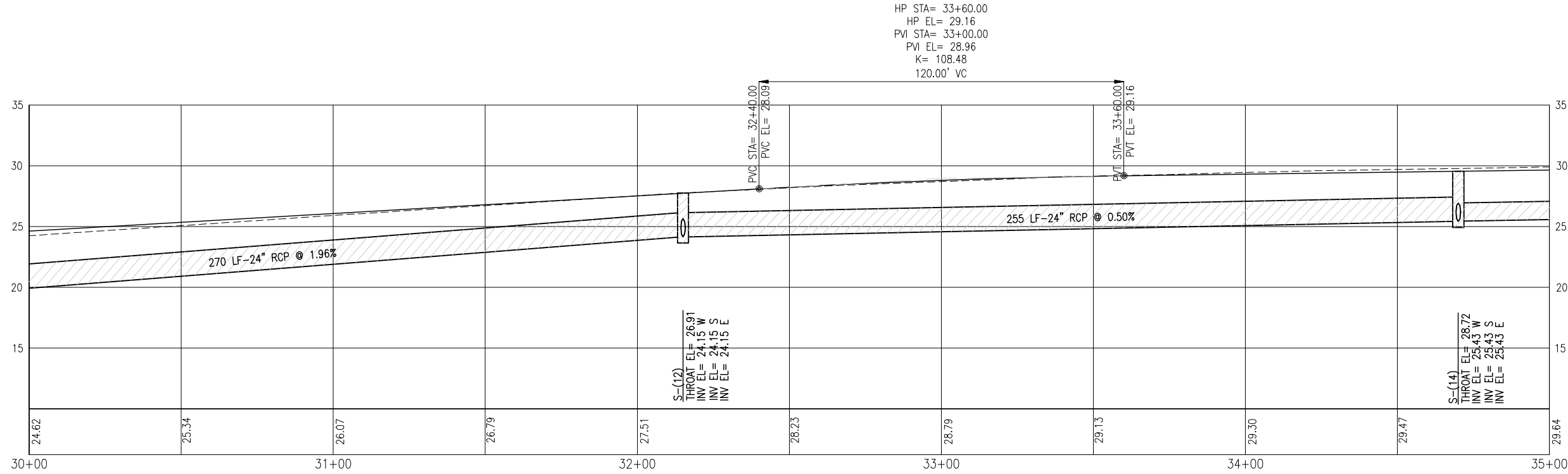
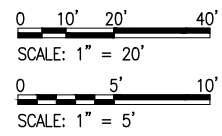
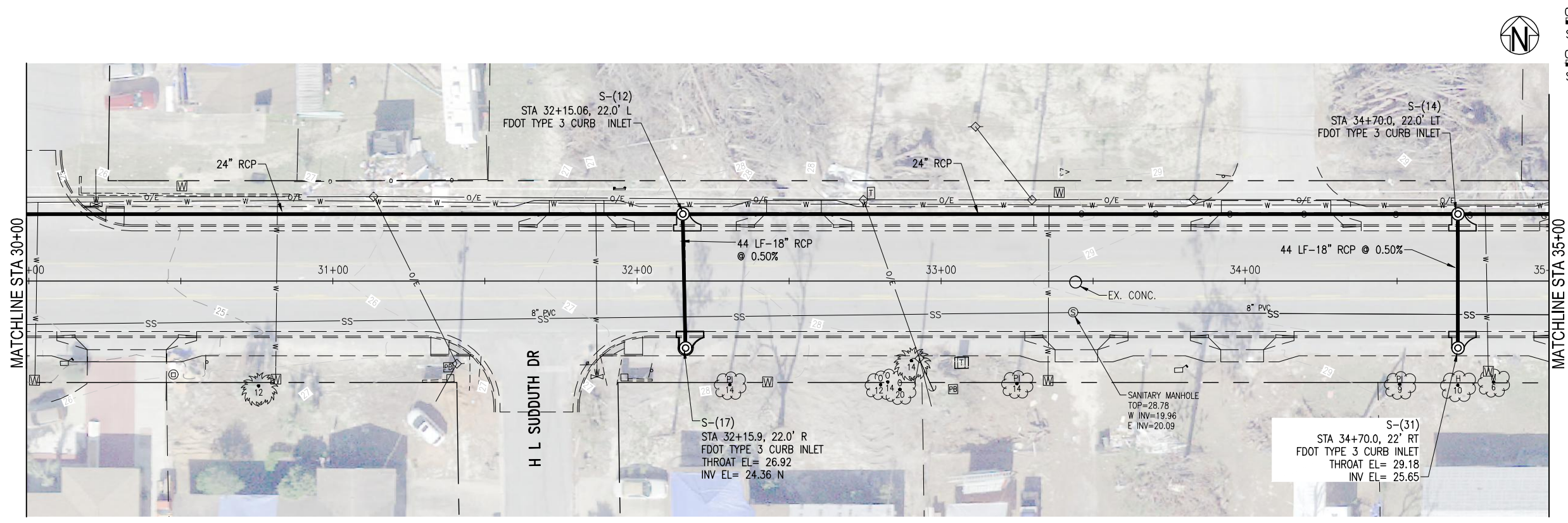
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 THROAT EL= 20.25  
 INV EL= 16.86 W  
 INV EL= 16.86 E  
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S-(64)  
 THROAT EL= 19.50  
 INV EL= 16.16 S  
 INV EL= 16.16 NE  
 INV EL= 16.16 W

S-(63)  
 THROAT EL= 20.62  
 INV EL= 17.56 E  
 INV EL= 17.56 W

S-(10)  
 THROAT EL= 23.01  
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 INV EL= 18.85 E





LETTY C. PETERMAN, P.E.  
 FL. Reg. Engineer #77540

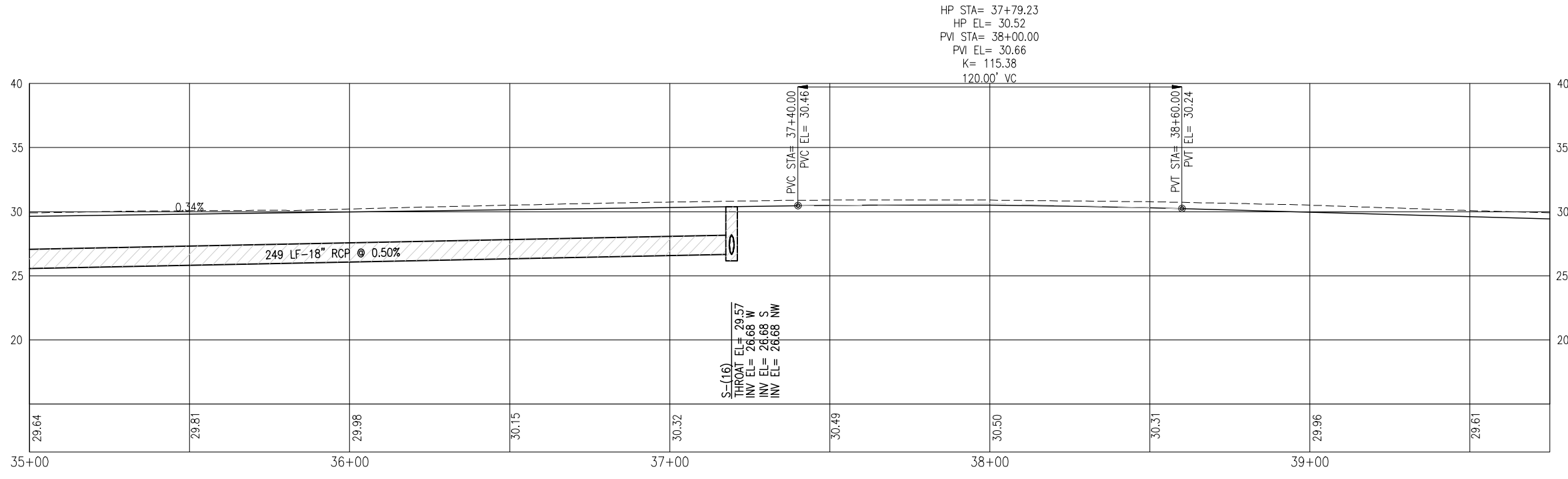
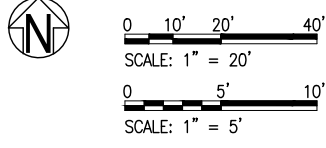
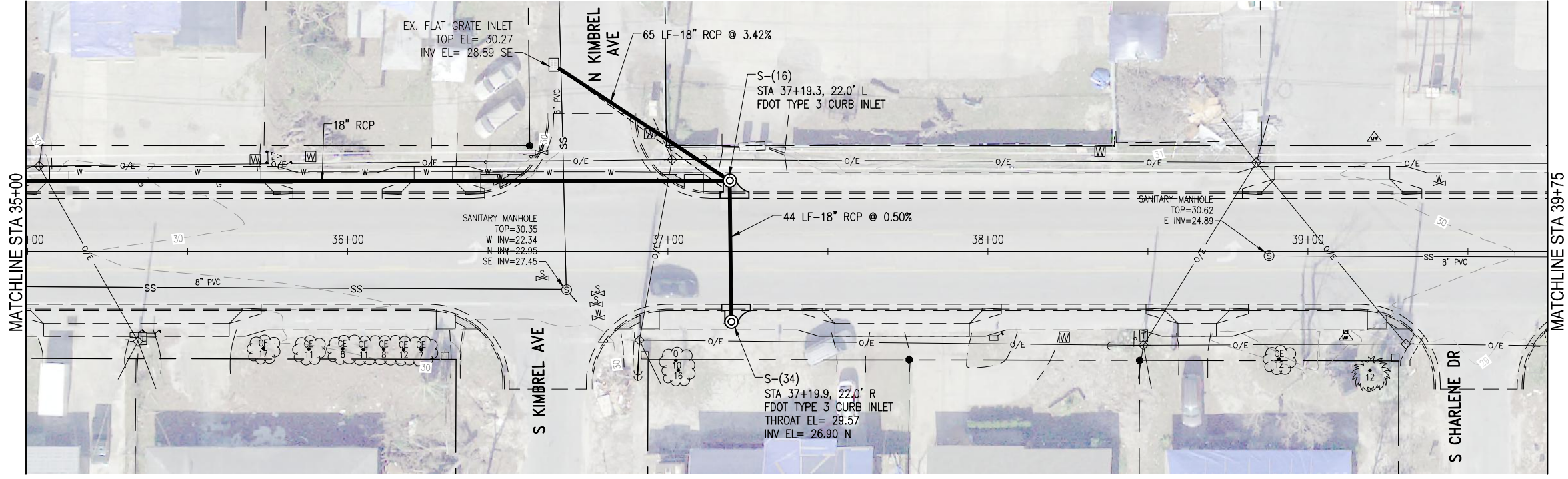
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**PLAN & PROFILE**





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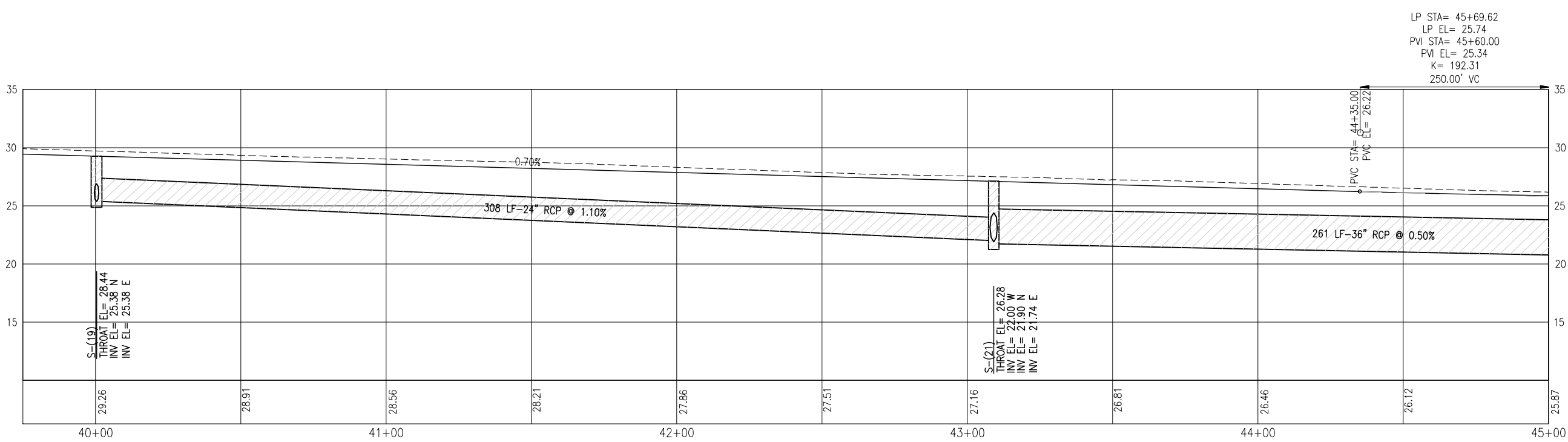
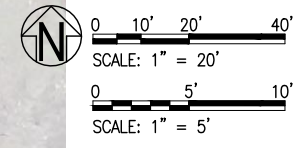
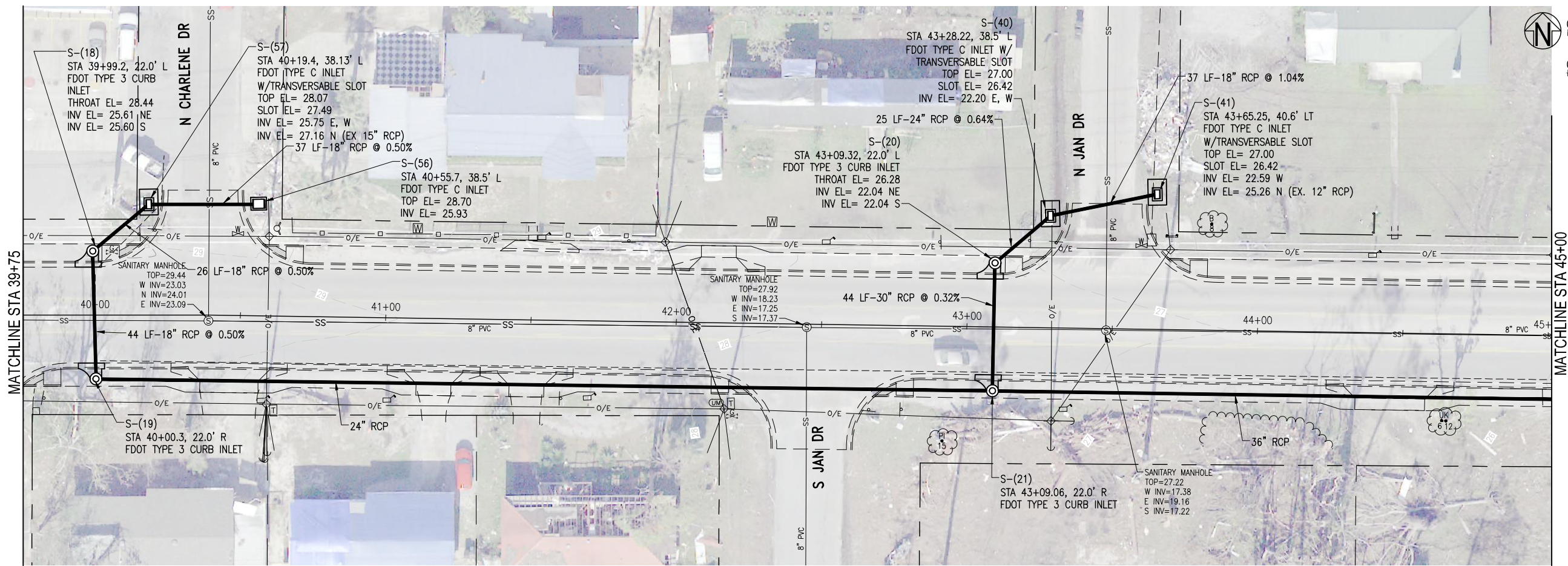
LETTY C. PETERMANN, P.E.  
FL. Reg. Engineer #77540

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 FL. Reg. Engineer #77540

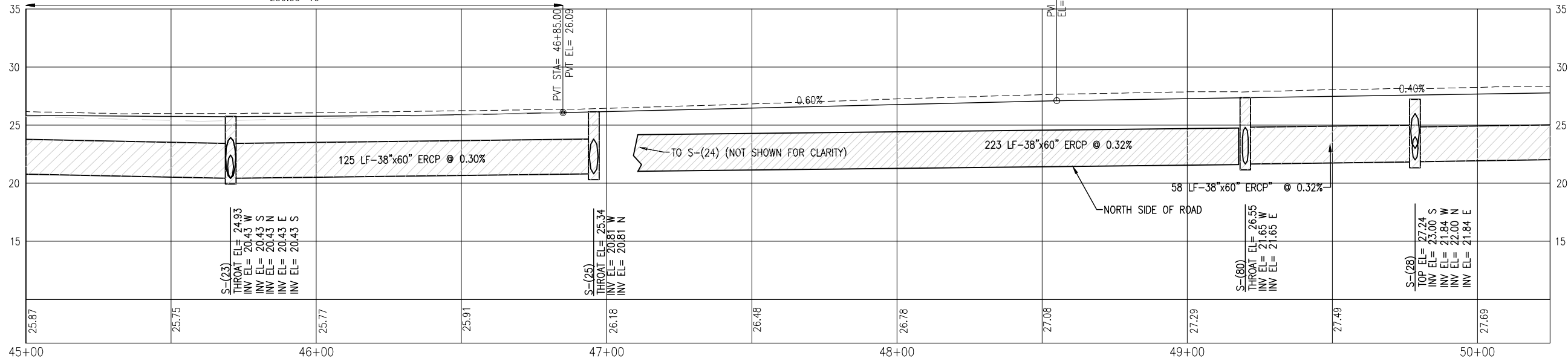
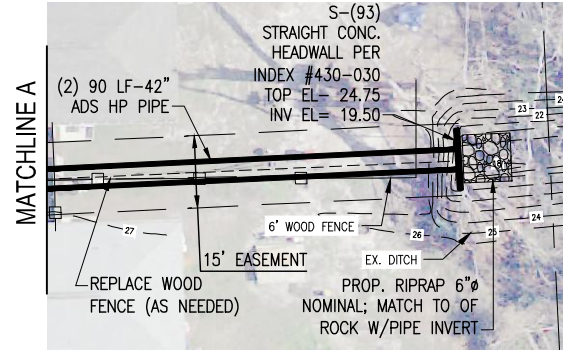
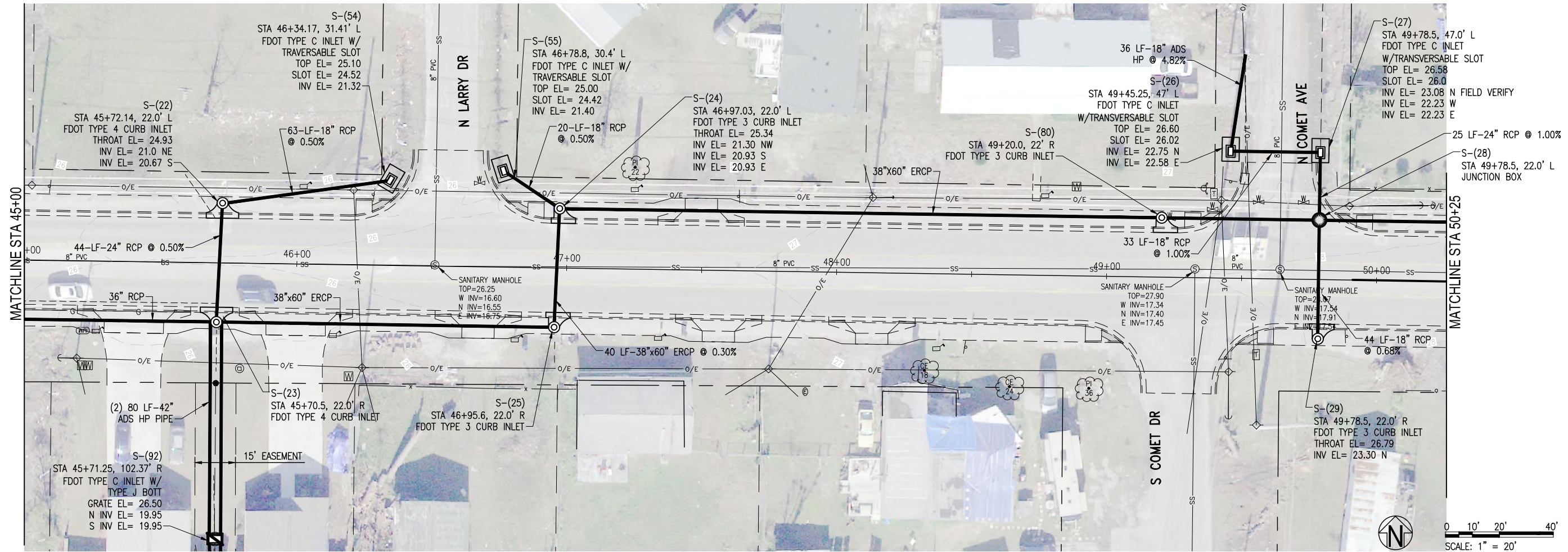
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**PLAN & PROFILE**



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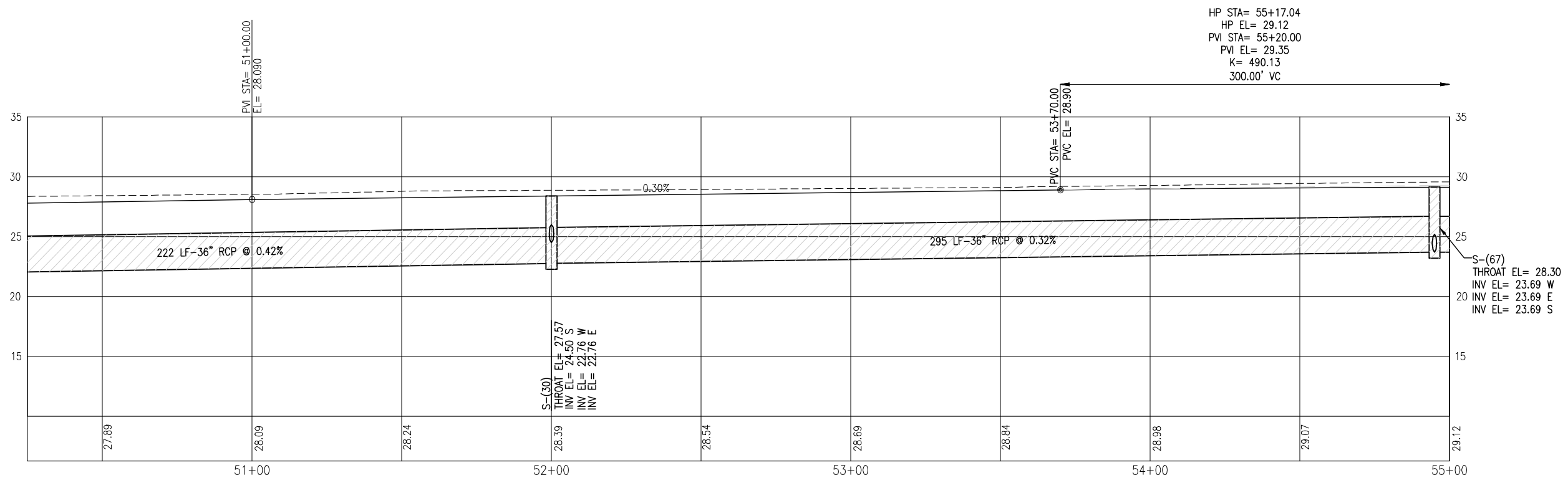
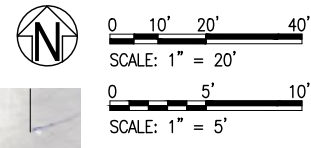
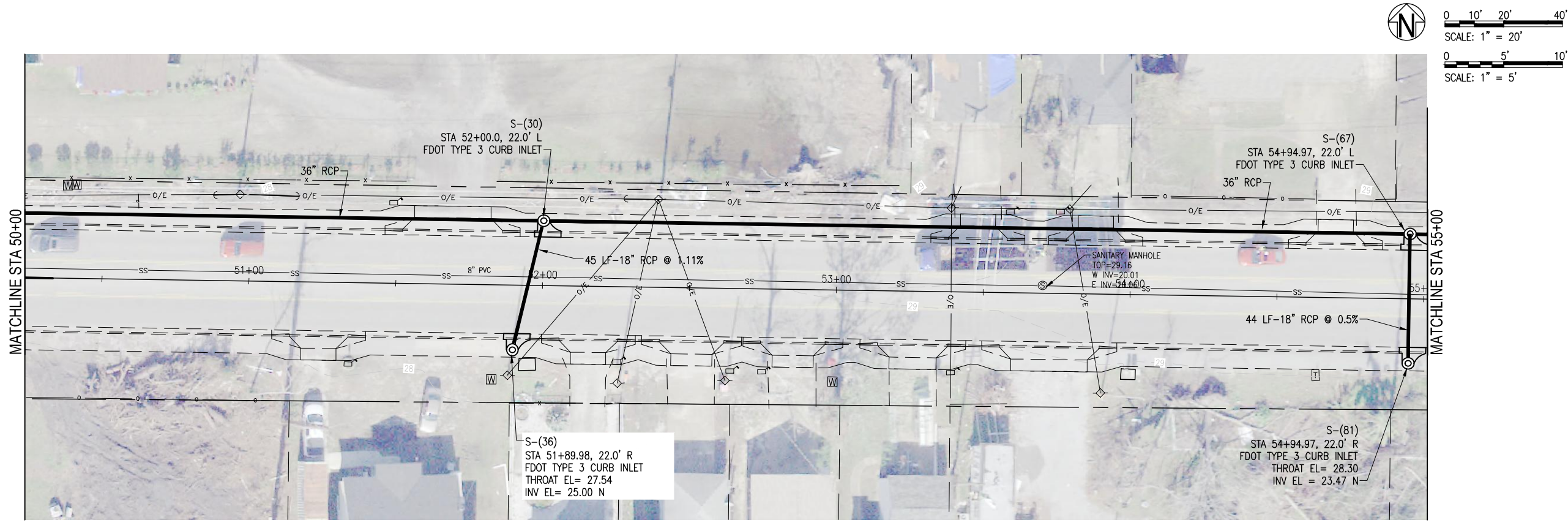


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 FL. Reg. Engineer #77540

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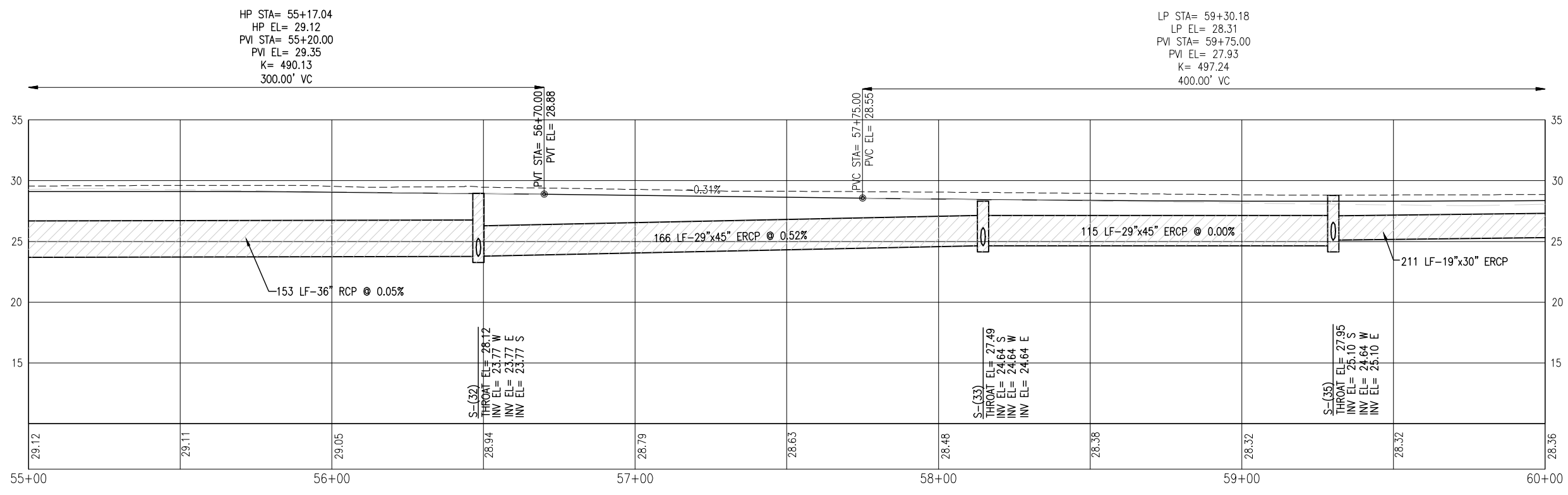
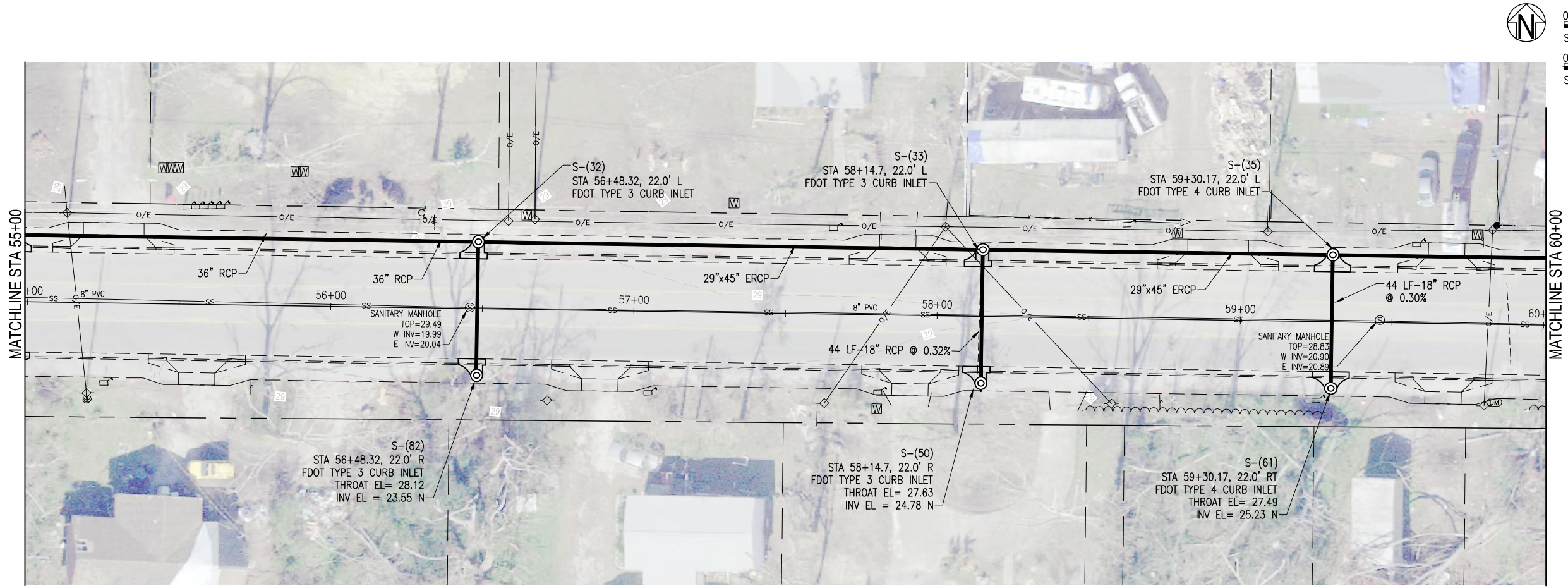
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**C-118**





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**LETTY C. PETERMAN, P.E.**  
 FL. Reg. Engineer #77540

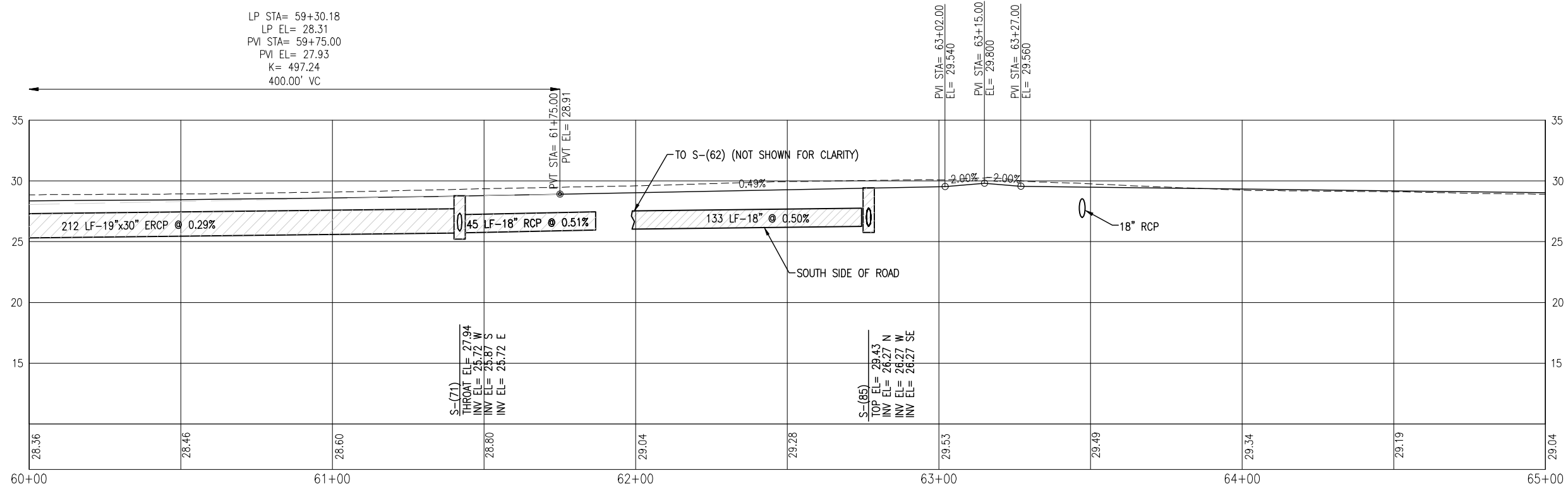
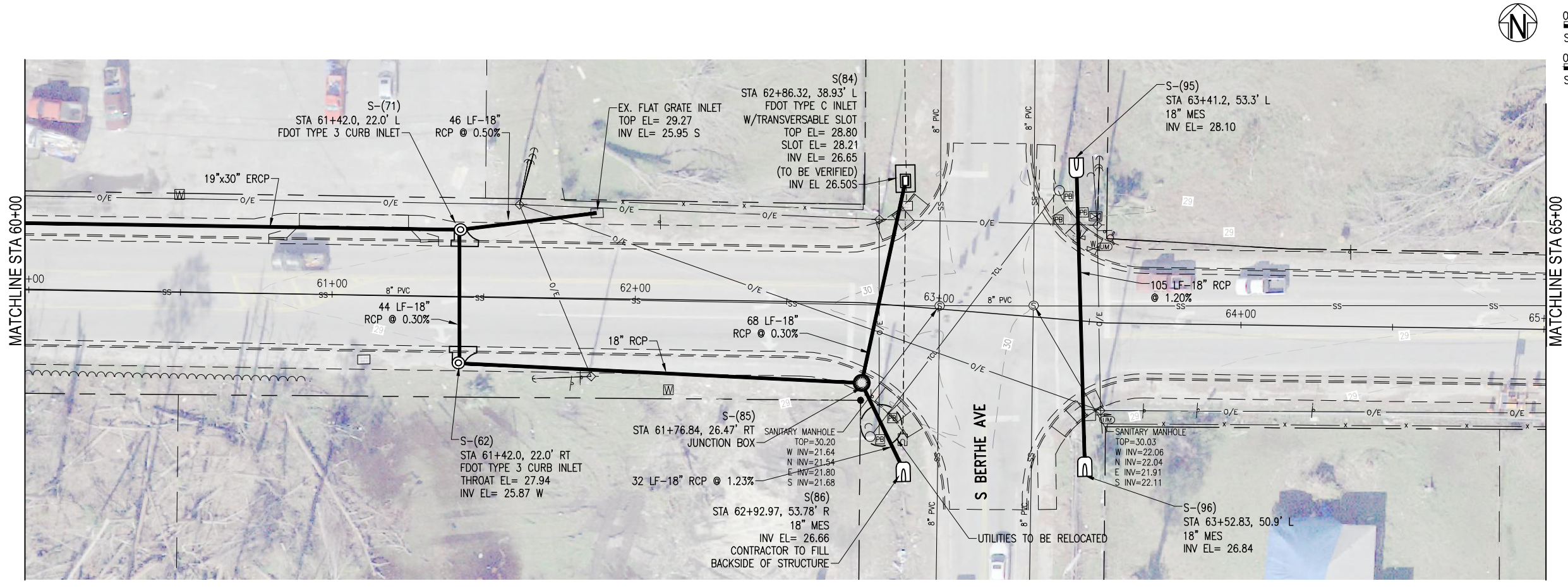
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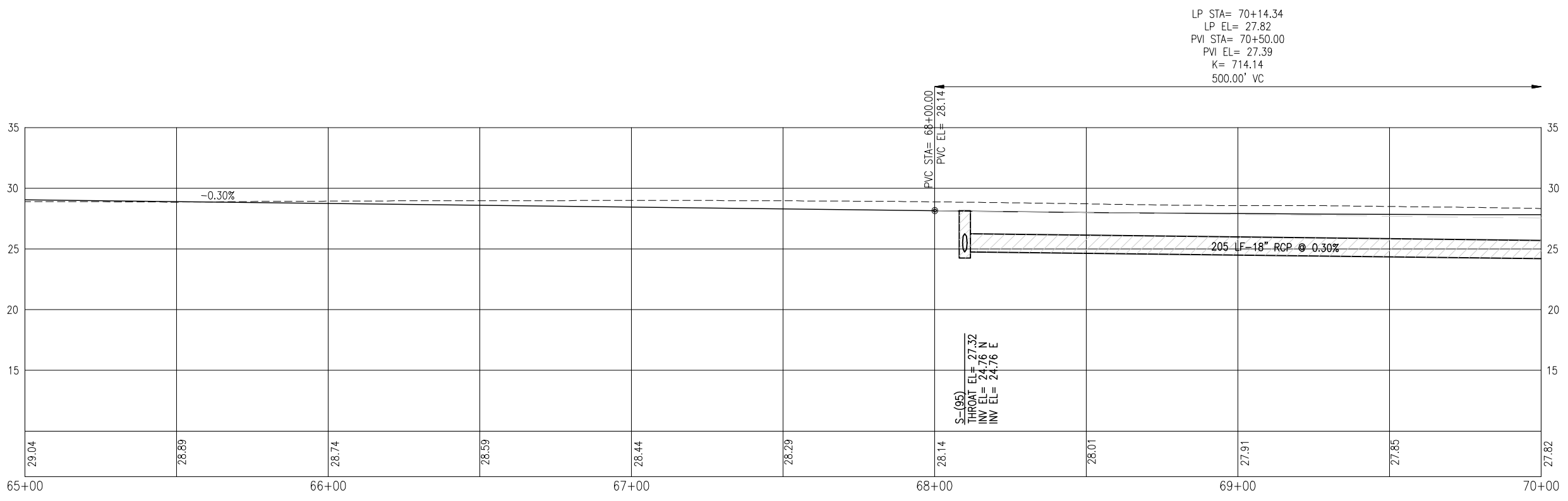
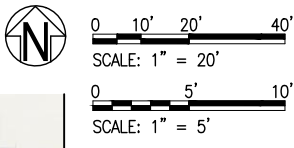
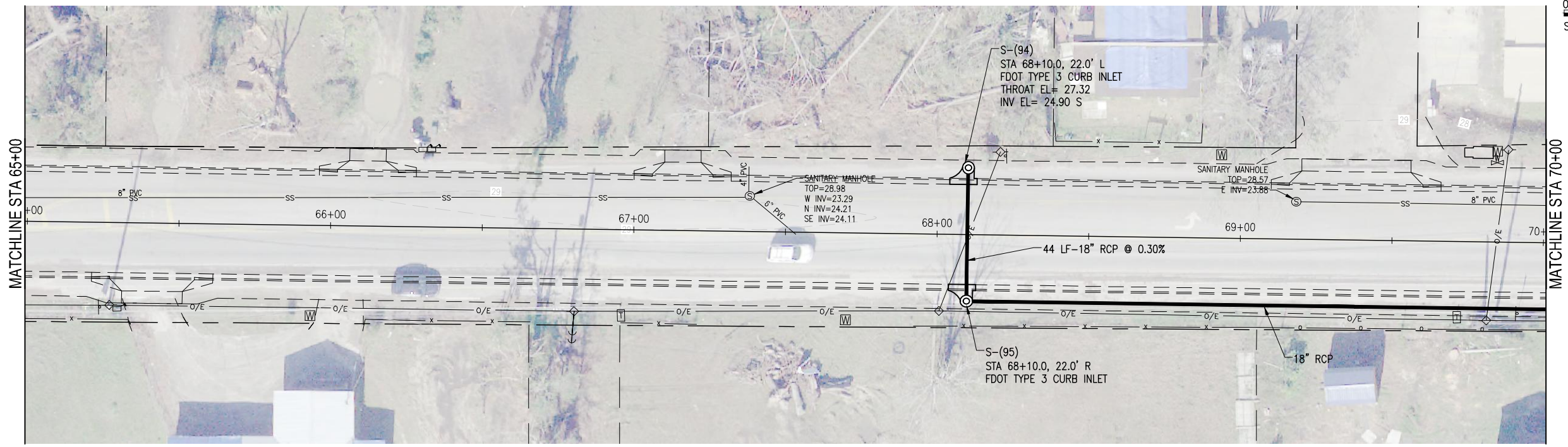
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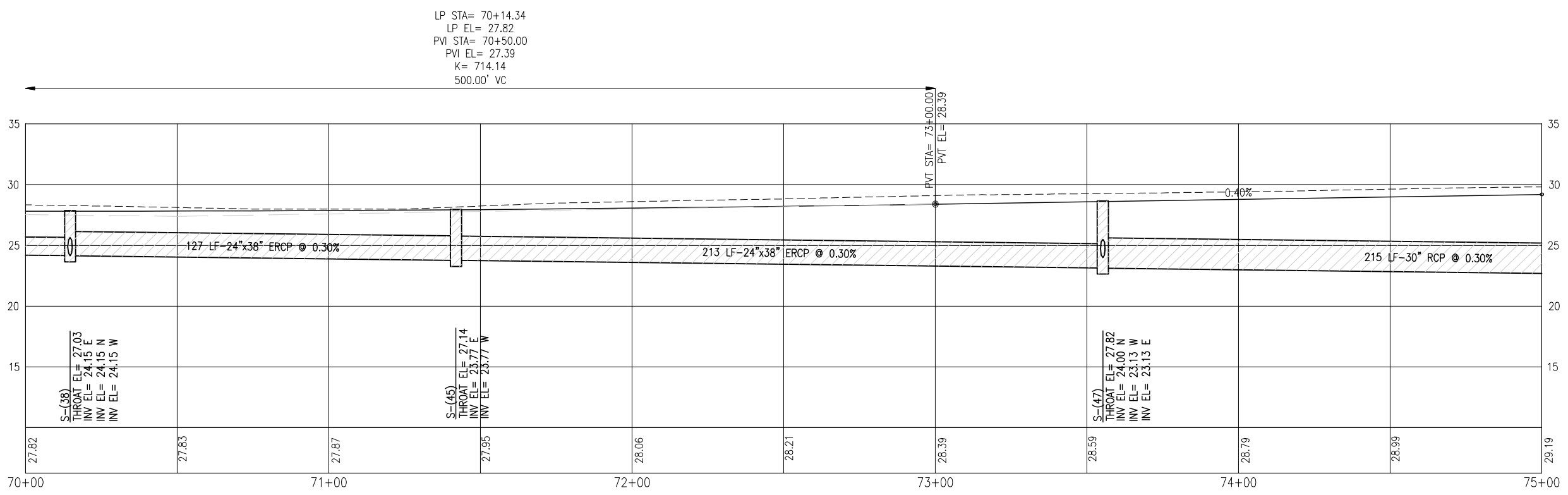
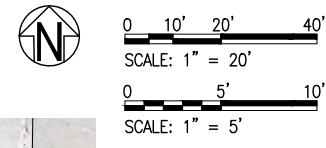
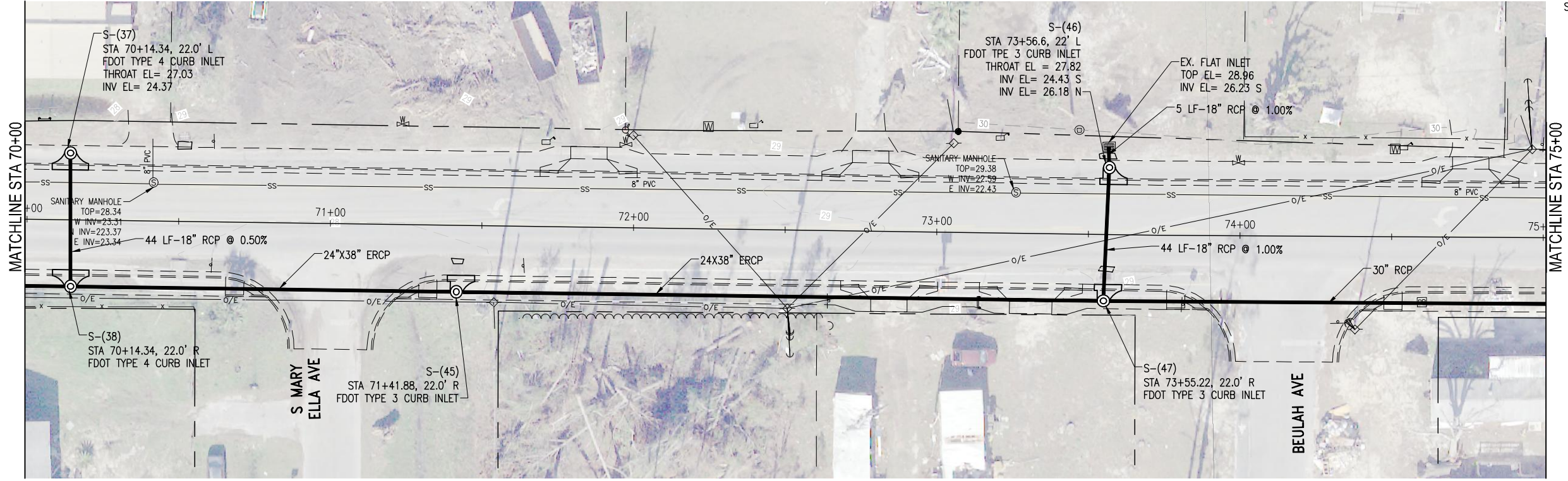
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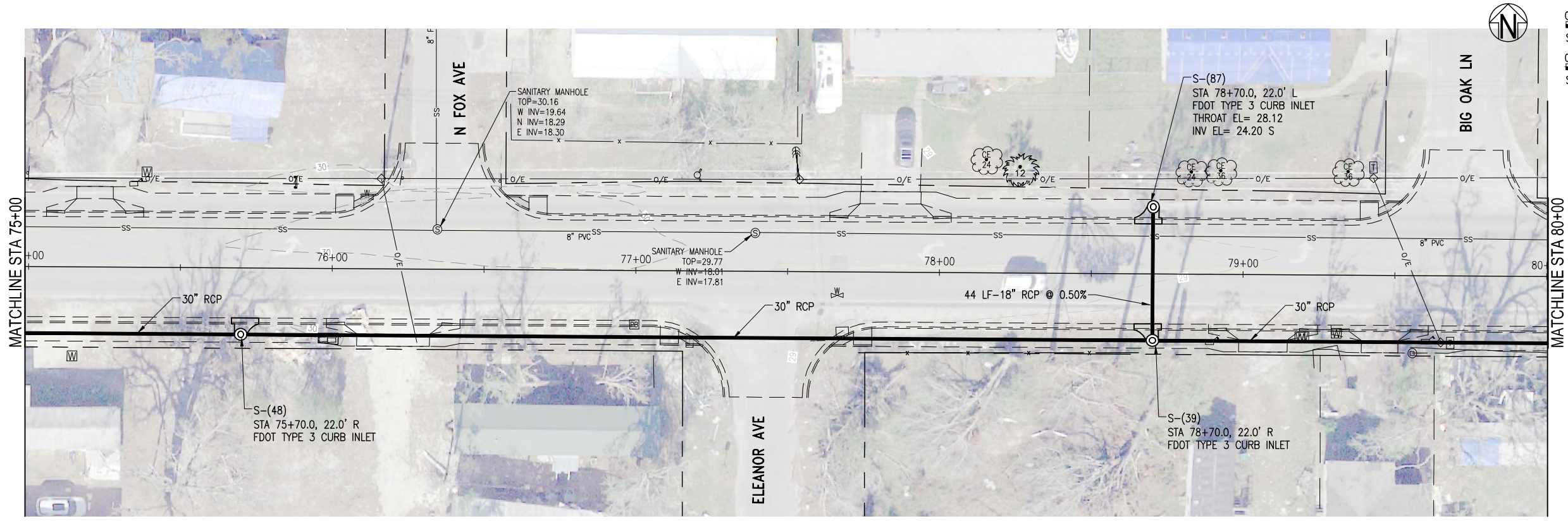
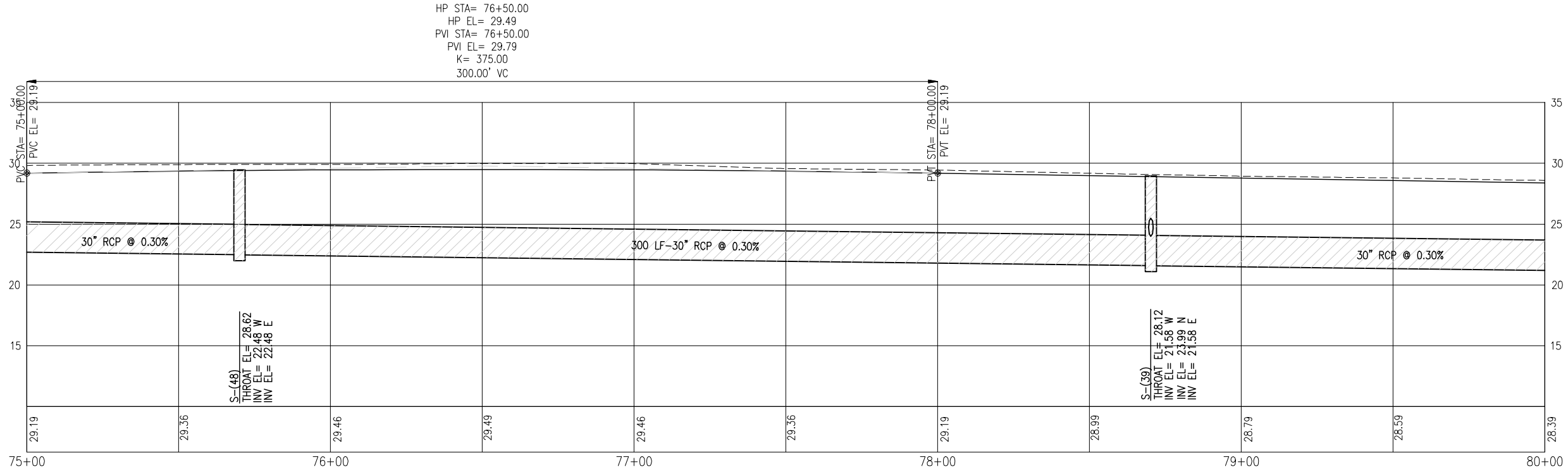
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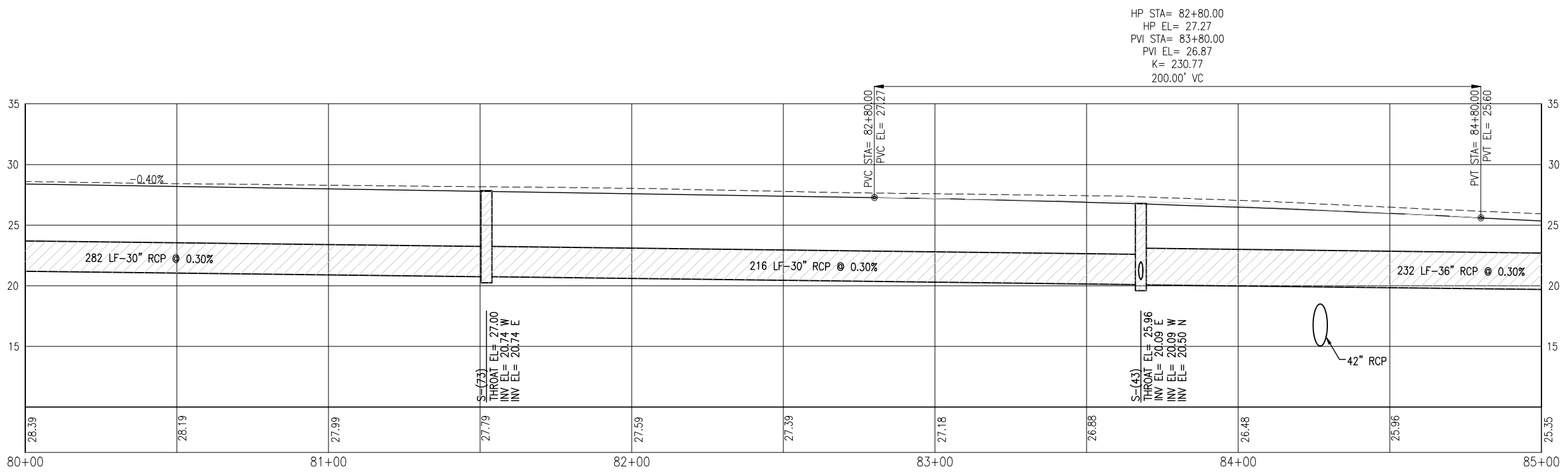
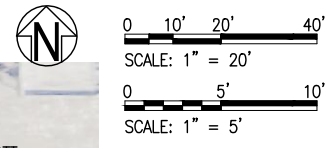
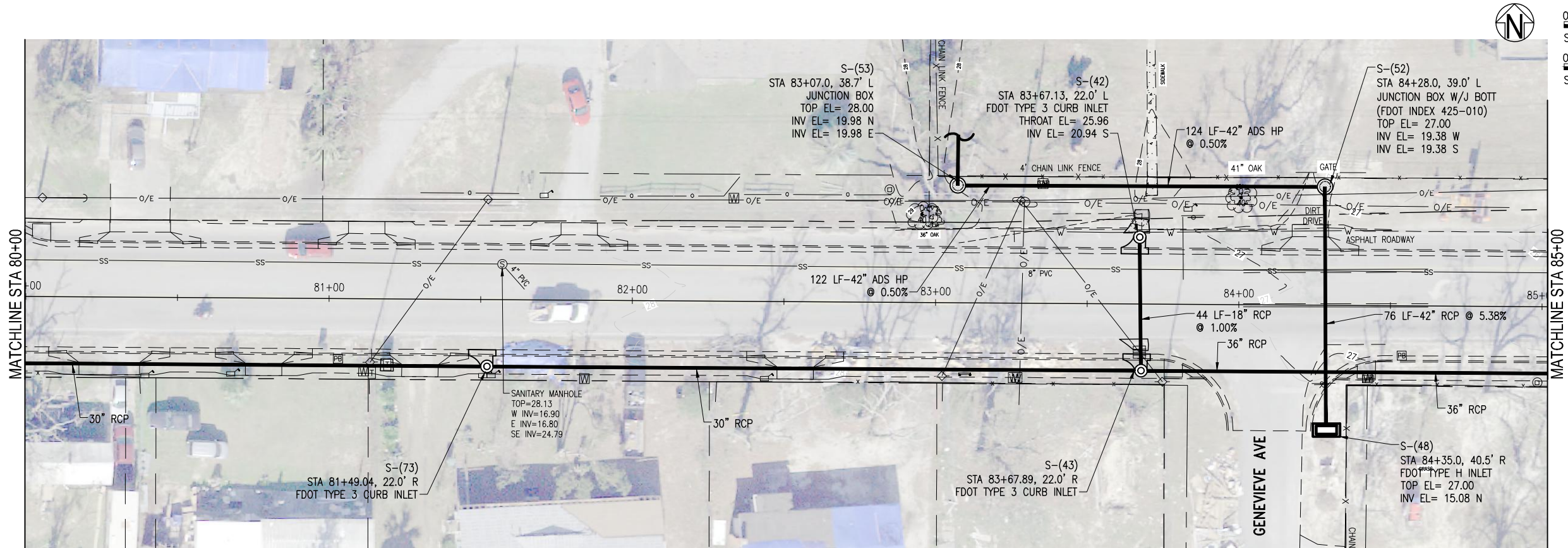
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LESTER C. PETERMANN, P.E.  
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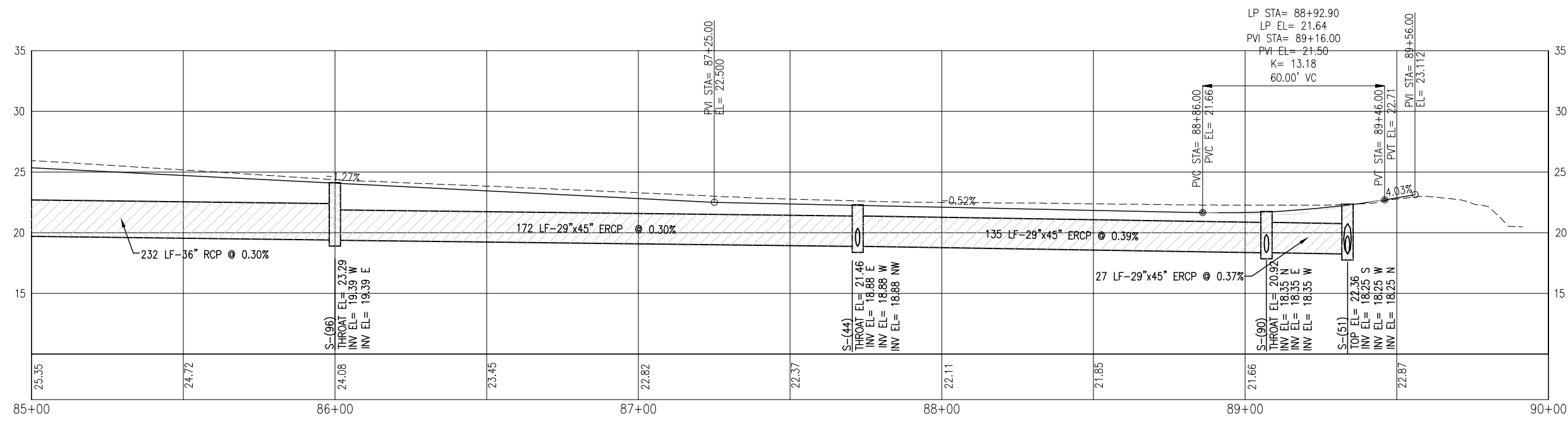
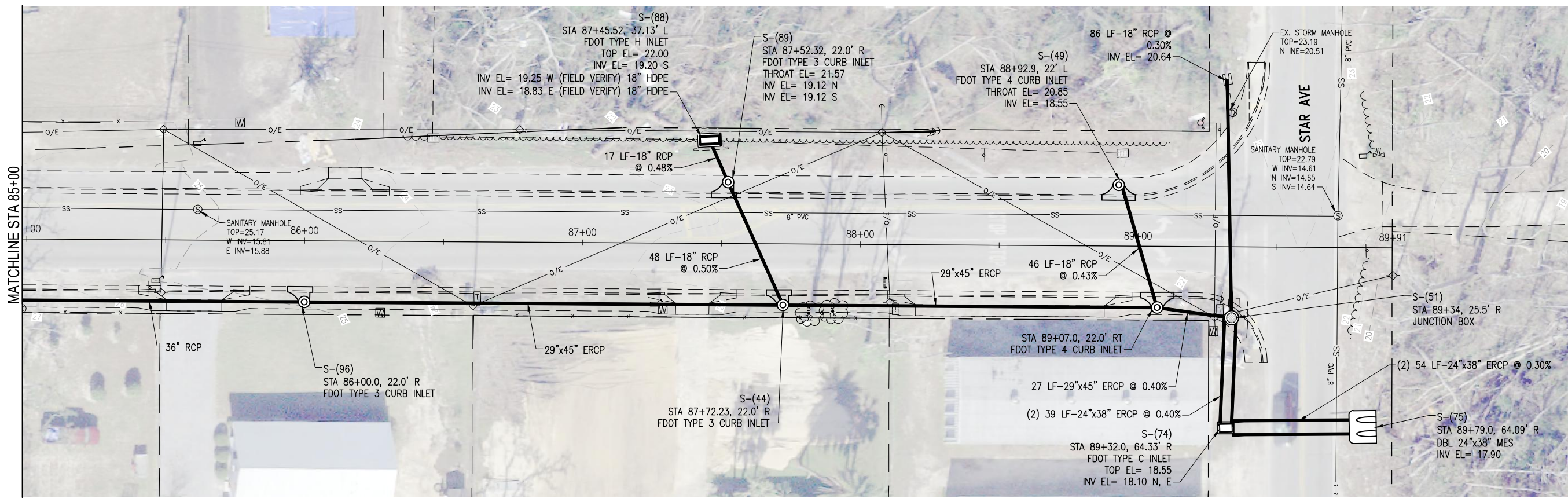
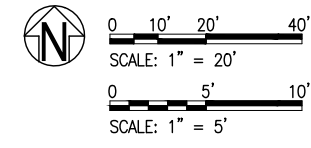
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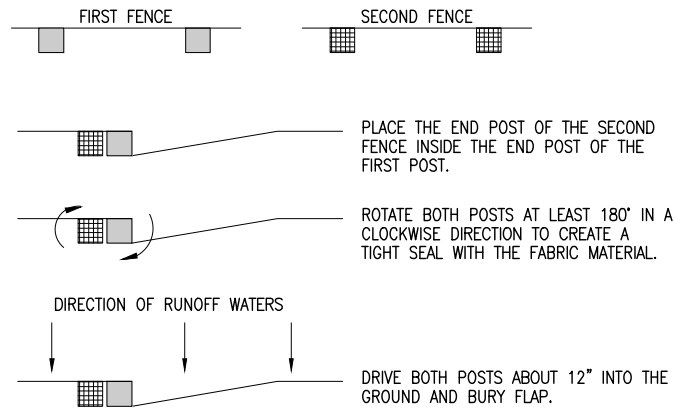
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 FL. Reg. Engineer #77540

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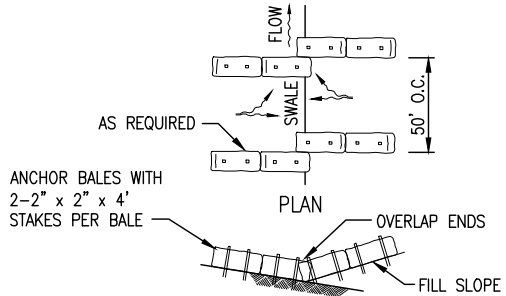
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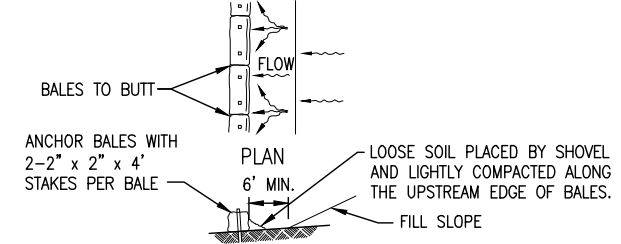


**BUTTING SILT FENCE DETAIL**  
NOT TO SCALE



**ELEVATION**

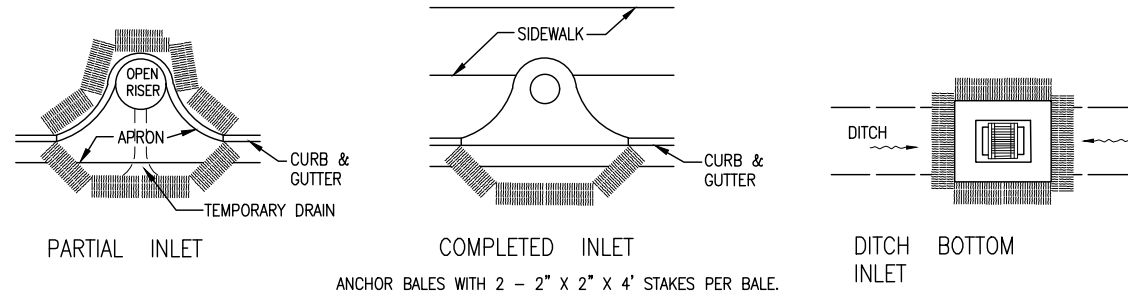
TO BE USED AT SELECTED SITES WHERE THE NATURAL GROUND SLOPES TOWARD THE TOE OF SLOPE



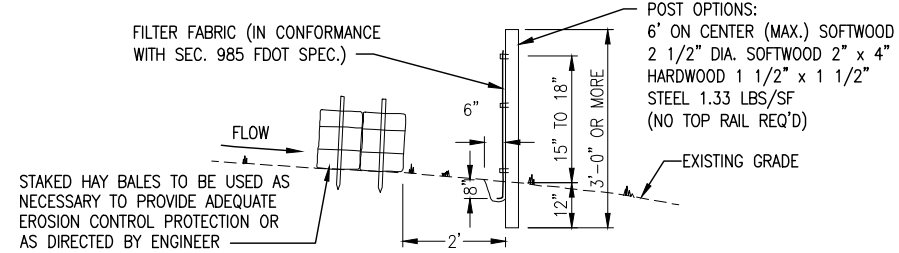
**ELEVATION**

TO BE USED AT SELECTED SITES WHERE THE NATURAL GROUND SLOPES TOWARD THE TOE OF SLOPE

**BARRIERS FOR FILL SLOPES**  
NOT TO SCALE

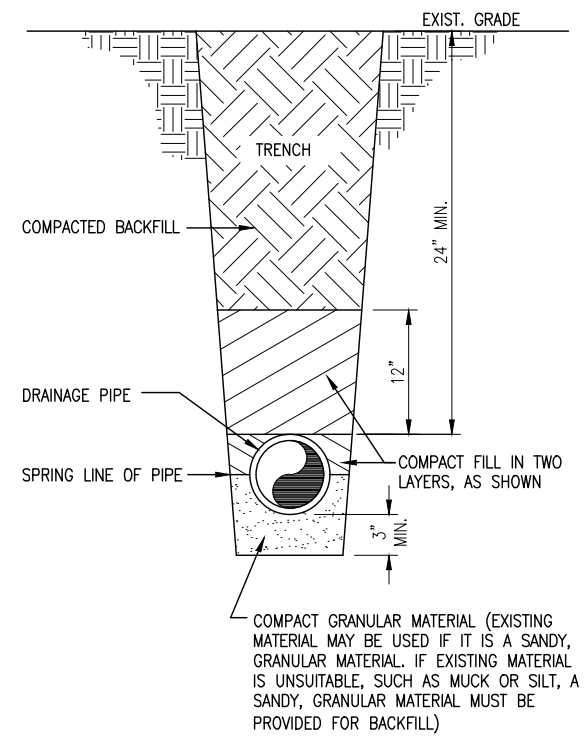


**PROTECTION AROUND INLETS OR SIMILAR STRUCTURES**  
NOT TO SCALE



- SILT FENCE NOTES:**
1. FABRIC TO BE PLACED FACING DRAINAGE FLOW
  2. FABRIC TO BE PLACED IN A 6" WIDE x 8" DEEP CONTINUOUS TRENCH, THEN BACKFILLED
  3. ALL LUMBER TO BE PRESSURE/PRESERVATIVE TREATED
  4. SILT FENCE TO BE INSTALLED PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION ACTIVITIES. SILT FENCE TO REMAIN UNTIL 100% PROJECT GRASSING (STABILIZATION) IS ACHIEVED
  5. PREFABRICATED SILT FENCES ARE PERMITTED AS LONG AS THEY MEET OR EXCEED FDOT SPECIFICATIONS.

**TYPE III SILT FENCE DETAIL**  
NOT TO SCALE



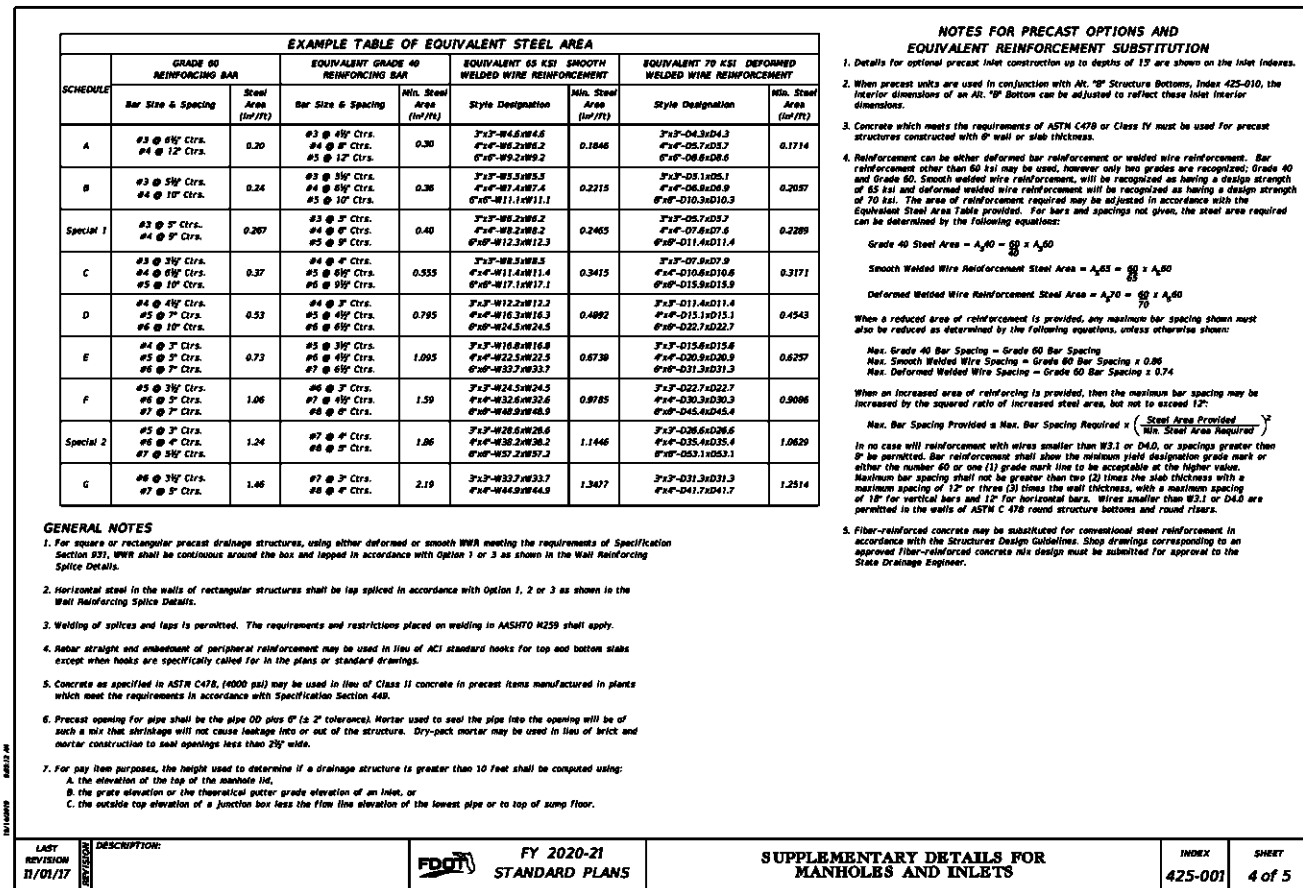
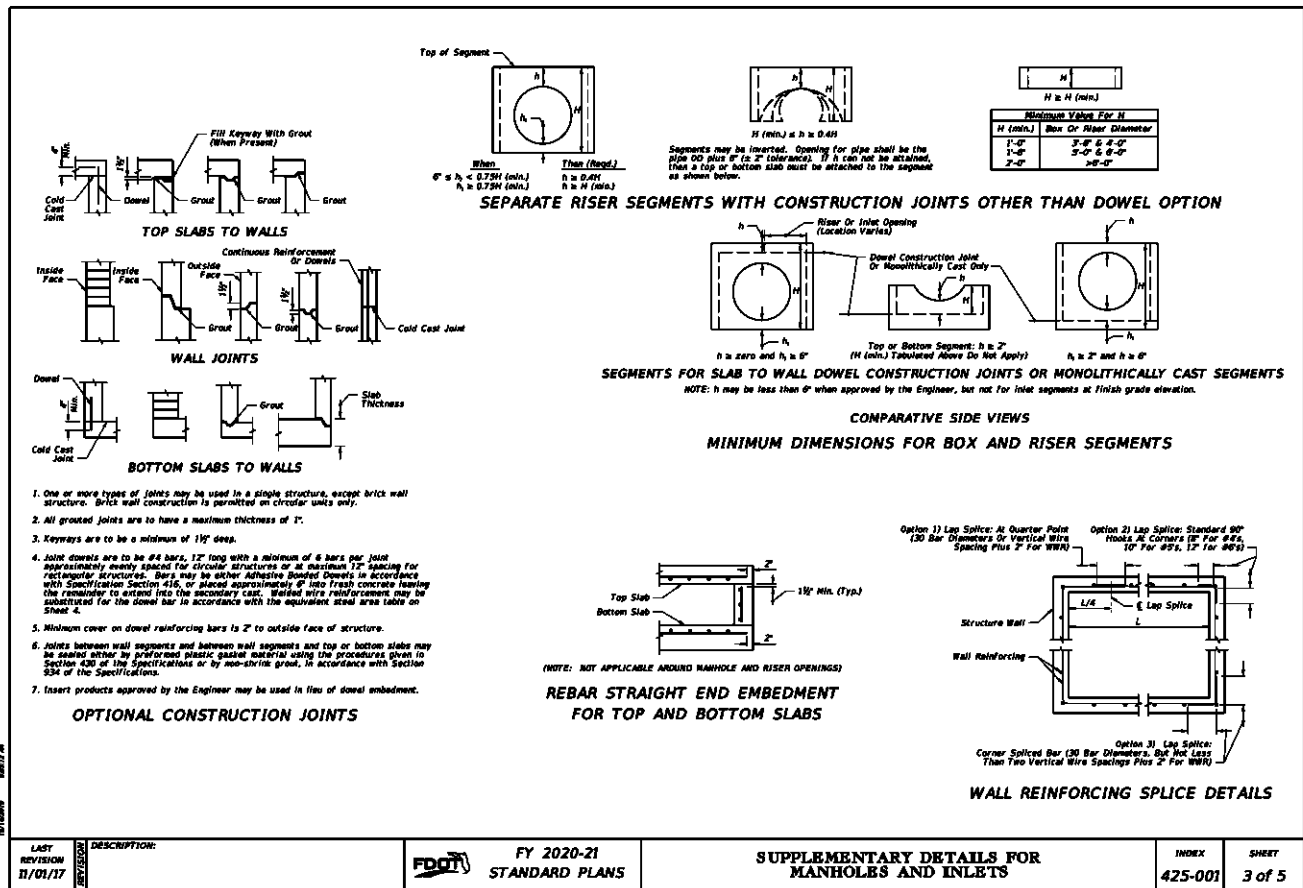
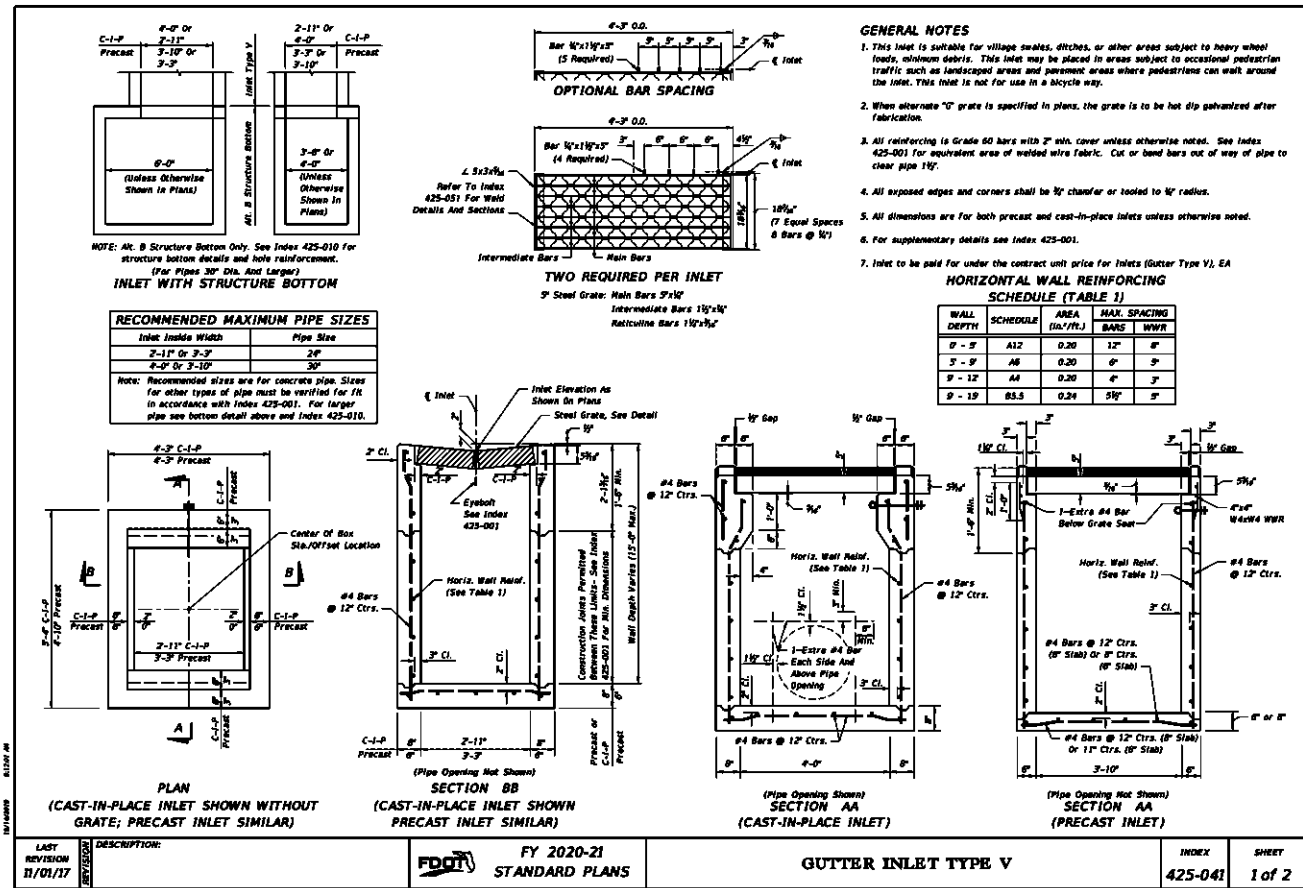
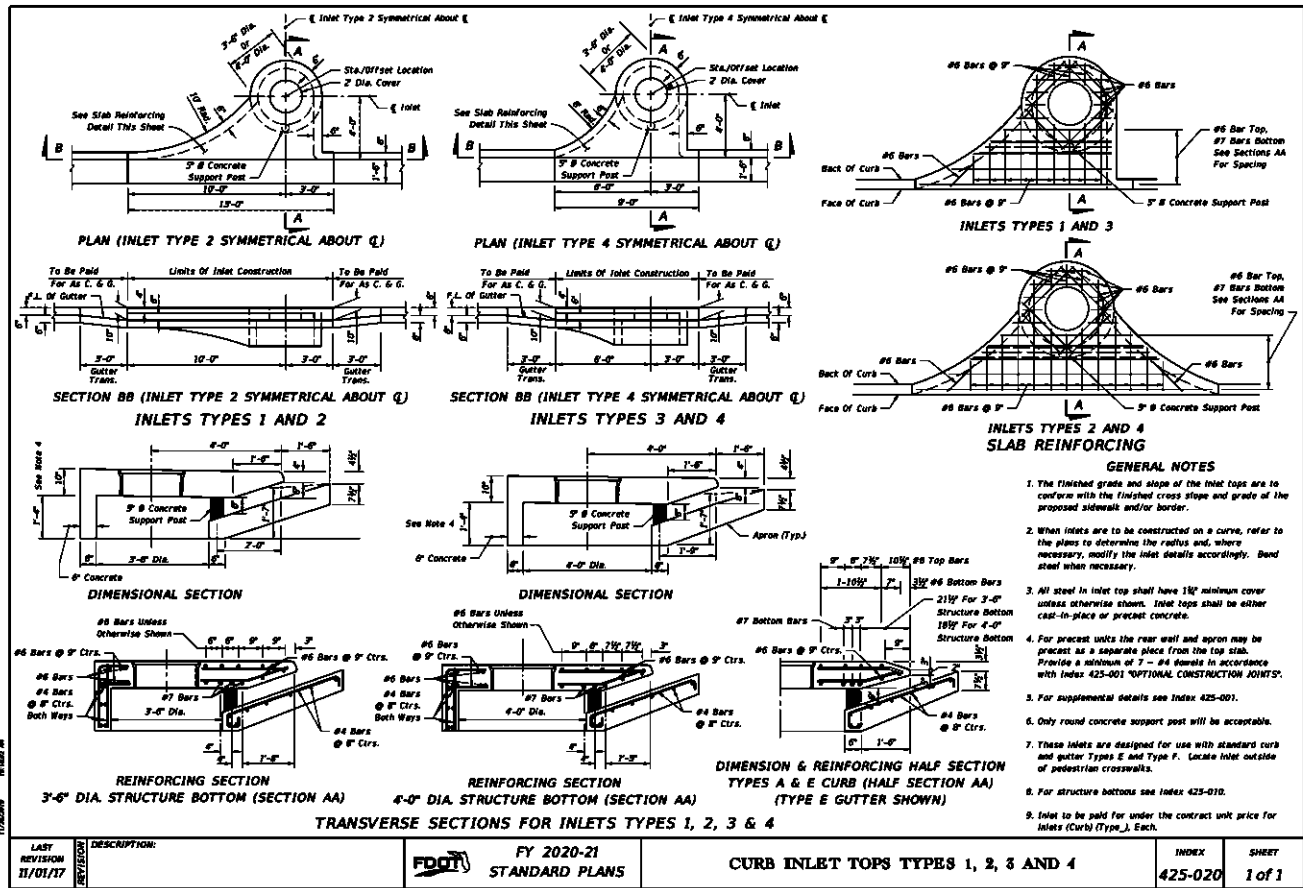
**TYPICAL DRAINAGE PIPE BEDDING**  
NOT TO SCALE

NO.	DATE	APPR.	REVISION/ACTION TAKEN

NOT RELEASED FOR CONSTRUCTION BY DATE

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**DESIGNER NOTE:** Use only when round structures are not practical, engineer of record approval required.

**NOTE:**

- Submit Shop Drawings of corner openings for approval by the Engineer of Record.
- $h_2$  may be less than 1'-0" when a minimum 1'-0" deep segment, 0' slab or curb inlet is provided above the corner opening.
- For inlet segments at finish grade elevation substitute a #8 Bar for the top corner bar when 1'-0"  $\leq h_2 < 2'-0"$ .

**RECTANGULAR SEGMENT WITH PIPE OPENING AT CORNER**

**DETAILS FOR SKEWED PIPES IN RECTANGULAR STRUCTURES**

LAST REVISION: 11/01/17 | DESCRIPTION: | FY 2020-21 STANDARD PLANS | SUPPLEMENTARY DETAILS FOR MANHOLES AND INLETS | INDEX: 425-001 | SHEET: 5 of 5

**NOTE:** Not Applicable for Type A, B, C, D & E Ditch Bottom Inlets Or Type 3 & 4 Outer Inlets. See Indexes 425-002, 425-003, 425-004, and 425-005.

**NOTE:** When the inside diameter of a round structure is not more than 3'-0" larger than the opening in the riser or top slab, the top of the structure or riser shall be constructed according to the "Special Top Slab" details on this sheet.

**NOTE:** Provide one extra #4 bar reinforcement each side of each opening and two extra #4 bars at 3" min. spacing above each opening.

**TYPICAL SLAB TO WALL DETAILS FOR PRECAST STRUCTURES**

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**ROUND STRUCTURE BOTTOMS (ALTERNATE A) & ROUND RISERS—TABLE 1**  
Wall Thickness (t<sub>1</sub> & t<sub>2</sub>) and Vertical & Horizontal Areas of Reinforcement (A<sub>v</sub>)

Type	Structure/Riser Diameter (ft)	Cast-In-Place Items Class II Concrete			Precast Items Class II Concrete			ASTM C478	
		Riser (ft)	Bottom (ft)	A <sub>v</sub> (in. <sup>2</sup> /ft.)	Riser (ft)	Bottom (ft)	A <sub>v</sub> (in. <sup>2</sup> /ft.)	t <sub>1</sub> or t <sub>2</sub> (in.)	A <sub>v</sub> (in. <sup>2</sup> /ft.)
P	3'-0"	6	8	0.20	6	8	0.20	4"	0.105
P	4'-0"	6	8	0.20	6	8	0.20	5"	0.120
J	5'-0"	8	8	0.20	8	8	0.20	6"	0.150
J	6'-0"	8	8	0.20	8	8	0.20	6	0.180
J	7'-0"	8	8	0.20	8	8	0.20	7	0.210
J	8'-0"	8	8	0.20	8	8	0.20	8	0.240
J	10'-0"	10	10	0.40#8	10	10	0.40#8	10	0.300
J	12'-0"	10	10	0.40#8	12	12	0.40#8	12	0.360

**TABLE 1 NOTES:**

- #8 Provide 0.20 sq. in./ft. at each face, 12" max. bar spacing.
- Modified minimum wall thickness.
- max. total circumferential reinforcement for continuous steel hoops: A<sub>v</sub> = 0.40 sq. in. for riser section height equal or less than 2'-0" (2 hoop min.); A<sub>v</sub> = 0.50 sq. in. for riser section height more than 2'-0" up to 4'-0" (3 hoop min.); Area of reinforcing for precast items are based on Grade 60 reinforcing; No reduction in the area of reinforcing is allowed for spaced extra fabric; in Table 1; Area of vertical reinforcing may be reduced in accordance with ASTM C478.

**SQUARE & RECTANGULAR STRUCTURES (ALTERNATE B)—TABLE 2**

Type	Wall Length (ft)	Max. Depth (ft)	Wall Thickness (in.)	Precast (ft)
P	≤ 3'-0"	40	6 Riser 8 Bottom	6
J	4'-0"	40	8	6
J	5'-0"	22	8	6
J	6'-0"	15	8	6
J	9'-0" to 9'-6"	40	8	8
J	10'-0"	26	8	8
J	10'-0" to 12'-0"	40	10	9
J	16'-0"	35	10	9
J	18'-0"	40	10	10
J	20'-0"	25	10	9
J	20'-0"	30	10	10

**TABLE 2 NOTES:** See Table 8 for Reinforcing Schedule.

**GENERAL NOTES:**

- Standard structure bottoms 4'-0" diameter and smaller (Alt. A) and 3'-0" square (Alt. B) are designated Type P. Larger standard structure bottoms are designated Type J. Risers are permitted for all structures. Round risers are designated Type A. Square risers are designated Type B.
- Walls of circular structures (Alt. A) constructed in place may be of brick or reinforced concrete. Precast and rectangular structures (Alt. B) shall be constructed of reinforced concrete only.
- Wall thickness and reinforcement are for either reinforced cast-in-place or precast concrete units except that precast circular units may be furnished with walls in accordance with ASTM C478 (see modified wall thicknesses in Table 1).
- Top and bottom slab thickness and reinforcement are for precast and cast-in-place construction. All concrete shall be of Class II concrete, except use Class IV concrete when shown in the Plans, for special applications of structures located in extremely aggressive environments. Concrete as specified in ASTM C478 (4000 psi) may be used in lieu of Class II concrete for precast items manufactured in accordance with Specifications Section 405.
- All reinforcement shown is Grade 60 steel, reinforced bar. Equivalent area Grade 40 steel or equivalent area smooth or deformed welded wire reinforcement in accordance with Specification Section 931 may be substituted according to Index 425-001, unless otherwise noted.
- Alt. A or Alt. B structure bottoms may be used in conjunction with curb inlet types 1, 2, 3, 4, 5, 6, 8, and 10, and any manhole or junction box unless otherwise shown in the plans or other standard drawings. Alt. B structure bottoms may be used in conjunction with curb inlet types 7 & 8, or any ditch bottom inlet unless otherwise shown in the plans or other standard drawings.
- Rectangular structures may be rotated as directed by the Engineer in order to facilitate connections between the structure walls and storm sewer pipes.
- All reinforcement must have 2" minimum cover except for 3'-0" diameter precast circular units manufactured under ASTM C478, tapered construction otherwise shown. Additional bars used to reinforce hole formers for precast structures with gasketed pipe connections may be left flush with the hole surface. Cut or bent reinforcement at pipe openings to maintain cover. Exposed ends of reinforcing at precast pipe openings and gasketed joints must be removed to 1" below the concrete surface and sealed with a Type F epoxy in accordance with Specification Section 528. Horizontal steel in rectangular structures shall be lapped a minimum of 30 bar diameters or by standard hooks at corners.
- The corner fillets shown are necessary for rectangular structures used with circular risers and inlet throats and when used on steep with rectangular risers, inlets and inlet throats. Fillets will be required in the top slab of the Alt. A structure bottoms when used with the Alt. B risers. Each fillet shall be reinforced with two #5 bars.
- Inlet walls, throats, risers or manhole tops shall be secured to structures as shown on Index 425-001 Optional Construction Joints.
- Structures with depths over 14 below the mean high water table are to be checked for flotation by the designer of the drainage project.
- Units larger than specified standards may be substituted at the contractor's option when these units will not cause or increase the severity of utility conflicts. Such larger units shall be furnished at no additional cost to the Department. Larger Alt. A units cannot replace Alt. B units without approval of the Engineer. This note applies to this index only.
- For manhole and junction box tops, for frames and covers, and, for supplementary details and notes see Index 425-001.
- Type J structure bottoms must have a minimum 8'-0" wall height when possible, for maintenance access.

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**TABLE 3—MINIMUM STRUCTURE SIZES FOR SINGLE PIPE CONNECTION PER SIDE**

PIPE SIZE	RECTANGULAR (L x W)		ROUND (D)	
	Single Pipe Per Side	Two or More Pipes	Single Pipe	2 to 4 Pipes
18"	3'-0"	3'-0"	3'-0"	2'-0"
24"	3'-0"	3'-0"	3'-0"	3'-0"
30"	3'-0"	3'-0"	3'-0"	3'-0"
36"	4'-0"	3'-0"	3'-0"	3'-0"
42"	4'-0"	3'-0"	3'-0"	3'-0"
48"	4'-0"	3'-0"	3'-0"	3'-0"
54"	4'-0"	3'-0"	3'-0"	3'-0"
60"	4'-0"	3'-0"	3'-0"	3'-0"
72"	4'-0"	3'-0"	3'-0"	3'-0"
78"	4'-0"	3'-0"	3'-0"	3'-0"
84"	4'-0"	3'-0"	3'-0"	3'-0"

**TABLE 3 NOTES:**

- For Round Structures sizes with variable angles between pipes and variable pipe sizes, refer to the FDOT Storm Drain Handbook.
- For 3'-0" Precast Square Structure Bottoms, 30" Pipes with similar invert elevations are not permitted in adjacent walls. Use 3'-0" Side Dimensions when 30" pipe openings are required on adjacent walls and the difference in flow lines is less than 3'-0".
- For 4'-0" Precast Square Structure Bottoms, 36" Pipes with similar invert elevations are not permitted in adjacent walls. Use 3'-0" Side Dimensions when 36" pipe openings are required on adjacent walls and the difference in flow lines is less than 3'-0".
- For 3'-0" Precast Square Structure Bottoms, 60" Pipes with similar invert elevations are not permitted in adjacent walls. Use 3'-0" Side Dimensions when 60" pipe openings are required on adjacent walls and the difference in flow lines is less than 4'-0".

**TABLE 4—MINIMUM SIZES FOR MULTIPLE PARALLEL PIPE CONNECTIONS FOR RECTANGULAR STRUCTURE BOTTOMS**

PIPE SIZE	SPACING (ft)	MINIMUM WALL LENGTH (ft) FOR NUMBER OF PARALLEL PIPES	
		2	3
18"	2'-0"	6'-0"	12'-0"
24"	2'-0"	6'-0"	12'-0"
30"	2'-0"	6'-0"	12'-0"
36"	2'-0"	6'-0"	12'-0"
42"	2'-0"	6'-0"	12'-0"
48"	2'-0"	6'-0"	12'-0"
54"	2'-0"	6'-0"	12'-0"
60"	2'-0"	6'-0"	12'-0"
72"	2'-0"	6'-0"	12'-0"
78"	2'-0"	6'-0"	12'-0"
84"	2'-0"	6'-0"	12'-0"

**TABLE 4 NOTES:**

- Minimum wall lengths based on precast structures, using concrete pipe with maximum skew angles per Table 5.
- Wall lengths exceeding 20'-0" require special designs.

**TABLE 5 - MAXIMUM PIPE SKEW FOR PRECAST ROUND OPENINGS**

WALL THICKNESS	PIPE SIZE							
	18"	24"	30"	36"	42"	48"	54"	60"
6"	15°	15°	15°	15°	15°	15°	15°	15°
8"	15°	15°	15°	15°	15°	15°	15°	15°
10"	15°	15°	15°	15°	15°	15°	15°	15°
12"	15°	15°	15°	15°	15°	15°	15°	15°

**TABLE 5 NOTES:** These values are based on 2" clearance for precast structures. Larger skew angles are possible for Cast-In-Place Structures or elliptical pipe openings when approved by the Engineer.

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**SLAB DESIGNS - SQUARE AND RECTANGULAR STRUCTURES (TABLE 6)**  
(ALL SLABS 8" THICK EXCEPT AS NOTED - REINFORCING PARALLEL TO SHORT WAY AND LONG WAY)

SHORT WAY		LONG WAY	
SLAB DEPTH	SCHEDULE (Bars A)	SLAB DEPTH	SCHEDULE (Bars B)
SIZE: 7'-0" x UNLIMITED			
8'-0" < B	A10	8'-0" < B	A10
8'-12" < B	A8.5	8'-12" < B	A8.5
12'-0" < B	A7	12'-0" < B	A7
SIZE: 8' x 8'			
8'-0" < B	A10	8'-0" < B	A10
8'-12" < B	A8.5	8'-12" < B	A8.5
12'-0" < B	A7	12'-0" < B	A7
SIZE: 8' x 7'			
8'-0" < B	A10	8'-0" < B	A10
8'-12" < B	A8.5	8'-12" < B	A8.5
12'-0" < B	A7	12'-0" < B	A7
SIZE: 8' x 6'			
8'-0" < B	A10	8'-0" < B	A10
8'-12" < B	A8.5	8'-12" < B	A8.5
12'-0" < B	A7	12'-0" < B	A7
SIZE: 8' x 5'			
8'-0" < B	A10	8'-0" < B	A10
8'-12" < B	A8.5	8'-12" < B	A8.5
12'-0" < B	A7	12'-0" < B	A7
SIZE: 8' x 4'			
8'-0" < B	A10	8'-0" < B	A10
8'-12" < B	A8.5	8'-12" < B	A8.5
12'-0" < B	A7	12'-0" < B	A7
SIZE: 8' x 3'			
8'-0" < B	A10	8'-0" < B	A10
8'-12" < B	A8.5	8'-12" < B	A8.5
12'-0" < B	A7	12'-0" < B	A7

**SLAB AND WALL DESIGN TABLE NOTES**

- Size is the inside dimension(s) of a structure.
- Slab reinforcement is appropriate for top, intermediate, and bottom slabs.
- Bottom Slabs for precast 3'-0" x 3'-0" rectangular structures at 15' depth or less, may be 6" thick.
- Slab depth is measured from finished grade to top of slab.
- Wall depth is measured to the top of the bottom slab for boxes and to the top of the intermediate slab for risers.
- Wall height is the distance between top of lower slab to bottom of upper slab. Maximum wall height is 12' for wall lengths exceeding 3', or 10' for wall lengths exceeding 12'.
- Wall lengths exceeding 6'-0" require two layers of reinforcing (See Table 8) with 2" of cover from the horizontal bars to the inside and outside faces for each layer.
- Wall lengths exceeding the dimensions or depths shown in Table 8, or 12'-0" diameter requires a special design.
- Wall thickness and reinforcing for rectangular structures is based on the longer wall length.
- Reinforcing schedules with larger areas of steel may be substituted for schedules with smaller bar or wire spacing, except that Schedule B10 may not be substituted for Schedule A6. See Index 425-001 for allowable bar spacing adjustments when larger areas of reinforcing are substituted.

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**SLAB DESIGNS - ROUND STRUCTURES (TABLE 7)**

SLAB DEPTH	SCHEDULE (Bars A)	SLAB DEPTH	SCHEDULE (Bars B)
SIZE: 3'-0" DIAMETER			
2'-12" < B	A10	2'-12" < B	A10
3'-0" < B	A8.5	3'-0" < B	A8.5
3'-6" < B	A7	3'-6" < B	A7
SIZE: 4'-0" DIAMETER			
2'-12" < B	A10	2'-12" < B	A10
3'-0" < B	A8.5	3'-0" < B	A8.5
3'-6" < B	A7	3'-6" < B	A7
SIZE: 5'-0" DIAMETER			
2'-12" < B	A10	2'-12" < B	A10
3'-0" < B	A8.5	3'-0" < B	A8.5
3'-6" < B	A7	3'-6" < B	A7
SIZE: 6'-0" DIAMETER			
2'-12" < B	A10	2'-12" < B	A10
3'-0" < B	A8.5	3'-0" < B	A8.5
3'-6" < B	A7	3'-6" < B	A7
SIZE: 7'-0" DIAMETER			
2'-12" < B	A10	2'-12" < B	A10
3'-0" < B	A8.5	3'-0" < B	A8.5
3'-6" < B	A7	3'-6" < B	A7
SIZE: 8'-0" DIAMETER			
2'-12" < B	A10	2'-12" < B	A10
3'-0" < B	A8.5	3'-0" < B	A8.5
3'-6" < B	A7	3'-6" < B	A7

**WALL DESIGNS - RECTANGULAR STRUCTURES (TABLE 8)**

VERTICAL REINFORCING	HORIZONTAL REINFORCING	WALL THICKNESS		
WALL DEPTH	SCHEDULE	WALL DEPTH	SCHEDULE	WALL THICKNESS
SIZE: 3'-0" & RISERS				
8'-12" < W	A12	8'-12" < W	B10	6" / 8"
10'-0" < W	A12	10'-0" < W	B10	6" / 8"
12'-0" < W	A12	12'-0" < W	B10	6" / 8"
SIZE: 4'-0"				
8'-12" < W	A12	8'-12" < W	B10	6" / 8"
10'-0" < W	A12	10'-0" < W	B10	6" / 8"
12'-0" < W	A12	12'-0" < W	B10	6" / 8"
SIZE: 5'-0"				
8'-12" < W	A12	8'-12" < W	B10	6" / 8"
10'-0" < W	A12	10'-0" < W	B10	6" / 8"
12'-0" < W	A12	12'-0" < W	B10	6" / 8"
SIZE: 6'-0"				
8'-12" < W	A12	8'-12" < W	B10	6" / 8"
10'-0" < W	A12	10'-0" < W	B10	6" / 8"
12'-0" < W	A12	12'-0" < W	B10	6" / 8"
SIZE: 7'-0"				
8'-12" < W	A12	8'-12" < W	B10	6" / 8"
10'-0" < W	A12	10'-0" < W	B10	6" / 8"
12'-0" < W	A12	12'-0" < W	B10	6" / 8"
SIZE: 8'-0"				
8'-12" < W	A12	8'-12" < W	B10	6" / 8"
10'-0" < W	A12	10'-0" < W	B10	6" / 8"
12'-0" < W	A12	12'-0" < W	B10	6" / 8"
SIZE: 9'-0"				
8'-12" < W	A12	8'-12" < W	B10	6" / 8"
10'-0" < W	A12	10'-0" < W	B10	6" / 8"
12'-0" < W	A12	12'-0" < W	B10	6" / 8"
SIZE: 10'-0"				
8'-12" < W	A12	8'-12" < W	B10	6" / 8"
10'-0" < W	A12	10'-0" < W	B10	6" / 8"
12'-0" < W	A12	12'-0" < W	B10	6" / 8"

**REINFORCING SCHEDULE**

SCHEDULE	GRADE 60 BARS OR 65 KSI 6-70 KSI WELDED WIRE REINFORCING	
	GRA 60 AREA (in <sup>2</sup> /ft.)	MAXIMUM SPACING (ft.)
A12	0.20	12"
A6	0.20	6"
B10	0.24	10"
B5.5	0.24	5"
C6.5	0.27	6"
C3.5	0.37	3"
D7	0.53	4"
D4.5	0.53	4"
E5	0.73	3"
E3	0.73	3"
F5	1.06	3"
F3.5	1.06	3"
G5	1.45	3"
G3.5	1.45	3"
H4	1.75	3"

**WALL REINFORCING SPLICE DETAILS (ALTERNATE B)**

**GENERAL NOTES**

- This inlet is suitable for village streets, ditches, or other areas subject to heavy wheel loads, minimum debris. This inlet may be placed in areas subject to occasional pedestrian traffic such as handicapped areas and pavement areas where pedestrians can walk around the inlet. This inlet is not for use in a bicycle way.
- When alternate "C" grate is specified in plans, the grate is to be hot dip galvanized after fabrication.
- All reinforcing is Grade 60 bars with 2" min. cover unless otherwise noted. See Index 425-001 for equivalent area of welded wire fabric. Cut or bend bars out of way of pipe to clear pipe 18".
- All exposed edges and corners shall be 1/4" chamfer or tool to 1/8" radius.
- All dimensions are for both precast and cast-in-place inlets unless otherwise noted.
- For supplementary details see Index 425-001.
- Inlet to be paid for under the contract unit price for inlets (Gutter Type V), EA.

HORIZONTAL WALL REINFORCING SCHEDULE (TABLE 1)			
WALL DEPTH	SCHEDULE	AREA (in <sup>2</sup> /ft.)	MAX. SPACING (ft.)
0'-5"	A12	0.20	12"
5'-8"	A6	0.20	6"
8'-12"	A4	0.20	4"
8'-12"	B5.5	0.24	5"

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**TRANSVERSE SECTIONS FOR INLETS TYPES 1, 2, 3 & 4**

**GENERAL NOTES**

- The finished grade and slope of the inlet top are to conform with the finished cross slope and grade of the proposed sidewalk and/or border.
- When inlets are to be constructed on a curve, refer to the plans to determine the radius and, where necessary, modify the inlet details accordingly. Bend steel when necessary.
- All steel in inlet top shall have 1/8" minimum cover unless otherwise shown. Inlet tops shall be either cast-in-place or precast concrete.
- For precast units the rear wall and apron may be precast as a separate piece from the top slab. Provide a minimum of 7'-8" gasket in accordance with Index 425-001 "OPTIONAL CONSTRUCTION JOINTS".
- For supplemental details see Index 425-001.
- Only round concrete support post will be acceptable.
- These inlets are designed for use with standard curb and gutter Types E and Type F. Locate inlet outside of pedestrian crosswalks.
- For structure bottoms see Index 425-010.
- Inlet to be paid for under the contract unit price for inlets (Curb) (Type), Each.

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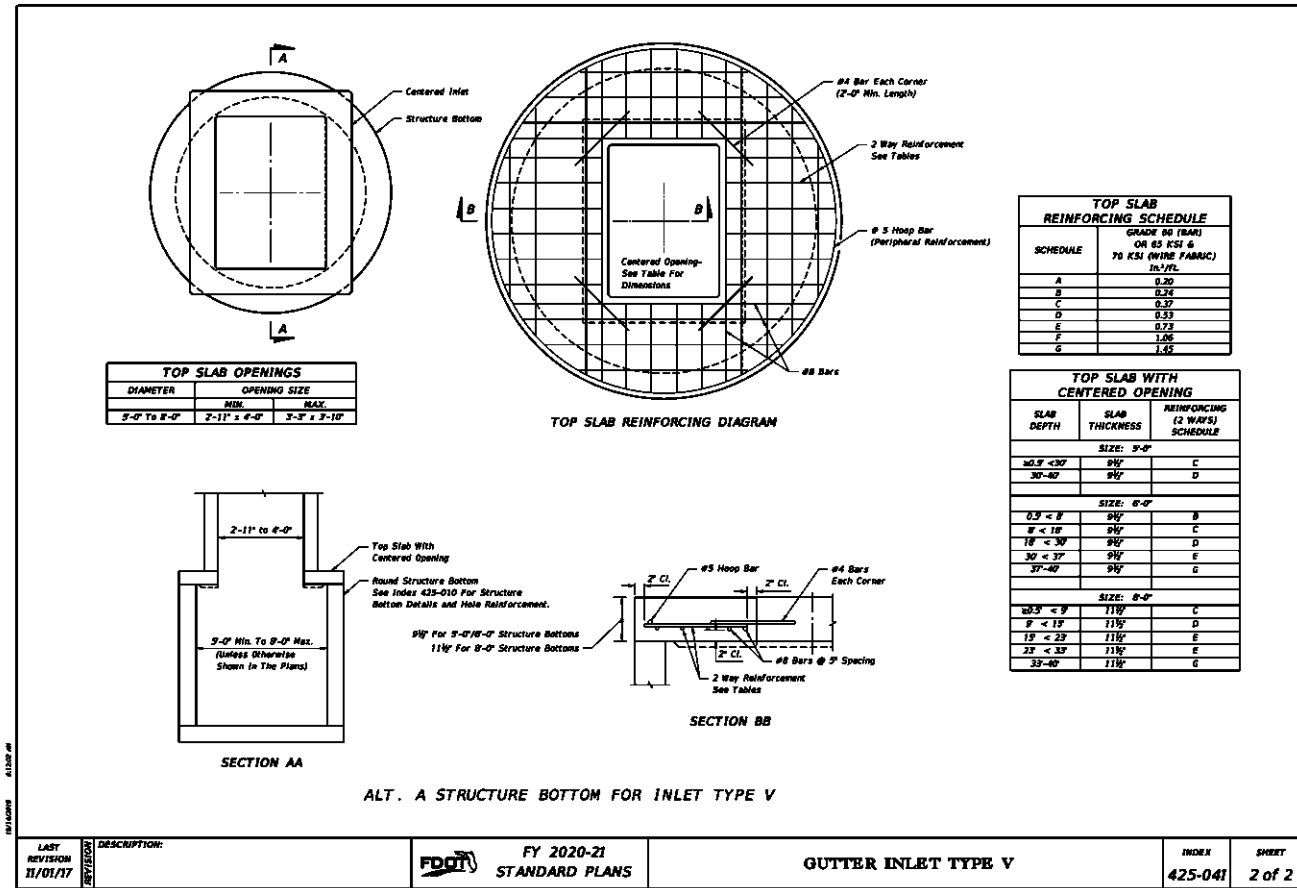
**GUTTER INLET TYPE V**

**GENERAL NOTES**

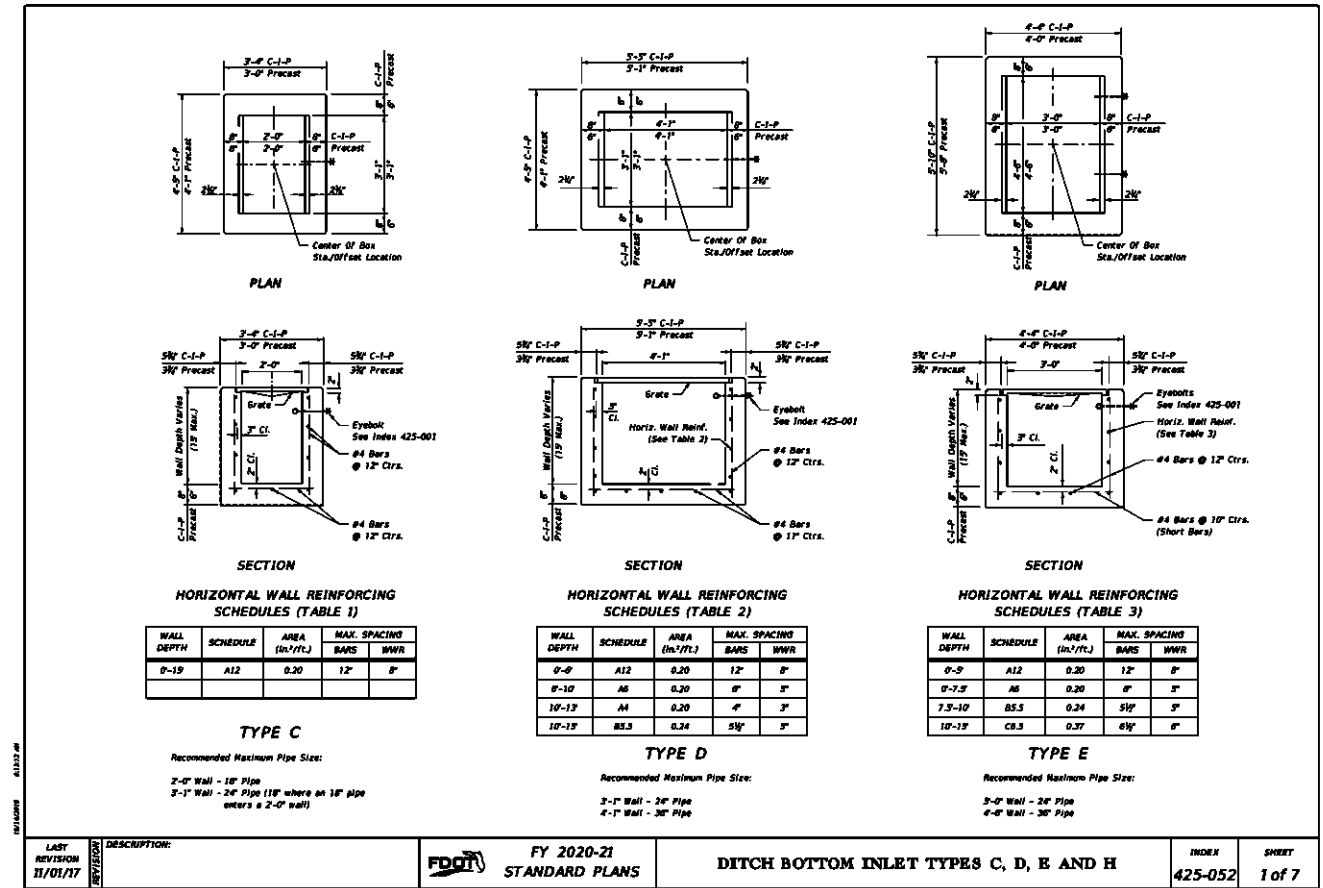
- The finished grade and slope of the inlet top are to conform with the finished cross slope and grade of the proposed sidewalk and/or border.
- When inlets are to be constructed on a curve, refer to the plans to determine the radius and, where necessary, modify the inlet details accordingly. Bend steel when necessary.
- All steel in inlet top shall have 1/8" minimum cover unless otherwise shown. Inlet tops shall be either cast-in-place or precast concrete.
- For precast units the rear wall and apron may be precast as a separate piece from the top slab. Provide a minimum of 7'-8" gasket in accordance with Index 425-001 "OPTIONAL CONSTRUCTION JOINTS".
- For supplemental details see Index 425-001.
- Only round concrete support post will be acceptable.
- These inlets are designed for use with standard curb and gutter Types E and Type F. Locate inlet outside of pedestrian crosswalks.
- For structure bottoms see Index 425-010.
- Inlet to be paid for under the contract unit price for inlets (Curb) (Type), Each.

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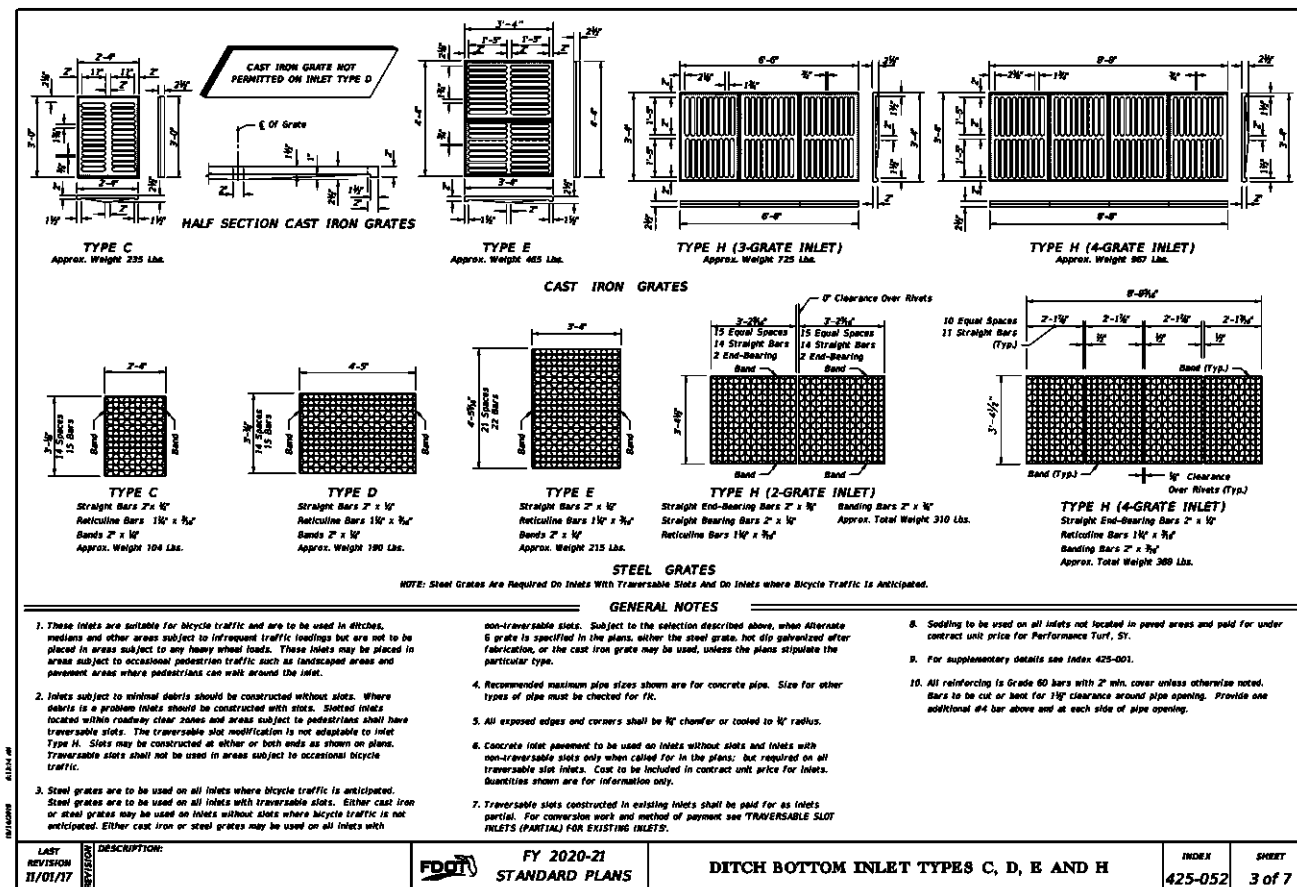




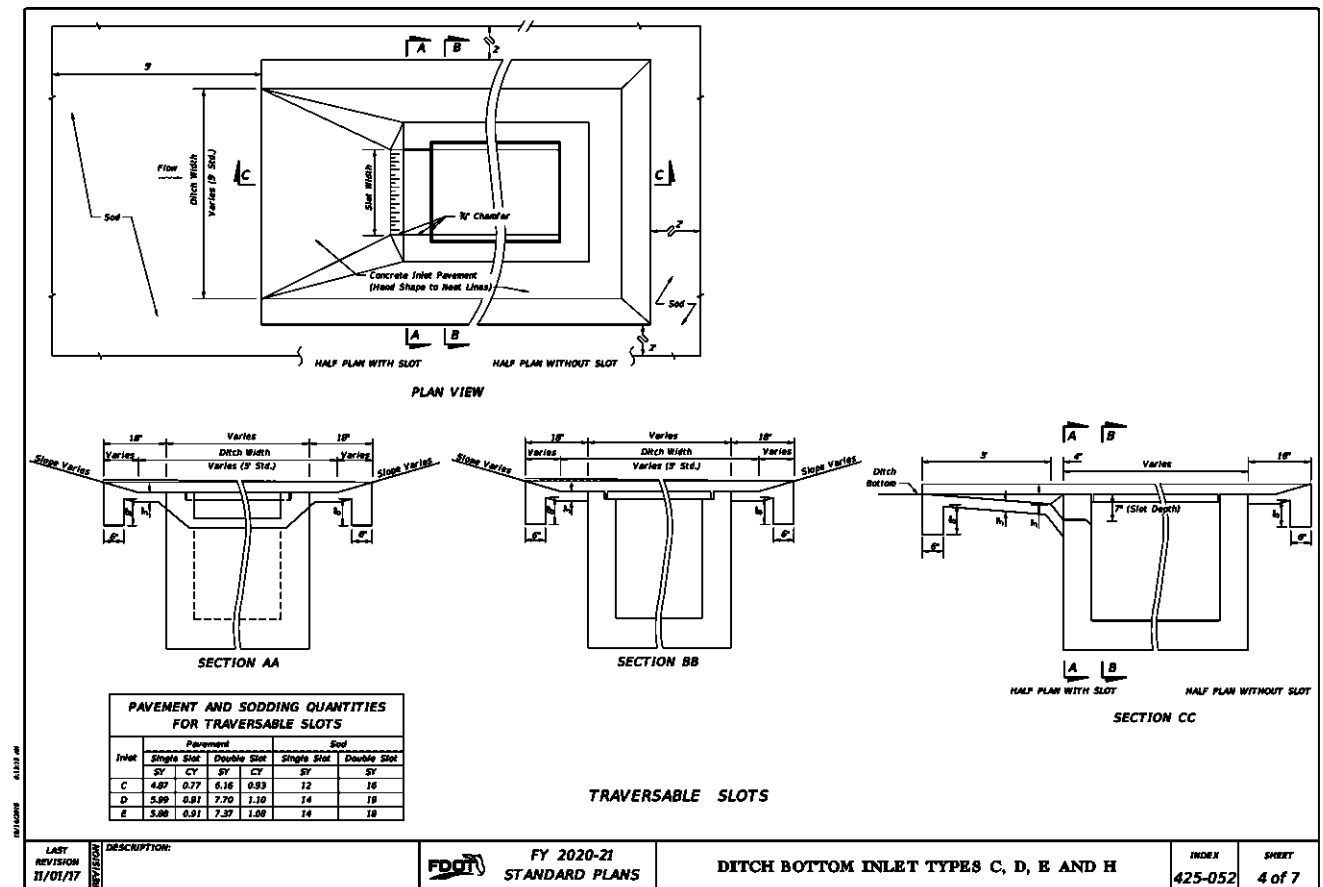
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